

Should Earnings Thresholds be used as Delisting Criteria in Stock Market?

1. Introduction

How should an emerging securities market be regulated? What securities laws work in an underdeveloped securities market? Could there be any unintended consequences if unnecessary rules are adopted? These are tough questions that Chinese stock market regulators have encountered since they jumpstarted the stock market within China's central planning economy during early 1990's.

Examining the effect of securities laws on stock market development in 49 countries, La Porta et al. (2005) find little evidence that public enforcement benefit stock markets. In this paper, we study a particular provision in Chinese securities laws and regulations (special treatment and delisting of stocks for reporting consecutive accounting losses). Consistent with La Porta et al. (2005), we identify occasions where public enforcement does not benefit the development of the underdeveloped Chinese stock market.

Chinese securities laws and regulations¹ mandate that if a listed firm reports accounting losses (i.e., negative earnings) in two consecutive years, its stock will be put under "Special Treatment" status (ST). There are various trading and financial restrictions on ST stock. Its daily stock price movement is restricted to be no more than five percent in either direction, and the company's semi-annual report must be audited, unlike other companies. Furthermore, an ST firm cannot raise additional capital from stock market. If the firm reports one more loss, it is suspended from trading on the stock exchanges, after a fourth annual loss the stock will be delisted.

In section 2, we survey the small but growing literature on securities delisting (e.g., Macey et al., 2007), and motivate this study. We argue that the ST policy in China's securities regulations have serious unintended consequences. It could drive healthy firms out of the stock markets for temporary accounting losses (we refer to this consequence as loss of economic efficiency in that both listed firms and investors are better off with these firms staying listed). Out of fear of being specially treated, listed firms may also engage in value-destroying earnings manipulation to prevent accounting losses (we refer to this consequence as incentive distortion in that the policy induces firms to manage earnings to avoid losses). Section 3 and section 4 provide some exploratory evidence on these two unintended consequences. Section 5 concludes the paper.

2. Literature Review and Motivations

China re-opened its stock market in early 1990's after a four-decade hiatus. The purpose of such a move was clear: to help State-Owned Enterprises (SOEs) raise capital that the state government could no longer provide. However, in a centrally planned economy, the regulation of

¹ In the United States, listing and delisting decisions are normally left to the stock exchanges (Securities Exchange Act, 1934). But in China, Corporate Law of 1993 mandates that China Securities Regulatory Committee (CSRC, the counterpart of U.S. SEC) has the authority to set delisting rules. Furthermore, although the Shanghai and Shenzhen stock exchanges promulgate the implementation details, they need CSRC's final approval.

this new stock market was a challenge. With investor protection in mind, the regulators adopted securities laws and regulations from developed economies and made some add-on's, ST policy being one of these add-on's.

The Securities Law of 1993 mandates that listed companies reporting three consecutive annual losses be suspended from trading on the exchanges, and if they do not return to profits in the fourth year, the firms will be delisted. This delisting provision still exists in the most recent version of the Securities Law of 2005.

Beginning from April 22, 1998, the Shanghai and Shenzhen stock exchanges implemented the special treatment policy (ST policy). Listed firms that reported two consecutive annual losses would henceforth be put into ST status². There are various trading and financial restrictions on ST stock. Daily stock price movement is restricted to be no more than five percent in either direction. In addition, ST company's semi-annual report must be audited, unlike other companies. Furthermore, an ST firm cannot raise additional capital from stock market. If the firm reports one more loss, it is suspended from trading on the stock exchanges³, and for a fourth consecutive annual loss, the stock will be delisted⁴. This ST policy is still effective today.

Between 1998 and 2004, 250 stocks were specially treated by Shanghai and Shenzhen stocks exchanges⁵. Between 1999 and 2005, 28 stocks were delisted from the Shenzhen Stock Exchange, and between 2001 and 2005, 14 stocks were delisted from the Shanghai Stock Exchange.

