Split share reform and earnings management: Evidence from China*

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Abstract: This paper investigates the impact of split share structure reform on earnings management in China. A unique institutional feature of China was the co-existence of two types of share that endowed all shareholders with equal voting and cash flow rights but different tradability. This split share structure significantly constrained the tradability of shares that led the Chinese Securities Regulatory Commission to make it mandatory for the conversion of non-tradable shares into tradable shares from 2006 onwards. We investigate whether such a conversion has any effect on information quality through reduced earnings manipulation. We specifically examine the incentives for earnings management during the reform-transition period. A unique feature of the split share reform has been the requirement for non-tradable share holders to compensate the tradable share holders. We argue that the rational response from the non-tradable share holders would be to pay a lower consideration to tradable share holders by portraying favorable picture through income-increasing earnings management. We also test for the effect of increase in tradable shares on earnings management during the reform transition and post-reform period.

Keywords: Earnings management, split share structure, agency problems.

1. Introduction

This paper investigates the effect of split share structure reform in China on the incentives for earnings management practices by Chinese corporate managers. A distinct feature that separated the Chinese stock market from those of other countries was the creation of a two-tier share structure consisting of non tradable shares (NTS) and tradable shares (TS) [1]. The NTS held by state and legal persons effectively gave the government absolute control over the joint stock companies. Such a split share structure arrangement has been argued to have created severe agency problems between the controlling (NTS holders) and minority shareholders because of the weak managerial incentives faced by NTS controlled firms to act in the best interest of the public shareholders (Wei & Geng, 2008). Considering this split share structure as an obstacle to the efficient functioning of the Chinese capital market, the Chinese government initiated a split-share structure reform to convert publicly listed firms' NTS to TS. The reform allows the NTS holders to sell and realize gains from stock price appreciation same as TS albeit through a gradual process. Event study analysis focusing on the market reaction of the reform announcement generally concludes that share reform has been successful evidenced by positive excess stock returns and increased trading volumes and liquidity (e.g., Liao, Liu & Wang, 2010; Lu, Balatbat, & Czernkowski, 2011).

We depart from the financial economists' approach and focus on the quality of accounting information-proxied by the magnitude of earnings management- to determine the effect of the split share reform. Research on earnings management in China is relatively sparse and primarily examines the managerial propensity to manage earnings to meet regulatory thresholds for equity issuance. For example, Chen and Yuan (2004) use data from 1996 to 1998 and report strong evidence that Chinese managers managed earnings to exceed the minimum 10% return-on-equity (ROE) requirement for right issues. We contribute to the earnings management research in China and financial reporting regulation in general, by considering a significant regulatory change with profound implications for Chinese stock market using a much longer sample period from 2001 to 2009 than any other studies on earnings management in China. We have broken down our sample period of 2001 to 2009 into three distinct time periods namely, *pre-reform period* (2001-04), *reform transition period* (2005-07), and *post-reform period* (2008-09) to examine the differential extent of earnings management by Chinese managers during these three regulatory phases.

We begin our analysis by investigating the association between NTS holdings and earnings management in the pre-reform period. Firth, Fung, and Rui (2007, p.465) argue that "…the controlling shareholders own non-tradable shares and so the market price of the tradable shares is of less interest to them; this may make them less concerned about the quality of public accounting information." The incentives for earnings management for these NTS firms may stem from the "expropriation" argument. Earnings management allows these NTS holders to transfer resources to other wholly-owned businesses. However, instead of examining the effect of NTS holdings on earnings quality, they test for the effect of TS holders on earnings management. They find a negative and marginally significant association between absolute discretionary accruals (DACCR), a proxy for earnings management, and INDIV (a proxy for tradable shareholders) using data from 1997 to 2003. Additionally, their results may be biased because of the inclusion of B along with A shares as components of TS. The financial statements of B-share companies are prepared following International Accounting Standards (IASs) and are all audited by Big 5 auditors in order to improve the credibility of financial statements. Firth et al. (2007) do not specify whether their sample also includes B shares. We, therefore examine the effect of NTS holdings on earnings management to provide a cleaner test since NTSs pertain to only A segment shares.

We then examine the incentives for earnings management during the reform-transition period. A unique feature of the split share reform has been the requirement for NTS holders to compensate the TS holders. Under the split share structure, tradable A-shares are priced with the expectation that non-tradable A-shares can't be traded in the open market. Hence, the former trades at a premium which represents the value of liquidity. After the reform, when non-tradable A-shares become tradable, there is an expectation that the pricing will improve this type of shares at the expense of shareholders of tradable A-shares. To avoid the inequitable transfer of wealth, shareholders of tradable A-shares must be compensated (Lu et al., 2011). We argue that the rational response from the NTS holders would be to pay a lower consideration to TS holders and the former group could engage in upward earnings management to achieve that goal. Such manipulated earnings will portray a profitable picture of the organization to the TS holders. If TS holders can't undo such strategic earnings management practices, then they may be content in accepting lower consideration value with the expectation that firm performance will continue to improve in the future. Increased firm performance, in turn, will boost the stock price to their benefit. Our empirical evidence, however, does not lend credence to such a proposition. We also tested for the effect of increase in TSs on earnings management during the reform

transition and post-reform period and find that there is no significant (negative) association between TS and DACCR during reform transition (post-reform) period respectively.

We use DACCR, an extensively used earnings management proxy, to test our hypotheses. Previous earnings management studies in China documented that dominant shareholders expropriate resources from minority shareholders by accrual management techniques (Aharony, Wang, & Yuan, 2009; Aharony, Lee, & Wong, 2000); and Chinese listed companies used such techniques to meet or beat earnings thresholds promulgated by the China Securities Regulatory Commission (hereafter CSRC) for regulations related to Initial Public Offering (IPO), right issues and delisting (Yu, Du, & Sun, 2006; Kao, Wu, & Yang, 2009). We find that NTS holding is positively associated with DACCR implying the presence of earnings manipulation in the pre-reform period.

