Ownership, tax and intercorporate loans in China

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Abstract

Purpose – This paper aims to investigate the interconnections between corporate ownership, tax system and controlling shareholder tunneling through intercorporate loans in an emerging market setting.

Design/methodology/approach – China's Enterprises Income Tax reform in 2008 abolished its previous multiple-tiers tax system under which foreign direct investment (FDI) firms enjoyed preferential tax rates than domestic firms by introducing a new unified-rate tax system. Using difference-in-differences tests, the author analyzes changes of controlling shareholders tunneling through intercorporate loans among Chinese listed companies around this reform.

Findings – The author documents significant reductions of intercorporate loans after the reform. More importantly, the author reveals that foreign-invested firms experienced larger reductions of intercorporate loans than domestic firms. The author also shows that state association matters for domestic firms' response to the reform. In addition, the author documents positive stock market reaction to the tax reform announcement for firms that exhibited higher level of tunneling prior to the reform, indicating market expectation of reduced principal-principal conflict post-reform.

Research limitations/implications – The findings suggest effective corporate governance system is warranted to constrain intercorporate fund transfers in emerging markets where tax incentives are used for attracting inward foreign direct investments. Institutional reforms in emerging markets aimed at removing market frictions can alleviate the problem of controlling shareholder expropriations of minority interests or tunneling.

Originality/value – This is a pioneering study that reveals the role of tax as a public governance mechanism in weak minority investor protection environment.

Keywords China, Ownership structure, Tax, Intercorporate loans

Paper type Research paper

1. Introduction

China is now the world's second largest economy. Its stock markets and institutional environment for listed companies remain under strong political influence and significantly less developed compared to the Western developed countries such as the USA (Jiang *et al.*, 2010; Liao *et al.*, 2014). However, the legal system governing China's enterprises has already seen many developments in the recent decade. For instance, to regulate company behavior and improve investor and creditor protection, China's first company law was promulgated in 1993 and subsequently modified in 1999, 2004, 2005 and 2013. One of the major legal environment changes for Chinese enterprises in the recent decade has received much less attention in the corporate finance and accounting literature is China's Enterprise Income Tax (EIT) Law reform in 2008 (or tax reform hereafter). Ever since its economic opening in 1979, China has launched its economic liberalization policy to attract foreign direct investment (FDI) through carefully designed policy measures especially in the forms of building a business-friendly environment and designing "preferential" treatments for

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foreign investors. Previously, listed firms were governed by a tax law established in 1994 under which all domestic firms pay income tax at the flat tax rate of 33 per cent and foreign-invested firms established in China enjoyed 15 per cent preferential tax rate. In essence, tax exemptions were used as one of the major incentives for attracting foreign direct investment by Chinese central and local governments. On 13 March 2007, The National People's Congress passed a new EIT Law which took effect on 1 January 2008 and unified tax rates for both types of firms to 25 per cent. Foreign-invested firms established prior to January 2008 were allowed a 5-year transition period during which they pay 18, 20, 22, 24 and 25 per cent tax.

Cross-country studies by La Porta *et al.* (2002), Klapper and Love (2004) and Aggarwal and Goodell (2009) suggest that common law determines national financing preferences and the legal and regulatory environment is a key determinant of controlling shareholder expropriations of minority interests, which is often referred to as "Tunneling" (Johnson *et al.*, 2000). This line of research has focused on legal protection for investors and enforcement of laws whereas studies on tax laws and controlling shareholder tunneling are scant. According to Xu *et al.* (2011), tax enforcement can act as a corporate governance mechanism and tax authorities play a positive role in decreasing agency costs in Chinese firms. Although the tax reform is not a reform on corporate internal governance mechanisms, firm's response to the new tax regime is dependent on firm ownership and control. In a similar vein, Wong *et al.* (2015) highlight the interplay between ownership structure and tax avoidance incentives in determining the economic consequences of related-party transactions. Recent work by Huang (2016) has reported increased loan guarantees issued by Chinese listed firms to their related parties after the 2008 tax reform. Moreover, studies such as Liu and Lu (2007), Lo *et al.* (2010), Lo and Wong (2011), Shevlin *et al.* (2012) and Lin *et al.* (2012, 2014) have extensively document that China's previous multiple-tier tax system incentivizes earnings management and related-parties sales which may facilitate tunneling. Wong *et al.* (2015) further indicate that tax avoidance incentives often couple with management's rent extraction activities. Furthermore, Huang *et al.* (2018) report a negative link between executive cash compensation and corporate tax aggressiveness among Chinese firms. According to this most recent research, equity-based incentive compensation is not widely adopted among Chinese firms and adverse selections by shareholders and creditors pressure managers, whose compensation is mostly paid in cash, reduce firm risky tax avoidance activities. Although tax avoidance activities may reduce group average tax burden at the cost of government tax revenues, minority shareholders for listed subsidiaries bear the cost of subsidizing non-listed subsidiaries within the same groups. The tax reform therefore can potentially lead to improved corporate governance by reducing income-shifting incentives by abolishing the old multiple-tier tax system that encourages intra-group transfers of profits.

To our knowledge, the little evidence that has been documented in this line of research shows that tax, as an exogenous factor, plays important role in determining firm tunneling activities through extensively studied intercorporate loans (Jiang *et al.*, 2010). This paper fills this research gap by using the 2008 tax reform in China as an exogenous shock (or natural experiment) to study tunneling. In addition, we also add to the understanding of tax system and tunneling by conducting both long-term event studies using accounting proxies for tunneling and short-term event studies using excess returns associated with tunneling. Neither An (2012) nor Huang (2016) analyzes short-term stock returns responses to the tax reform. As long-term event studies are often subject to other changes taking place in China's dynamic economy, short-term studies on stock reactions adds valuable insights for understanding market expectations of the reform outcomes. Short-term stock market

reactions may capture the effects of the reforms because of the negative association between tunneling and shareholder value (Jiang *et al.*, 2010; Peng *et al.*, 2011; Jiang *et al.*, 2015). If the market expects tunneling to reduce after the tax reform, positive excess return reactions can be observed for high tunneling firms compared to low tunneling firms.