The reason we say that the ST policy is an add-on provision to what Chinese regulators learned from other developed markets is that such a policy is rarely seen in other securities markets. As Macey et al. (2007) point out, delisting rules can be divided into two categories. In the first category are those rules designed to insure that the exchange's relationship with the listed firms remain profitable, as it is costly for exchanges to continue to list firms whose trading is sporadic. In the second category are those rules that protect the reputation of the exchanges. Therefore, exchanges around the world normally set minimum price, minimum market capitalization, and/or minimum asset/revenue criteria for firms to continue being listed. Macey et al. (2007) show that violation of the minimum stock price standard is the most common cause of involuntary delisting from stock exchanges. It is very rare to see delisting requirements based on accounting earnings.

The rationale used to base ST and delisting decisions on accounting earnings (for brevity, ST policy hereafter) is that firms reporting consecutive losses are poor performers (in the long run), and it is necessary to restrict or delist them in order to protect investor interest. The main thesis of this paper is that we do not agree with this argument. Below we propose that the earnings-based regulation has two unintended consequences. First, firms temporarily reporting losses are not necessarily poor performing firms, especially in the long run. Thus the ST policy could drive healthy firms out of stock market, or at least disrupt firms' operational strategies and divert

² Firms could be specially treated for other reasons, for example, negative equity or financial fraud. But reporting losses are the dominating cause for special treatment.

³ From July 9, 1999 to May 1, 2002, suspended stocks were designated as Particular Transfer (PT), which allowed these stocks to be traded on the exchanges on Fridays under restrictive conditions.

⁴ The listing manuals of the Shanghai and Shenzhen stock exchanges, January 1, 1998 version. On March 6, 1998, CSRC issued a directive approving the ST policy.

⁵ There were 851 listed stocks in 1998, and the number was 1373 in 2004.

valuable management effort to focus solely on attaining profits. This leads to a net loss of economic efficiency as both listed firms and investors are worse off. Second, out of the fear of being specially treated, listed companies engage in value-destroying earnings manipulations to avoid reporting losses. Thus, the ST policy distorts management incentives and induces earnings manipulation behavior that actually harms investor interest.

To begin, it is worthwhile to note that there are legitimate reasons that a firm may report consecutive losses. First, accounting standards tend to be conservative, and recognize expenses and losses more quickly than revenues and gains, resulting in a higher occurrence of losses than otherwise (Basu, 1997). Second, early stage firms naturally tend to report more losses since they are still heavily investing in the business, and the benefits of investment have not yet materialized. Third, a macro-economic recession could easily send many firms into losses. Therefore, reporting losses does not necessarily imply poor performance in the long-run, and the ST policy could thus drive healthy firms out of stock market.

For example, should the same policy exist in the United States, companies such as Apple Computers, Ford, and General Motors would have been specially treated at least once in their listing history, Yahoo and Lucent would have been suspended from trading, and Amazon.com would have been delisted in 1998. Many other companies would also have been penalized.

Not only could the ST policy drive healthy firms out of stock market, but it is also questionable why regulators have to specially treat *actually* poor-performing firms. Note that the ST policy does not provide investors with any *new* information regarding the listed companies. It is based solely on publicly available historical earnings, information that investors already possess and have already responded to. Should the consecutive losses pertain to an actual reduction of firm value, the reduction would have already occurred and investor losses realized (as stock price decline) prior to the designation of ST by stock exchanges. Furthermore, even if these stocks reported consecutive losses and suffered price decline in the *past*, it does not mean they are *low-future-return* stocks. As Warren Buffet views it, “a good business is not always a good purchase, although it is a good place to look for”⁶. That is because the business’ bright future could be fully priced already. Similarly, a bad (poor performing) business is not necessarily a bad purchase if its dismal future is already fully priced⁷, let alone that past accounting losses do not necessarily translate into dismal future accounting performance.

From an investor protection perspective, which was the regulator’s intent, the ST policy does no good. In fact, with this policy, the regulators are judging the value of listed firms on investors’ behalf. There is anecdotal evidence that this is not sound public policy.

Rosenberry (1959) argues that a securities market regulator should not pass judgment upon the value of securities. Rosenberry (1959) cites two early examples of delisting after the Securities and Exchange Commission made judgment on the value of listed companies. The two firms involved were Standard Gas and Electric Companies (1944) and St. Louis Southwestern Railway (1944). In both cases, the SEC judged the common shares as worthless, and the New York Stock Exchange, in concurrence, suspended trading on both stocks. But when the two stocks were later restored trading, they sold at high prices. Today, it is implicitly a guiding principle that market

⁶ www.incademy.com, “Ten Great Investors”.