Our paper contributes to the evolving literature on earnings management in China by providing direct evidence regarding the efficacy of the reform in improving the quality of accounting information in the backdrop of Chinese regulatory change and identifying a unique incentive- compensation consideration- for income-increasing earnings management.

The paper proceeds as follows. The next section provides a brief background discussion on the Chinese share market reform and develops testable hypotheses. Section 3 discusses research design and sample selection issues. Section 4 provides the substantive test results and sensitivity test results. Section 5 provides the implications of the findings and concludes the paper.

2. Background Information and Literature Survey
2.1 Chinese listed companies' two-tier share ownership structure

Under two-tier share structure regime, NTS and TS, having similar cash flow and voting rights but distinct tradability were common in listed companies in China. During Chinese privatization process, when a company lists on the stock market for the first time, about 64 percent of its shares were retained by the founders, typically, the state owned enterprises (SOEs). The other 36 percent of the shares were offered to the public as TS. The NTSs were not tradable on either the Shanghai or the Shenzhen Stock Exchange, but could be transferred off-market to other government agencies, legal entities, and foreign investing firms [3] on a State

Asset Management Bureaus (SAMB) approved price normally higher than the book value per share [4]. TS were held by minority shareholders and institutional investors like mutual funds, and were traded on stock exchanges. TS include A, B and H shares [5]. Originally, this two-tier share structure was designed to significantly constrain the tradability of NTS held by state and legal persons, which effectively gave the government absolute control over the partially privatized companies in stock markets while at the same time improving SOEs' performance using market mechanisms. However, such non-tradability is argued to have resulted on severe agency problems between the NTS and TS because of the (i) misalignment between risk sharing and the exercise of control by the NTS; (ii) free riding problem associated with TS, and (iii) weak managerial incentives (Wei & Geng, 2008).

Two-tier share structure distorts managerial incentives for shareholder value maximization because managers of the state and legal person-controlled firms have greater incentives to act in the best interest of state or legal persons/institutions because of their political appointments. Due to the co-existence of NTS and TS in listed SOEs and the absolute controlling shares held by NTS holders, management and NTS holders tend to collude through related party transactions or insider trading detrimental to the TS holders interest and firm value (Wei & Geng, 2008).

On the other hand, two-tier share structure creates the second type of agency problems between NTS and TS holders due to a lack of common interest for market discipline and maximizing shareholder wealth. Because NTS holders could not sell their shares on the public markets to realize gains through stock price appreciation as holders of TS could do, NTS holders may have been more interested in expropriating firm resources for their private benefit than increasing the stock price and maximizing firm value. If controlling shareholders intend to tunnel the firm value, they have incentives to mask true firm performance through earnings management practices (Liu and Lu, 2007). Earnings management aids such a practice by concealing true firm performance and their private control benefits from outsiders (Leuz, Nanda, & Wysocki, 2003).

2.2 Incentives for earnings management in China

A strand of empirical literature documents the pervasiveness of earnings management practices in China to meet certain profit thresholds required by the CSRC for Initial Public Offering (IPO), and rights issues (Aharony et al., 2010; Chen, Chen, & Su, 2001; Chen & Yuan, 2004; Chen, Lee, & Li, 2008; Haw, Qi, Wu, &

Wu, 2005; Szczesny, Lenk, & Huang, 2008; Yu et al., 2006) and to avoid delisting (Chen et al., 2001; Jiang & Wang, 2008). Wang, Chen, Lin and Wu (2008) examine the frequencies and magnitudes of earnings management under two different thresholds, zero earnings and prior earnings, in the Chinese market from 1997 to 2004 and report that earnings management is higher when firms try to avoid losses than when firms try to report earnings increase. Firth, Rui, and Wu (2010) find that firms with high debt and that plan to make equity issues are more likely to manipulate their earnings and thus have to restate their financial reports in subsequent years. Restating firms suffer from negative abnormal stock returns, increased cost of capital, and other adverse market consequences.

Earnings management and tunnelling through related party transactions is employed as a special form of expropriation in listed companies with two-tier ownership structure (Aharony et al., 2010; Ball, Robin, & Wu, 2000; Liu & Lu, 2007). For example, Liu and Lu (2007) examine whether earnings management in China's publicly traded companies is related to "tunnelling" of corporate resources by controlling shareholders for their own benefit. Their empirical evidence shows that total accruals and industry median adjusted accruals exhibit an inverse U-shape association with largest shareholdings suggesting an increase in opportunistic behavior with an increase in the largest shareholder's interest in the company. However when the largest shareholder's interest in the company reaches a certain level his incentive to further expropriate the firm's wealth decreases since the net gain from tunneling is no longer very significant. Alternative motives for earnings management in China have also been investigated. For example, corporate earnings management has been linked to executive compensation and promotion incentives. For example, Zhu and Tian (2009) find that the CEO pay-performance relation is substantially lower when firm performance is adjusted for the effect of earnings management than when firm performance is measured as reported performance. Managing directors in most of the SOEs are also government officials, who are evaluated on the basis of corporate performance measured by some mechanical standards like rate of return, net income level, and sales growth rates. Thus, they may have the incentives to window-dress the earnings for compensation and promotion purposes (Noronha, Zeng, & Vinten, 2008).

Direct evidence on the effect of two-tier ownership structure on earnings management is scant. Firth et al., (2007) is an exception. Also Ding, Zhang and Zhang (2007) report that earnings management is associated with ownership concentration, defined as the sum of top five largest shareholders, in listed SOE companies but not in private listed companies. Moreover, for listed SEOs the relationship between ownership concentration

and abnormal accruals depicts a U shape relation. That is, at lower level of ownership concentration, large shareholding curbs EM, whereas large shareholding has a positive effect on EM at high level of ownership concentration.