Using difference-in-differences (DiD) tests, we document significant reductions of intercorporate loans among Chinese listed firms after the 2008 EIT reform. More importantly, we reveal that foreign-invested firms experienced larger reductions of intercorporate loans than domestic firms. We also show that state association matters for domestic firms' response to the reform. In addition, we document positive stock market reaction to the tax reform announcement for firms' exhibited higher level of tunneling prior to the reform indicating market expectation of reduced principal-principal conflict post-reform. Our findings have strong policy implications for emerging markets which adopt preferential tax treatment to attract inward foreign investment and suggest the need for effective corporate governance system to mitigate tax motivated intercorporate fund transfers.

The remainder of the paper is structured as follows. Section 2 reviews prior studies on intercorporate loans tunneling in China and develops our hypotheses. Section 3 presents our data and models. Section 4 discusses our results followed by a conclusion in Section 5.

2. Research background and hypotheses development

2.1 Controlling shareholders tunneling in China

Tunneling, defined as expropriations of minority interests by firm controlling shareholders, is a worldwide phenomenon (Johnson *et al.*, 2000; Claessens *et al.*, 2002; Lins, 2003; Buchuk, *et al.*, 2014) as corporations in most parts of the world are controlled by a dominant shareholder, namely the controlling shareholder (La Porta *et al.*, 1999). Minority ownership is often too diffused to influence corporate policies. Extant literature document that tunneling is prevalent among Chinese corporations. Because of its hidden forms, researchers often examine tunneling by analyzing related-parties transactions. For example, Jiang *et al.* (2010), Liu and Tian (2012), Jian and Wong (2010), Qian and Yeung (2015) and Jiang *et al.* (2015) have focused on intercorporate loans from listed firms to their related-parties to study tunneling. Liu and Lu (2007), Lo *et al.* (2010), Lo and Wong (2011), Shevlin *et al.* (2012) and Su *et al.* (2013) have examined tunneling through related-party sales. Peng *et al.* (2011) focus on asset acquisitions involving related-parties. Berkman *et al.* (2009, 2010) and Huang (2016) document tunneling through related-parties loan guarantees. These earlier studies document extensive evidence that corporate governance quality determines the intensity of tunneling. Studies such as Liu and Tian (2012), Li *et al.* (2011), Chen *et al.* (2012) and Liao *et al.* (2014) reveal that a major secondary privatization reform among China's listed companies took place in 2005, often referred to as non-tradable shares reform or split-share structure reform, improved corporate governance and reduced tunneling among Chinese firms.

The majority of studies on tunneling among Chinese firms have followed Jiang *et al.* (2010) by analyzing fund transfer from listed firms to their related-parties or intercorporate loans captured by "other receivables" disclosed in financial reports[1]. Liu and Tian (2012) and Qian and Yeung (2015) show that financial leverage, primarily in the form of bank loans, in Chinese firms are positively associated with tunneling as indicated by "other receivables". Jian and Wong (2010) document that listed firms prop up earnings by using related sales to their controlling shareholders to meet earnings targets and tunnel via related lending, again measured by "other receivables", from listed firms back to controlling shareholder after the propping. However, "other receivables" is a noisy proxy of intercorporate loans as not all these receivables can be attributed to tunneling. Jiang *et al.* (2015) revisited this issue using hand-collected amounts of Non-Operational Fund

Occupancy (NOFO) from mandated disclosures in 2005 financial reports as a direct measure of intercorporate fund transfer where controlling shareholders directly take funds away from listed firms without matching business transactions (e.g. asset sales or product sales/purchases)[2].

2.2 Hypotheses development

The tax reform in China decreases the tax rate from 33 to 25 per cent for domestic enterprises, where prior evidence suggests that such tax rate decrease leads to lower extent of profits to be booked in the pre-reform period than the post-reform period so as to achieve tax savings. Stated differently, firms are more likely to shift out (tunnel) profits in the pre-reform period than in the post-reform period. This argument is generally in line with studies on international tax competition which posits cross-countries profit shifting for tax reasons (Azémar and Corcos, 2009). For Chinese firms, Lin *et al.* (2012) find that the 2007 tax reform in China motivates publicly listed firms to engage in downward earnings management prior to the reform. Similar findings are obtained from Lin *et al.* (2014) that use public and private firms in China. In sum, these studies clearly demonstrate that the anticipated tax rate decrease (as a result of tax reform) motivates firms to manage earnings downwards using accruals. Although controlling shareholders tunneling (indicated by "other receivables" or NOFO) are different from accruals earnings management activities, the later results from normal business transactions, but tunneling may reduce after the EIT reform for two reasons closely associated with reductions of accruals earnings management. First, the above mentioned literature suggests that income-shifting earnings management has been one of the major "vehicles" of tunneling. Second, in the post-EIT reform period, accruals earnings management substantially reduced leading to higher financial reporting quality. Improved firm-level information environment reduces controlling shareholder's capacity of using earnings information to mask tunneling activities. The extent of shifting out profits or controlling shareholder tunneling has hardly been empirically documented. An exception is the study by Lo *et al.* (2010) which finds that firms are likely to boost up profits when tax rates in the current period is lower than that of future period, and tunneling activities increase with higher government ownership.