⁷ Otherwise, we would have a hard time explaining why there is so much trading on OTC and pink sheet markets.

regulators do not judge the value of listed securities on investors' behalf (Macey et al., 2007).

To summarize the first unintended consequence of the ST policy, the ST policy does not provide investors with new value-relevant information, and more seriously, could drive healthy firms that suffer short-term earnings pressure out of the stock market. We provide exploratory evidence to shed light on this proposition in section 3.

The ST policy then, as argued above, does not serve the intention of its creators, and could instead potentially do more harm to the market by inducing rampant earnings manipulation in listed firms.

Listed firms manage earnings for various purposes, such as managerial compensation, debt covenants, equity offering, and to meet earnings thresholds. Listed firms also manage earnings in response to regulatory requirements. For example, Jones (1991) examines earnings management of U.S. firms aimed at receiving import relief subsidy from federal government. Yang (2006) studies the reactions of listed firms facing the threat of exchange delisting because of minimum stock price requirements. Yang (2006) shows that when delisting becomes highly possible, firms will engage in earnings management to improve stock price and fend off the delisting threat. Not only are accrued earnings managed to inflate earnings, but these firms also cut R&D expenditures, and sell assets at gains to boost earnings and stock prices.

In the Chinese context, Ding et al. (2007), after surveying earlier studies, conclude that there is *strong* evidence that listed Chinese firms manipulate earnings to *dramatically* boost their earnings to meet regulatory requirements to do rights offering and to avoid special treatment (i.e., loss avoidance). In particular, Jiang and Wang (2003), Jian and Wong (2006) and Liu and Lu (2007) document that the earnings manipulation techniques used by Chinese firms to avoid losses not only involve the traditionally used accruals, but also involve the more destructive real-transaction based activities. Out of despair, listed firms routinely engage in related party transactions, assets sales/purchases, equity sales/purchases, and restructuring. These transactions are often aided by controlling shareholders (propping), but equally often result in subsequent tunneling by controlling shareholders. In totality, the ST policy-induced rampage of earnings manipulation disrupts market order, damages investor confidence, and hinders market development. We believe that this is the second unintended consequence of the ST policy. In section 4, we provide a simple test for this proposition. More supporting evidences can be found in the papers cited above and references therein.

Our study contributes to the growing "law and finance" literature that studies how laws and regulations facilitate or hinder financial market development. In particular, this study joins a few other recent studies that examine how securities market regulations could have unintended consequences.

Ayra et al. (2005) points out that although Regulation Fair Disclosure Act (Regulation FD) of 2000 was meant to curb the practice of listed companies disclosing value-relevant information to a select subset of analysts and investors, so as to level the playing field for all investors and analysts, the Regulation FD may have the unintended consequences of encouraging herding behavior among analysts and forcing companies to withhold information. As a result, Regulation FD may actually reduce the total information available to investors, contrary to the regulators' intention.

Ayra et al. (2005) cite several empirical studies that support their arguments.

Ewert and Wagenhofer (2005) study whether tightening accounting standards would restrict earnings management. While it is widely believed that tightening accounting standards reduces earnings management, Ewert and Wagenhofer (2005) shows that it is not always the case. Under tightened standards, managers may substitute accrual-based earnings management with real transaction-based earnings management. In fact, under certain conditions, even accrual-based earnings management could increase due to the resulting increased sensitivity of stock prices to earnings. Overall, the tightening of standards, which is meant to reduce earnings management, could actually increase the extent of earnings management in firms, with the benefits of regulatory tightening outweighed by its costs.

Our study also contributes to the small but growing literature on the economics of exchange listing and delisting. In particular, a number of studies have challenged the current delisting standards in the United State markets, and call for changes or remedies. For example, Harris, Panchapagesan and Werner (2006) examine 1098 delisted stocks from NASDAQ between 1999 and 2002. They find that almost fifty percent of regulatory delistings violated only *non-core* requirements such as minimum bid price, but the adverse impact of delisting on the firms and shareholders involved is huge. The authors suggest that NASDAQ consider revising its listing criteria. Macey et al. (2007) call for similar actions.