Taken together the strongest evidence on the incentive for earnings management is reflected in the regulatory requirement to meet profit thresholds. The effect of split share reform on earnings management has not received adequate research attention and this paper is a step toward that direction.

3. Development of hypotheses

In order to develop testable hypotheses we have broken down our sample period of 2001 to 2009 into three distinct time periods. We label 2001-2004 as the 'pre-reform period' and test for the effect of NTS holders on earnings management during this phase. The period 2005 to 2007 is labelled as 'reform transition period' and we test three hypotheses relevant to this period. Finally the period 2008-09 is labelled as 'post-reform period' and we test for the effect of TS holders on earnings management during this period.

Pre-reform period (2001-04)

We first examine the association between NTSs and DACCR in the pre-reform period to understand the effect of agency conflicts between NTS and TS holders on reporting outcomes. Two competing hypotheses regarding the effect of NTSs on earnings management can be postulated. On one hand, there may be no association between these two because of lack of incentives. Since NTS holders are not allowed to trade shares, the importance of stock price maximization is undermined and managers of firms dominated by NTS holders could find it less beneficial to engage in earnings management to inflate stock prices.

On the other hand, we can expect a positive association between NTS holdings and DACCR because this share structure disparity allows dominant shareholders to expropriate resources from minority shareholders by accrual and real earnings management through RP transactions (Aharony et al., 2009; Aharony et al., 2000). In addition, earnings thresholds promulgated by the CSRC) for IPO, right issue and delisting have created strong incentives for Chinese listed companies to meet or beat these requirements by practising earnings management (Yu et al., 2006). Aharony et al. (2010) report that companies engage in real activities management via related

party sales of goods and services to increase earnings in the pre-IPO period. In the post IPO- period parent company managers siphon off economic resources from minority shareholders in the subsidiary company.

H_1: There is no association between NTS holding and absolute DACCR in the pre-reform period.

Reform-transition period (2005-07)

An interesting feature of the split share reform was the requirement of the payment of consideration by NTS to TS holders. The consideration payment was necessitated because under the split structure regime, the value of liquidity was priced into the stock price, with the expectation that NTS are not tradable. Since the reform breaks the TS expectations of the value of liquidity, the stock price will decline because of the influx of shares in the stock market. If the shareholding structure remains the same after the reform then TS holders would incur losses. To compensation for this potential loss post-reform, TS holders require compensation from the NTS holders and negotiate it with NTS holders before reform plans are approved (Lu et al., 2011).

Liao et al. (2010) and Lu et al. (2011) suggest that existing investors may demand low consideration payment if they observe good current profitability and foresee good future performance as well. Consideration level is likely to be affected by corporate performance, because share price is comprised of both firm performance and the abnormal spill-over. *Ceteris paribus*, the better the corporate performance, the smaller the portion of liquidity spill-over (Lu et al., 2011). Therefore, TS holders will demand for less consideration in companies showing better performance. We argue that this provides an incentive for NTS holders to manipulate accounting information to exaggerate firm value prior to the consideration payment period using income-increasing abnormal accruals. We develop the following hypothesis to test this proposition:

H_2: There is a negative association between lagged income-increasing DACCR and the   level of consideration paid by NTS holders.

We also test for the effect of TS on DACCR during this period. Reform regulations stipulate that from the date of implementing the reform plan, NTS should not be traded or transferred within 12 months (a lockup period). On the date that 12-month lockup period expires, NTS can actually trade with the restrictions that (i) a former NTS holder who holds more than 5% of total shares of a listed companies, may sell their shares, with a maximum of 5% of the total shares of the listed companies, upon expiry of the lock-up period of 12 months, via the stock exchanges, and (ii) not more than 10 per cent within 24 month. So, the reduction in NTS is a gradual

process to accommodate the possible overflow of shares in the market. We regard 2005-2007 as a transitional period in which most of companies have completed consideration negotiation, and reform plan voting procedures and started the lock-up provisions on former NTS. We conjecture that the association between TS and DACCR is not likely to be significant because of this slow implementation of the reform plan, and hence develop the following testable hypothesis:

H₃: TS holding is not related to absolute DACCR over reform transition period.

Post-reform period (2008-09):

One of the significant principles of the split share reform is to improve listed companies' overall quality, providing investors with incremental returns and wealth (Congress 2004, No.3). Since accounting information quality is an integral component of overall corporate quality we would expect to see a stronger monitoring function performed by the TS holders and hence reduced earnings manipulation in the post-reform period. We develop the following testable hypothesis:

H₄: TS holding is negatively related to absolute abnormal accruals post-reform.

4. Methodology
4.1 Measurement of earnings management

We use Dechow, Sloan, and Sweeny (1995) and Kothari, Leone, and Wasley (2005) DACCR models to estimate earnings manipulation. Kothari et al. (2005) develop a performance-matched DACCR model to alleviate the mis-specification problem when applied to samples experiencing non-random performance. We estimate the following equation for all firms in the same industry (using CSRC two-digit industry code) in each year to get industry-specific parameters to calculate non-discretionary component of total accruals (*NDACCR*). *DACCR* is then the residual from equation (1), i.e., *DACCR= ACCRUALS-NDACCR*

$$ACCRUALS_t = \alpha_0(1/Assets_{t-1}) + \alpha_1 \Delta Sales_t + \alpha_2 PPE_t + \alpha_3 ROA_t + \varepsilon_t \tag{1}$$

Where, *ACCRUALS* equal change in working capital minus the depreciation and amortization expenses. Specifically,

$$ACCRUALS = (\Delta CA\text{-}\Delta Cash)\text{-}(\Delta CL\text{-}\Delta STD)\text{-}depreciation \tag{2}$$

Where

ΔCA is change in current assets,
ΔCL is change in current liabilities

Δ Cash is change in cash and cash equivalents
ΔSTD is change in short-term debt included in current liabilities
Δ Sales is defined as the change in revenue from main operation from t-1 to t,
PPE represents total fixed assets; and
ROA is return on assets. All variables are deflated by lagged assets.

