Causes and Consequences of Corporate Assets Exchange by China's Listed Companies

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ABSTRACT

China's listed companies often exchange corporate assets with their unlisted affiliates such as parent companies, which is rarely observed in their American counterparts. We find that listed companies which are incompletely restructured from former state-owned enterprises tend to exchange more profitable assets for less profitable assets (i.e., tunneling). However, when there is a need to avoid reporting losses and to raise additional capital, listed companies tend to exchange less profitable assets for more profitable assets (i.e., propping). We also find that the market reacts indifferently to assets exchange announcement. Finally, we find that assets exchange with tunneling (propping) incentive is associated with detrimental (improved) post-exchange stock performance and financial performance. In summary, this study contributes to the corporate assets literature by providing two new incentives (tunneling and propping).

Causes and Consequences of Corporate Assets Exchange by China's Listed Companies

The existing literature on corporate assets focuses on transactions with payment methods of cash, equity, and/or future considerations (Slovin, Sushka, and Polonchek (2005)), rather than barter-type assets exchange.[1] In China, however, many listed companies barter exchange corporate assets with their related parties such as parent companies and brother companies under common control. This paper aims to address why listed companies in China exchange corporate assets and what the consequences are.

We identify two possible nonexclusive incentives to the assets exchange. One is that related parties would like to reclaim more profitable assets and inject less profitable assets which results in expropriation of minority shareholders of listed companies. We label it as *tunneling incentive* in the spirit of Johnson *et al*. (2000). One is that related parties may exchange more profitable assets for less profitable assets to help listed companies to boost operating performance. We label it as *propping incentive* in the spirit of Friedman *et al*. (2003). We argue that both the tunneling and the propping incentives exist in the unique Chinese institutional setting.

Most of China's listed companies are restructured from State-Owned Enterprises (SOE). There are three typical restructuring processes to form a listed company in China. First, an existing State-Owned Enterprise (SOE) may peel off part of its operating assets to form a listed company and remains as the parent of the listed company. Second, an SOE may also be fully integrated to a listed company and a government agency or equivalent act as the parent of the listed company. The last type is that some SOEs are bundled to form a listed company and a government

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[1] Although we could not obtain any statistics about barter-type assets exchange in the U.S., we conjecture that this type of assets transaction is quite rare in the U.S.

agency or equivalent act as the parent of the listed company. We classify the first type as an *incomplete restructuring* because only partial of an existing SOE is transformed to a listed company. The other two types are treated as a *complete restructuring* because the whole existing SOE has been integrated into a listed company. In the incomplete restructuring process, in order to help the to-be-listed firm to go public, unlisted parent company tends to carve out more profitable assets to boost pre-IPO performance (Aharony *et al*. (2010)). Remaining less profitable assets and other non-operating assets such as schools and hospitals become its financial burden and hence it has strong incentive to exchange less profitable assets for more profitable assets from listed company in the post-IPO period. Following Johnson *et al*.'s (2000) description of tunneling as "the transfer of assets and profits out of firms for the benefit of those who control them," in this paper we label parent companies' incentive to exchange less profitable assets for more profitable assets from listed company as "tunneling incentive". Thus we expect that listed firms restructured from an incomplete process would exchange more profitable assets for less profitable assets from their related parties.

Unlike in a more developed market, Chinese securities regulators have set two bright-line earnings targets that regulate firm listings. In particular, a firm must report at least 0% return on equity (ROE) to maintain its listing status and 10% (6% after 2001) ROE to issue new shares. Although these bright-line rules bring benefits such as reducing adverse selection problems (Chen and Wang (2007)), the ROE targets create opportunistic earnings manipulation by listed firms' managers (Chen and Yuan (2004)) and give incentives for parent companies to assist listed firms in boosting ROEs. We thus expect that listed companies that need to avoid reporting losses and raise additional capital through equity offerings would exchange less profitable assets

for more profitable assets with their related parties. Following Friedman *et al.*'s (2003) description of propping as "transferring private resources into firms that have minority shareholders," in this paper we label parent companies' incentive to exchange more profitable assets for less profitable assets from listed company as "propping incentive". Thus we expect that listed firms with intention to avoid reporting losses and raise additional capital would exchange less profitable assets for more profitable assets from their related parties.

Due to limited information about exchanged assets, we could not measure assets' profitability and quality directly. In an arm's length exchange, the valuation of exchanged assets should be equivalent. If a manager wants to exchange less profitable assets for more profitable assets without extra compensation, he would opportunistically manipulate revaluation of the less profitable assets to match with the revaluation of the more profitable assets. Thus we shall be able to infer assets quality difference from comparison of abnormal revaluation rate of the exchanged assets. When the abnormal revaluation of assets surrendered by listed companies is higher than that of assets acquired by listed companies, we infer that quality of assets surrendered is lower than that of assets acquired and vice versa.

We identify a sample of 305 assets exchanges by 229 China's listed companies on the Shanghai Stock Exchange and the Shenzhen Stock Exchange from 2000 to 2006. We present a model for determination of assets revaluation and abnormal assets revaluation rate is measured by the residual of the model (we will discuss the model in Section IV). The difference between abnormal surrendered assets revaluation rate and abnormal acquired assets revaluation rate is then used as a proxy for the quality of exchanged assets. If the abnormal surrendered assets revaluation is higher than that of acquired assets, we interpret it as that the quality of surrendered

assets is lower than that of acquired assets. Thus, a higher difference in abnormal

assets revaluation rate indicates that it is more probable that the firm exchanges less

profitable assets for more profitable assets and vice versa (i.e., the propping

incentive). A lower difference in abnormal assets revaluation rate then indicates the

tunneling incentive.

We then provide empirical evidence that firms with incomplete restructuring

during their IPO process is associated with lower abnormal assets revaluation

difference. The evidence indicates firms with incomplete restructuring exchange more

profitable assets for less profitable assets, which is consistent with the tunneling

incentive. On the other hand, we find that firms which have intention to avoid

reporting losses and raise additional capital through equity offerings is associated with

higher abnormal assets revaluation difference. It indicates these firms are more likely

to exchange less profitable assets with more profitable assets, which is consistent with

the propping incentive. The evidence is valid even after we control for the incomplete

restructuring and other firm-level factors such as return on assets (ROA), firm size,

past stock return, market-to-book ratio of equity, cash, leverage and growth rates in

sales and gross property, plant and equipment. The tunneling and propping behavior

suppose to have different effects on investors and we expect investors should be able

to see through such behavior through different reactions to assets exchange

announcements. However, we find that the market reacts to assets exchange

announcements indifferently. It may cast doubt on the Chinese capital markets'

reputation for semi-strong efficiency.