In such connection, we may generally posit that the convergence of tax rates for both domestic and foreign-invested enterprises after the 2008 tax reform may reduce earnings management (accruals) and tunneling (NOFO and "other receivables") among domestic enterprises and increase them among foreign invested enterprises given the directions of tax rate changes (Liu and Lu, 2007; Lo *et al.*, 2010; Lo and Wong, 2011; Peng *et al.*, 2011; Shevlin *et al.*, 2012; Lin *et al.*, 2012, 2014)[3]. However, this general prediction ignores the influence of firm ownership structure on corporate governance quality (Xu *et al.*, 2015) and potential detrimental influence of political connections of listed firms on corporate policies (Su *et al.*, 2013). In particular, Chinese domestic firms are more constrained by the institutional environment in China than foreign-invested firms. This expectation is in line with the cross-country evidence documented by Leuz (2010) that foreigners invest less in firms with governance problems. Similarly, Tong and Yu (2012) document foreign investors in Chinese listed companies provide a monitoring function that reduces agency problems. In a similar vein, Huang and Zhu (2015) find that qualified foreign institutional investors have greater influence over the controlling state shareholders than local mutual funds during China's split-share structure reform suggesting that involving foreign institutional investors in corporate governance practices can significantly reduce expropriation by controlling shareholders in emerging markets. Because of this the influence of firm ownership on the quality of corporate governance, tunneling activities may be constrained by foreign

shareholders whereas they may be as incentivized as domestic shareholders to manage earnings downwards using accruals which are time reversing. More importantly, the abandonment of the multiple-tiers tax rates system and the unification of tax rates for both domestic and foreign-invested firms after the 2008 tax reform effectively remove tax-motivated income shifting among related parties that were previously subject to differential tax rates. This again indicates that the tax reform may affect earnings management and tunneling differently. Finally, the reform has direct but differential effects on firm financial soundness by relaxing tax burden on domestic firms whereas increasing that on foreign-invested firms. According to Peng *et al.* (2011), controlling shareholders are less likely to tunnel when firms are in less healthier financial position. All in all, the above arguments lead to the conjecture that intercorporate loans tunneling reduced more among foreign-invested firms compared to domestic firms. Therefore, we hypothesize that:

H1. Intercorporate loans reduced after the EIT reform.

H2. The treatment effect of the EIT reform on intercorporate loans is positive for domestic firms compared to foreign-invested firms.

In addition to the direction of tax rate changes and the presence of foreign ownership, the type of corporate control, namely, government control or private control, also has strong implications for firm response to the tax reform. As spin-offs from an existing SOEs, income-shifting to their parent SOEs is more prevalent among government controlled listed firms to subsidize their loss-making operations (Lo *et al.*, 2010; Jiang *et al.*, 2010; Lo and Wong, 2011)[4]. Intercorporate loans are expected to fall along with tax-associated income shifting more significantly among government-controlled firms. In addition, the tax reform may also affect corporate tax avoidance. Kim and Zhang (2016) show that political connections are positively associated with aggressive tax planning because of lower probability of being detected by related administrators and a lesser need for financial transparency via political connections (Leuz and Oberholzer-Gee, 2006). Consequently, we expect government controlled firms to reduce tax aggressiveness more compared to private controlled firms as domestic enterprises reduce their tax avoidance under the lower tax rate. Extensive literature suggests that tax aggressiveness reduces transparency and facilitates managerial rent seeking (Desai and Dharmapala, 2006, 2009; Armstrong *et al.*, 2015) which may in turn aids tunneling and decreases shareholder value. This argument is in line with studies on Chinese firms particularly Xu *et al.* (2011) which reveals the role of tax as an external governance mechanism under the Chinese setting. All in all, the EIT reform is expected to have a stronger impact on government controlled firms than private controlled firms. We study the interaction between domestic/foreign ownership and government/private control and since we expect the foreign-invested enterprises in the control group to reduce tunneling, we posit that:

H3. The difference between the treatment effects on intercorporate loans for government controlled domestic firms and private investor controlled domestic firms is negative.

3. Data and models

As measures of intercorporate loans, we use both NOFO (Jiang *et al.*, 2015) and "other receivables" (Jiang *et al.*, 2010) in our tests to ensure robustness of findings. We collect NOFO and other receivables values from listed firms' financial report and notes to financial reports data compiled by WIND. NOFO data are available from 2004. Corporate governance, accounting, and financial market data are collected from China Stock Market and Accounting

Research (CSMAR) database. Firms in the financial industry are excluded because of different of assets and liabilities compared to non-financial firms. We further exclude cross-listed firms in Hong Kong because of different regulations. Given the five-year transition tax rates period for foreign-invested enterprises, we expect the effect of the EIT reform to get stronger over time and therefore include the full length of sample years until 2013. Our final sample includes 2,428 A-share listed non-financial firms and 4,629 firm-year observations with positive NOFO balance recorded in notes to annual reports during 2004-2013 out of 17,855 observations with necessary information for our analysis. We note that our sample on NOFO is 12 times larger than Jiang *et al.* (2015) which use hand-collected sample from 2005 financial reports. This offers significant advantage in overcoming sampling bias and allows us to capture time variations in the intensity (or severity) of intercorporate loans.

We use the tax reform as a natural experiment by adopting a DiD approach in line with An (2012), Liu and Tian (2012), Liao *et al.* (2014) and Huang (2016) to analyze changes of tunneling activities responding to the reform. Gippel *et al.* (2015) suggest natural experiments as a "State-of-the-Art Solution" to endogeneity in accounting and finance research. We estimate a model including an intercept α, year dummies YEAR_t, industry dummies IND_i and an error term ε_{it} as follows:

$$\begin{aligned}\mathrm{Prob}(\mathrm{Tunneling}_{it})\ \text{or}\ \mathrm{Tunneling}_{it} = {} & \alpha + \beta_1 \mathrm{EITREF}_{it} + \beta_2 \mathrm{DOM}_{it} \\ & + \beta_3 \mathrm{DOM}_{it} * \mathrm{EITREF}_{it} + \lambda\, \mathrm{Controls}_{it} \\ & + \gamma \mathrm{YEAR}_t + \delta\, \mathrm{IND}_i + \varepsilon_{it}\end{aligned}$$

$\mathrm{Prob}(\mathrm{Tunneling}_{it})$ denotes the probability of tunneling in a Probit model where the dependent variable is a dummy DNOFO which takes the value of 1 if the firm-year observation reported positive value of NOFO. Alternatively, $\mathrm{Tunneling}_{it}$ refers to the intensity of tunneling measured by the NOFO-to-assets ratio (NOFOTA) and other receivables-to-assets ratio (ORECTA) in a Tobit regression model. EITREF_{it} is a dummy which equals to 1 for years 2008-2013 after the EIT reform and 0 for years 2004-2007 prior to the EIT reform. Following An (2012) and Huang (2016), we classify firms into treatment and control groups using a dummy variable DOM_{it} which equals to 1 for domestic enterprises subject to tax rate decrease and 0 for foreign-invested enterprises subject to tax rate increase after the EIT reform. Following Huang (2016), we identify foreign-invested firms as firms under control of a foreign investor according to CSMAR information on firm controlling shareholders or firms located in China's special economic zones whose corporate tax rate increased from 15 to 25 per cent over years 2008-2012 subject to the 2007 tax reform. β_1 gives the effect of the EIT reform on the foreign-invested enterprises, and β_3 gives the treatment effect for domestic enterprises compared to foreign-invested enterprises.