4.2 Research design for test of H_1

We estimate the following regression equation to test H_1.

$$ABS\_DACCR_{i,t} = \beta_0 + \beta_1 NTS_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 MB_{i,t} + \beta_4 SGROWTH_{i,t} + \beta_5 ROA_{i,t} + \beta_6 OCF_{i,t} + \beta_7 OCF2_{i,t} + \beta_8 AU_{i,t} + \beta_9 LEVERAGE_{i,t} + \beta_{10} OPCYCLE_{i,t} + \varepsilon_{i,t} \qquad (3)$$

ABS_DACCR is absolute discretionary accruals calculated following equation (1). Our variable of primary interest is β_1 which captures the effect of NTS holders on DACCR. We do not make any prediction regarding the sign of the coefficient based on our previous arguments that there may be no association between these two because of lack of managerial incentives to use accounting information to influence stock prices. On the other hand, a positive association between NTS holdings and DACCR because this share structure disparity allows dominant shareholders to expropriate resources from minority shareholders by accrual and real earnings management through RP transactions (Aharony et al., 2009; Aharony et al., 2000).

We also include some control variables that existing earnings management research has identified to be important determinants of DACCR. Firm size (SIZE) is measured as the natural logarithm of market value of equity (MVE). Two opposing views exist on the role of firm size in earnings management. On the one hand firm size may be negatively associated with earnings management because of their having more sophisticated internal control systems, being audited by high quality auditors, and the risk of losing the more in the event of being detected for manipulating accounting information. In contrast, larger firms may be more likely to manage earnings than small-sized firms, since the former faces more pressures to meet or beat the analysts' expectations (Barton & Simko, 2002); large-sized firms have greater bargaining power with auditors and auditors are more likely to waive earnings management attempts by large clients (Nelson, Elliott, & Tarpley, 2002), and large-sized firms have more room to manipulate given wide range of accounting treatments available.

MB represents firm growth opportunities and is calculated as the ratio of market value of equity to book value of equity. MB is expected to have a positive association with DACCR as growth firms are found to use DACCR to signal private value-relevant information (Skinner & Sloan, 2002). SGROWTH is sales growth

and is measured as [Sales$_t$-Sales$_{t-1}$/ Sales$_{t-1}$], and is expected to be positively associated with DACCR (Menon & Williams, 2004). Prior studies show that Jones-type DACCR measures are sensitive to firm performance (Dechow et al., 1995). We have controlled firm performance within the industry while estimating discretionary accruals. In multivariate analysis, we estimate equation (1) across all industries and further include a performance variable as control (ROA). Dechow and Dichev (2002) find that lower quality of earnings is associated with poor performance, so we expect a negative coefficient on ROA. OCF is cash flow from operations, and we expect a negative coefficient on OCF because Subramanyam (1996) finds a negative relationship between OCF and abnormal accruals. Furthermore, Barua, Davidson, Rama, and Thiruvadi (2010) suggest a U-shape relation between DACCR and OCF, and find a positive effect of OCF^2 on DACCR. We follow their approach to control for possible quadratic effect of OCF on DACCR. Audit quality (AU) takes a value on 1 for firm-year observations audited by Big 5 auditors and 0 otherwise and expect a negative coefficient following the argument that high quality auditors constrain earnings management (Becker, DeFond, Jiambalvo, & Subramanyam, 1998). LEVERAGE is the ratio of total debt (long term debt + short-term debt) to total assets, and it is expected to be positively associated with DACCR as Defond and Jiambalvo (1994) find that firms manage earnings prior to the debt covenant violations. Dechow and Dichev (2002) also document that quality of accruals is negatively related to the length of operating cycle (OPCYCLE). We calculate OPCYCLE in days as [(AR$_t$ + AR$_{t-1}$)/2/ (Sales$_t$/360)] + [(Inventory$_t$+ Inventory$_{t-1}$)/2/ (COGS$_t$/360)] and expect the coefficient to be negatively related to DACCR.

4.4 Research design for test of H$_2$

As we have argued in the hypothesis development section that the payment of consideration by NTS to TS holders stipulated by the reform may have provided a strong incentive for managers to engage in income-increasing DACCR. This is premised on the ground that a strong operating performance may convince TS holders to accept lower consideration with the expectation that strong operating performance will boost future stock prices. We develop the following regression equation to test this hypothesis:

$$CONSHARE_{i,t} = \beta_0 + \beta_1 DACCR_{i,t-1} + \beta_2 ST_{i,t} + \beta_3 CONCASH_{i,t} + \beta_4 SIZE_{i,t-1} + \beta_5 PB_{i,t-1} + \beta_6 PE_{t-1} + \beta_7 ROA_{i,t-1} + \varepsilon_{i,t} \qquad (4)$$

Where, CONSHARE is the level of consideration paid in shares, and CONCASH is the level of consideration paid in cash. Based on H$_2$, we expect the coefficient on DACCR to be negative and significant.

CONCASH is included in the regression equation as an independent variable to control for the substitutive nature between these two froms of payments and therefore a negative coefficient is expected on CONCASH. ST represents share structure, calculated as TS percentage of total A shares before the initiation of the reform. If a company had more NTS holders pre-reform then there would have been more supply of shares on the market after reform, making the diluton effect on the stock price larger. Hence, TS holders will request more consideration to compensate wealth loss due to deline in share price (Lu et al., 2011). A negative coefficient on ST is expected. Firm profitability (ROA), growth opportunities (market-to-book values) and firm size (SIZE) are added as additional control variables.