We also examine the consequences of barter-type assets exchange. With the

tunneling incentive, managers in listed companies exchange higher quality assets for

lower quality assets. Hence we expect a long-term underperformance of both financial

and stock performance in listed companies. In contrast, with the propping incentive, managers exchange lower quality assets for higher quality assets. Hence we expect a long-term performance improvement of both financial and stock performance. We use both stock performance (12-month and 24-month post-exchange buy-and-hold-abnormal-return (BHAR)) and financial performance (1-year and 2-year average post-exchange ROA) to test the consequences on post-exchange performance. As predicted, we find a positive association between both firm performance measures and the difference in abnormal assets revaluation, indicating that assets exchanges with propping incentives results in improved post-exchange firm performance and vice versa. We also control for other factors, such as current ROA, firm size and leverage, which may affect firm performance.

This paper contributes to the corporate assets literature in a number of ways. First, this paper identifies a sample of firms which engage in barter-type assets exchange. Existing literature focuses on assets sales and purchases in monetary terms only (e.g., Maksimovic and Phillips (2001) and Warusawitharana (2008)). Second, to the best of our knowledge, we present new incentives for assets sales and purchases (the tunneling incentive and the propping incentive) which are never examined in the corporate assets literature. Existing literature examines corporate assets transaction from either investment efficiency incentive (such as John and Ofek (1995), Maksimovic and Phillips (2001) and Warusawitharana (2008)) or financing incentive (such as Lang, Poulsen, and Stulz (1995), Brown, James, and Mooradian (1994) and Asquith, Gertner and Scharfstein (1994)). Finally, we use assets revaluation information to infer the quality of surrendered and acquired assets, which is not examined in the literature.

This study also extends the research in expropriation and propping of minority shareholders by controlling shareholders. Johnson *et al.* (2000) conjecture that controlling shareholders would, legally or illegally, have incentive to expropriate (or "tunnel") minority investors when there is a weak legal environment and weak corporate governance system. Friedman *et al.* (2003) extend Johnson *et al.*'s findings to show that managers (or controlling shareholders) may also have incentives to transfer their private resources to benefit minority shareholders. We present the assets exchange as a direct evidence of tunneling and propping which has not been examined in the existing literature.

This study also contributes to the asset revaluation literature in accounting. Jarrell (1979) finds that utility companies overvalue their assets in order to increase the price of products. Our study complements the existing literature by showing that manipulation of assets revaluation can be used to achieve different goals such as propping or tunneling in our context.

The remainder of this paper is organized as follows. Section I provides a literature review on assets sales and purchases. Section II outlines the China's unique institutional background and develops the hypotheses. In Section III we present the sample and empirical results. Finally, conclusions are presented in Section IV.

I. Literature Review on Assets Exchange

The existing literature on corporate assets focuses on transactions with payment methods of cash, equity, and/or future considerations (Slovin, Sushka, and Polonchek (2005)), rather than barter-type assets exchange. The overall market for corporate assets includes mergers, acquisitions and partial assets sales. Assets exchange is relating to the literature on partial assets sales. Alexander, Benson, and

Kampmeyer (1984) and Jain (1985) are among the first to show valuation consequences of assets sell-off. Using a sample of over 1,000 voluntary sell-off announcements, Jain (1985) shows that there is a positive effect on the shareholders of both the sellers and the buyers.[2] Subsequent studies offer various theories to explain the motives and valuation consequences of partial assets sales by a corporation.

The efficiency hypothesis is the dominant theory but with various views of efficiency. It generally argues that managers efficiently reallocate resources through asset sales and purchases. Managers may sell assets if they discover that another party can manage the assets more efficiently. Hite, Owers, and Rogers (1987) investigate valuation consequences of voluntary proposals to sell part of a corporation's assets. They find that both successful and unsuccessful sellers reap statistically significant abnormal returns from initial proposal announcements but unsuccessful sellers lose the initial gain at the offer termination. They interpret these findings as evidence that assets sales are associated with the movement of resources to higher-valued uses. The rational is that asset sales are in the best interest of stockholders if and only if the net sale proceeds exceed the present value of the net future cash flows from continued ownership and operation. Thus potential productive gains can be realized only by the transfer of the target assets from their current use to the buyer's control.

John and Ofek (1995) offer an alternative view of the efficiency. They argue that the motive to sell an asset is that the divested asset interferes with the seller's other operations. Hence selling the unrelated asset leads to an increase in focus and more efficient operation of the core business. Using several accounting performance

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[2] Alexander, Benson, and Kampmeyer (1984) find the similar results but with a much smaller sample (53 announcements).

measures, such as operating margin and return on assets, they find that the firm's remaining assets are more profitable after the sell-off.

Maksimovic and Phillips (2001, 2002) provide both theoretical model and empirical results to support the efficiency view. Their intuition is that some firms are more productive and can produce more than other firms from a given number of plants. They argue that firms adjust in size until the marginal benefit is equal to the marginal cost of production. As output prices increase, the more productive firms have a larger gain in value from the assets they control. As a result, they find it optimal to acquire plants from less productive firms in the industry. By the same token, a positive shock in an industry increases the opportunity cost of operating as an inefficient producer in that industry. Thus, industry shocks alter the value of the assets and create incentives from transfers to more productive uses. Their empirical results show that asses are more likely to be sold (1) when the economy is undergoing positive demand shocks, (2) when the assets are less productive than their industry benchmarks, (3) when the selling division is less productive, and (4) when the selling firm has more productive divisions in other industries.

The most recent study by Warusawitharana (2008) develops a model to link asset purchases and sales to fundamental properties of a value-maximizing firm. The key economic idea of the model is that firms engage in asset purchases and sales to move the firm toward its optimal size, which varies with profitability. Their empirical results show that return on assets strongly predict when firms purchase or sell assets. In response to improved profitability, firms have the option of growing externally through asset purchases. Firms with low profitability can improve their average productivity of capital via asset sales. In summary, the above studies characterize assets sales and purchases as a process to efficiently reallocate corporate resources.

The existing literature also suggests alternative explanations of asset sales. The financing hypothesis of asset sales argues that management values firm size and control and hence it is reluctant to sell assets from efficiency reasons alone. For such management, a more compelling motivation to sell assets is that asset sales provide funds when alternative sources of financing are too expensive. This hypothesis also argues that the completion of an asset sale is good news about the value of the asset because if the value of the asset had turned out to be low, the sale would not have taken place. Lang, Poulsen, and Stulz (1995) provide empirical results to support the financing hypothesis. They find that firms selling assets, even excluding bankruptcy firms and firms in default, tend to be poor performers and/or have high leverage. This result suggests that the typical firm selling assets is motivated to do so by its financial situation rather than efficiently reallocating corporate resources. They also report that the stock-price reaction to asset sales is significantly positive for those firms expected to use the proceeds to pay down debt, but negative and insignificant for firms which are expected to keep the proceeds within the firm, which is also inconsistent with the efficiency hypothesis. Asset sales may also be an important way of resolving financial distress. Asquith, Gertner and Scharfstein (1994) find that asset sales are a way of avoiding Chapter 11 but they are limited by industry factors: firms in distressed and highly leveraged industries are less prone to sell assets. Brown, James, and Mooradian (1994) find significantly lower returns to shareholders when asset sales proceeds are used to repay debt than when sales proceeds are retained by the firm.