3. Special Treatment Policy and Economic Efficiency

In this section, we address the first unintended consequence of the ST policy. That is, we provide analytical as well as collaborative evidence to argue that the ST policy could unintentionally drive healthy firms out of stock market when the ST, suspension of trading, and delisting decisions are based on accounting earnings.

To illustrate the problem caused by the ST policy, we first present a simple model to quantify the probability of a firm reporting consecutive losses. The purpose of the model is to compute, for a firm with a certain level of *long-term* earnings power (profitability) and a certain level of fluctuation in its earnings series, the probability that two consecutive losses would occur in this earnings series. A key point made by this paper is that firms with healthy long-term profitability, due to large but temporary fluctuations in its operations and earnings, could be mistakenly specially treated.

Let us consider the following model, which describes the earnings series of a firm.

$$y_{it} = \mu_i + \sigma_i \varepsilon_{it}, \quad (1)$$

where y_{it} represents earnings of the i 'th firm in the t 'th year, μ_i represents the long-term average earnings of the firm. In empirical test below, μ_i is the average of historical annual earnings for a currently listed firm. ε_{it} is the year-to-year random variation with zero mean.

Earnings volatility is characterized by σ_i , which below is proxied by the standard deviation of a firm's historical annual earnings. For the purpose of simplicity, we assume that ε_{it} independently follows a standard normal distribution.⁸

Based on model (1), the probability of a firm experiencing two consecutive losses can be directly computed as follows:

$$P(y_{it} < 0, y_{it+1} < 0) = P(y_{it} < 0)P(y_{it+1} < 0) = \Phi^2\left(-\frac{\mu_i}{\sigma_i}\right) \quad (2)$$

Equation (2) gives a parsimonious expression of the determinants of the probability of loss occurrence. The lower the long-term profitability (μ_i), the more likely a firm will report two consecutive losses; the higher the volatility of earnings (σ_i), the more likely a firm will report two consecutive losses. Therefore, reporting two consecutive losses does not necessarily mean the firm is poor performing in the long-run. Rather, it could be because the firm operates in more volatile industries thus has high earnings volatility⁹. μ_i / σ_i , which is a combination of the firm's long-term profitability (i.e., μ_i) and earnings volatility (i.e., σ_i), better summarizes the determinants of loss occurrence. Intuitively, μ_i / σ_i characterizes a firm's profit stability, hence we refer it as the *profitability stability index* (PSI). Higher PSI firms are less likely to report losses, and lower PSI firms are more likely to report losses.

It is worthwhile noting here that, when Chinese regulators set the ST policy, they reasoned that consecutive loss firms had little investment value, and to protect investors, these firms should be watched and restricted, even delisted if more losses followed. It is highly probable that the regulators believed that these loss-generating firms were low μ_i firms, and ignored the fact that high earnings volatility could easily send high μ_i firms into consecutive losses in certain years.

Armed with this simple statistical model, we can empirically test the probability of healthy firms being specially treated when they should not be. This exercise is necessary because if there is no economic consequence to the ST policy, we might not be interested in removing it.

⁸ Note that in the real data, it is more realistic to assume a heavy-tailed distribution with a time-series dependence structure for ε_{it} . However, such an assumption can only make the statistical analysis more sophisticated and will not invalidate our conclusions. In fact, by assuming a heavy-tailed distribution with a time-series dependence structure, the tail probability as characterized by model (2) will be even larger, which implies that our results as presented in Table 1 understate the probability of specially treating healthy firms.

⁹ Think about the oil companies whose earnings are tightly related to crude oil price. In late 1990's, when crude oil price was around \$10 per barrel, oil companies' earnings, if not in absolute losses, were not even comparable to what they would be today, when crude oil price is close to \$100 per barrel.