4.3. Research design for test of H_3 and H_4

To investigate the impact of TS on DACCR values, we estimate equations (5) and (6) as reported below. In H_3 we posit that the effect of TS holding on curbing DACCR is not discernible during the reform-transition period. However, monitoring effect of TS holdings is expected to take place after reform, thus TS holding is expected to have a negative association with abnormal accruals post-reform (H_4). Equation (5) tests the effect of TS on DACCR on pre-reform, transitional and post-reform sub-samples respectively.

$$ABS\_DACCR_{i,t} = \beta_0 + \beta_1 TS_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 MB_{i,t} + \beta_4 SGROWTH_{i,t} + \beta_5 ROA_{i,t} + \beta_6 OCF_{i,t} + \beta_7 OCF2_{i,t} + \beta_8 AU_{i,t} + \beta_9 LEVERAGE_{i,t} + \beta_{10} OPCYCLE_{i,t} + \varepsilon_{i,t} \qquad (5)$$

We expect the coefficient on TS to be negative and statistically significant in the post-reform period and insignificant during reform-transition period.

4.5 Sample selection procedure

We start with an initial sample of 11,820 firm-year observations of non-financial companies listed on the Shanghai and Shenzhen stock exchanges which issued primarily A-shares from 2001 to 2009. The data is retrieved from RESSET database. Beijing Gildata RESSET data tech co.ltd (referred to as RESSET) is a high-tech company specialized in the development of financial research database and related investment research software. RESSET was co-established by several domestically and globally renowned finance and database experts. Other research using RESSET includes Calomiris, Fisman, and Wang (2010), Wang, Qiu, and Kong,

(2011), and Guo, and Fung, (2011). The sample size was reduced to 11,147 firm-year observations because of missing data for estimating abnormal accruals using modified cross-sectional Jones model expressed as Equation (1). Sample size further reduced to 10,763 firm-year observations because of missing values for TS, operating cycle, and negative MB ratio. Panel A in Table 1 explains the sample selection procedure.

[TABLE 1 ABOUT HERE]

Panel B of Table 1 reports the industry distribution of sample observations using CSRC two-digit industry classification. Machinery, Equipment, and Instrument industry represents 16% of the firm-year observations followed by Petroleum, Chemical, Rubber, and Plastic industry with 11%. Panel C displays the descriptive statistics of the cross-sectional Jones-based DACCR model. The coefficient on sales and PPE is positive and negative respectively and is consistent with the theory. The coefficient on the performance control ROA is also positive and statistically significant. The mean adjusted R^2 of the model is 28%. Panel D shows the descriptive results of regression variables. All variables have been winsorized at the top and bottom 1% of their respective distributions to deal with outliers. DACCR has a mean value of 0.0065 with maximum value of 20.72 and minimum value of -5.15. TS accounts for around 49% of companies' total A shares. OPCYCLE has a mean of 66 days with a standard deviation of 74 days. Panel E of Table 1 reports the correlation matrix of the regression variables. None of the pair-wise correlation is large enough to cause a concern for multicollenriaty (the largest correlation is 0.57 between OCF and OCF2).

5. Test Results

Table 2 provides multivariate regression analysis of the impact of NTS on DACCR practices in Chinese listed companies using data from 2001 to 2004 (the pre-reform period). We find that the coefficient on NTS is positive and statistically significant consistent with the argument that firms with high level of NTS holding suffer from acute agency problems because of the share structure disparity which allows dominant shareholders to expropriate resources from minority shareholders by accrual earnings management. H_1 is therefore rejected which hypothesized no association between NTS and DACCR in the pre-reform period. Firms with larger size (SIZE), high sales growth (SGROWTH), greater profitability (ROA), higher operating cash flow (OCF2), and higher leverage (LEVERAGE) tend to have larger DACCR, whereas there is a negative effect of

market to book ratio (MB), operating cash flow (OCF), and Big 5 auditors (AU) on DACCR. The effect of operating cycle (OPCYCLE), however, is not significant.

[TABLE 2 ABOUT HERE]

An interesting feature of the split share reform was the requirement of the payment of consideration by NTS to TS holders. We hypothesized that firms may engage in income-increasing DACCR practices to exaggerate firm value with the intention of paying less share-based consideration. To examine our hypothesized compensation incentive of earnings management in H_2 we regress share consideration on lagged income-increasing DACCR and other variables to test whether lagged DACCR is negatively related to share consideration. Eq (3) is used for such investigation and the results are reported in Table 3. A total of 557 firm year observations were used with a positive lagged DACCR values during 2004-2006 (2005 is the beginning of reform transition period) were used for analysis.

The coefficient on lagged income-increasing DACCR in Table 3 is positive which is contrary to expectation (coefficient value 0.09, t statistics 0.90). H_2 is therefore rejected. This evidence suggests that factors other than managerial strategic earnings manipulation behaviour may have played a considerably important role in negotiation bargaining decision. For example, Firth, Lin, and Zhou (2010) document that mutual fund ownership (the major institutional owner of TS) is associated with reduced compensation from NTS and especially in state owned firms. This suggests that state shareholders have incentives to complete the reform quickly and exert political pressure on mutual funds to accept lower consideration. We also included some other potential determinants of share-based consideration and find that cash consideration (CONCASH) and firm profitability (ROA) have a significantly negative relation with share consideration. The adjusted R² of the regression equation is 6% with a significant F- statistic of 11.82.

[TABLE 3 ABOUT HERE]

One of the significant principles of the split share reform is to improve listed companies' overall quality, providing investors with incremental returns and wealth (Congress 2004, No.3). Since accounting information quality is an integral component of overall corporate quality we would expect to see a stronger monitoring function performed by the TS holders and hence reduced earnings manipulation in the post-reform

period. We, however, propose that such an effect will be less pronounced in the reform-transition since this reform is not a one point execution of the regulatory provisions rather is executed gradually over a two-year period from 2005 to 2007. So TS holders gradually built up in the market and hence their monitoring activities are not likely to gain force until the entire NTS are actually tradable without restriction. We therefore do not expect any significant association between TS and DACCR in the reform-transition period.