II. Institutional Background and Hypotheses

Due to the unique institutional background of Chinese firms, the motives of assets exchange in China are different from the motives discussed above.

A. *The Restructuring Process of China's Listed Companies*

In the process of transition from a central-planned economy to a market economy, Chinese government adopts a gradual approach by introducing private ownership to wholly state-owned enterprises (SOEs) without selling any state-owned assets. Exiting SOEs are first restructured to a corporation and then go public to raise private capital. There are three types of restructuring: peel-off, integration, and buddle.

An existing SOE may peel off part of its operating assets to form a new independent corporation, which can be termed as an incomplete restructuring. The existing SOE becomes parent of the new independent corporation by retaining the ownership of all peeled-off assets. The peel off restructuring is different from the typical carve-out or spin-off. It is different from a typical carve-out because the parent company does not sell any existing assets to other investors and hence there is no cash flow effect on the parent. It is also different from a typical spin-off because the newly independent corporation will have new investors through subscribing new shares in the IPO process. As Aharony, Lee and Wong (2000) point out, to make the new corporate more marketable to attract public investors, parent companies have strong incentive to peel off only their profitable business units for public offering and keep the nonproductive and unprofitable units in the parent company. Another important incentive is due to a strict quota system of IPO set by the Chinese government (Aharony, Wang and Yuan (2010)). Prior to 1999, the total annual number of IPOs was subject to a quota system, meaning that the central government set a quota for the entire capital value of shares to be issued every year. This total amount would then be allocated among local governments which in turn were directed to identify key

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industries and nominate worthy companies for listing on the local stock exchanges. Thus parent companies also have the incentive to make the to-be-listed company stronger by peeling off more profitable assets. Although the quota system has been eliminated since 1999, the first incentive mentioned in Aharony *et al*. (2000) still exists.

The incomplete peel-off restructuring leaves most of the financial and social burden to the remaining parent company. The parent company may reduce the burden by improving operating efficiency of remaining assets. Or it may have incentive to reclaim the better assets injected to their listed subsidiary during the restructuring process. One feasible way is to exchange unprofitable assets with listed company for more profitable assets.[3] To summarize, the incomplete peel-off restructuring suggests test of the following predictions.

HYPOTHESIS 1: *Listed companies from incomplete restructuring are more likely to exchange more profitable assets for less profitable assets (i.e., the tunneling hypothesis).*

B. *Bright-line Regulations on Firm Listings*

We consider two situations in which the parent companies have incentive to prop up their listed affiliates by injecting more profitable assets to replace less profitable assets. The more profitable assets may come from parent companies or other companies. Although Chen and Yuan (2004) show that regulation based on accounting numbers such as return on equity triggers opportunistic earnings

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[3] Aharony *et al*. (2010) also find that Chinese parent companies expropriate their listed affiliates through non-repayment of corporate loans.

management, the China Securities Regulatory Commission (CSRC) stands out to use bright-line regulations to monitor firm listings.[4]

The first situation is to avoid reporting losses by China's listed companies. According to the guidelines introduced by the CSRC in 1998, a listed firm will be designated as a special treatment (ST) firm if it reports a net loss for two consecutive years. An ST firm's semi-annual report is required to be audited. If it reports a net loss for three consecutive years, the firm is suspected for normal trading and investors can only trade under a particular transfer (PT) arrangement. Further, if a PT firm cannot become profitable in one year, it will be completely delisted. Although avoiding reporting losses has been regarded as one important incentive to manage earnings in the literature (Degeorge, Patel and Zeckhauser (1999)), the institutional setting in China gives managers stronger incentive to do so to avoid government scrutiny and delisting.

The other situation in which the parent company has strong incentive to engage in assets exchange to prop up its listed affiliate is during rights offerings (RO) and seasoned equity offerings (SEO). In the 1990s, listed companies were able to issue additional shares only through preemptive rights offered to their existing shareholders. Due to the lack of other means for listed companies to raise capital and the insatiable demand for stocks from the investing public in China in the early 1990s, ROs were excessively abused by listed companies (Chen and Yuan (2004)). To curb this excessive activity, the CSRC uses a minimum ROE of 10% (6% after 2001) to curb the activity.[5] Since 2002, a similar threshold (10% of ROE) is set to regulate SEO. Since RO and SEO are the primary channels for Chinese listed companies to raise capital, qualification for RO and SEO is an important objective for parent

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[4] Chen and Wang (2007) show that, in China, bright-line rules may serve to reduce adverse selection problems.
[5] Table 1 in Chen and Wang (2007) summaries the regulations on RO and SEO in China.

companies. Li and Zhou (2005) also argue that listed companies are better able to help relieve unemployment problems and enhance the infrastructure development of the ministries where the firms belong or of the regions where the firms operate. Thus, both the central and local governments who act as the ultimate controlling owners have strong incentives to help listed firms maintain listing status and qualify for raising more funds. Thus we predict that parent company has strong incentive to replace listed companies' less profitable assets with more profitable assets in the above two situations. We summarize these predictions in the following hypothesis.

HYPOTHESIS 2: *Listed companies with intention to avoid reporting losses and raise additional capital are more likely to exchange less profitable assets for more profitable assets (i.e., the propping hypothesis).*

If the market is efficient, investors should be able to see through the tunneling and propping behavior in assets exchange. Cheung, Rau and Stouraitis (2006) find that listed firms in Hong Kong announcing assets sale which a priori might be most likely to result in expropriation of minority shareholders earn significantly negative abnormal returns during the days following the announcement. Hence we expect investors in Shanghai and Shenzhen react negatively to assets exchange with tunneling incentive but positively to assets exchange with propping incentive if the Chinese market is as efficient as Hong Kong's. We summarize the predictions in the following hypothesis.

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HYPOTHESIS 3: *Investors react negatively to assets exchanges with tunneling incentive but positively to assets exchanges with propping incentive surrounding assets exchange announcement date.*

Given the different quality of exchanged assets, we predict different post-exchange firm performance. The prediction is summarized in the following hypothesis.

