Public versus Private Firm Responses to the Tax Rate Reduction in China

Kenny Z. Lin, Lillian F. Mills, and Fang Zhang

ABSTRACT: This study examines how public and private firms in China respond to the 2008 statutory tax rate reduction from 33 percent to 25 percent. Using a proprietary dataset of private firms, we find that private firms report significantly more income-decreasing current accruals than do public firms in 2007, the year prior to the tax rate reduction. These negative accruals were substantial and material, both compared with public firms and compared with 2008 accruals. By shifting their taxable income from a high- to a low-tax year, private firms save about 8.58 percent of their total tax expenses in 2007. Our results suggest that countries contemplating tax rate changes should expect material inter-temporal income shifting by private firms when they predict the short-term effects of changes in the tax rate on revenue.

Keywords: discretionary accruals; tax costs; financial reporting incentives; firm ownership.

JEL Classifications: H25; M41.

INTRODUCTION

How do managers of private firms differ from their public-firm counterparts in how they weigh tax savings against nontax financial reporting costs prior to an anticipated decline in the tax rate? Most of the research in this area is devoted to publicly traded firms in developed economies, including the U.S. in particular. The lack of available data limits comparable research on the trade-off between tax savings and nontax costs by privately held firms in developing countries, where behavioral responses could be larger due to weaker capital market constraints and less developed tax enforcement. As private firms are an important component of the economy and

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1 To a large extent, the success of China’s economic reform was achieved by developing a private sector that accounted for about 50 percent of the national GDP in 2011 (Huang 2012).
have different ownership structures and reporting incentives from public firms, Hanlon and Heitzman (2010) call for more work to help understand private firms’ reporting behavior. In this study, we use a proprietary dataset of private firms to contrast the reporting behavior of public (listed) versus private (unlisted) firms and provide an estimate of the private firms’ response to tax rate changes. Quantifying the inter-temporal response for private firms is particularly useful, given the paucity of evidence available to policymakers and revenue estimators on which to base predictions of the magnitude of responses by privately held firms to tax law changes (McClelland and Mills 2007).

The context of our study is China, which substantially reduced its statutory income tax rate for all domestic firms from 33 to 25 percent, effective on January 1, 2008. Deferring $1 taxable income from 2007 to 2008 would represent a permanent tax saving of $0.08. Therefore, earning 8 percent from a few months’ income deferral would generate a substantial annualized return.2 In this study, we examine how managers of public versus private firms weigh tax savings against nontax costs in response to the rate cut in 2008. To conduct this test, we identify several different groups of firms that have similar or changing tax versus financial reporting incentives. We compare 150 domestic, publically listed firms with 892 large, privately held firms whose long-term effective tax rate exceeds 25 percent in 2007. Our sample firms exclude state-owned enterprises (SOEs) and foreign investment enterprises (FIEs), and require a ten-year panel of data from 1999–2008 so that we can estimate abnormal current accruals. Our sample selection ensures that all sample firms use IFRS for financial reporting in 2008, and that they face the same tax incentives provided by the statutory tax rate decrease from 2007 to 2008.

Research suggests that nontax costs of reporting a decline in accounting earnings differ cross-sectionally. Compared with public firms, private firms face little market pressure and have lower nontax costs associated with reporting lower earnings, because reported earnings do not directly inform shareholders of firm value or convey information about firm performance (Klassen 1997; Mills and Newberry 2001). Therefore, to the extent that it is less costly to reduce accounting and tax earnings (i.e., report conforming transactions), private firms are likely to be more aggressive tax planners than public firms (Cloyd, Pratt, and Stock 1996; Mills and Newberry 2001).

We limit our measure of earnings management to discretionary current accruals, which are most directly related to taxable income in the U.S. (Guenther 1994) and in China. Current accruals are defined as changes in accounts receivable and inventories, net of changes in accounts payable and accrued liabilities (Lopez, Regier, and Lee 1998). To derive the discretionary component of current accruals, we reduce the firm’s reported current accruals by the nondiscretionary component estimated from regressing current accruals on the change in sales and accounts receivables over an eight-year period, from 1999 to 2006. To test whether discretionary current accruals differ over time and across firms, we then regress these accruals on indicator variables for whether the observations occur in 2007 (i.e., before the tax rate reduction) and whether they are private firm-years. We predict that private firms report significantly more income-decreasing accruals than public firms in 2007. We also predict that private firms report significantly more income-decreasing accruals in 2007 than in 2008.

Consistent with the above predictions, we find that private firms defer substantially more income from 2007 to 2008 than public firms. Specifically, in the year before the tax rate cut, the private firms’ discretionary current accruals as a percentage of assets are 4.1 percent lower than those of public firms. Given the mean (lagged) asset value of renminbi (RMB) 528 million, this translates to about RMB 21.6 million in discretionary accruals reduction. Private firms also report lower discretionary accruals before the enactment of the tax reduction compared with afterward. We estimate that by shifting taxable income from a high- to a low-tax year, the 892 private firms analyzed in this study save about RMB 1,060 million in aggregate taxes, or 8.58 percent of their total tax expenses.

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2 By way of comparison, the U.S. federal prime rate on December 11, 2007 was 7.25 percent, dropping to 6.50 percent by January 22, 2008. See: http://www.wsjprimerate.us/wall_street_journal_prime_rate_history.htm
Our paper builds on, and contributes to, temporal income shifting studies that use the tax rate cut as their context in China and the U.S. (e.g., Guenther 1994; Guenther, Maydew, and Nutter 1997; Klassen, Lang, and Wolfson 1993; Lin, Lu, and Zhang 2012; Lopez et al. 1998; Maydew 1997; Scholes, Wilson, and Wolfson 1992). These studies find that managers of public firms alter their financial reporting decisions to take advantage of tax cuts. However, none of these studies exploits the available data to determine the extent of income shifting by private firms, the group for whom researchers expect the greatest response to changes in tax rates. Mills and Newberry (2001) examine the effect of tax and nontax costs on book-tax reporting differences between large public and private manufacturing firms in the U.S. They find that declines in aggregate book-tax differences after the 1986 Tax Reform Act were mainly due to the firms’ lower reported taxable income. However, the effect of tax cuts on firms’ reporting differences is not their main focus, and they do not examine whether this effect is conditional upon the nature of firm ownership. Lin (2006) investigates whether foreign investment firms (unlisted private firms) in China alter their corporate reporting behavior in response to tax concessions, and find that these firms adjust their discretionary accruals in anticipation of changes in tax rates. To shed more light on the behavioral effect of the rate reduction by firms with different ownership structures, we compare the reporting behaviors of both public- and private-firm managers. By limiting our sample of privately held firms to large firms who face the same set of financial reporting rules as publicly traded firms in China, we hold accounting rules constant.

Our results should interest tax policymakers who need to predict the short-term effect of changes in the tax rate on revenue. For example, in the U.S., Congress recently averted its “fiscal cliff” with legislation signed by President Obama, but nevertheless postponed serious tax reform discussions, such as corporate tax rate cuts, into 2013. Furthermore, some European Union countries (e.g., France and Portugal) recently raised their corporate income tax rates after a long decline in the rates. Our findings suggest that the most extensive responses to tax rate changes occur among privately held firms, and we quantify shifting sufficient to decrease private firms’ tax expenses by nearly 9 percent. Our findings are also potentially useful in identifying the types of firms that are more likely to be tax avoiders and, thus, may help tax authorities to allocate their auditing efforts in the future. Moreover, given that across-the-board tax cuts do not necessarily lead to homogeneous financial reporting behavior, researchers examining this behavior should consider the issue of firm ownership in their modeling.

The rest of the paper is organized as follows. The second section describes the background and develops the hypothesis. The third section explains the research methodologies. The fourth section reports the results of the analysis. The fifth section concludes.

BACKGROUND AND HYPOTHESES

Financial and Tax Reporting in China

Financial and tax reporting in China has evolved as a response to economic reforms. Prior to 1978, state-owned enterprises (SOEs) were the dominant form of ownership in China, and the accounting system was primarily intended to assist the government in economic planning and policy implementation. To motivate firm performance, in 1983, the government implemented the “tax-profit substitution” system, under which firms were required to pay income taxes at differential

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3 Estimating the degree of likely income shifting by private firms is necessary to avoid surprises, particularly in the political climate in the U.S., where Congress is reluctant to raise the debt ceiling (Jaffe 2011).
4 Corporate income tax rates in the EU27 have risen slightly from 23.4 percent in 2011 to 23.5 percent in 2012, due to France and Portugal recently increasing their income tax rates to 36.1 and 31.5 percent, respectively.
rates depending on the size of the firm and the type of ownership. Since then, enterprise income
taxes have become an important source of government revenue.\(^5\) In 1994, the government ended
different rates for domestic firms and replaced them with a single rate of 33 percent.