To test H_3 and H_4, we employ Eq (5). Table 4 reports the results of such an analysis. Column two reveals the regression results for Eq. (5) for pre-reform period, and columns three and four show the results for reform-transition (2005-2007) and post-reform periods (2008-2009) respectively. TS holding (TS) is not significantly associated with DACCR in the pre-reform and during reform transition period, whereas we find a negative and statistically significant coefficient on TS in the post-reform period (coefficient -0.08, t-statistics -2.42). Several control variables, including ROA, OCF, OCF2, and AU have shown consistent signs and significance level as Eq (3) analysis results reported in Table 2. Adjusted R^2 is 0.10 and F statistics is significant.

[TABLE 4 ABOUT HERE]

We used an alternative DACCR proxy to validate our empirical findings. Hribar and Collins (2002) argue that the difference between net income and cash from operations extracted directly from the cash flow statement is the correct measure of total accruals and the use of the balance sheet approach may under certain circumstances like acquisitions, divestitures, accounting changes, foreign currency translation etc., may lead to a systematic bias in estimated discretionary accruals. Our empirical results using DACCR based on this alternative accruals definition provides generally consistent results.

6. Conclusions

The effect of regulation on the properties of accounting information has received significant research attention in different countries. The rationale for such studies hinges on the fact that compliance with regulation is costly and, therefore, this cost must be measured against the benefits derived in order to justify regulation. The bulk of the regulation and accounting information literature comes from the USA. However, more interesting insights are likely to be derived from studies of this kind in countries where enforcement

mechanisms are rather weak. China is one such example (Wang, Chen, Lin & Wu, 2008). This study takes advantage of the recent share market reform in China that is aimed at making its stock markets more vibrant and attractive to outside investors.

We investigate earnings management practices in China during pre-reform, reform transition, and post-reform periods. We document that the earnings management practices were constrained in the post-reform period where all NTS became TS holders. An interesting finding emerging from his research is the incentives for managers to engage in income-increasing DACCR practices to reduce the level of consideration from NTS holders to TS holders mandated by the regulation. Our empirical evidence, however, fails to provide support for this hypothesis.

This study suffers from a number of limitations. First, the result of any earnings management study depends to a certain extent on the reliability of the DACCR model as a proxy for earnings management. There is no best accruals model in the extant accounting literature. However, the performance-matched DACCR model has gained popularity because of the model's desirable property to control for extreme performances. Second, this paper did not directly address the possibility of other governance mechanisms playing an important role in constraining earnings management in the post-reform period. One such mechanism could be audit quality. The audit market in China is different from that of developed countries that competition among auditors is more pronounced in China due to active participation of small- and mid-sized CPA firms and low concentration of Big 4 auditors (Wang & Iqbal, 2009). We find that Big 4 audit concentration has remained relatively stable during the 2002-2009 sample period which rejects the conjecture that an improvement in audit marker (a substantial increase of audit market share by Big 4 audit firms) rather than the split reform *per se*, is associated with reduced earnings management. We do, however, acknowledge that concurrent improvement in other governance mechanisms like audit committees may negatively affect managerial DACCR practices.

Notes

1. A typical Chinese company was comprised of three predominant groups of shareholders: the state, legal persons/institutions, and individuals. State and legal persons hold NTS, while TS holders include institution and individual shareholders.
2. The Chinese government released "Circular on Issues relating to the Pilot Reform of Listed Companies Split Share Structure" on April 29, 2005 (CSRC. 2005a), and relevant guidelines and circulars (China Congress, 2004; CSRC, 2005b; CSRC, 2005c) pertinent to this reform. The CSRC selected two batches of firms for a trial reform in May and June 2005. The trial was deemed an incredible success and the full-scale reform then started. Till the end of 2007, 858 listed firms have accomplished the non-tradable reform (Green, Morris, & Tang, 2010).
3. Foreign entities are allowed to buy NTS from November 2002, and qualified foreign institutional investors are allowed to invest in A-share (reference).
4. NTS includes state-owned shares and legal person shares. State-owned shares are controlled by either government agencies (GA) or SOEs. GA can be central government ministries and commissions, national industrial companies, local government bureaus, local branches of the SAMB and state asset operating companies. Legal person shares are held by non-individual entities with mixed ownership structures like collectively-owned enterprises, township and village enterprises, private enterprises, non-bank financial institutions, joint stock companies, and foreign companies.
5. Liu and Liu (2007), among many others, explain the difference among these three segments of the shares. All B- and H-shares are TS. A-shares were divided into NTS-A shares and TS-A shares. The reform was aimed at converting NTS-A into TSs. Therefore, throughout this paper, TS and NTS are used to represent TS-A and NTS-A shares respectively.
6. Majority of the listed companies are profitable unit spun off from state-owned enterprises (SOEs). The parent-SOEs have incentives to siphon resources from the newly listed companies to subsidize their own business. One feasible way of doing this is tunnelling through related-party transactions. Existing studies have shown that corporate loans are the major form of tunnelling. It is reported that Chinese parent companies frequently do not pay debts to their listed companies, which is a direct reason for the untimely demise of many newly listed companies (Aharony et al., 2010).
7. Current Chinese Accounting Standards require public listed companies to disclose all material RP transactions in the notes to the financial statements. RP transactions can happen between listed companies and their parent SOEs, large shareholders, their parent companies' other affiliates or board members and management team. For more discussion on RP transaction issues in China, refer to Aharony et al. (2010).
8. The rationale for using lagged rather than contemporaneous DACCR can be justified on the ground that the idea of settling the problem of split-share structure has been incorporated in the Several Opinions of the State Council on Promoting the Reform, Liberalization and Stable Development of the Capital Market, as early as February 2004. The State Council clearly suggest that "the issue of split-share structure must be settled in a positive and reliable manner. In solving the problem, we should respect the rule of the market and exercise diligence in protecting the lawful rights and interests of investors, especially public investors" (Inoue, 2005).