HYPOTHESIS 4: *Listed companies which exchange more (less) profitable assets for less (more) profitable assets experience performance decline (improvement) in the post-exchange period.*

III. Assets Exchange Data Description

We hand-collected all 305 public announcements of assets exchange with parent companies and other parties by 229 listed companies in Shanghai and Shenzhen Stock Exchanges during the period 2000-2006. The sample period starts from 2000 because there were very few assets exchanges (only five in total) in the prior period. We also hand-collected IPO restructuring data from company's IPO prospectus. Other data such as stock returns and financial performance are obtained from China Stock Market & Accounting Research (CSMAR) database.[6]

Table 1 presents the sample composition for each year from 2000 to 2006, classified by ten major industries categories (two-digit SIC code). The original industry classification is first obtained from the CSRC. We then reclassified the industries into ten categories based on Campbell (1996). As there are only three firms

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[6] The CSMAR is a leading data vendor which provides both financial accounting data and stock prices for all listed companies in China. It also provides other databases such as corporate governance and merger & acquisition databases. The CSMAR database may be obtained from the Wharton Research Data Services (WRDS).

in the Petroleum industries (SIC code 13, 29), we combine them with the Basic industries. The Financial Services industries (SIC code 60-69) are included in the Services category. As Table 1 shows, four industry groups, the Basic industries including Petroleum, the Consumer Durables industries, the Capital Goods industries, and the Conglomerate have a higher proportion of assets exchanges during the sample period (from 38 cases or 12.5% to 54 cases or17.7%) than the remaining industry categories (from 14 cases or 4.6% to 25 cases or 8.2%). The table also shows that there are generally fewer assets exchanges in the early period than that in the later period (the least number of cases is 10 in 2000 and the most number of cases is 79 in 2003).

(Insert Table 1 here)

We present the types of exchange parties and the type of assets exchanged in Table 2. Exchange parties are generally classified as related parties and non-related parties. The classification is disclosed by listed companies in their assets exchange announcements and the definition of related parties should follow the Chinese Accounting Standard 36 (CAS 36 issued in 2006) which is the same as the International Accounting Standard 24 (IAS 24 revised in 2011). Related parties consist of parent companies (i.e., the largest corporate shareholders) of listed companies, other large corporate shareholders, brother companies which are under the common control with listed companies, and others.[7] As shown in Panel A of Table 2, the majority of assets exchanges are between listed companies and their parent companies (219 cases or 71.8% of the sample). There are also 49 cases (16.1%) with

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[7] The "others" category is disclosed as "other related parties" by listed company and we do not know their specific relationship with the listed company.

non-related parties. Non-related parties may be *de facto* related with listed companies

because they are under the common control of government which are not treated as

related parties by the CAS 36 and the IAS 24. Since all the non-related parties are

non-listed companies and we cannot identify whether or not they are *de facto* related

to listed companies.[8] As shown in Panel B of Table 2, there are five types of assets

exchanged: Assets group, Equity shares, Receivables, PPE, Land and Other tangible

assets, and Intangibles. Assets group includes a group of assets and liabilities such as

a production line and an operating unit. Equity shares refers to company's equity

ownership in a separate entity. Receivables means the exchanged asset mainly

consists of receivables. PPE, Land and Other tangible assets include Property, Plant,

and Equipment, or Land, or Other intangible assets such as inventories, or a

combination of these tangible assets. Intangibles means the exchanged asset mainly

consists of intangible assets. Panel B shows that, for assets surrendered, Equity shares

and Receivables are the most popular types of assets (113 or 37.0% of Equity shares

and 110 or 36.1% of Receivables). In contrast, more than half of all the acquired

assets are Equity shares (176 or 57.7%) and about one quarter are PPE, Land and

Other tangible assets (73 or 23.9%).

(Insert Table 2 here)

Table 3 reports end of fiscal year summary statistics for firms that exchange

assets during the next year (thus the period for reported statistics is 1999-2005, i.e.,

one year ahead of the sample period). For comparison, we also present the statistics

for all listed firms during the same period with sufficient data. As Table 3 shows, the

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[8] Our research results remain qualitatively the same when we exclude the 49 assets exchanges with non-related parties.

sample firms tend to have a lower return on assets (ROA). For example, the means of

ROA for sample firms and all firms are 0.8% and 3.4%, respectively. The *t-statistic*

for test of mean difference is 5.80 with a statistical significance level of 1%. We

observe the same pattern for other profitability and performance measures such as

stock return (SRET), cash holdings (CASH), and sales growth (SALESG). This

suggests that managers of firms with low return on assets, low stock returns, low cash

holdings and low sales growth are more likely to conduct assets exchange with parent

companies, which is consistent with Warusawitharana's (2008) observation on

corporate assets sales in the U.S. The table also shows that other statistics of our

sample firms, such as firm size (SIZE), market-to-book ratio (MTB), LEVERAGE,

and PPE growth (PPEG), are similar to that of average listed firms. The deal value

reported at the third to last row reveals the average and median values of assets

exchanged are about 270 million RMB and 98 million RMB, respectively.

(Insert Table 3 here)

IV. Empirical Results

The empirical implementation tests four hypotheses derived in Section II. We

provide research design to test these hypotheses and discuss empirical results in this

section.

A. *Abnormal Assets Revaluation*

During assets exchange process, firms need to hire professional valuers to

revalue surrendered and acquired assets. In an arm's length transaction, the valuation

of surrendered and acquired assets should be equivalent. However, in China,

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professional valuers are not properly regulated and they are typically not independent. If a manager wants to exchange less profitable assets for more profitable assets, he would collude with professional valuers to opportunistically manipulate revaluation of the less profitable assets to match with the revaluation of the more profitable assets. Based on information disclosed in assets exchange announcements, we employ the following model to determine normal revaluation rate of assets and the abnormal revaluation rate is the residual of the model.

OUTREV (or INREV) = a_1OUTBOOK (or INBOOK) + a_2OUTFIX (or INFIX) + a_3OUTINT (or ININT) + a_4RPT + a_5AUDIT + a_6INDDIR + a_7FINCON + Industry Dummies + e

$$(1)$$

We run ordinary least square (OLS) regression based on the above model (without intercept) for assets surrendered and assets acquired separately. OUTREV (INREV) is the revaluation of surrendered (acquired) assets disclosed in assets exchange announcements by listed companies. Book value is an important determinant of revaluation of the asset, hence we include OUTBOOK (INBOOK) which is the book value of surrendered (acquired) assets in the model. OUTFIX (INFIX) takes value of one if surrendered (acquired) assets include fixed assets and zero otherwise. Fixed assets are carried at historical cost under the current Chinese Accounting Standards and hence fixed assets are subject to more revaluation. OUTINT (ININT) takes value of one if surrendered (acquired) assets include intangible assets and zero otherwise. We include this variable is because intangible assets are more difficult to revalue. RPT takes value of one if the exchange party is a related party of sample firm and

zero otherwise. We believe it is easier for managers to collude with related party to manipulate asset revaluation. AUDIT takes value of one if the exchange transaction is audited and zero otherwise. INDDIR takes value of one if the exchange transaction is supported by independent directors and zero otherwise. FINCON takes value of one if the exchange announcement is accompanied with an independent financial consulting report. The above three variables are introduced to control for monitoring effects on assets revaluation by auditors, independent directors and professional consultants. Finally, we introduce nine industry dummies in the model.