China requires that all firms use the calendar year for both financial and tax reporting. The
taxable income is derived from the total income of a firm in each taxable year after deducting the
tax-free income, tax-exempt income, other deductible items, and the permitted carry-forward loss of
the previous year(s). Like book income, taxable income is mostly accrual-based. Accrued expenses
are generally tax-deductible (e.g., accrued interests, salaries and welfare payments, utilities, and
maintenance expenses). However, there are limits on the deductibility of certain expenses, such as
bad debt expense (restricted to 0.5 percent of accounts receivable year-end balances) and warranty
expense (limited to the actual expense).

In response to fundamental changes in the business environment, the government enacted a
number of accounting standards over the past two decades, including the Accounting Standards for
integration into the global economy, the government issued a new set of IFRS-equivalent
accounting standards in 2006. These standards apply not only to listed firms, but also to large-scale
and midsize unlisted firms established in China. To reduce administrative and compliance costs for
small businesses and firms without a need to raise capital through debt financing, the government
promulgated the Accounting Regulations for Small Enterprises in 2004.\(^6\) The coexistence of the
two sets of accounting regulations suggests that Chinese listed firms and unlisted large and
medium-sized firms face a level playing field in terms of mandatory accounting standards, although
listed firms face greater scrutiny from auditors, regulators, and the media, and are subject to stricter
information disclosure rules. For example, listed firms must disclose prospects, use of equity
funding, corporate governance practices (e.g., proportion of independent and non-executive
directors), significant corporate events, material related-party transactions, and audited financial
reports. Since 2006, listed firms must also have their internal control systems assessed by external
auditors (although the disclosure of the assessment report is voluntary). Because of the implications
for the public interest and for society as a whole, public firms face more severe litigation penalties
and regulatory sanctions for financial misstatements than private firms. For example, the litigation
rules issued by the Chinese Supreme Court in January 2003 apply to accounting frauds in the
securities market only.

The 2007 Corporate Income Tax Law

In March 2007, China replaced two previously separate income tax laws for domestic
enterprises and foreign investment enterprises (FIEs)\(^7\) with a single set of new enterprise income tax

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5 China’s 2010 tax revenue amounted to RMB 7.74 trillion (U.S.$1.17 trillion), of which value-added tax,
enterprise income tax, and business tax (the three largest taxes) accounted for 28 percent, 17 percent, and 15
percent, respectively (KPMG 2011).

6 There is no single, universally accepted definition of small- and medium-sized enterprises (SMEs) in terms of the
number of employees, sales revenue, and total assets. In 2011, China issued Classification Standards for SMEs
that divide SMEs in 15 industries into three categories: medium, small, and mini. The upper-limit standard for
medium-sized enterprises is the lower-limit standard for large-sized enterprises, and different industries have
different criteria. For example, large firms’ total annual sales range from RMB 50 million for property
management, RMB 400 million for the manufacturing industry, to RMB 2,000 million for the real estate
development sector.

7 FIEs refer to Sino-foreign equity joint ventures, Sino-foreign contractual joint ventures, and wholly foreign-
owned enterprises established within China. Equity joint ventures differ from contractual joint ventures in that
for equity joint ventures, profits and losses are shared according to the ratio of capital contribution made by
venturers, whereas for contractual joint ventures, profits and losses are divided according to an agreement not
necessarily in proportion to the venturers’ respective capital contributions.
laws, effective on January 1, 2008.\(^8\) The new tax law represents a fundamental change in China’s tax policy, from the preferential taxation of foreign direct investment to the neutral taxation of all businesses regardless of ownership. It not only consolidates the income tax law applicable to both domestic enterprises and FIEs, but also unifies tax rules, tax rates, and tax incentives. Most notably, the statutory income tax rate declines from 33 percent to 25 percent.

The 2008 law also provides an equal tax environment and a level playing field for all business owners.\(^9\) For example, the new law eliminates the dual system for tax incentives and abolishes previous salary deduction limits (up to RMB 2,000 per employee per month) that applied only to domestic firms. Although prior to 2008, domestic enterprises in targeted industries (e.g., public utilities and infrastructure) and locations (e.g., the western regions) also received preferential tax treatment, FIEs enjoyed even more preferences.\(^10\) The new tax incentives shift from granting incentives only in special regions to the entire country, from an orientation toward regional development to an orientation toward industry, and from an export-oriented economy to a domestically driven economy. The list of state-backed industries has expanded from agriculture, forestry, animal husbandry, fisheries, and public infrastructure to include new and high technology, environmental protection, energy and water conservation, and technology transfers. For example, the new tax law allows accelerated deductions for research and development (R&D) expenditures, fixed assets, and disability hiring, and provides investment credits for investment in environmental projects and in specialized relief organizations required by the state for emergencies that have a major effect on regular business operations.

Overall, although the new tax law abolishes most of the tax incentives previously granted to FIEs (e.g., tax holidays, reinvestment refunds, and the export tax rebate), there is some continuity between the two tax regimes in terms of the tax-incentive policies. For example, the preferential tax treatment continues to apply to investment in agriculture, forestry, animal husbandry, fisheries, and infrastructure construction. To address concerns about tax rate increases for some firms (mostly FIEs) whose applicable income tax rates are below 25 percent before 2008, the new tax law grants a five-year transition period, during which their rates would gradually increase to 25 percent by 2012.\(^11\)

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\(^8\) The concept of consolidating the two tax laws dated from the early 2000s. However, discussions about the tax reform were often ad hoc and nongovernmental. There were no concrete proposals put forth by the State Administration of Taxation before 2007. Although there were lengthy policy deliberations, there was neither a definite timeframe for the tax reform, nor a clear indication of the tax rate cut (other than that the new rate should be “comparable” to those of China’s 18 neighboring countries and regions). However, the Ministry of Finance did establish several guiding principles for the new law, including: equal taxation of all enterprises, sustainable development of the economy, reference to international tax norms, and efficiency in tax administration and simplicity in compliance (Jin 2007). The National People’s Congress passed the new tax law on March 16, 2007, to be effective on January 1, 2008. It appears that firm managers had sufficient lead time to arrange logistics and structure transactions to take advantage of tax benefits.

\(^9\) Small-scale or thin-profit enterprises can enjoy a reduced rate of 20 percent.

\(^10\) For example, although the standard tax rate was 33 percent before 2008, the majority of FIEs were taxed at half the standard rate. The Ministry of Finance and the State Administration of Taxation conducted a nationwide survey in 2005 and found that the effective tax rates were 24.53 and 14.89 percent for domestic enterprises and FIEs, respectively (Jin 2007). Therefore, the majority of FIEs would face tax rate increases starting from 2008.

\(^11\) For example, the applicable rates for firms subject to a reduced rate of 15 percent before 2008 for the five years from 2008 to 2012 are 18 percent, 20 percent, 22 percent, 24 percent, and 25 percent, respectively. Manufacturing firms that have not yet used their five-year tax holiday are allowed to continue to enjoy the holiday during the transition period. If the holiday has not yet started due to accumulated losses, the holiday will be deemed to commence from January 1, 2008. However, this transitional arrangement applies to none of our final sample firms.
Research Hypotheses

An extensive literature investigates the extent to which companies shift real or accounting earnings to optimize their tax situations. Tax rate-based incentives to shift income have generally been studied in three different contexts: between affiliated firms in different jurisdictions, between affiliated firms within a jurisdiction, and for the same firm across a period of time.\(^\text{12}\) In anticipation of a future tax rate decrease, firms can decrease total taxes by accelerating expenses or deferring revenues.

We predict we will observe income shifting through current accruals for three reasons. First, Slemrod (2001) posits that accounting manipulations are less costly than real investment changes. Real earnings management has direct consequences for cash flow and is, thus, costly to implement. For example, cutting marketing and advertising and canceling price discounts and tightening credit terms, although it may save cash in the current period, will negatively affect future sales and cash flows. Delays in the shipment of merchandise lead to lower earnings and cash flows in the short term, and also entail operating costs such as dissatisfied customers and the costs of holding inventory. Although reporting lower cost of goods sold through increased production (overproduction) can lead to higher operating margins, the firm is likely to incur other production and holding costs that will lead to higher annual production costs relative to sales, and lower cash flows from operations given the resulting sales levels. In contrast, some expenses may be managed through accounting methods with no direct effects on cash flow. For example, classifying more fixed manufacturing overhead to be period cost, expensing rather than capitalizing items to the greatest extent possible, and increasing the bad debt provision to the maximum allowed will result in a lower level of reported earnings for the current period, but have little in the way of direct consequences for cash flow.\(^\text{13}\) Second, reports by privately held companies in China do not include detailed information on cash flow. Thus, we cannot directly study effects such as the acceleration of payments for expenses or the delaying of cash sales. Third, income changes caused by accrual choices are less visible and less likely to be undone by the enforcing agency (Cahan 1992).