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<div align="center">**Table 1**</div>
<div align="center">**Sample selection procedures and descriptive analysis of variables**</div>

Panel A: Sample selection procedure

Sample filtering	Observations
Initial sample retrieved from RESSET research database for the period 2001 to 2009 excluding financial institutions	11,820
Less: missing observations on lagged earnings and cash flows for calculating TACCR	(581)
Less: industry-year observations with less than 8 observations required for estimating discretionary accruals	(92)
Less: observations without listed TS information	(15)
Less: missing observations for calculating operating cycle (OPCYCLE) measure	(111)
Less: observations with negative market-to-book ratio	(258)
Final usable sample	10,763

Panel B: Industry distribution of the sample observations

CSRC Industry Classification	Firm-year Obs.	Number of Firms	Percentage Distribution
1-A Farming, Forestry, Animal Husbandry and Fishery	247	35	2.00
2-B Mining and Quarrying	194	35	2.00
3-C0 Food and Beverage	474	62	4.00
4-C1 Textile, Clothing, Fur	483	67	4.00
6-C3 Papermaking, Printing	200	32	2.00
7-C4 Petroleum, Chemical, Rubber, Plastic	1,162	166	11.00
8-C5 Electronic	407	71	4.00
9-C6 Metal, Nonmetal	969	138	9.00
10-C7 Machinery, Equipment, Instrument	1,715	244	16.00
11-C8 Medicine, Biologic Products	707	93	7.00
12-C99 Other manufacturing	133	20	1.00
13-D Production & Supply Of Power, Gas & Water	504	63	5.00
14-E Construction	239	36	2.00
15-F Transportation, Storage	461	64	4.00
16-G Information Technology Industry	622	95	5.80
17-H Wholesale and Retail Trades	721	91	7.00

19-J Real Estate	605	80	6.00
20-K Social Services	335	46	3.00
21-L Transmitting, Culture Industry	21	11	0.20
22-M Integrated	564	67	5.00
Total	10,763	1,516	100.00

Panel C: Descriptive analysis of cross-sectional estimation of abnormal accruals

$$ACCRUALS_t = \alpha_0(1/Assets_{t-1}) + \alpha_1\Delta Sales_t + \alpha_2 PPE_t + \alpha_3 ROA_t + \varepsilon_t \tag{1}$$

Variables	Coefficients	Mean	Median	Maximum	Minimum	Std. Dev.
$1/assets_{t-1}$	a_0	0.01	0.00	0.48	-0.14	0.05
$\Delta Sales$	a_1	0.06	0.02	1.89	-0.47	0.24
PPE	a_2	-0.16	-0.09	0.37	-6.70	0.67
ROA	a_3	0.38	0.32	3.93	-5.91	0.54
	Adjusted R^2	0.28	0.20	0.99	0.0064	0.23

Panel D: Descriptive results of regression variables

Variables	*Mean*	*Median*	*Maximum*	*Minimum*	*Std. Dev.*
DACCR	0.0065	-0.0006	20.72	-5.15	0.274
TS	48.70	44.13	100.00	2.4	21.3
SIZE	21.371	21.240	28.003	17.53	1.081
MB	3.6462	2.7974	21.467	0.795	3.089
SGROWTH	0.1126	0.0663	1.3798	-0.482	0.256
ROA2	0.0360	0.0317	0.2823	-0.197	0.067
OCF	0.0610	0.0566	0.3774	-0.249	0.096
OCF2	0.0131	0.0047	0.1424	2.54E-11	0.022
LEVERAGE	0.4907	0.5004	0.9153	0.077	0.185
OPCYCLE	66.223	44.831	440.71	0.399	73.56

Panel E: Correlation matrix

	DACCR	NDACCR	TS	SIZE	MB	SGROWTH	ROA	OCF	OCF2	LEVERAGE	OPCYCLE
DACCR	1										
NDACCR	0.001	1									
TS	-.020*	-0.018	1								
SIZE	0.013	0.009	.050***	1							
MB	-.025***	-0.005	-.026***	-.368***	1						
SGROWTH	0.019	.054***	-.118***	.142***	-.029***	1					
ROA	.058***	.041***	-.042***	.190***	-.101***	.380***	1				
OCF	-.260***	-.028***	-0.005	.152***	-.051***	.206***	.365***	1			
OCF2	-.061***	.028***	-.020*	.128***	.046***	.294***	.402***	.567***	1		
LEVERAGE	0.005	0.011	.077***	.223***	.223***	.111***	-.314***	-.12***	-0.012	1	
OPCYCLE	0.008	-0.009	-.069***	-.280***	.192***	-.231***	-.275***	-.21***	-.173***	0.01	1

* Pearson correlation is significant at the 0.10 level (2-tailed)

*** Pearson correlation is significant at the 0.01 level (2-tailed)

DACCR = abnormal accruals estimated using Equation (1);

$$ACCRUALS_t = \alpha_0(1/Assets_{t-1}) + \alpha_1\Delta Sales_t + \alpha_2 PPE_t + \alpha_3 ROA_t + \varepsilon_t \qquad (1)$$

Where,

$ACCRUALS = (\Delta CA-\Delta Cash)-(\Delta CL-\Delta STD)-depreciation$ (2)

ΔCA is change in current assets,

ΔCL is change in current liabilities

$\Delta Cash$ is change in cash and cash equivalents

ΔSTD is change in short-term debt included in current liabilities

$\Delta Sales$ is defined as the change in revenue from main operation from t-1 to t,

PPE represents total fixed assets; and

ROA is return on assets. All variables are deflated by lagged assets.