We further estimate a revised (triple DiD) model to test *H3*:

$$\begin{aligned}\mathrm{Prob}(\mathrm{Tunneling}_{it})\ \text{or}\ \mathrm{Tunneling}_{it} = {} & \alpha + \beta_1 \mathrm{EITREF}_{it} + \beta_2 \mathrm{DOM}_{it} + \beta_3 \mathrm{GOV}_{it} \\ & + \beta_4 \mathrm{DOM}_{it} * \mathrm{EITREF}_{it} \\ & + \beta_5 \mathrm{DOM}_{it} * \mathrm{EITREF}_{it} * \mathrm{GOV}_{it} + \lambda\, \mathrm{Controls}_{it} \\ & + \gamma \mathrm{YEAR}_t + \delta\, \mathrm{IND}_i + \varepsilon_{it}\end{aligned}$$

In this revised version of the model, GOV_{it} is a dummy which equals to 1 if the firm controlling shareholder is government or a government agency and 0 if it is a private

investor or firm. β_1 still gives the effect of the EIT reform on the foreign-invested enterprises when DOM_{it} equals to 0. β_4 gives the treatment effect for private controlled domestic firms. β_5 gives the difference between the (or the heterogeneous) treatment effects for government controlled domestic firms and that for private controlled domestic firms which tests *H3*. $\beta_4 + \beta_5$ gives the treatment effect for government controlled domestic firms.

Following the prior literature, $Controls_{it}$ indicates a list of control variables for our models which we also report in Panel A. According to Lins (2003) and Laeven and Levine (2008), non-controlling large shareholders can monitor controlling shareholders. Institutional investors perform a monitoring role in China (Yuan *et al.*, 2008). Firms under state control have more incentives for income shifting (Lo *et al.*, 2010; Liu and Tian, 2012), CEO duality increases earnings management (Liu and Lu, 2007), small board tends to be more efficient and board independence reduce earnings management (Klein, 2002), and larger accounting firms have higher audit quality and audit opinion matters in China (DeFond *et al.*, 1999). These aspects of corporate governance are further controlled using the following variables: CONTEST, the ratio between the second-tier largest (number 2 plus number 3) shareholders percentage holding and the largest shareholder percentage holding; INSSH, the percentage of institutional investors' shareholdings; CEOD, a dummy which equals to 1 if the CEO is also the chairman of the board and 0 if otherwise; BOARD, the size of the board; BIND, the percentage of the board members who are independent; BIG4, a dummy variable which equals to 1 if the auditor is a "Big 4" accounting firm and 0 if otherwise; AUOP, a dummy which equals to 1 if the auditor opinion is qualified ("standard and unreserved" in Chinese term) and 0 if otherwise. Following Jiang *et al.* (2015), we use income statement item General and Administrative Expenses deflated by total assets to measure the agency cost between managers and shareholders and denote this as AGENCY. In addition, we control for the influence of size and leverage using the log of market capitalization LOGMC and the financial leverage LEV calculated as the book value of debt divided by the total value of debt and market capitalization. Finally, we follow Huang (2016) to control for firm exposure to global economic condition using the percentage of sales from overseas markets OVERS.

The number of observations varies according to the tests we run. Descriptive statistics of our sample are reported in Table I. We notice in Panel A that 24 per cent of our firm-year observations reported positive NOFO values indicated by the DNOFO dummy. We winsorize our data at 1 and 99 per cent to control for outliers. After winsorization, NOFO accounts for 4.84 per cent of total assets value (NOFOTA) for firms reported positive NOFO values. Other receivables-to-assets ratio (ORECTA) equals to 2.42 per cent on average for this sample[5]. Table II reports the correlations among the variables. The correlations are mostly very low but significantly different from zero. As expected, other receivables-to-assets ratio (ORECTA) is positively correlated with DNOFO and NOFOTA suggesting these measures are generally consistent. The propensity of tunneling indicated by DNOFO appears to be negatively correlated with control contest, audit opinion, board independence, institutional shareholding, size and overseas sales exposure, whereas positively correlated with government control, big 4 auditor, CEO duality, board size, and leverage. The intensity of tunneling suggested by NOFOTA and ORECTA is negatively correlated with big 4 auditor, auditor opinion, board size and independence, institutional shareholding, size, overseas sales exposure, whereas positively correlated with agency cost, CEO duality and leverage. We further notice that NOFOTA is uncorrelated with control contest and government control, yet ORECTA is positively correlated with control contest and negatively correlated with government control.