However, we should not use data from Chinese firms to evaluate this model because Chinese listed firms are already subject to the ST policy, and may have already managed their earnings to avoid losses (Ding et al., 2007; Jiang and Wang, 2003; Jian and Wong, 2006; Liu and Lu, 2007). What we are trying to test, on the other hand, is the probability of losses in the absence of the ST policy. If we use Chinese earnings data, we would likely underestimate the probability of loss occurrence, thus underestimate the probability of a (long-term) healthy firm reporting two consecutive annual losses. Put it differently, in Chinese market, financially-troubled firms would be mistakenly identified as healthy firms, because they have managed earnings to report profits in order to get around the ST threat. As a result, we will actually understate the consequences of the ST policy.

Therefore, we chose to use the U.S. data to evaluate our model. U.S. firms are not subject to the ST policy, or other similar policies, so earnings should not have been managed to avoid special treatment. To the extent that U.S. firms also prefer small profits to small losses, and have managed earnings to avoid losses for this reason (Burgstahler and Dichev, 1997), the results of our test might also underestimate the probability of a (long-term) healthy firm reporting two consecutive annual losses, similarly causing an understatement of the consequences of the ST policy (driving healthy firms out of stock market). But this bias should be much smaller than tests using Chinese data because the loss avoidance incentive for U.S. firms are much smaller than that for the Chinese firms given the ST policy.

The dataset we use is taken from the COMPUSTAT database and includes all firm-years from 1975 to 2003 which have the necessary data items. We get a total of 90,070 annual observations covering 8,392 stocks. On average, a total of 10 years' observations were collected for each firm. Based on these observations, the values of μ_i and σ_i are estimated by using sample mean and sample standard deviation of return on equity (ROE) for each firm during this sample period. Then the value of PSI can be estimated for each firm.

We sort all 8,392 stocks on their PSI values, and compute the probability of each firm reporting both one annual loss and two consecutive losses in its history according to equation (2). In Table 1, we report the PSI and the probability of losses for those firms whose PSI is between the lower quartile and the median in the cross section. We chose to report this group of firms because they are definitely healthy firms in that their long-term profitability is good. However, they have a relatively high probability of reporting two consecutive accounting losses as well due to relatively high earnings volatility (i.e., relatively low profitability stability).

Table 1 shows that the PSI values of the twenty-five percent of all firms fall between 0.184 and 0.905. The associated one annual loss probability ranges from 42.7% to 18.3%, while the probability of reporting two consecutive losses ranges from 18.2% to 3.3%. Were the ST policy implemented in the U.S. market, a firm whose PSI was better than twenty-five percent of all firms would face the unreasonably high probability of 18.2% to be specially treated. Even for the median PSI firm, there still exists a 3.3% probability that it would be specially treated.¹⁰

¹⁰ Note that such an estimate is actually very conservative due to the fact that ε_{it} is assumed to be conditionally independent and normally distributed.

To gauge how profitable these firms are, we pick two firms whose PSI are at 0.184, the 25th percentile, and find their historical average ROE to be 10% and 13%, very healthy returns to investors, but with a ST policy, these two firms would face a 18.2% chance of being specially treated.

Givoly and Hayn (2000) document that the proportion of loss firms in the U.S. COMPUSTAT universe has been steadily and monotonically increasing over the last few decades, from 1.67% during the 1950-55 period, to 15.48% during the 1971-75 period when NASDAQ firms were added, and to 33.58% during the 1991-98 period. Even a constant sample of 896 firms reports an increase in the proportion of loss years from 7.68% during the 1971-75 period to 20.29% during the 1991-98 period. The change in the constant sample indicates that the increasing occurrence of losses is not purely due to adding young, high-tech firms, who tend to experience more losses, to the sample. However, the increasing occurrence of losses in listed companies does not mean the listed firms, or the stock market as a whole, are losing investment value. In fact, the contrary is true.

Therefore, to summarize this section, with the collaborative support from a simple loss-generating model, and the fact that losses have becoming more frequent in the United States market (which does not mean that the U.S. market is losing investment value), we believe the ST policy in China's market has the unintended consequence of possibly driving healthy firms out of the stock market, or at least disrupting the normal operation of listed firms as well as diverting valuable managerial effort to unnecessarily maintaining positive earnings. All these amount to a loss of economic efficiency.