TS= the percentage of unrestricted tradable A shares as s proportion of total number of A-shares; ROA is return on assets, calculated as the net profit divided by total assets in year t; $SIZE$ is firm size and measured as the natural logarithm of market value of equity (MVE); MB represents growth opportunity and is measured as the ratio of MVE to book value of equity BVE; $SGROWTH$ is sales growth and is measured as [Sales$_t$-Sales$_{t-1}$/ Sales$_{t-1}$]; OCF is cash flow from operations; OCF^2 is the squared value of OCF; AU is audit quality and is coded 1 if the firm observation is audited by Big 5 auditors and zero otherwise; $LEVERAGE$ is the ratio of total debt (long term debt + short-term debt) to total assets; $OPCYCLE$ is operating cycle and is measured in days as [(AR$_t$ + AR$_{t-1}$)/2 / (Sales$_t$/360)] + [(Inventory$_t$+ Inventory$_{t-1}$)/2 / (COGS$_t$/360)], where AR is accounts receivable and COGS is cost of goods sold.

Table 2
The association between NTS holdings and DACCR during 2001-2004

$$ABS\_DACCR_{i,t} = \beta_0 + \beta_1 NTS_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 MB_{i,t} + \beta_4 SGROWTH_{i,t} + \beta_5 ROA_{i,t} + \beta_6 OCF_{i,t} + \beta_7 OCF2_{i,t} + \beta_8 AU_{i,t} + \beta_9 LEVERAGE_{i,t} + \beta_{10} OPCYCLE_{i,t} + \varepsilon_{i,t} \quad (3)$$

Variables	Coefficient sign	Coefficient (t-statistics)
Constant	?	-0.23(-20.23)***
NTS	+	0.00(3.50)***
SIZE	?	0.01(20.07)***
MB	+	-0.0008(-2.50)***
SGROWTH	+	0.02(5.84)***
ROA	-	0.45(32.13)***
OCF	-	-0.84(-87.47)***
OCF2	+	0.26(5.68)***
AU	-	-0.01(-8.52)***
LEVERAGE	+	0.0011(0.23)
OPCYCLE	+	-0.00(-1.01)
Adjusted R^2		0.29***
Observations		4,188

Note: *, ** and *** represents statistical significance at the 0.1, 0.05 and 0.01 level respectively.
Variable definitions: NTS is calculated as the total number of NT A shares divided by the total shares outstanding. Other variables are defined in Table 1.

Table 3
Consideration payment and income increasing earnings management

$$CONSHARE_{i,t} = \beta_0 + \beta_1 DACCR_{i,t-1} + \beta_2 ST_{i,t} + \beta_3 CONCASH_{i,t} + \beta_4 SIZE_{i,t-1} + \beta_5 PB_{i,t-1} + \beta_6 PE_{t-1} + \beta_7 ROA_{i,t-1} + \varepsilon_{i,t} \quad (4)$$

Dependent Variable: *CONSHARE*			
	Coefficient	t-statistic	Prob.
Constant	0.2390	1.4487	0.1480
DACCR$_{t-1}$	0.0876	0.8995	0.3688
ST	0.0282	0.4286	0.6684
CONCASH	-0.2597	-6.9459	0.0000
SIZE$_{t-1}$	0.0042	0.5655	0.5720
PB$_{t-1}$	0.0007	0.4647	0.6423
PE$_{t-1}$	0.0001	3.4652	0.0006
ROA$_{t-1}$	-0.2409	-1.6748	0.0945
Industry dummies	*Included*		
Adjusted R-squared	0.06		
F-statistics	6.32*		
Number of observations	557		

Note:

PB: Price to book ratio calculated as stock price divided by book value per share.
PE: Price to earnings ratio calculated stock price divided by earnings per share (EPS)
CONSHARE= coded 1 if the number of shares for consideration as a proportion of total TS is more than the sample median and zero otherwise.
CONCASH: Cash consideration paid during the reform transition period.
ST represents share structure calculated as [TS/Total tradable A shares before the reform].
Other variables are as defined before.

Table 4
The association between TS and DACCR during different phases of the split share reform regulation

$$ABS\_DACCR_{i,t} = \beta_0 + \beta_1 TS_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 MB_{i,t} + \beta_4 SGROWTH_{i,t} + \beta_5 ROA_{i,t} + \beta_6 OCF_{i,t} +$$
$$\beta_7 OCF2_{i,t} + \beta_8 AU_{i,t} + \beta_9 LEVERAGE_{i,t} + \beta_{10} OPCYCLE_{i,t} + \varepsilon_{i,t} \quad (5)$$

Variables	Equation (5)		
	Pre-reform (2001-2004)	**Reform transition (2005-2007)**	**Post-reform (2008-2009)**
Constant	-0.23(-3.75)***	-0.16(-2.08)**	0.34(1.74)*
TS	-0.00(-0.18)	0.00(0.02)	-0.08(-2.42)***
SIZE	0.01(4.30)***	0.01(2.43)***	-0.01(-1.20)
MB	-0.00(-0.63)	-0.00(-2.16)**	-0.00(-1.17)
SGROWTH	0.03(2.69)***	-0.00(-0.13)	-0.00(-0.08)
ROA	0.47(9.65)***	0.41(6.17)***	0.94(6.24)***
OCF	-0.86(-31.08)***	-0.77(-16.06)***	-1.57(-14.90)***
OCF2	0.34(2.25)**	0.76(2.49)***	1.97(4.36)***
AU	-0.01(-1.92)**	-0.01(-1.72)*	0.01(0.21)
LEVERAGE	0.01(0.48)	0.01(0.44)	0.05(0.90)
OPCYCLE	0.00(0.10)	-0.00(-0.20)	-0.00(-0.14)
Adjusted R^2	0.29***	0.14***	0.09***
Observations	4,188	3,702	2,873

Note: ***, ** and * represents statistical significance at the 0.01, 0.05 and 0.10 level respectively (two-tailed tests).
Variable definitions: variables are defined in Table 1.