Variable	Obs.	Mean	SD	Minimum	Maximum
DFONO	15,349	0.24	0.43	0.00	1.00
NOFOTA	15,349	1.08	5.36	0.00	71.73
NOFOTA (>0)	4,629	4.84	10.65	0.00	71.73
ORECTA	15,349	2.42	4.22	0.00	28.73
CONTEST	15,349	0.45	0.41	0.01	1.68
GOV	15,349	0.50	0.50	0.00	1.00
AGENCY	15,349	4.81	3.25	0.47	19.41
BIG4	15,349	0.06	0.23	0.00	1.00
AUOP	15,349	0.95	0.22	0.00	1.00
CEOD	15,349	0.80	0.40	0.00	1.00
BOARD	15,349	9.06	1.85	3.00	19.00
BIND	15,349	36.51	5.33	9.09	80.00
INSSH	15,349	30.25	24.37	0.00	84.77
LEV	15,349	28.72	20.64	1.17	80.60
LOGMC	15,349	8.10	1.11	2.21	15.48
TAX	16,811	21.23	6.79	15.00	33.00
DOM	17,855	0.74	0.50	0.00	1.00
OVERS	12,612	9.07	17.97	0.00	87.08

Notes: Variable definitions: DNOFO is a dummy which takes the value of 1 if the firm-year observation reported positive value of NOFO or 0 if otherwise; NOFOTA is the balance of NOFO scaled by total assets; ORECTA is the balance of "other receivables" account scaled by total assets; CONTEST is the ratio between the second-tier largest (number 2 plus number 3) shareholders percentage holding and the largest shareholder percentage holding. GOV is a dummy variable which equals to 1 if the controlling shareholder is the government and 0 if it is a private investor or firm; AGENCY is General and Administrative Expenses deflated by total assets, a proxy for agency cost between managers and shareholders; BIG4 is a dummy variable which equals to 1 if the auditor is a "Big 4" accounting firm and 0 if otherwise; AUOP is a dummy which equals to 1 if the auditor opinion is qualified which is specified as "standard and unreserved" in Chinese term and 0 if otherwise. CEOD is a dummy which equals to 1 if the CEO is also the chairman of the board and 0 if otherwise; BOARD is the size of the board; BIND is the percentage of the board members who are independent; INSSH is the percentage of institutional investors' shareholdings; LEV refers to the financial leverage which is the book value of debt divided by the total value of debt and market capitalization; LOGMC is the log of market capitalization as a measure of firm size; TAX is the corporate income tax rate; DOM is a dummy variable which equals to 1 if the firm is classified as domestic enterprise and 0 if is foreign-invested enterprise; OVERS is the percentage of sales from overseas markets. Variables are winsorized at 1 and 99 per cent

Table I.
Descriptive statistics of variables

As a further analysis, we conduct a short-term event study on stock excess returns responding to the reform announcement by testing the following OLS model:

$$CAR(-1,3)_i = \alpha + \beta_1 DTUNNEL_i + \beta_2 DOM_i + +\beta_3 GOV_i + \beta_4 DTUNNEL_i * DOM_i + \beta_5 DTUNNEL_i * DOM_i * GOV_i + \gamma LOGMC_i + \delta PB_i + \varepsilon_i$$

The dependent variable CAR(−1,3) is the ($t-1$ to $t+3$) 5-day cumulative abnormal returns around the date the new EIT law was passed by The National People's Congress, 13 March 2007 (day t0). $DTUNNEL_i$ refers to two dummy variables for tunneling:

(1) DNOFO, a dummy equals to 1 if the firm has a positive amount of NOFO reported in the year prior to its reform and 0 if otherwise.

(2) DOREC, a dummy that equals to 1 if the firm's ORECTA in the year prior to its reform is higher than the median value of the all observations in year 2006 and 0 if it is lower than the median value.

	DNO.	NOF.	ORE.	CON.	GOV	AGE.	BIG4	AUOP	CEOD	BOA.	BIND	INS.	LEV	LOG.
NOFOTA	0.36*													
ORECTA	0.20*	0.33*												
CONTEST	−0.06*	−0.01	0.02*											
GOV	0.15*	0.01	−0.03*	−0.25*										
AGENCY	−0.01	0.08*	0.11*	0.08*	−0.05*									
BIG4	0.04*	−0.03*	−0.05*	−0.01	0.14*	−0.06*								
AUOP	−0.06*	−0.25*	−0.29*	−0.04*	0.04*	−0.20*	0.04*							
CEOD	0.08*	0.02*	0.03*	−0.09*	0.26*	−0.07*	0.07*	0.01						
BOARD	0.04*	−0.03*	−0.04*	0.01	0.26*	−0.06*	0.12*	0.04*	0.15*					
BIND	−0.03*	−0.02*	−0.02*	0.00	−0.07*	−0.01	0.04*	0.00	−0.08*	−0.34*				
INSSH	−0.06*	−0.11*	−0.20*	−0.07*	0.19*	−0.03*	0.16*	0.14*	0.09*	0.11*	0.02*			
LEV	0.16*	0.09*	0.16*	−0.14*	0.27*	−0.22*	0.11*	−0.10*	0.17*	0.16*	−0.02*	0.00		
LOGMC	−0.02*	−0.14*	−0.24*	−0.11*	0.20*	−0.18*	0.33*	0.20*	0.07*	0.19*	0.08*	0.52*	−0.12*	
OVERS	−0.03*	−0.02*	−0.05*	0.00	−0.06*	0.02*	−0.04*	0.04*	−0.06*	−0.03*	0.00	−0.01	−0.03*	−0.02*

Notes: *$p < 0.05$; See Table I for variable definitions

Table II.
The correlations matrix

β_1 gives tunneling firms' average stock return response to the EIT reform, and β_4 and β_5 correspond to the potential treatment effects in line with our hypotheses. We control for firm market capitalization (LOGMC) and price-to-book ratio (PB) prior to the five-day event window we adopt for the tests.

4. Results

DiD regressions reported in Table III *H1*, *H2* and *H3* on the effects of the EIT reform on intercorporate loans. We are most interested in the coefficients on EITREF which give the effect of the reform on foreign-invested firms, the coefficients on DOM*EITREF which give the treatment effect of the reform on domestic firms above the foreign-invested firms, and the coefficients on DOM*EITREF*GOV which give the difference in the treatment effects between government controlled domestic firms and private controlled domestic firms.