Because accounting income and taxable income are based on the same underlying economic transactions, there is an inherent link between these two incomes, such that transactions meeting the requirements for inclusion under one definition of income often meet the requirements of the other (Guenther et al. 1997; Mills and Plesko 2003). For transactions where book and taxable income conform, managers are forced to make a trade-off, although Shackelford and Shevlin (2001) conclude neither incentive consistently dominates the other in managerial decisions in the literature they review. Although some firms are willing to pay additional taxes on inflated earnings to reduce the likelihood of detection by regulators and enforcing agencies (Erickson, Hanlon, and Maydew


\(^{13}\) We considered testing whether the percentage of firms claiming the maximum tax-deductible amount of 0.5 percent of accounts receivables increased in 2007, particularly for private firms. Unfortunately, the data for private firms are not sufficiently granular to conduct this test, so we rely on the overall abnormal accruals tests.
2004), others are willing to decrease their accounting earnings to save tax (Guenther et al. 1997; Klassen 1997). Stein (1989) suggests that managers who face greater capital market pressure will place greater importance on nontax financial reporting costs of a proposed action, and will then sacrifice managerial efforts related to tax savings.14

Because public firms face greater market pressure than private firms, public firms will weigh more heavily the importance of financial reporting and the quality of earnings (Cloyd 1995; Cloyd et al. 1996). Therefore, we expect that public firms will shift less income forward in response to a tax rate cut, because public firms rely more on published financial statements to convey information.

Like their Western counterparts, managers of public firms in China also face capital market pressures for reporting accounting earnings.15 In addition, Chinese managers face earnings pressure stemming from the accounting-based regulations that govern securities listing, delisting, and equity financing through a rights issue.16 First, firms face exchange delisting if they report losses for three consecutive years. Second, firms applying for initial and subsequent public equity offerings need to maintain a minimum level of return on equity (ROE) in the previous three years. These performance-based requirements create a particular reluctance among public firms to record income-decreasing accruals to save taxes if they are near the profitability threshold.

In contrast, privately held firms are less concerned that managing earnings to minimize taxes could make earnings less informative to outsiders, in part because privately held firms and firms with concentrated ownership can use private channels to communicate information about the firm value (Klassen 1997). Compared with public firms, private firms are also smaller in scale and less visible in the public eye. To the extent that private firms are less subject to the pressures arising from public disclosure and external reporting, they are more likely to undertake transactions that produce tax savings without regard for financial reporting. Prior evidence suggests that relative to public firms, private firms are more aggressive in tax reporting and are more likely to report conforming transactions that reduce both accounting and tax incomes (Cloyd et al. 1996; Mills 1998; Mills and Newberry 2001). Private firms in China are similar to U.S. firms in that they face fewer regulatory pressures compared to public firms, unless they plan to go public in the immediate future.

We state our formal hypotheses as follows:

**H1:** Private firms report significantly more negative current accruals before the tax rate cut than in other periods, all else being equal.

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14 The nontax costs of reporting lower earnings are related to violations of accounting-based contracts (e.g., debt covenants and bonus plans), the breaking of earnings patterns, reductions in firm value and shareholder wealth, increases in the firm’s cost of capital, and scrutiny from the government, regulators, auditors, and the media. An incentive to reduce taxable income is the immediate cash flow saving. However, this action may also result in nontax costs related to the aforementioned examples and to increased government scrutiny and tax examinations (Mills and Newberry 2001). Therefore, managers usually consider tax and nontax factors when making a decision.

15 However, the magnitude of earnings pressure may not be the same in all cases. For example, because incentive-based compensation schemes and stock options are less common in China, Chinese managers may not have the same incentives to manage earnings as their U.S. counterparts (Aharony, Lee, and Wong 2000). They also face less pressure to meet analysts’ forecasts, because corporate governance and market mechanisms are weaker in China.

16 In contrast, mature stock markets normally set a minimum stock price and/or minimum market capitalization for continued listing. For example, once listed in the NASDAQ exchange, firms must meet all of the criteria under at least one of the three standards: the equity standard (e.g., shareholders’ equity of $10 million), the market value standard (e.g., bid price of $1 and market value of $15 million), and the total assets/total revenue standard (assets and revenue of $50 million each). According to Macey, O’Hara, and Pompilio (2008), violation of the minimum stock price standard was the most common cause of delisting from the New York Stock Exchange in 2008.
H2: Private firms report significantly more negative current accruals than public firms before the tax rate cut, all else being equal.

These hypotheses do have some tension. To the extent that both public and private firms only use disconformities between tax and financial accounting rules to shift taxable income without affecting book income (Phillips, Pincus and Rego 2003; Badertscher, Phillips, Pincus, and Rego 2009; Frank, Lynch, and Rego 2009; Plesko 2003), we would observe no difference. Although we acknowledge the direction of any response has limited tension, we believe the magnitude is of particular interest.

RESEARCH METHODOLOGIES

Sample Selection

We collect public firm data from the China Stock Market and Accounting Research (CSMAR) database that contains 1,698 domestic firms listed on the Shanghai and Shenzhen stock exchanges at the end of 2008. We exclude 23 financial institutions and banks because they use different financial reporting regulations. To keep the set of incentives for accruals management as homogenous as possible, we exclude 1,038 SOEs and focus on 637 non-state firms. Because we use data from the 1998–2006 period to predict tax-related accruals that are unmanaged (for tax purposes) for 2007 and 2008, we delete 225 firms that do not have data for at least ten consecutive years prior to 2008. Observing the same firms across time also ensures that the results are not caused by correlated omitted variables or by the changing mix of the sample firms over time. We obtain a panel of 412 public firms with data for at least ten years before 2008 (see Table 1, Panel A, for details). Although these 412 public firms represent long-established, surviving firms, they comprise 72.1 percent of the total revenue generated by the 637 non-SOE firms in 2008. Thus, the ten-year sample requirement still permits us to capture the bulk of firms that are neither state-owned firms nor financial institutions.

We collect private firm data from a dataset developed by the National Bureau of Statistics of China. The dataset contains firm-level annual reports of production activities and accounting and 17 If managers choose different sales cutoff points for book and tax purposes, use different asset useful lives for tax and financial reporting, shift tax basis from a non-depreciable asset to a depreciable asset, expense an item for tax purposes but amortize it for book, create tax losses without an equivalent charge against book income, use capital leases for book but operating leases for tax, omit taxable revenues already reported on the book, and recognize prepaid expenses for tax but adjust them for book, taxable income could be reduced without a corresponding effect on book income (Chan, Lin, and Tang 2013).

18 Although there was no specific prohibition against public offerings by FIEs on the Chinese stock markets, there was no real way for these enterprises to raise capital through an IPO, as the listing rules were designed only for domestic companies. In 2009, the Ministry of Commerce announced that it would formulate policies to encourage FIEs in China to “go public.”

19 On the one hand, SOEs are charged with the important objective of contributing to society (e.g., generating tax revenue, creating jobs, and providing social welfare such as health care, housing, and schooling). Hence, they face more political costs, resulting in being less sensitive to the tax rate change. This is consistent with federal contractors in the U.S. paying more tax due to more government scrutiny (Mills, Nutter, and Schwab 2013). On the other hand, SOEs have preferential access to both debt and equity financing, and often receive government bailouts that provide financial insurance to outside shareholders. To the extent SOEs face fewer capital market pressures to report high income, they may be able to reduce income in 2007 to save taxes. Combining SOEs and non-SOEs together would create noise in our statistical analysis and weaken the power of our tests.