(Insert Table 4 here)

Panel A of Table 4 reports the OLS regression results. As expected, the book value of assets (OUTBOOK and INBOOK) are significantly positively associated with revaluation of both surrendered and acquired assets. Other independent variables generally have no significantly impacts on assets revaluation. The adjusted R-squares for both regressions are above 90%, indicating a very high prediction power of the model. The abnormal assets revaluation rate is the residual obtained from the regressions in Panel A, scaled by the book value of exchanged assets. We then take the difference between abnormal surrendered assets revaluation rate and abnormal acquired assets revaluation rate to infer the quality of exchanged assets. As we mentioned before, a higher abnormal revaluation difference indicates the surrendered asset is less profitable than the acquired assets which indicates possible propping up by exchange parties. Panel B of Table 4 shows the descriptive statistics of abnormal revaluation rate. We find that the abnormal revaluation rate of surrendered assets is significantly higher than that of acquired assets. The mean and median abnormal

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revaluation rate differences are 13.5% and 10.8%, respectively. Both are significantly different at the 1% level. We present further empirical tests to explain this asymmetry of revaluation rate.

B. *Tunneling and propping incentive of assets exchange*

Hypothesis 1 and Hypothesis 2 state that firms with tunneling and propping incentives would behave differently when exchange assets. We employ the following model to investigate these two incentives.

$ABREVDIF = b_0 + b_1INCREST + b_2INTENTION + b_3INCREST*INTENTION +$

$b_4ROA + b_5SIZE + b_6SRET + b_7MTB + b_8CASH + b_9LEVERAGE + b_{10}SALESG +$

$b_{11}PPEG + Industry\ Dummies + Year\ Dummies + e$

$$(2)$$

The dependent variable ABREVDIF is the abnormal revaluation difference of surrendered and acquired assets obtained from regressions in model (1) reported in Table 4. The independent variables include the following variables.

(1) INCREST: Incomplete restructuring takes value of one if the listed firm is peeled-off from an existing SOE during its IPO process and zero otherwise. It serves as an indication of tunneling incentives by related parities.

(2) INTENTION: It takes value of one if the listed firm has at least one of the following characteristics and zero otherwise: (i) previous net loss; (ii) current net loss; (iii) current ROE is lower than 1.5%; (iv) raising additional capital in the current year; (v) intention to raise additional capital in the coming two years. It is an indication of propping incentives by related parties.

(3) ROA, SIZE, SRET, MTB, CASH, LEVERAGE, SALESG, PPEG: same as the definitions in Table 3.

(4)   Nine Industry Dummies and six Year Dummies.

(Insert Table 5 here)

Table 5 presents the OLS regression results of the above model. Regression 1 includes only the tunneling incentive indicator (INCREST). The estimated coefficient on INCREST is -0.385 which is statically significant at the 5% level. As we discussed in hypothesis development, a lower revaluation difference infers the quality of surrendered assets is higher than that of acquired assets. Thus, the result shows that firms from incomplete restructuring tend to exchange more profitable assets for less profitable assets (i.e., lower revaluation difference), which is consistent with the tunneling hypothesis (Hypothesis 1). Regression 2 includes only the propping indicator (INTENTION). The estimated coefficient is 0.581 and significant at the level of 5%. Thus, the result indicate that firms with intention to avoid losses or raise additional capital tend to exchange less profitable assets for more profitable assets, which is consistent with the propping hypothesis (Hypothesis 2). Regression 3 includes both INCREST and INTENTION and also their interaction terms (INCREST*INTENTION). We find that the estimated coefficient of INCREST is not significant but the estimated coefficient of INTENTION remains significantly positive (0.563 at the significance level of 5%). The result indicates that parent companies are willing to prop up their listed affiliates even when they have incentives to expropriate their listed affiliates. Hence we conclude that propping incentive dominants tunneling incentive when both are present. As we discussion in Section II,

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the result is reasonable because both the central and local governments have strong incentive to help listed companies to maintain listing status even though parent companies may have tunneling incentive.

Among the control variables, only ROA and CASH have significant impacts on revaluation difference. In all three regressions, the estimated coefficients of ROA are negative and significant at the 5% level. It means a high profitable firm tends to exchange profitable assets for less profitable assets, which is consistent with the tunneling behavior. When listed companies are more profitable, parent companies have more excuses to tunnel assets back. The same logic holds for CASH: the more cash the company holds, the more profit parent company is able to tunnel. All other control variables have no significant impact on assets exchange revaluation. The adjusted R-squares of the regressions range from 7.8% to 9.5%.

C. *Market reaction to assets exchange*

Hypothesis 3 states that if listed firms exchange more profitable assets for less profitable assets, investors should react negatively, vice versa. To test the market reaction, we employ the event-study methodology summarized by Campbell et al. (1997). The event date (day zero) is defined as the date the firm makes an announcement of assets exchange. For each company, we use an event period of 300 days (starting at day -279 and ending at day +20 relative to day zero). The first 259 days in this period (-279 through -21) are designated as the "estimation period," and the following 41 days (-20 through +20) are designated as the "event period." We run OLS regressions using security's daily return as dependent variable and market daily return as independent variable. Abnormal daily return is obtained from the regression model's residual.

Table 6 reports 3-day, 5-day, and 11-day cumulative abnormal returns (CAR) surrounding assets exchange announcements. We also divide sample firms based on the tunneling incentive and the propping incentive. As Table 6 shows, all average CARs are positive. For example, the average 3-day window CAR is 0.706% and the average 11-day window CAR is 0.947%. However, there is no significant difference between subgroups for all the window periods. For example, for the 3-day CAR, the average CAR for firms from incomplete restructuring is 0.846% and that for firms from complete restructuring is 0.623% but they are insignificantly different. We tried various windows such as 1-day, 2-day, 5-day and 10-day and get similar results as Table 6 reports. Thus, we conclude that investors in China cannot see through the different incentives during assets exchange. It casts doubt on the efficiency of China's capital market. It also indicates that Chinese market is less efficient than Hong Kong's where Cheung *et al*. (2006) find that investor can see through the tunneling behavior.

(Insert Table 6 here)

D. *Post-exchange firm performance*

Although investors cannot see through the profitability of exchanged assets in short-term window, we expect that the exchanged assets will affect firm performance in the long-term. We measure post-exchange performance by both stock returns and financial performance. We employ the following model to test the last hypothesis.