In the Probit Models 1 and 2, the negative coefficients on EITREF suggest foreign firms are less likely to tunnel through NOFO after the EIT reform. The treatment effect on the domestic firms is positive in models 1 and 2 according to the coefficients on DOM*EITREF. This is in line with our *H2*. Adding the coefficients on EITREF and DOM*EITREF we obtain the effect of the reform on domestic firm which are consistently negative suggesting domestic firms are also less likely to tunnel through NOFO after the EIT reform. Hence, *H1* is also supported. In the revised Probit Model 3, the coefficient on DOM*EITREF*GOV is negative and 5 per cent significant. Therefore, the difference between the treatment effect on government controlled domestic firms and private controlled domestic firms is negative. *H3* is supported. In Tobit Models 4-6, we notice the coefficients on EITREF are all negative and significant suggesting foreign-invested firms reduced tunneling intensity after the EIT reform. The coefficient on DOM*EITREF is positive and significant in Model 4 suggesting the treatment effect on domestic firms is positive which is in line with *H2*. When adding the control variables in Model 5, the treatment effect is still positive but insignificant. This may indicate that the governance features weaken the difference in tunneling intensity because of foreign ownership in listed firms. The sum of the coefficients on DOM and DOM*EITREF is negative indicating that tunneling intensity also decreased for domestic firms. These results support *H1*. In the revised Tobit Model 6, the coefficient on DOM*EITREF*GOV is negative and 5 per cent significant. Therefore, the difference between the treatment effect on government controlled domestic firms and private controlled domestic firms is negative. *H3* is supported. We may generally conclude from Models 1-6 that after the EIT reform tunneling through NOFO decreased among listed firms and the decrease for domestic firms was smaller than foreign-invested firms. Among the domestic firms, government controlled group decreased more than private controlled group.

The Tobit Models 7-9 on ORECTA also show decrease in tunneling intensity irrespective of foreign ownership and government control features after the EIT reform given the negative and significant coefficients on EITREF, DOM*EITREF and DOM*EITREF*GOV. This further supports *H1* and *H3*. The treatment effect on domestic firms is negative and significant given the coefficients on DOM*EITREF in Models 7 and 8. This contradicts *H2*. We also observe that the coefficients on DOM are all positive and significant, and the coefficient on GOV is negative. However, in Models 1-6, the coefficients on DOM are all negative and the coefficients on GOV are positive. All in all, NOFO shows that tunneling was less prevalent among domestic firms prior to the EIT reform and after the reform these firms had smaller reduction of tunneling compared to foreign-invested firms. ORECTA shows that tunneling was more prevalent among domestic firms prior to the EIT reform and after the reform these firms had larger reduction of tunneling compared to foreign-invested firms. The consistency behind these findings is that for either of these intercorporate loan

Table III.
The 2008 EIT reform and tunneling

	(1)	(2)	(3)	(4)	(5)
Method	Probit	Probit	Probit	Tobit	Tobit
Dep. Var.	DFONO	DFONO	DFONO	NOFOTA	NOFOTA
DOM	−0.130*** (−3.74)	−0.137*** (−3.28)	−0.098** (−2.28)	−0.567 (−1.32)	−0.376 (−0.77)
EITREF	−0.962*** (−20.21)	−0.984*** (−13.66)	−0.917*** (−12.30)	−11.510*** (−17.39)	−8.352*** (−10.12)
GOV			0.288*** (8.97)		
DOM*EITREF	0.173*** (3.97)	0.099** (1.98)	0.141** (2.43)	1.356** (2.51)	0.197 (0.34)
DOM*EITREF*GOV			−0.120** (−2.35)		
CONTEST		−0.118*** (−4.22)	−0.059** (−2.00)		−1.050*** (−3.11)
AGENCY		0.009** (2.53)	0.005 (1.34)		0.221*** (4.09)
BIG4		0.061 (1.24)	0.050 (0.97)		0.127 (0.26)
AUOP		−0.294*** (−6.15)	−0.290*** (−5.91)		−8.979*** (−10.45)
CEOD		0.154*** (5.09)	0.093*** (2.97)		1.808*** (4.70)
BOARD		−0.015** (−2.40)	−0.023*** (−3.57)		−0.133* (−1.81)
BIND		−0.007*** (−3.20)	−0.007*** (−3.16)		−0.034 (−1.48)
INSSH		−0.000 (−0.66)	−0.001** (−2.19)		−0.015** (−2.36)
LEV		0.008*** (12.09)	0.006*** (9.71)		0.084*** (9.54)
LOGMC		0.060*** (4.46)	0.053*** (3.85)		0.254 (1.57)
Observations	17,686	15,894	15,349	17,686	15,894

Notes: Robust z-statistics in parentheses; ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$. All regressions control for industry and year dummies. Sample period is from year 2004 to 2013. EITREF is a dummy variable which equals to 1 for the years 2008-2013 after the tax reform and 0 for years 2004-2007 before the tax reform. See Table I for variable definitions

(*continued*)

Table III.

Method	(6) Tobit	(7) Tobit	(8) Tobit	(9) Tobit
Dep. Var.	NOFOTA	ORECTA	ORECTA	ORECTA
DOM	−0.041 (−0.08)	0.746*** (4.56)	0.464*** (2.71)	0.463*** (2.63)
EITREF	−7.974*** (−9.44)	−2.189*** (−11.63)	−1.165*** (−4.02)	−1.283*** (−4.24)
GOV	2.709*** (6.64)			−0.356*** (−3.38)
DOM*EITREF	0.643 (0.94)	−0.499*** (−2.83)	−0.388** (−2.11)	−0.160 (−0.80)
DOM*EITREF*GOV	−1.213** (−2.01)			−0.505*** (−3.66)
CONTEST	−0.607* (−1.70)		0.345*** (4.76)	0.313*** (4.02)
AGENCY	0.197*** (3.51)		0.184*** (12.53)	0.186*** (12.23)
BIG4	−0.213 (−0.45)		−0.936*** (−9.89)	−0.906*** (−9.30)
AUOP	−8.794*** (−9.96)		−3.135*** (−11.57)	−3.290*** (−11.73)
CEOD	1.176*** (2.95)		0.294*** (3.85)	0.398*** (4.87)
BOARD	−0.238*** (−3.18)		0.066*** (3.67)	0.086*** (4.61)
BIND	−0.034 (−1.49)		0.068*** (11.27)	0.067*** (11.03)
INSSH	−0.024*** (−3.55)		−0.017*** (−13.46)	−0.015*** (−11.67)
LEV	0.073*** (7.92)		0.025*** (11.95)	0.028*** (12.72)
LOGMC	0.228 (1.41)		0.001 (0.02)	0.007 (0.16)
Observations	15,349	17,682	15,894	15,349

measures, we observe that the EIT reform had stronger impact on firms with more tunneling problems. Regarding the type of control, NOFO suggests tunneling was more prevalent among government-controlled firms whereas ORECTA suggests it was less prevalent among government-controlled firms prior to the EIT reform. Both NOFO and ORECTA show government controlled domestic firms had larger reduction of tunneling after the EIT reform compared to private controlled domestic firms and support *H3*.