20 Because our estimation of accruals requires lagged data, the earliest year we could start is 1999. The decision regarding the time horizon to estimate accruals involves a trade-off between having a longer period and having a larger sample size. If we require firms to have data for all 11 years (i.e., 1998–2008) to estimate accruals for the period 1999–2008, we lose about half of the sample for both private and public firms. Therefore, we relax this requirement to increase the sample size and, hence, the power in the statistical tests of hypotheses.
financial information for all industrial firms with annual sales exceeding RMB 5 million (approximately U.S.$0.8 million) in China for the 1998–2008 period. These firms are economically important as they account for most of China’s total industrial value. The dataset includes 372,860 such firms in 2008. We similarly exclude SOEs and FIEs, which also makes the private firms in our sample “purely” private.21

We impose additional restrictions in selecting our privately owned firms. First, we delete observations where data items are missing or exactly zero. Second, we exclude firms with a value of total sales below RMB 100 million to ensure that we only include observations whose operation

\[\text{Mean} \quad \text{Median} \quad \text{Minimum} \quad \text{Maximum} \quad \text{Std. Dev.}\]

<table>
<thead>
<tr>
<th>Panel A: Sample Selection</th>
<th>CSMAR database</th>
<th>NBSC database</th>
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<tbody>
<tr>
<td><strong>CSMAR database</strong></td>
<td>1,698</td>
<td>372,860</td>
</tr>
<tr>
<td>Financial institutions and banks</td>
<td>(23)</td>
<td>(88,215)</td>
</tr>
<tr>
<td>State-owned enterprises</td>
<td>(1,038)</td>
<td>(69,124)</td>
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<tr>
<td>Firms not existed for ten years</td>
<td>(225)</td>
<td>(239)</td>
</tr>
<tr>
<td><strong>Firms with ETRs &lt; 25%</strong></td>
<td>412</td>
<td>1,910</td>
</tr>
<tr>
<td><strong>Final sample</strong></td>
<td>(262)</td>
<td>(1,018)</td>
</tr>
<tr>
<td><strong>NBSC database</strong></td>
<td></td>
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<tr>
<td>State-owned enterprises</td>
<td></td>
<td>(88,215)</td>
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<tr>
<td>Foreign investment enterprises</td>
<td></td>
<td>(69,124)</td>
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<tr>
<td>Observations where data items were missing</td>
<td></td>
<td>(239)</td>
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<tr>
<td>Firms with annual sales below RMB 100 million</td>
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<td>(192,721)</td>
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<tr>
<td>Firms not existed for ten years</td>
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<td>(20,651)</td>
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<td><strong>Firms with ETRs &lt; 25%</strong></td>
<td>1,910</td>
<td>1,910</td>
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<td><strong>Final sample</strong></td>
<td>892</td>
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<th>CSMAR database</th>
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<tr>
<td><strong>CSMAR database</strong></td>
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<tr>
<td>All firms (n = 412)</td>
<td>0.163</td>
<td>0.195</td>
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<tr>
<td>Firms with ETRs &gt;25% (n = 150)</td>
<td>0.341</td>
<td>0.308</td>
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<tr>
<td><strong>NBSC database</strong></td>
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<tr>
<td>All firms (n = 1,910)</td>
<td>0.161</td>
<td>0.208</td>
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<tr>
<td>Firms with ETRs &gt;25% (n = 892)</td>
<td>0.364</td>
<td>0.364</td>
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</tbody>
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Prior to 2008, FIEs used different accounting standards and tax codes and, hence, may have exhibited reporting behavior different from those of our sample firms.
scales are clearly large. Focusing on economically significant firms also reduces the effects arising from potential differences in the application of accounting rules across the two different kinds of firms, because private firms of this size, like public firms, were required to use IFRS in 2008. Finally, we delete firms that do not have data for at least ten successive years prior to 2008. Using this procedure, we obtain a panel of 1,910 privately held firms. These firms obviously represent long-established, surviving firms. The average annual revenues of these firms are RMB 1,183 million in 2008, and together they account for 27.3 percent of the total revenues in the 60,654 non-state firms with annual revenues exceeding RMB 100 million.

Tax-Rate Decrease Firms

As mentioned earlier, although the standard income tax rate in China was 33 percent before 2008, some firms’ historical effective tax rates (ETRs) were lower due to tax planning and tax concessions provided by the government. Therefore, only firms with an ETR higher than 25 percent before 2008 have a powerful tax rate-based incentive to manage earnings downward in 2007. Our hypothesis testing calls for identification of those firms with a rate decrease. We follow Dyreng, Hanlon, and Maydew (2008) and calculate long-run ETRs by dividing the sum of tax expenses over a nine-year horizon (1998–2006) by the sum of pretax income over the same period. We then eliminate firms whose historical ETR is already below 25 percent.

Panel B of Table 1 presents descriptive statistics on long-run ETRs for the 412 public and 1,910 private firms that have data for at least ten years prior to 2008. The mean ETRs for all private firms are three percentage points higher than those of public firms over the period 1998–2006 (i.e., 19.5 percent versus 16.3 percent, respectively; t-stat. = 4.646, p-value < 0.000). We then compare these ETRs with the 2008 statutory rate of 25 percent to identify firms with a rate increase or decrease. We find that 892 out of 1,910 (= 46.7 percent) private firms and 150 of 412 (= 36.4 percent) public firms have a mean ETR greater than the reduced rate of 25 percent (by 5.8 percent for the former and 9.1 percent for the latter). In addition, untabulated results show that the average annual revenues of 892 private and 150 public firms are, respectively, RMB 776 million and RMB 2,232 million in 2008. In aggregate, these private firms account for 11.2 percent of the total revenues in the 22,561 unlisted private firms with annual revenues exceeding RMB 100 million.

22 In an earlier version of our manuscript, we obtained qualitatively similar results when we used a small sample of 129 privately held firms who were clients of Sinosure. Sinosure, the China Export and Credit Insurance Corporation, is a state-funded policy-oriented insurance company, mandated to promote Chinese exports. We are grateful to Richard Sansing (2012 AAA discussant) for urging us to obtain a broader sample of private firms to allay concerns about generalizability.

23 Following Graham and Mills (2008), Lo et al. (2010), and Lin et al. (2012), both use the stimulated marginal tax rate (MTR) to measure tax-motivated earnings management for Chinese public firms. Shevlin (1990) notes that the “true” MTR is unobservable, as it depends on managers’ expectations on the firm’s future tax status. We use the ETR rather than MTR for the following reasons. First, many studies find qualitatively similar results whether MTR or ETR is used (e.g., Gramlich et al. 2004; Jung et al. 2009; Lin et al. 2012). Second, the literature on MTRs acknowledges that MTRs cluster in a bimodal fashion near zero and near statutory rate (Graham and Mills 2008). Third, estimating the MTR with accuracy is difficult as it involves estimating, based on the firm’s financial statement data, the historical and future taxable incomes (which are prone to measurement errors; see Hanlon [2003]), and then determining the present value of future tax liabilities. Fourth, the ETR is a valid measure of a firm’s tax burden and is widely used in the literature (e.g., Dyreng et al. 2008; Gupta and Mills 2003; Klassen et al. 1993; Klassen and Laplante 2012; Rego 2003).

24 Because ETRs are calculated over long periods, significant year-to-year variations in tax expense and pretax income are reduced and, therefore, there is less of a need to truncate or reset any ETR value greater than 1 to 1 and any value less 0 to 0, or to delete firms reporting negative total tax expense and pretax income, if otherwise the annual ETR is calculated. We find robust results if we relax time limits by calculating the ratio of a firm’s three-year sum of tax expenses to its three-year sum of pretax income. This is not surprising, because the correlation between the long-run (nine-year) and short-term (three-year) ETRs is high (0.61, p = 0.000).
and the 150 public firms account for 33.7 percent of the revenues in the 637 (non-state) public firms. We base our main results on a sample of firms for whom the statutory rate cut should generate an effective tax rate decrease. In supplemental analysis, we consider the subsample of firms whose effective tax rate is already lower than the 2008 reduced statutory tax rate and who, thus, face less powerful incentives from the decreasing statutory tax rate.

Table 2 reports descriptive statistics partitioned by firm ownership in the year immediately before and after the tax rate decline. Although, on average, private firms are much smaller than public firms in terms of sales revenue and total assets, their sales revenue and total assets are about twice as much as the lower-limit threshold qualifying for large firms. Private firms appear to achieve a higher rate of return from investment in both years, suggesting that they are more efficient than their public firm counterparts in utilizing firm resources. For this rate-decrease sample, private firms’ annual ETRs are two percentage points lower than those of public firms in 2007 (t-test of means = −1.033, p-value = 0.302), and their ETRs are similar in 2008 (20.8 percent versus 21.0 percent, respectively; t-stat. = −0.091, p-value = 0.928).

Current Accruals

To capture a firm’s accruals management, we include items of current accruals commonly susceptible to tax-related earnings management (Hunt, Moyer, and Shevlin 1996; Lopez et al. 1998). It is similarly true in China that current accruals reflect high book-tax conformity even after IFRS adoption that may increase overall book-tax differences. Specifically, we define current accruals as changes in accounts receivable and inventories minus changes in accounts payable and accrued expenses, expressed as follows (the firm and time subscripts are omitted for simplicity hereafter):

$$CA = (\Delta AR + \Delta INV) - (\Delta AP + \Delta AE),$$

where $CA$ is the current accruals, and $\Delta AR$, $\Delta INV$, $\Delta AP$, and $\Delta AE$ are the changes in accounts receivable, inventory, accounts payable, and accrued expenses between year $t$ and year $t-1$, respectively. Increasing accounts payable and accrued liabilities to accelerate expenses and/or decreasing accounts receivable and inventories to defer revenue will cause accruals to be negative.