4. Special Treatment Policy and Earnings Manipulation

While the ST policy drives healthy firms out of the stock market at an unacceptable level of probability, it also induces currently listed firms to engage in value-destroying activities in order to avoid reporting a loss. That is, facing the possibility of ST and possibly delisting, company management has a stronger (distorted) incentive to avoid losses, even if it means manipulating earnings and deceiving investors. Ding et al. (2007), Jiang and Wang (2003), Jian and Wong (2006), Liu and Lu (2007), among others, have carefully documented that Chinese listed companies not only manage accruals, but also engage in real transaction-based techniques to dramatically boost earnings to avoid reporting losses. These real transactions include related party transactions, asset sales/purchases, equity sales/purchases, restructuring, or outright fraudulent activities.

In this section, we employ the methodology developed in Burgstahler and Dichev (1997) to provide supportive evidence of earnings manipulation to avoid losses by Chinese firms. This methodology has already been used widely to test earnings management in various contexts (Degeorge et al., 1999; Dechow et al., 2003; Xue, 2004).¹¹

In Chinese context, this methodology has been used by Haw et al. (2005) and Chen et al. (2001), among others. Haw et al. (2005) observe that the percentage of Chinese listed firms

¹¹ Durtschi and Easton (2005) questioned the validity of this methodology; therefore, we need to interpret results generated by this methodology with caution.

reporting ROE between 10 and 11 percent during 1996-98 period is 23.8 per cent, while it is only 8.98 percent during the 1994-95 period. A Chinese CSRC regulation became effective in 1996, which required that in order to qualify for rights offering, a listed firm must maintain ROE no less than 10 percent in the three years prior to rights offering. Haw et al. (2005) find evidence that managers execute transactions involving below-the-line items and use income-increasing accruals to meet regulatory benchmarks for a rights offering. Chen et al. (2001) show a significantly positive association between listed firms receiving modified auditor opinions (MAOs) and reporting profits marginally above the target levels specified in stock de-listing and rights offering regulations, and interpret these findings as consistent with the notion that asymmetric profitability requirements exacerbate managers' propensity to engage in earnings management which in turn is positively associated with receiving MAOs.

Following these prior studies, this paper uses the same methodology. Namely, we compare the relative density of small profit firms vs. small loss firms in the annual cross-section.

In Figure 1, we plot histograms of annual return on equity (ROE) for both U.S. firms and Chinese firms¹². Each bar corresponds to a 2% ROE interval. The dotted line is the zero earnings line. To the right of it are positive earnings, and to the left of it are losses. We define firm-years whose ROE lies between -2% and 0% as small loss firm-years, and those between 0% and 2% as small profit firm-years.

A jump of ROE density across point zero (zero earnings) can be easily identified in both U.S. and Chinese firms. In the U.S., firms also prefer profits to losses, and tend to manipulate earnings to a certain extent to turn a small loss year into a small profit year (Burgstahler and Dichev, 1997). Figure 1 shows that the density of small profit firm-years is 0.69% higher than the density of small loss firm-years in the U.S. sample. However, it is also clear from Figure 1 that the incentive to avoid loss is much stronger for Chinese firms than for U.S. firms. The density of small profit firm-years is 7.05% higher than the density of small loss firm-years in the Chinese sample. The jump of density from small loss to small profit for Chinese firms is nearly ten times as large as that for the U.S. firms. Furthermore, Chinese firms are only half as likely as the U.S. firms to report losses, small or large. The strong inclination for Chinese firms to avoid loss is an indication that ST policy distorts management incentives and induces pervasive earnings manipulation in the Chinese market.

To directly link the tendency of loss avoidance in Chinese firms to the enactment of ST policy, we check whether the proportion of small loss (small profit) firms has decreased (increased) with the introduction of ST policy.

Specifically, for each year, we count the number of firms whose reported ROE fall into the intervals of [-10%, 0%] and [0%, 10%], respectively.¹³ We denote the corresponding counts by n_-^0 and n_+^0 . Furthermore, we use n_- and n_+ to denote the total number of firms with negative ROE (i.e., loss firms) and positive ROE (i.e., profit firms), respectively. Using this, the magnitude

¹² Chinese stock data comes from CCER SINOFIN database. Sample for Figure 1 is taken from 1998 to 2003.