As a robustness check, we further control for possible influence on intercorporate loans because of firm exposure to the global financial crisis of 2008-2009 which coincide with the start of the EIT reform although we expect the influence of the tax reform to be longer lasting because of the transitional tax rates foreign-invested firms were subject to during 2008-2012. We measure firm exposure to the global economic condition using the percentage of sales from overseas markets (OVERS) and further control this variable in Table IV regressions. The results reported in regressions 1-3 suggest that OVERS has no effect on intercorporate loans. Our findings are unaffected by this further control variable. The regressions 4-6 are based on firm-year observations with zero overseas sales only. Our findings generally remain unchanged with this particularly strong sample restriction.

The validity of the DiD tests we performed relies on the "parallel trend" assumption, which in the context of this paper requires similar trends in the tunneling measures during the pre-reform era for both the treatment and control groups. Therefore, we now perform a diagnostic test on this assumption. Table V reports the univariate comparisons between the treatment and control firms' tunneling propensity around the two reforms and changes of tunneling intensity, dented as ΔNOFOTA and ΔORECTA, in the pre-reform years. Panel A shows that the propensity of tunneling is statistically indifferent (only 10 per cent significant) between foreign-invested and domestic firms prior to the EIT reform where as in the years after the EIT reform, foreign-invested firms have significantly lower tunneling propensity. This is consistent with Table III results. Panel B exhibits that the changes (or trends) of tunneling intensity for foreign-invested and domestic firms are statistically indifferent prior to the EIT reform therefore the parallel trend assumption is also satisfied. Overall, these univariate tests confirm that the changes in the propensity and the intensity of tunneling are caused by the exogenous reform shocks and not by different tunneling trends between the treatment and control groups prior to the reforms.

We now analyze market reactions to the tax reform based on cumulative abnormal returns surrounding the reform announcement to complement our longer-term analysis based on annual report information. In Table VI, we show market reactions to the EIT reform. Our sample contains 1,249 A-shares listed non-financial firms at the time of the EIT reform that we have all necessary data for the analysis. Panel A summarizes the sample variables. On average, firms gain 3.98 per cent excess returns during the five-day window around the EIT reform. We use 2006 financial report information on intercorporate loans. About 33 per cent of the firms reported positive NOFO and the average value of ORECTA is 3.57 for these firms. We notice 63 per cent of the firms were government controlled and 54 per cent of the firms were classified as domestic firms which were subject to tax rate decrease after the EIT reform. Panel B regressions show that shareholders of foreign-invested firms gain 2.4 to 3.0 per cent around the date the new EIT law was passed according to the positive and significant coefficients on DNOFO and DOREC. This indicates market expected reduction of tunneling among these firms. The interaction variables in the regressions are insignificant suggesting the market reaction for domestic firms, irrespective of their control type, were not different from foreign-invested firms. We may conclude that

Table IV.
Robustness tests controlling for firm exposure to the 2008-2009 financial crisis

Dep. Var.	(1) Probit DFONO	(2) Tobit NOFOTA	(3) Tobit ORECTA	(4) Probit DFONO	(5) Tobit NOFOTA	(6) Tobit ORECTA
DOM	−0.079* (−1.77)	0.126 (0.24)	0.478** (2.52)	−0.065 (−1.17)	0.501 (0.74)	0.410* (1.67)
EITREF	−0.920*** (−11.99)	−8.203*** (−9.23)	−1.492*** (−4.66)	−0.805*** (−8.44)	−6.801*** (−6.21)	−1.537*** (−3.82)
GOV	0.258*** (7.39)	2.328*** (5.14)	−0.546*** (−4.38)	0.187*** (4.07)	1.373** (2.25)	−0.822*** (−4.45)
DOM*EITREF	0.154** (2.46)	0.712 (0.94)	−0.180 (−0.80)	0.045 (0.56)	−1.238 (−1.24)	−0.142 (−0.47)
DOM*EITREF*GOV	−0.170*** (−3.11)	−1.607** (−2.40)	−0.460*** (−2.86)	−0.123* (−1.73)	−0.257 (−0.29)	−0.512** (−2.17)
OVERS	−0.000 (−0.11)	−0.005 (−0.57)	−0.002 (−1.16)			
Observations	12,612	12,612	12,612	7,088	7,088	7,088

Notes: Robust *z*-statistics in parentheses; ***$p < 0.01$; **$p < 0.05$ *$p < 0.1$. Regressions 1-3 are based on all firm-year observations. Regressions 4-6 are based on firm-year observations with zero overseas sales. All regressions control for industry and year dummies. Other control variables included in all regressions are CONTEST, AGENCY, BIG4, AUOP, CEOD, BIND, INSSH, LEV, and LOGMC. The coefficients on these dummy variables and other control variables are not reported to conserve space. See Table I for variable definitions

Year	Foreign-invested Mean	Obs.	Domestic Mean	Obs.	Diff.	*t*-stat
Panel A: The propensity of tunneling (DNOFO) around the EIT reform						
2004-2007	0.388	2,476	0.361	2,873	0.028*	1.77
2008-2013	0.183	7,524	0.225	4,982	−0.042***	−5.75
Panel B: Change of tunneling intensity per year between 2004 and 2007						
Variable						
ΔNOFOTA	−0.125	1,781	−0.472	2,076	0.347	1.47
ΔORECTA	−0.463	1,781	−0.656	2,076	0.192	1.36