Table 3 (Panel A) reports mean current accruals before and after the rate cut for private versus public firms. Panel A reports the means of current accruals and their components, scaled by assets. Mean scaled current accruals are negative 2 percent before the tax rate cut in 2007, and 10.3 percent in 2008 when the rate cut is in effect. The untabulated mean value of current accruals is 4.1 percent of total assets for all firms over the two-year period.

The change in the tax rate has a differential effect on public and private firms. In 2007, private firms report negative 3 percent average current accruals to total assets, whereas public firms report a

---

25 The global financial crisis of 2007–2008 may partly explain profitability declines for public firms that are more reliant on exports compared with private firms.

26 Hribar and Collins (2002) recommend using differences between earnings and cash flows to measure accruals to avoid measurement error due to mergers and acquisitions. Although we do not have cash flow data to implement such a method, our private firms in China likely have less acquisition activity than U.S. publicly traded firms and would be subject to less measurement error as a result.

27 Examples of accelerating transactions that trigger accrued expense recognition include excessive commitment to discretionary items (e.g., entertainment, marketing and advertising, R&D, maintenance and repairs, training, and managerial development), classifying more manufacturing overhead to be period costs (rather than product costs), and expensing rather than capitalizing costs. Examples of revenue deferrals include canceling price discounts and tightening credit terms, delaying shipping merchandise to customers, and arranging sales on an installment, consignment, or completion basis. These actions are less likely to be challenged by external auditors as far as Generally Accepted Accounting Principles (GAAP) are concerned, because they represent legitimate exercise of managerial discretion.
TABLE 2
Descriptive Statistics on Firm Characteristics One Year Before and After the Tax Rate Cut
(n = 2,084)

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Private Firms</td>
<td>Public Firms</td>
<td>Mean Diff. b</td>
</tr>
<tr>
<td>Sales revenue a</td>
<td>728.84</td>
<td>2,095.01</td>
<td>-1,366.17**</td>
</tr>
<tr>
<td>Total assets a</td>
<td>541.67</td>
<td>2,811.17</td>
<td>-2,269.50**</td>
</tr>
<tr>
<td>Net profit/total assets</td>
<td>0.051</td>
<td>0.018</td>
<td>0.033**</td>
</tr>
<tr>
<td>Total debts/total assets</td>
<td>0.612</td>
<td>0.511</td>
<td>0.101**</td>
</tr>
<tr>
<td>Effective tax rates</td>
<td>0.252</td>
<td>0.273</td>
<td>-0.021</td>
</tr>
<tr>
<td>Number of firms</td>
<td>892</td>
<td>150</td>
<td></td>
</tr>
</tbody>
</table>

** Represents significance at the 1 percent level.
a In millions of Chinese Renminbi (RMB).
b Two-sample t-tests of the difference in means.
Effective tax rates for this table are the ratio of annual tax expense to the annual pretax income.
TABLE 3
Descriptive Statistics on Accruals Before and After the Tax Rate Cut for Private versus Public Firms

Panel A: Mean Current Accruals

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td>Pooled</td>
<td>Private Firms</td>
<td>Public Firms</td>
</tr>
<tr>
<td>Current accruals/assets</td>
<td>-0.020</td>
<td>-0.030</td>
<td>0.038</td>
</tr>
<tr>
<td>Total assets (rank transformed)</td>
<td>0.500</td>
<td>0.428</td>
<td>0.928</td>
</tr>
<tr>
<td>ΔAccounts receivable/assets</td>
<td>0.016</td>
<td>0.016</td>
<td>0.015</td>
</tr>
<tr>
<td>ΔInventory/assets</td>
<td>0.014</td>
<td>0.009</td>
<td>0.048</td>
</tr>
<tr>
<td>ΔAccounts payable/assets</td>
<td>0.018</td>
<td>0.019</td>
<td>0.017</td>
</tr>
<tr>
<td>ΔAccrued expense/assets</td>
<td>0.032</td>
<td>0.036</td>
<td>0.008</td>
</tr>
</tbody>
</table>

Panel B: Discretionary Current Accruals

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pooled</td>
<td>Private Firms</td>
<td>Public Firms</td>
</tr>
<tr>
<td>Mean</td>
<td>-0.040</td>
<td>-0.047</td>
<td>0.001</td>
</tr>
<tr>
<td>Median</td>
<td>-0.016</td>
<td>-0.018</td>
<td>-0.004</td>
</tr>
<tr>
<td>Minimum</td>
<td>-0.821</td>
<td>-0.821</td>
<td>-0.663</td>
</tr>
<tr>
<td>Maximum</td>
<td>0.819</td>
<td>0.799</td>
<td>0.819</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.231</td>
<td>0.241</td>
<td>0.157</td>
</tr>
<tr>
<td>Sample size</td>
<td>1,042</td>
<td>892</td>
<td>150</td>
</tr>
</tbody>
</table>

(continued on next page)
TABLE 3 (continued)

*, ** Represent significance at the 5 percent and 1 percent levels, respectively.

* Two-sample t-test (Wilcoxon z-test) of the differences in means (medians).

Model Specification:

\[ \frac{CA}{ASSETS} = \frac{a_1}{ASSETS} + a_2(\frac{\Delta SALES - \Delta AR}{ASSETS} + \epsilon), \]

where \( CA = (\frac{\Delta AR + \Delta INV}{C0}) - (\frac{\Delta AP + \Delta AE}{C0}) \).

Variable Definitions:

\( CA \) = current accruals in year \( t \);

\( ASSETS \) = beginning-of-the-year total assets;

\( \Delta SALES \) = the change in sales revenue from year \( t - 1 \) to \( t \);

\( \Delta AR \) = the change in accounts receivable from year \( t - 1 \) to \( t \);

\( \Delta INV \) = the change in inventory from year \( t - 1 \) to \( t \);

\( \Delta AP \) = the change in accounts payable from year \( t - 1 \) to \( t \); and

\( \Delta AE \) = the change in accrued expense from year \( t - 1 \) to \( t \).
positive and significantly different average of 3.8 percent scaled accruals ($t = -3.139, p = 0.002$). The significant increase in current accruals from 2007 to 2008 is much more striking for private firms. Mean scaled current accruals swing from negative 3 percent in 2007 to 11.5 percent in 2008, where the difference is highly significant ($t = -12.918, p = 0.000$). In contrast, public firms’ accruals reporting do not seem to be sensitive to the tax rate change ($0.038$ versus $0.030, t = 0.371, p = 0.711$).

Panel A also helps us understand what components of accruals differ across time between public and private firms. Most of the difference arises from private firms’ accrued expenses (beyond changes in accounts payable) being much greater in 2007 than in 2008. As Chinese firms must use the accrual method in computing taxable income and accrued expenses are mostly tax deductible, over-accrued expenses for major maintenance, for example, can significantly reduce a firm’s current tax expense.

**Discretionary Current Accruals**

Discretionary current accruals are the difference between total current accruals and nondiscretionary current accruals. In line with the methodology used in previous studies, we use the following model to measure nondiscretionary current accruals, where the basic accrual model derives from the Modified Jones Model (Dechow, Sloan, and Sweeney 1995):

$$CA = ASSETS = a_1/ASSETS + a_2(\Delta SALES - \Delta AR)/ASSETS + \varepsilon,$$

where $CA$ is from Equation (1), $ASSETS$ is the total assets at the beginning of the year, $\Delta SALES$ is the change in sales from year $t-1$ to year $t$, and $\Delta AR$ is as defined previously. We scale all variables by lagged total assets to reduce the effect of heteroscedasticity that can lead to inefficient least squares regression parameter estimates and biased estimates of those parameter variances. We estimate the parameters ($a_1$ and $a_2$) of Equation (2) using a time-series ordinary least squares (OLS) regression for each firm over the eight-year period from 1999 through 2006.28 Discretionary current accruals ($DCA$) in 2007 and 2008 equal the difference between the reported current accruals and the expected current accruals, as follows:

$$DCA = CA/ASSETS - [\beta_1/ASSETS + \beta_2(\Delta SALES - \Delta AR)/ASSETS],$$

where $\beta_1$ and $\beta_2$ are OLS estimates of $a_1$ and $a_2$, respectively.

Figure 1 plots the trends in estimated discretionary current accruals for the entire period 1999–2008. Results of a two-sample t-test suggest that the mean $DCA$ of private and public firms are significantly different only in 2007 and 2008, with the 2007 and 2008 mean accruals significantly below and above zero, respectively, for the private firms. Using the averaged scaled accruals of $-0.011$ for 1999–2006 as a benchmark for unmanaged earnings, the 2007 accruals are 3.6 ($= 0.047 - 0.011$) percentage points lower for an average private firm.