¹³ Using [-5%, 0%] and [0%, 5%] to measure small loss and small profit does not qualitatively change our results. However, using further narrower intervals is not feasible because annual observations are too few in some years to do meaningful comparison.

of the tendency of loss avoidance (earning management) is quantified as

$$\text{Percentage Difference} = \left(\frac{n_+^0}{n_+} - \frac{n_-^0}{n_-} \right) \times 100\% \quad (3)$$

This percentage difference measures the difference between the proportion of small profit firms in all profit firms and the proportion of small loss firms in all loss firms. The results are plotted in Figure 2.

ST policy was first introduced into the market in 1998. As Figure 2 shows, before 1998, the percentage of small loss firms in all loss firms is slightly larger than the percentage of small profit firms in all profit firms. But since ST policy was installed, the percentage of small profit firms has steadily increased relative to the percentage of small loss firms, by an ever-widening margin. In 2002, the difference was reached more than 40%. If anything, Figure 2 shows the altered behavior of management in reaction to the installation of ST policy. Under the ST policy, listed companies are more averse to reporting losses than without the policy in place, and they manipulate their earnings in order to report profits¹⁴.

Taking Figure 1 and Figure 2 together, in conjunction with the empirical results from Ding et al. (2007), Jiang and Wang (2003), Jian and Wong (2006), Liu and Lu (2007), and others, we believe that ST policy has induced Chinese listed companies to engage in earnings manipulation to avoid losses. As a result, not only were investors supplied with misleading financial information, but also valuable management time and effort has been diverted from managing the firms and wasted.

5. Concluding Remarks

The purpose of this paper is simple: to document a situation where over-regulation in an underdeveloped stock market has hindered its development. The ST policy in Chinese stock market causes economic efficiency losses (driving healthy companies out of the stock market), and distorts management incentives hereby inducing rampant earnings manipulation.

After the enactment of two stock exchanges in 1990 and 1991, Chinese stock market flourished during most of the 1990's, as a new channel of financing in socialist China. But after the stock market peaked in 2000, it languished during the next five years. Came along with the market stagnation were revelations of outrageous manipulations of earnings, widespread tunneling by controlling shareholders (Jiang et al., 2005), and large-scale insider trading. Measures taken by the central government to revive the stock market largely failed to boost investor confidence in the stock market, and the market was in the verge of being marginalized in the fast-growing Chinese economy. In 2005, Chinese regulators started a reform to make non-tradable state and institutional shares tradable. The reform has largely been completed by 2007. This reform also sparked a fast

¹⁴ Chinese economy had been growing steadily during our sample period, so another interpretation for Figure 2 is that the profitability of listed Chinese firms grew with the overall economy. However, we carefully documented the profitability of listed firms during our sample period, and it actually declined almost monotonically. This makes our argument that the increasing frequency of small profit firms result from loss avoidance even stronger. The profitability data is available upon request.

and phenomenal stock price boom. However, at this moment, whether this boom is sustainable or not is yet to be seen. Furthermore, the ST policy is still in effect today. If the internet bubble and the subsequent revelation of accounting scandals of Enron, WorldCom and the like tell us anything, it is that listed companies, hoping to sustain high stock prices, have even stronger incentive to manipulate earnings in a bull market. Special treatment is the last thing listed firms need.

Finally, while we recognize the exploratory nature of our study, we believe that more research on the economics of listing and delisting is warranted, not only in China, but also in developed securities markets. Today, the technology for securities trading and information dissemination and integration is fundamentally more advanced than when most of today's listing and delisting rules were formulated, and thus changes are necessary for these rules not to hinder market development (Macey et al., 2007). In China's case, while the government allowed stock markets to be established in 1990, it has tried consistently to keep the market under tight control ever since, particularly in the listing and delisting areas. This study calls for changes in the ST policy, but other areas, such as daily price limit and short-sale constraint, need also to be examined.