Notes: The samples used in this table correspond to those used in Tables V and VI DID regressions. In particular, Panel A and B tests are based on firms completed NTS reform prior to the end of 2007. Panel C tests are based on all firms for which we have the necessary data during 2004-2013 and Panel D tests are based on firms existed prior to 2008 when the new EIT law took effect. DNOFO is a dummy which equals to 1 if the firm-year reported positive value of NOFO or 0 if otherwise. ΔNOFOTA is the change of NOFO-to-Assets ratio compared to the previous year-end. ΔORECTA is the change of "other receivables"-to-Assets ratio compared to the previous year-end; ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

Table V.
Mean comparisons between treatment and control firms' tunneling activities

although market reactions do not suggest a treatment effect similar to that reported in Table III, the two intercorporate loan measures consistently suggest tunneling firms experienced value gains responding to the new EIT law.

5. Conclusion

Institutional reforms in emerging markets aimed at removing market frictions can alleviate the problem of controlling shareholder expropriations of minority interests, or tunneling. This paper documents that a recent tax reform in China which abolished its old multiple-tiers tax system by introducing a new unified-rate tax system for Chinese domestic enterprises and foreign-invested enterprises led to reduced tunneling through intercorporate loans among its listed companies. Our evidence reveals that tax incentives used by the Chinese government to attract foreign investment under its old tax system facilitates expropriations of minority interests by firm controlling shareholders. This finding has strong policy implications for developing countries which adopt similar multiple-tiers enterprises income tax systems. The need for effective corporate governance mechanisms appears warranted should regulators decide to use similar tax incentives to attract foreign capital. We also show that the reductions in intercorporate loans were larger for government-controlled firms than private controlled firms suggesting state association matters for firm response to tax system changes. These findings generally support the view that tax can be an important external governance mechanism in emerging markets where other legal aspects of institutions are relatively lacking compared to the developed Western world. Moreover, foreign-invested firms experienced more reductions in intercorporate loans than domestic firms indicating the presence of foreign ownership reduces expropriations. These further findings suggest tax can interact with corporate governance in emerging markets such as China where the legal and regulatory environment is undergoing dynamic changes. Finally, value gains for tunneling firms are documented around the tax reform announcement indicating that investors also hold the belief that the reform of China's enterprises income tax system mitigates controlling shareholders expropriations of minority interests.

Variable	Obs.	Mean	SD	Minimum	Maximum
Panel A: Summary statistics					
CAR(-1,3)	1249	3.98	7.10	−8.46	27.92
DNOFO	1249	0.33	0.47	0.00	1.00
ORECTA	1249	3.57	5.22	0.00	28.73
GOV	1204	0.63	0.48	0.00	1.00
DOM	1249	0.54	0.50	0.00	1.00
LOGMC	1249	3.47	0.41	2.53	4.82
PB	1249	4.57	3.38	0.89	23.81

Dep. Var.	CAR (−1,3)	CAR (−1,3)	CAR (−1,3)	CAR (−1,3)
Panel B: Determinants of stock excess returns				
DNOFO	2.429*** (3.85)		2.424*** (3.77)	
DOREC		3.027*** (5.25)		2.951*** (5.00)
DOM	1.126** (2.37)	0.951* (1.96)	1.076** (2.20)	0.855* (1.73)
GOV			−0.020 (−0.04)	0.322 (0.66)
DNOFO*DOM	−1.204 (−1.38)		−1.184 (−1.14)	
DOREC*DOM		−0.748 (−0.91)		−0.448 (−0.46)
DNOFO*DOM*GOV			0.029 (0.03)	
DOREC*DOM*GOV				−0.044 (−0.04)
LOGMC	0.352*** (2.89)	0.329*** (2.70)	0.352** (2.07)	0.266* (1.66)
PB	0.289*** (4.61)	0.230*** (3.72)	0.300*** (4.64)	0.238*** (3.76)
Observations	1,249	1,249	1,204	1,204
R-squared	0.241	0.255	0.244	0.260

Notes: The dependent variable in Panel B regressions is CAR(−1,3), the (t − 1 to $t + 3$) 5-day cumulative abnormal returns around the date the new EIT law was passed by The National People's Congress, 13th March 2007 (t0). DNOFO is a dummy that takes the value of 1 if the firm has a positive amount of NOFO reported in the year prior to its reform and 0 if otherwise. ORECTA is the balance of other receivables scaled as the percentage of total assets. DOREC is a dummy that equals to 1 if the firm's ORECTA in the year prior to its reform is higher than the median value of the 1249 observations and 0 if otherwise. DOM is a dummy that equals to 1 if the firm is classified as domestic enterprise, and 0 if as foreign-invested enterprise. GOV is a dummy that equals to 1 if the firm is under control of the government, and 0 if otherwise. LOGMC is the log of market capitalization. PB is the price-to-book ratio. Sample includes all A-share non-financial firms listed at the time of the EIT reform for which we have all necessary data for the analysis. Robust t-statistics in parentheses; ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

Table VI.
Market reactions to the EIT reform

Notes

1. See Jiang *et al.* (2010) for regulations related to tunneling through intercorporate loans and "other receivables" as a vehicle for tunneling in China.
2. According to Jiang *et al.* (2015), the China Security Regulatory Commission (CSRC) noticed the pervasiveness of this type of tunneling practice and officially named it as a "Non-Operational Fund Occupancy" problem in 2006.
3. Certainly, intra-group income-shifting can still take place even when the same tax rate is applied to group members.
4. Xu *et al.* (2015) using a similar setting analyze changes of earnings management activities two important corporate reforms: the code of corporate governance (CCG) in 2002 and the split share structure reform (SSR) in 2005 and find earnings quality improved particularly after the CCG implementation.
5. Unreported statistics show that there are only 24 out of 15,349 observations in our entire sample reported zero "other receivables" value.

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