BHAR (or AROA) = c_0 + c_1ABREVDIF + c_2ROA + c_3SIZE + c_4MTB + c_5CASH +

c_6LEVERAGE + Industry Dummies + e

(3)

BHAR is the firm's 12-month (or 24-month) post-exchange buy-and-hold-abnormal-return starting one month after the assets exchange announcement month. AROA is the one-year (or two-year) average return on assets in the following two years after the announcement year. The independent variables include the following variables.

(1) ABREVDIF: it is the abnormal revaluation difference of surrendered and acquired assets obtained from regression model (1).

(2) ROA, SIZE, MTB, CASH, and LEVERAGE: their definitions are the same as those defined in Table 3 but they are calculated in the year of assets exchange in this regression. These variables are included to control for factors which may affect firm performance.

(Insert Table 7 here)

Table 7 reports the results for the above regression model. In Regressions 1 and 2 when 12-month and 24-month BHAR are used as the dependent variable, the estimated coefficients on ABREVDIF are 0.039 and 0.051 with a significance level of 5%. The positive association between revaluation difference and long-term stock returns indicate that firms will outperform the market if they exchanged less profitable assets for more profitable assets with their parent companies, which is consistent with Hypothesis 4. It makes sense because the more profitable assets acquired will bring more income to the firm and hence better stock performance in the future. We find the

same results in Regressions 3 and 4 when one-year and two-year average ROA are used as the dependent variable. These consistent results show that firms exchanged more (less) profitable assets for less (more) profitable assets will have detrimental (improved) stock and financial performance in the long term.

For both regressions, the ROA in the exchange year has significant positive impacts on firms' future performance. Firm size (SIZE) has positive impact on future financial performance but not stock performance. Consistent with existing literature, market-to-book (MTB) is negatively associated with future stock performance but not with financial performance. The cash holding (CASH) has positive association with future financial performance but not with stock performance. Finally, we find firm leverage (LEVERAGE) has no impact on either stock performance or financial performance. The adjusted R-squares are about 11% for stock performance regressions and 39% for financial performance regressions.

V. Summary and Conclusion

The study examines the causes and consequences of a sample of assets exchanges by China's listed companies. The dataset is unique because it is very rare in the U.S. that companies do barter-type assets exchanges.

Unlike the efficiency hypothesis and financing hypothesis examined in the assets sales and purchase literature, we identify two different causes of assets exchange in China: tunneling and propping. When firms are restructured incompletely from existing enterprises, they tend to exchange more profitable assets for less profitable assets to help their unlisted parent companies. On the other hand, when firms have intention to avoid losses and to raise additional capital, their parent companies tend to exchange more profitable assets for less profitable assets to help

their listed subsidiaries. We find empirical evidence which is consistent with our hypotheses.

We further examine whether investors can see through the different incentives of assets exchange in the short term and the result is they cannot. It may due to the inefficiency of China's capital market. But in the long term, the asymmetry of assets revaluation in the exchange does have impacts on firm performance. If more profitable assets are exchanged out, firms tend to underperform in the long run, and vice versa.

Out results may have practical implications. We reveal additional investment risks to both domestic and foreign investors in China's capital markets as well as in Chinese firms cross-listed in non-Chinese stock exchanges from assets exchanges. According to our results, special attention should be paid by both domestic and foreign investors to listed companies' restructuring history and intention to avoid losses and to raise additional capital when they exchange assets with parent companies.

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TABLE 1: Sample composition of assets exchange firms

The table shows the sample composition by year and by industry, classified by ten major industries (two-digit SIC code). The sample consists of 305 asset exchanges by 229 listed Chinese firms on the Shanghai Stock Exchange and Shenzhen Stock Exchange from 2000 to 2006. The industry classification is based on Campbell (1996). The equivalent two-digit SIC codes are: Food and Tobacco (1, 2, 9, 20, 21, 54); Basic industries including Petroleum (10, 12, 13, 14, 24, 26, 28, 29, 33); Construction (15, 16, 17, 32, 52); Textiles and Trade (22, 23, 31, 51, 53, 56, 59); Consumer Durables (25, 30, 36, 37, 39, 50, 55, 57); Capital Goods (34, 35, 38); Transportation (40, 41, 42, 44, 45, 47); Utility (46, 48, 49); Services (60-69 for financial services, 72, 73 75, 76, 80, 82, 87, 89); and there are no specific SIC code for Conglomerate. As the number of firms in the Petroleum industries (SIC code 13, 29) is small (only one exchange in 2001, 2005 and 2006 respectively), we combine them with the Basic industries.

Industry	Year							Subtotal	Percentage
	2000	2001	2002	2003	2004	2005	2006		
Food and Tobacco	2	0	2	1	7	3	2	17	5.6%
Basic industries including Petroleum	1	2	4	6	16	2	7	38	12.5%
Construction	1	0	3	3	2	3	4	16	5.2%
Textiles and Trade	0	5	0	3	11	3	2	24	7.9%
Consumer Durables	1	2	7	15	11	6	12	54	17.7%
Capital Goods	1	2	5	14	7	8	11	48	15.7%
Transportation	1	2	0	6	5	0	0	14	4.6%
Utility	1	2	1	7	1	1	6	19	6.2%
Services including Financial Services	1	3	4	5	5	5	2	25	8.2%
Conglomerate	1	8	5	19	3	7	7	50	16.4%
Entire sample	**10**	**26**	**31**	**79**	**68**	**38**	**53**	**305**	**100%**

TABLE 2: Description of assets exchanges

Panel A: Type of exchange parties
The panel shows the number of exchanges by the type of exchange parties. Exchange parties are generally classified as related parties and non-related parties. Related parties consist of parent companies (or the largest corporate shareholders) of listed companies, other large corporate shareholders, brother companies which are under the common control with listed companies, and others. Non-related parties have no relation with listed companies. The type of exchange parties is disclosed by listed companies in their assets exchange announcements.

	Related parties				Non-related parties	Total
	Parent companies	Other shareholders	Brother companies	Others		
Number of exchanges	219 (71.8%)	17 (5.6%)	8 (2.6%)	12 (3.9%)	49 (16.1%)	305 (100%)

Panel B: Type of assets exchanged
The panel shows the number of exchanges by the type of assets exchanged. Assets group means the exchanged asset includes a group of assets and liabilities such as a product line and an operating unit. Equity shares means the exchanged asset is the equity ownership in another entity. Receivables means the exchanged asset mainly consists of receivables. PPE, Land and Other tangible assets means the exchanged asset is either PPE (property, plant and equipment), or land, or other tangible assets such as inventories, or a combination of tangible assets. Intangibles means the exchanged asset mainly consists of intangible assets.