Panel B of Table 3 reports the descriptive statistics on discretionary current accruals for our sample. The mean discretionary current accruals are negative 4 percent of total assets in 2007 and 9.2 percent in 2008.29 Consistent with the results in Panel A, on average, the private firms record

28 That is, we assume that firms do not have a tax rate-based incentive to manage current accruals during this period. Therefore, these accruals are used as a benchmark measure of the “normal” level of accruals for the following year. We also acknowledge that the adoption of IFRS in 2007 may have changed the relation between accruals, asset sales, and accounts receivable. However, all firms are using the same financial reporting methods for the 1999–2006 benchmark period, so the estimation is consistent across firms.

29 The global financial crisis began with BNP Paribas ceasing activity in three hedge funds from August 2007. The winter of 2008 saw coordinated actions by the newly formed G20 countries in an attempt to prevent the recession turning into a slump. In response to the crisis, the Chinese government announced an RMB 4 trillion (U.S.$586 billion) stimulus package in November 2008. It is not clear when and how the crisis and massive state support affected corporate reporting behavior in China (however, the effect, if any, should have begun to be felt from 2009).
greater negative discretionary current accruals than the public firms in 2007 (−0.047 versus 0.001, t = −2.021, p = 0.000). They also report significantly more negative accruals in 2007 than 2008 (−0.047 versus 0.105, t = −11.290, p = 0.000). In contrast, public firms exhibit little differences in the reporting of these accruals between the two years (0.001 versus 0.015, t = −0.694, p = 0.490). The median values of $DCA$ show similar patterns. The results of a one-sample t-test (not reported) also indicate that the mean $DCA$ is significantly negative for private firms in 2007 (t = −4.987, p = 0.000). Private firms report negative discretionary current accruals to defer taxable income in 2007, and then report positive discretionary accruals to realize tax savings in 2008 (i.e., reversing revenue deferral and/or expense acceleration immediately in the following year). These cross-sectional and cross-temporal comparisons provide prima facie evidence that the magnitude of tax-induced accruals management is conditional on firms’ financial reporting incentives.

Regression Model

Our general model of changes in discretionary accruals for our full-sample tests of both public and private firms is as follows:

$$DCA = \gamma_0 + \gamma_1 PRETAXCUT + \gamma_2 PRIVATE + \gamma_3 PRETAXCUT \_ PRIVATE + \gamma_4 LEVERAGE + \gamma_5 SIZE + \gamma_6 LOSS + \gamma_7 INDUSTRY + \varepsilon,$$

(4)

where $DCA$ is the discretionary current accruals estimated from Equation (3). $PRETAXCUT$ is an indicator variable coded 1 if the observation occurs before the tax rate cut (i.e., 2007), and 0 otherwise. $PRIVATE$ is an indicator variable coded 1 if the firm is a private firm, and 0 otherwise. Our variable of interest is the interaction term $PRETAXCUT \_ PRIVATE$. The coefficient for private firms in 2007 is the sum of $\gamma_1$, $\gamma_2$, and $\gamma_3$. If the private firms report significantly more negative
accruals in 2007 than in 2008 (H1), then $\gamma_3$ should be negative and, further, $(\gamma_1 + \gamma_3) < 0$; if they report significantly more negative accruals than public firms in 2007 (H2), then $(\gamma_2 + \gamma_3) < 0$.

Prior research suggests various controls for firm characteristics that explain accruals practices. In particular, we include the debt/assets ratio (LEVERAGE) to capture the existence of financial tightness of accounting-based covenants (H. DeAngelo, L. DeAngelo, and Skinner 1994; Mills and Newberry 2001). On the one hand, the higher the ratio, the closer firms are to violating a covenant, and the less likely managers are to select income-decreasing accounting choices. On the other hand, increases in leverage constrain managerial opportunistic behavior and reduce upward earnings management (Jelinek 2007; Jensen 1986). We also include the rank-transformed total assets (SIZE) to control for size-related effects that could be associated with political power or sensitivity. Whereas politically powerful firms may manage earnings downward to take advantage of tax benefits, politically sensitive firms may not take the same action (Scholes et al. 1992; Watts and Zimmerman 1990; Mills et al. 2013). Although our institutional knowledge of China suggests that larger firms are more powerful, they are also more sensitive to government scrutiny. Due to tension in either direction, we make no predictions about the sign on the leverage or size variables.

Because firms making a loss face the possibility of debt covenant violation, both public and private firms have incentives to avoid reporting losses through discretionary accruals. To control for the differential incentives of profit and loss firms, we also use an indicator variable (LOSS) that equals 1 if a firm’s net income is below zero in the current year, and 0 otherwise. Finally, we include INDUSTRY (a set of dummy variables for the 12 sub-industry classifications) to control for industry fixed-effects, although its typical inclusion would only have a prediction in models of noncurrent accruals due to higher depreciation. We make no prediction concerning current accruals.

**EMPIRICAL RESULTS**

**Multivariate Analysis**

Table 4 provides the overall results for Equation (4), which formally tests whether private firms make greater negative discretionary accruals in 2007 relative to 2008 (H1), and whether they make greater negative accruals than public firms in 2007 (H2). Our $R^2$ is comparable to that of previous studies of temporal income shifting (e.g., Guenther 1994; Lopez et al. 1998), and the model is significant at the $p < 0.001$ level.

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30 We spoke to Chinese bank managers to confirm that debt covenants constrain Chinese firms in a way similar to U.S. firms, in that when covenants are breached, the earlier repayment of principal can occur, or firms must renegotiate terms.

31 Firm size is highly skewed toward the public firms. Rank transformation is more efficient than alternative procedures, such as log transformations and sample trimming, for avoiding the estimation problems associated with skewness (Lennox 2005). The rank transformation procedure involves replacing each observation with its rank within the sample and then dividing each observation by $N+1$, where $N$ is the number of observation. Thus, the ranked variable (SIZE) is uniformly distributed between zero and one.

32 The literature suggests that Chinese public firms tend to manage earnings upward prior to IPOs or issuing additional equity through a rights offering (e.g., Aharony et al. 2000; Chen, Lee, and Li 2008; Chen and Yuan 2004). None of our private firms went public during the sample period, and private firms do not have equity financing, but have access to debt instead. We would lose all of the private firm-years (85 percent of the population) if the effect of an IPO or a rights offering on accruals management was examined in the model. During 2007–2008, a quarter of the public firms in our study issued rights offerings. We deal with this subgroup of firms in the “Robustness Checks” subsection. We also consider the loss-avoidance incentives of public versus private firms. We find no incremental effect for interacting LOSS with PRIVATE, so we have not included the interaction term in the model.
Controlling for size, financial leverage, current year loss, and industry-fixed effects, the coefficient of $-0.138$ for the interaction term $\text{PRETAXCUT}_\text{PRIVATE}$ is consistent with private firms recording incrementally income-decreasing accruals before the rate change. The coefficient for private firms is $0.056$ ($c_1 + c_2 + c_3$) before, and $0.097$ ($c_2$) after, the rate decline. This is consistent with the argument in H1 that private firms shift income forward in response to an anticipated decline in the income tax rate. The difference in the two coefficients is statistically significant at the 1 percent level. Illustrated in terms of economic significance, this 15.3 percent ($=0.056 + 0.097$) difference roughly translates into about RMB 80.8 million of discretionary accruals reduction for an average private firm with RMB 528 million in lagged assets. Untabulated results indicate that these firms save approximately RMB 1,060 million in taxes, or 8.58 percent of their total tax expense, by shifting taxable income from a high- to a low-tax year.

The difference in the coefficients of private and public firms ($-0.056$ versus $-0.015$) before the rate drop is also statistically significant at the 1 percent level, and is economically significant. For example, given the mean asset value of RMB 528 million for a private firm in 2006, the difference of 4.1 percent ($=0.056 - 0.015$) in the ratios of discretionary current accruals to total assets approximately translates into an accruals reduction of RMB 21.6 million for an average firm. These results suggest that private firms consider tax incentives to be relatively more
important than do public firms. The observed difference in the results is unlikely to be caused by the difference in the application of accounting standards, because both groups of firms face largely the same set of financial reporting rules in China. The observed results are also unlikely to be driven by the adoption of IFRS in 2007 that applies both to listed firms and to large and midsize unlisted firms.33

The coefficient for \( \text{PRETAXCUT} \) is insignificant, indicating that public firms in China appear willing to forgo tax savings due to nontax financial reporting costs. Guenther (1994) finds that large public firms appear to decrease accruals in 1986, prior to the U.S. tax rate cut phased in by the 1986 Tax Reform Act. However, he finds no evidence of income shifting by public firms in the bottom three quartiles. Lin et al. (2012) use the 2007 tax reform as a setting to examine the effect of a tax rate change on accruals management of Chinese public firms, which are partitioned into two subgroups based on whether they anticipated a tax rate increase or decrease in 2008. They find that relative to the rate-increase firms, rate-decrease firms report significantly negative accruals in 2007. Unlike Lin et al. (2012), our study examines the accruals management of public versus private firms while holding the rate change constant (as we restrict our analysis to the rate-decrease firms), and we focus on the firms that existed for at least ten consecutive years prior to 2008. To reconcile our study with their results, we regress the discretionary current accruals on an indicator variable for whether firms anticipate a rate decrease and the same control variables as in Table 4. Based on a sample of 412 public firms (the 262 rate-increase and the 150 rate-decrease firms we use in Table 4) in 2007, we find that firms anticipating a tax rate reduction make greater negative accrual shifts than their counterpart firms facing a rate increase (untabulated coefficient = −0.05, \( t = −2.01 \), and p-value = 0.040).