	Assets group	Equity shares	Receivables	PPE, Land and Other tangible assets	Intangibles	Total
Assets Surrendered	32 (10.5%)	113 (37.0%)	110 (36.1%)	43 (14.1%)	7 (2.3%)	305 (100%)
Assets Acquired	15 (4.9%)	176 (57.7%)	11 (3.6%)	73 (23.9%)	30 (9.9%)	305 (100%)

TABLE 3: Sample descriptive characteristics

The table reports end of fiscal year summary statistics for listed firms that exchange assets during the next year. For comparison, it also reports the statistics for all listed firms during the same period (1999-2005, i.e., one year ahead of the sample period). Return on assets (ROA) is the operating income before depreciation scaled by book value of total assets at the beginning of the fiscal year. SIZE measures the nature logarithm of book value of total assets at the end of fiscal year. Stock return (SRET) is computed over the fiscal year. Market-to-book (MTB) ratio of equity is computed as the ratio between the market value of equity and the book value of equity at the end of the fiscal year. CASH denotes cash and short-term investments scaled by the book value of assets at the end of fiscal year. LEVERAGE denotes book value of debt scaled by book value of total assets at the end of the fiscal year. Sales growth (SALESG) and PPE growth (PPEG) measure growth in net sales and net plant, property, and equipment, respectively, over the previous fiscal year. All the above statistics are winsorized at the 1st and 99th percentiles. The deal value is reported in millions of Chinese Renminbi (RMB). The assets-out value and assets-in value are the revaluation of surrendered and acquired assets in millions of RMB, respectively. The N denotes the number of observations and Std denotes the standard deviation. The last column reports statistics for test of differences in means and medians of the two groups. Bold statistics denote statistical significance at the 1% level.

	All listed firms				Sample firms				Test of difference
	N	Mean	Median	Std.	N	Mean	Median	Std.	t-stat (z-stat)
ROA	6917	0.034	0.038	0.073	305	0.008	0.014	0.059	**5.80** **(8.22)**
ROE	6917	0.057	0.073	0.180	305	-0.011	0.026	0.217	**5.40** **(7.85)**
ROS	6908	0.048	0.077	0.336	305	-0.012	0.035	0.258	**3.12** **(6.51)**
SIZE	6917	21.004	20.929	0.885	305	20.927	20.882	0.819	1.42 (1.20)
SRET	6921	-0.010	-0.107	0.492	305	-0.142	-0.150	0.314	**4.10** **(3.27)**
MTB	6750	4.150	3.150	3.812	305	4.227	3.090	3.451	-0.42 (-0.45)
CASH	6917	0.158	0.129	0.119	305	0.135	0.113	0.101	**3.04** **(2.75)**
LEVERAGE	6917	0.078	0.040	0.099	305	0.072	0.042	0.087	0.82 (0.19)
SALESG	6908	0.215	0.114	0.587	305	0.096	0.066	0.515	**3.20** **(3.40)**
PPEG	6915	0.178	0.044	0.496	305	0.158	0.011	0.596	1.04 **(2.64)**
Deal value	--	--	--	--	305	270.145	97.764	1272.466	--
Assets-Out value	--	--	--	--	305	251.991	87.939	1264.481	--
Assets-In value	--	--	--	--	305	256.471	95.201	1267.095	--

Table 4 Abnormal assets revaluation

Panel A Assets revaluation prediction models
This panel presents the ordinary least square (OLS) regression results using exchanged assets revaluation as dependent variable and OUTBOOK (or INBOOK), OUTFIX (or INFIX), OUTINT (or ININT), RPT, AUDIT, INDDIR, FINCON and the industry dummies (see Table 1 for SIC equivalence) as independent variables. OUTBOOK (or INBOOK) is the book values of surrendered (or acquired) assets. OUTFIX (or INFIX) takes value of one if surrendered (or acquired) assets include fixed assets and zero otherwise. OUTINT (or ININT) takes value of one if surrendered (or acquired) assets include intangible assets and zero otherwise. RPT takes value of one if the exchanged party is a related-party of sample firm and zero otherwise. AUDIT takes value of one if the exchange transaction is audited and zero otherwise. INDDIR takes value of one if the exchange transaction is supported by independent directors and zero otherwise. FINCON takes value of one if the exchange announcement is accompanied with an independent financial consulting report.

		Assets revaluation (surrendered)	Assets revaluation (acquired)
OUTBOOK		0.979***	--
		(46.86)	
OUTFIX		619.965	--
		(0.42)	
OUTINT		1884.030	--
		(0.52)	
INBOOK		--	1.010***
			(140.64)
INFIX		--	2289.565
			(0.94)
ININT		--	-1125.477
			(-0.46)
RPT		2800.283	910.464
		(1.38)	(0.35)
AUDIT		734.405	3137.953
		(0.43)	(1.47)
INDDIR		-1815.391	-2138.486
		(-1.11)	(-1.04)
FINCON		1553.945	2881.994
		(0.99)	(1.48)
	Food and Tobacco	-165.592	4466.724
		(-0.05)	(0.94)
	Basic industries including Petroleum	-1777.515	-4257.482
		(-0.61)	(-1.10)
	Construction	-2841.194	649.546
		(-0.76)	(0.13)
	Textiles and Trade	-2571.573	-3595.501
		(-0.79)	(-0.84)
Industry Dummies	Consumer Durables	-976.891	1096.899
		(-0.36)	(0.30)
	Capital Goods	-1972.734	-3919.787
		(-0.69)	(-1.06)
	Transportation	8279.583**	7547.296
		(2.08)	(1.50)
	Services including financial services	-2887.399	-4325.598
		(-0.65)	(-0.77)
	Conglomerate	-2005.478	-2749.125
		(-0.79)	(-0.82)
N		305	305
Adjusted R^2		0.912	0.986

Table 4 Abnormal assets revaluation (continued)

Panel B Abnormal assets revaluation descriptive statistics
This panel reports the abnormal assets revaluation for surrendered and acquired assets. The residuals obtained from the regressions in Panel A scaled by book value of exchanged assets are used to proxy for abnormal assets revaluation. The difference between the abnormal surrendered assets revaluation and abnormal acquired assets revaluation is used as a proxy for the quality of exchanged assets in later analyses. The abnormal assets revaluation measures are winsorized at the 1st and 99th percentiles. *** denotes statistical significance at the 1% level.