Supplemental Analyses

**Tax Rate Increase Firms**

Firms with an ETR below 25 percent before 2008 could face a rate increase starting in 2008 if they were unable to find similar ways to reduce their tax burden below the statutory rate. We identify a sample of 1,018 private firms and 262 public firms with an apparent rate increase under the new regime. Relative to private firms, we find public firms make smaller income-decreasing accruals, on average, before a rate decrease, but make larger income-increasing accruals before a rate increase. The 2007 mean discretionary current accruals are 0.017 and 0.040 (untabulated) for private and public firms, and the difference is insignificant (\( t = −1.022 \), p-value = 0.307). Table 5 reports the multivariate regression on \( \text{PRIVATE} \) for the tax rate increase sample. The \( \text{PRIVATE} \) coefficient is negative, but insignificant. This suggests that both sets of firms behave similarly in accruals management when facing a tax rate increase.

**Effective Tax Rate Measure**

Because traditional ETRs capture only non-conforming tax avoidance, they are a less useful indicator of private firms’ tax aggressiveness, as private firms have few incentives to report non-conforming book income (Hanlon and Heitzman 2010; Mills and Newberry 2001). As such, Hanlon and Heitzman (2010) argue that it does not make sense to use ETRs to compare tax reporting behaviors across firms that place differing levels of importance on book income.

---

33 However, to the extent that IFRS is differentially applied, firms’ financial reporting behavior may differ. As China’s adoption of IFRS in 2007 makes it easier, not harder, for managers of public firms to manage earnings through accruals (He, Wong, and Young 2011), our finding that public firms involve less earnings management than private firms is unlikely to be due to IFRS adoption. In other words, the adoption of IFRS would work against finding that the public firms use earnings management to a lesser extent than the private firms.
Therefore, instead of deflating the tax expense by the same period’s pretax income (which would make tax-induced earnings management undetectable, because both the numerator and denominator are managed downward for tax purposes), we deflate tax expense by pretax income in 2006. In untabulated tests, we find that relative to public firms and the results for 2008, private firms’ scaled tax expense is significantly lower in 2007.

Robustness Checks

We perform the following secondary analyses to check the robustness of our main results. First, to eliminate potential understated standard errors in a pooled, cross-sectional regression, in Table 6, we partition the firms into four subsamples, by firm ownership and event year, and run four separate regressions. Estimating the partitions separately also allows the control variables to have different effects across partitions.

Panels A and B, respectively, show the results of testing H1 and H2. As expected, PRETAXCUT is significant and negatively signed only for the private-firm sample, with a coefficient of −0.152 (Panel A, Column 1), similar to the 0.153 difference in coefficients between 2007 and 2008 inferred from the results in Table 4. Similarly, the coefficient for PRIVATE is significant and negative in the year prior to the tax change (Panel B, Column 1). Consistent with the sign and statistical significance of the PRIVATE coefficient in Table 4, Panel B (Column 2) shows that the coefficient of this variable is positive and significant, suggesting that private firms make greater accrual reversals than public firms when the tax rate is lower. The 11.2 percent difference translates into about RMB 59 million in increased income for an average private firm with RMB 528 million in lagged assets. These results are consistent with those in Table 4.

Second, we conduct tests to rule out the possibility that large firms drive our results. We replicate the analysis of Table 4 first by removing 150 firm-years with total assets above the sample median and report the results in Table 7 (Panel A). We alternatively retain only the top quartile of private firms, while omitting the top quartile of public firms to make the public and private firms’ asset size statistically indifferent (untabulated t-test of the difference in mean assets = 0.005, p-value = 0.996, with multivariate results in Panel B). Our main results are invariant to any of these sample reductions.

### TABLE 5

<table>
<thead>
<tr>
<th>Exp. Sign</th>
<th>Coefficient</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>?</td>
<td>0.010</td>
<td>0.34</td>
</tr>
<tr>
<td>PRIVATE</td>
<td>+</td>
<td>−0.021</td>
<td>−0.91</td>
</tr>
<tr>
<td>SIZE</td>
<td>?</td>
<td>0.037</td>
<td>1.19</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>?</td>
<td>0.006</td>
<td>2.93</td>
</tr>
<tr>
<td>LOSS</td>
<td>?</td>
<td>−0.052</td>
<td>−1.53</td>
</tr>
<tr>
<td>INDUSTRY</td>
<td>?</td>
<td>Included</td>
<td></td>
</tr>
</tbody>
</table>

F = 2.59, p = 0.025*, Adj. R² = 0.006, n = 1,280

*, ** Represent significance at the 5 percent and 1 percent levels, respectively.

Model Specification:

\[ DCA = a_0 + a_1 \text{PRIVATE} + a_2 \text{SIZE} + a_3 \text{LEVERAGE} + a_4 \text{LOSS} + \gamma_k \text{INDUSTRY}. \]

All variables are as defined in Table 4.
### TABLE 6
Regression Results: By Firm Ownership and By Event Year

#### Panel A: Will Private Firms Make Greater Income-Decreasing Accruals Before than After the Tax Rate Cut? (H1, Column 1, Below)

<table>
<thead>
<tr>
<th>Expected Sign</th>
<th>Private Firms (Column 1)</th>
<th>Public Firms (Column 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>PRETAXCUT</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>SIZE</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>LOSS</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>INDUSTRY</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.097</td>
<td>2.02</td>
<td>0.043*</td>
</tr>
<tr>
<td>-0.152</td>
<td>-11.41</td>
<td>0.000**</td>
</tr>
<tr>
<td>0.026</td>
<td>1.11</td>
<td>0.268</td>
</tr>
<tr>
<td>0.019</td>
<td>0.73</td>
<td>0.463</td>
</tr>
<tr>
<td>-0.031</td>
<td>-1.81</td>
<td>0.070</td>
</tr>
<tr>
<td>-0.008</td>
<td>-0.99</td>
<td>0.932</td>
</tr>
<tr>
<td>-0.016</td>
<td>-0.80</td>
<td>0.424</td>
</tr>
<tr>
<td>0.053</td>
<td>1.40</td>
<td>0.162</td>
</tr>
<tr>
<td>0.003</td>
<td>0.32</td>
<td>0.749</td>
</tr>
<tr>
<td>-0.074</td>
<td>-2.35</td>
<td>0.019*</td>
</tr>
</tbody>
</table>

\[ \text{F} = 14.75, \ p = 0.000**, \ \text{Adj. R}^2 = 0.065, \ n = 1,784 \]

#### Panel B: Will Private Firms Make Greater Income-Decreasing Accruals than Public Firms Before the Tax Rate Cut? (H2, Column 1, Below)

<table>
<thead>
<tr>
<th>Expected Sign</th>
<th>Before the Tax Rate Cut (Column 1)</th>
<th>After the Tax Rate Cut (Column 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>PRIVATE</td>
<td>–</td>
<td>?</td>
</tr>
<tr>
<td>SIZE</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>LOSS</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>INDUSTRY</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.026</td>
<td>-0.41</td>
<td>0.683</td>
</tr>
<tr>
<td>-0.060</td>
<td>-2.13</td>
<td>0.034*</td>
</tr>
<tr>
<td>0.104</td>
<td>3.61</td>
<td>0.000**</td>
</tr>
<tr>
<td>0.033</td>
<td>0.98</td>
<td>0.328</td>
</tr>
<tr>
<td>-0.023</td>
<td>-1.04</td>
<td>0.300</td>
</tr>
<tr>
<td>0.018</td>
<td>0.27</td>
<td>0.786</td>
</tr>
<tr>
<td>0.112</td>
<td>3.85</td>
<td>0.002**</td>
</tr>
<tr>
<td>-0.048</td>
<td>-1.63</td>
<td>0.104</td>
</tr>
<tr>
<td>0.002</td>
<td>0.19</td>
<td>0.852</td>
</tr>
<tr>
<td>-0.048</td>
<td>-2.23</td>
<td>0.026*</td>
</tr>
</tbody>
</table>

\[ \text{F} = 1.63, \ p = 0.076, \ \text{Adj. R}^2 = 0.027, \ n = 300 \]

\[ \text{F} = 1.74, \ p = 0.050*, \ \text{Adj. R}^2 = 0.009, \ n = 1,042 \]

\[ \text{F} = 2.83, \ p = 0.000**, \ \text{Adj. R}^2 = 0.026, \ n = 1,042 \]

* *, ** Represent significance at the 5 percent and 1 percent levels, respectively.