	Min	25th	Median	75th	Max	Mean	Std
Abnormal assets revaluation (surrendered)	-3.852	-0.252	-0.049	0.069	3.119	-0.085	0.853
Abnormal assets revaluation (acquired)	-7.278	-0.658	-0.141	0.134	7.220	-0.253	1.627
Abnormal revaluation difference (surrendered – acquired)	-7.179	-0.120	**0.108*****	0.469	4.635	**0.135*****	1.415

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Table 5 Tunneling and propping incentives of assets exchange

This table presents the OLS regression results using abnormal revaluation difference (ABREVDIF) as dependent variable and INCREST, INTENTION, ROA, SIZE, SRET, MTB, CASH, LEVERAGE, SALESG, PPEG, and the industry and year dummies as independent variables. Incomplete restructuring (INCREST) takes value of one if the firm is incompletely restructured during IPO process and zero otherwise. INTENTION equals one when the firm has the intention to avoid losses (it has previous one or two years' losses) or raise additional capital (either rights offering or seasonal equity offering) in the following year and zero otherwise. INCREST*INTENTION is an interaction term. Return on assets (ROA) is the operating income before depreciation scaled by book assets at the beginning of the fiscal year. SIZE measures the log book value of total assets in millions of Chinese Renminbi (RMB). Stock return (SRET) is computed over the fiscal year. Market-to-book (MTB) ratio is computed as the ratio between the market value of equity and the book value of equity. CASH denotes cash and short-term investments scaled by the book value of assets. LEVERAGE denotes book value of debt scaled by book value of debt plus equity. Sales growth (SALESG) and PPE growth (PPEG) measure growth in net sales and net plant, property, and equipment, respectively, over the previous fiscal year. * and ** denote statistical significance at the 10% and 5% level, respectively.

	Regression 1	Regression 2	Regression 3
	ABREVDIF	ABREVDIF	ABREVDIF
INCREST	-0.385**		-0.011
	(-2.11)		(-0.04)
INTENTION		0.581**	0.563**
		(2.27)	(2.05)
*INCREST * INTENTION*			0.170
			(0.97)
ROA	-5.156**	-5.296**	-5.314**
	(-2.35)	(-2.44)	(-2.43)
SIZE	-0.098	-0.109	-0.117
	(-0.72)	(-0.81)	(-0.83)
SRET	0.366	0.244	0.241
	(0.79)	(0.53)	(0.52)
MTB	0.012	0.012	0.010
	(0.39)	(0.39)	(0.32)
CASH	-1.878*	-2.058**	-2.061**
	(-1.88)	(-2.09)	(-2.07)
LEVERAGE	-0.396	-0.429	-0.456
	(-0.37)	(-0.41)	(-0.42)
SALESG	-0.038	-0.126	-0.121
	(-0.21)	(-0.66)	(-0.65)
PPEG	0.168	0.175	0.171
	(0.91)	(0.96)	(0.93)
Industry Dummies	Included	Included	Included
Year Dummies	Included	Included	Included
Intercept	2.158	2.554	2.617
	(0.75)	(0.90)	(0.91)
N	305	305	305
Adjusted R^2	0.078	0.090	0.095

Table 6 Cumulative abnormal returns surrounding assets exchange announcements

This table reports the 3-day, 5-day and 11-day cumulative abnormal returns surrounding assets exchange announcements. The normal return is predicted by a regression using security's daily return on market daily return. Abnormal return is then obtained from the residual of the regression model. The sample is divided into two groups based on either INCREST or INTENTION. INCREST and INTENTION are defined in Table 5. The last column reports the *t*-statistics for test of mean difference and *z*-statistics for test of median difference.

	Number of events	Average CAR (%)	Median CAR (%)	*t*-statistics (*z*-statistics)
Three-day window CAR (-1, +1)				
Full sample	305	0.706	0.052	
INCREST=1	171	0.846	-0.052	
INCREST=0	134	0.623	0.121	0.35 (-0.78)
INTENTION=1	142	1.123	0.086	
INTENTION=0	163	0.360	-0.016	1.16 (0.51)
Five-day window CAR (-3, +1)				
Full sample	305	0.829	0.151	
INCREST=1	171	0.919	0.116	
INCREST=0	134	0.850	0.224	0.18 (-0.60)
INTENTION=1	142	1.115	0.013	
INTENTION=0	163	0.595	0.170	0.70 (-0.59)
Eleven-day window CAR (-9, +1)				
Full sample	305	0.947	0.566	
INCREST=1	171	1.213	0.605	
INCREST=0	134	0.826	0.575	0.43 (0.58)
INTENTION=1	142	0.854	0.119	
INTENTION=0	163	1.023	0.656	-0.20 (-0.47)

Table 7 The association between abnormal assets revaluation difference and post-exchange firm performance

This table reports the results for regressions using post-exchange firm performance as dependent variables and ABREVDIF, ROA, SIZE, MTB, CASH, LEVERAGE and Industry Dummies as independent variables. Post-exchange firm performance is measured by both stock returns and financial performance. 12-month (24-month) post-exchange BHAR is the firm's 12-month (24-month) post-exchange buy-and-hold-abnormal-return (BHAR) starting one month after the assets exchange announcement month. One-year post-exchange ROA is the firm's ROA (operating income scaled by beginning-of-year total assets) in the fiscal year immediately after the assets exchange fiscal year. Average post-exchange ROA is calculated as the average of two years' ROA after the fiscal year of assets exchange. The independent variable of ROA is the firm's ROA in the fiscal year of assets exchange. SIZE measures the log book value of total assets at the end of exchange year. Market-to-book (MTB) ratio is computed as the ratio between the market value of equity and the book value of equity at the end of exchange year. CASH denotes cash and short-term investments scaled by the book value of assets at the end of exchange year. LEVERAGE denotes book value of debt scaled by book value of total assets at the end of exchange year. *t-statistics* are reported in parentheses. *, ** and *** denote two-tailed significance at the 10%, 5% and 1% level, respectively.

Explanatory variables	Regression 1 12-month post-exchange BHAR	Regression 2 24-month post-exchange BHAR	Regression 3 One-year post-exchange ROA	Regression 4 Average two-year post-exchange ROA
Intercept	2.362**	2.532**	-0.220**	-0.214**
	(2.05)	(2.27)	(-2.26)	(-2.14)
ABREVDIF	0.039**	0.051**	0.016**	0.015**
	(2.01)	(2.26)	(2.11)	(2.01)
ROA	1.316**	1.325**	0.419***	0.376***
	(2.00)	(1.98)	(8.95)	(8.47)
SIZE	0.071	0.063	0.011**	0.010**
	(1.58)	(1.56)	(2.05)	(2.03)
MTB	-0.057***	-0.056***	-0.000	-0.000
	(-5.16)	(-5.23)	(-0.26)	(-0.25)
CASH	0.032	0.033	0.072**	0.082**
	(0.09)	(0.09)	(2.26)	(2.37)
LEVERAGE	0.319	0.409	0.029	0.028
	(0.98)	(0.99)	(0.78)	(0.77)
Industry Dummies	Included	Included	Included	Included
N	305	305	305	305
Adjusted R²	0.113	0.115	0.393	0.387