Model Specification:

\[ DCA = b_0 + b_1 \text{PRETAXCUT (or PRIVATE)} + b_2 \text{SIZE} + b_3 \text{LEVERAGE} + b_4 \text{LOSS} + b_k \text{INDUSTRY}. \]

All variables are as defined in Table 4.
### TABLE 7
Sensitivity of the Main Results to the Reduced Sample

Panel A: Omission of 150 Firm-Years with Total Assets Greater than the Sample Median

<table>
<thead>
<tr>
<th>Exp. Sign</th>
<th>Coefficient</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRETAXCUT</td>
<td>−0.008</td>
<td>−0.19</td>
<td>0.852</td>
</tr>
<tr>
<td>PRIVATE</td>
<td>0.095</td>
<td>2.57</td>
<td>0.010**</td>
</tr>
<tr>
<td>PRETAXCUT_PRIVATE</td>
<td>−0.144</td>
<td>−3.05</td>
<td>0.002**</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.033</td>
<td>1.47</td>
<td>0.142</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>0.006</td>
<td>0.48</td>
<td>0.632</td>
</tr>
<tr>
<td>LOSS</td>
<td>−0.035</td>
<td>−2.15</td>
<td>0.032*</td>
</tr>
<tr>
<td>INDUSTRY</td>
<td>Included</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F = 8.73, p = 0.000**, Adj. R² = 0.064, n = 1,934

Panel B: Omission of Top Quartile of Public Firms and Retention of Top Quartile of Private Firms

<table>
<thead>
<tr>
<th>Exp. Sign</th>
<th>Coefficient</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRETAXCUT</td>
<td>−0.014</td>
<td>−0.56</td>
<td>0.574</td>
</tr>
<tr>
<td>PRIVATE</td>
<td>0.074</td>
<td>3.19</td>
<td>0.001**</td>
</tr>
<tr>
<td>PRETAXCUT_PRIVATE</td>
<td>−0.082</td>
<td>−2.69</td>
<td>0.007**</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.015</td>
<td>1.28</td>
<td>0.201</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>0.002</td>
<td>0.20</td>
<td>0.844</td>
</tr>
<tr>
<td>LOSS</td>
<td>−0.041</td>
<td>−2.00</td>
<td>0.046*</td>
</tr>
<tr>
<td>INDUSTRY</td>
<td>Included</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F = 3.08, p = 0.000**, Adj. R² = 0.050, n = 672

Panel C: Omission of 148 Firm-Years with High Nontax Financial Reporting Incentives

<table>
<thead>
<tr>
<th>Exp. Sign</th>
<th>Coefficient</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRETAXCUT</td>
<td>−0.031</td>
<td>−0.68</td>
<td>0.495</td>
</tr>
<tr>
<td>PRIVATE</td>
<td>0.078</td>
<td>2.02</td>
<td>0.044**</td>
</tr>
<tr>
<td>PRETAXCUT_PRIVATE</td>
<td>−0.121</td>
<td>−2.58</td>
<td>0.010**</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.029</td>
<td>1.34</td>
<td>0.182</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>0.025</td>
<td>1.02</td>
<td>0.309</td>
</tr>
<tr>
<td>LOSS</td>
<td>−0.032</td>
<td>−1.97</td>
<td>0.048*</td>
</tr>
<tr>
<td>INDUSTRY</td>
<td>Included</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F = 8.93, p = 0.000**, Adj. R² = 0.065, n = 1,936

Panel D: Omission of 243 Non-Manufacturing Firm-Years

<table>
<thead>
<tr>
<th>Exp. Sign</th>
<th>Coefficient</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRETAXCUT</td>
<td>0.021</td>
<td>0.51</td>
<td>0.611</td>
</tr>
<tr>
<td>PRIVATE</td>
<td>0.116</td>
<td>3.78</td>
<td>0.000**</td>
</tr>
<tr>
<td>PRETAXCUT_PRIVATE</td>
<td>−0.177</td>
<td>−4.09</td>
<td>0.000**</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.027</td>
<td>1.20</td>
<td>0.230</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>−0.002</td>
<td>−0.06</td>
<td>0.950</td>
</tr>
<tr>
<td>LOSS</td>
<td>−0.024</td>
<td>−1.46</td>
<td>0.145</td>
</tr>
</tbody>
</table>

F = 23.18, p = 0.000**, Adj. R² = 0.067, n = 1,841

*,** Represent significance at the 5 percent and 1 percent levels, respectively.
Refer to Table 4 for model specification and variable definitions.
Third, we exclude 148 public firm-years with high financial reporting (book) incentives to make the reporting incentives more comparable across the two groups of firms (i.e., eliminate public firms who anticipate rights issues or face constraints for such issues). As expected, the results in Panel C show less difference between private and public firms who have lower financial reporting concerns. Although the coefficient on the interaction term is still negative and significant, its magnitude and significance level are lower than those reported in Table 4. This suggests that even if the two groups of firms are made more comparable in terms of financial reporting incentives, private firms still report greater negative accruals than public firms because they face lower earnings pressure. Finally, because most of the private firms in the sample are manufacturers, whereas the public firms are more diversified across different industry sectors, we restrict our sample to manufacturing firms to control for the effect of industry-related factors (Panel D). Our main results continue to hold.

CONCLUSION

The recent income tax rate cut in China provides an incentive for managers to shift income to the year of the lower rate to save taxes. This income shifting is attractive only if the net of tax savings and nontax costs to the firm is positive. Using a proprietary dataset of private firms, we examine how managers of public and private firms balance tax and nontax factors in the context of a tax rate reduction. We predict that because private firms incur smaller nontax costs from understating income, they would use discretionary accruals to report less profit than public firms in 2007. Consistent with our predictions, we find that although both groups of firms have a tax rate-based incentive to manage earnings, private firms manage earnings downward to a greater extent than public firms prior to the rate decrease. Furthermore, private firms report less profit in 2007 than 2008, relative to public firms. Specifically, by shifting taxable income from a high- to a low-tax year, private firms saved about 8.58 percent of their total tax expenses. Due to country-level institutional differences, we cannot generalize the specific degree of response by private firms from China to other countries, but corporate tax rate changes have recently become of interest in the European Union and the U.S. Our results provide policymakers with a better understanding of the potential revenue effect that the type of firm ownership has on corporate earnings management.

Our results are subject to some limitations, each of which is an avenue for future inquiry. First, in the absence of a better measure of tax-induced earnings management in our data, we base our analysis on stylized discretionary current accruals. Our estimation of the accruals is also limited by having less than ten years of prior data. In time, better data could be available when China enacts another major tax change, although even the simple estimate of discretionary accruals yields

34 As noted earlier, China’s accounting-based securities regulations attach great importance to a listed firm’s reported earnings. Ex post evidence is consistent with the ex ante prediction that rights-offering applicants and delisting avoiders are sensitive to nontax financial reporting costs (e.g., Chen and Yuan 2004; Chen et al. 2008). Following previous studies (e.g., Chan, Lin, and Wang 2012; Jian and Wong 2010), we classify firms as higher book-incentive firms if they apply for a rights issue in the following three years or suffer two successive annual losses, or if their ROE is at the margin of qualifying for a rights issue (i.e., 10–12 percent before 2001 and 6–8 percent afterward) or just above zero (0–2 percent).

35 We also analyze the differences in financial reporting among public firms with high versus low book incentives. Untabulated results suggest that relative to their counterparts, low-incentive firms report lower earnings for tax purposes; however, they are unwilling to report an earnings decline of significant magnitude due to other nontax cost considerations (e.g., increased scrutiny from auditors, institutional investors, banks, and the media, and heightened information disclosure requirement). Although it is possible that the financial reporting incentives also differ across private firms, it is a priori not obvious in what way. For example, no private firm in our sample applied for IPOs that may induce earnings management. Therefore, we are unable to clearly separate the ex ante high from the low book-incentive private firms. Insufficient cross-sectional variation that would be needed for reporting differences among private firms limits the inference that can be drawn on the tax effects.
consistent and robust evidence of inter-temporal income shifting. Second, because of restrictions on the panel data, we were not able to include more firm-years in the sample. Third, to keep the set of reporting incentives within the subsample of firms as homogenous as possible, we excluded SOEs from the study. Future research could benefit from examining the tax-reporting behavior of SOEs in listed versus unlisted markets.

REFERENCES


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