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Table 1: The Estimated Profitability Stability Index and Associated Probability of Firms Reporting Annual Losses

PSI Percentile	PSI	Probability of Reporting One Annual Loss	Probability of Reporting Two Consecutive Annual Losses
50%	0.905	18.3%	3.3%
45%	0.727	23.4%	5.5%
40%	0.581	28.1%	7.9%
35%	0.453	32.5%	10.6%
30%	0.336	36.8%	13.6%
25%	0.184	42.7%	18.2%

Note: This table reports the Profitability Stability Index (PSI) and the probability of annual losses for those firms whose PSI is between the lower quartile and the median in the cross section of 8,392 U.S. firms. For each firm, PSI equals to μ_i / σ_i , where μ_i is the average of the times series of reported annual ROE of the firm in the COMPUSTAT file, and σ_i is the standard deviation of the annual ROE in this time series. The probability of reporting one loss, conditional on μ_i / σ_i , is

given by $P(y_{it} < 0) = P(\mu_i + \sigma_i \varepsilon_{it} < 0) = P\left(\varepsilon_{it} < -\frac{\mu_i}{\sigma_i}\right) = \Phi\left(-\frac{\mu_i}{\sigma_i}\right)$. The probability of

reporting two consecutive losses, conditional on μ_i / σ_i , is given by

$$P(y_{it} < 0, y_{it+1} < 0) = P(y_{it} < 0)P(y_{it+1} < 0) = \Phi^2\left(-\frac{\mu_i}{\sigma_i}\right).$$

Figure 1: Histograms of Return on Equity (ROE) of U.S. and Chinese Firms

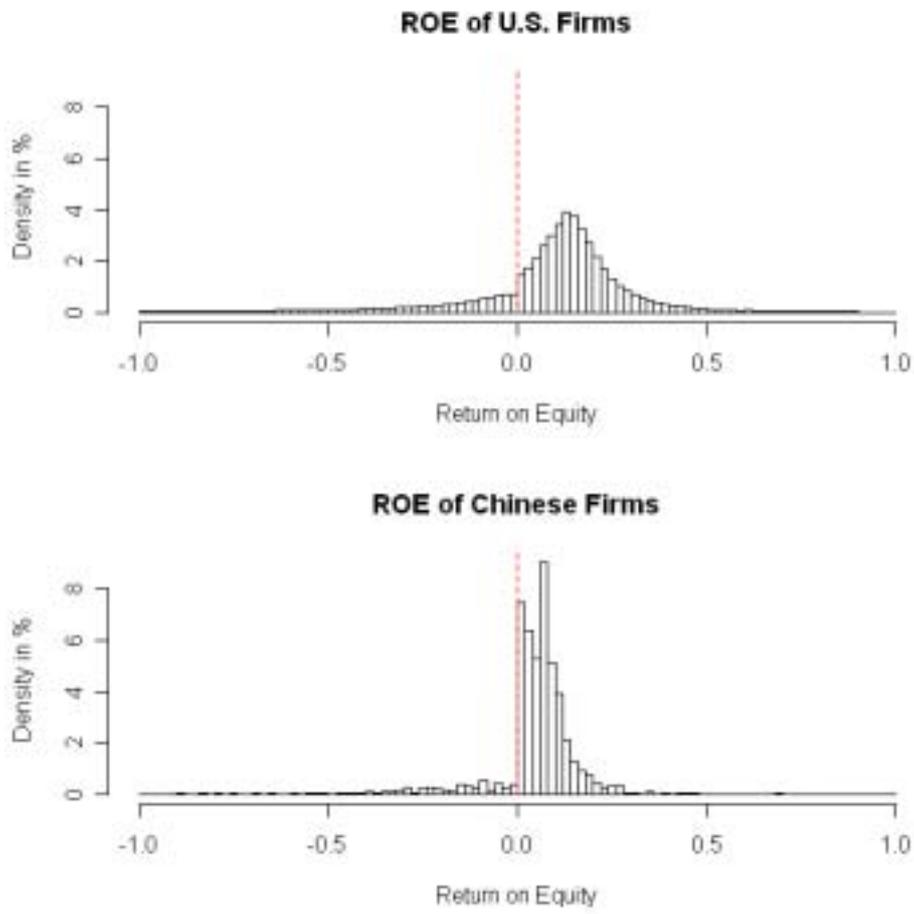
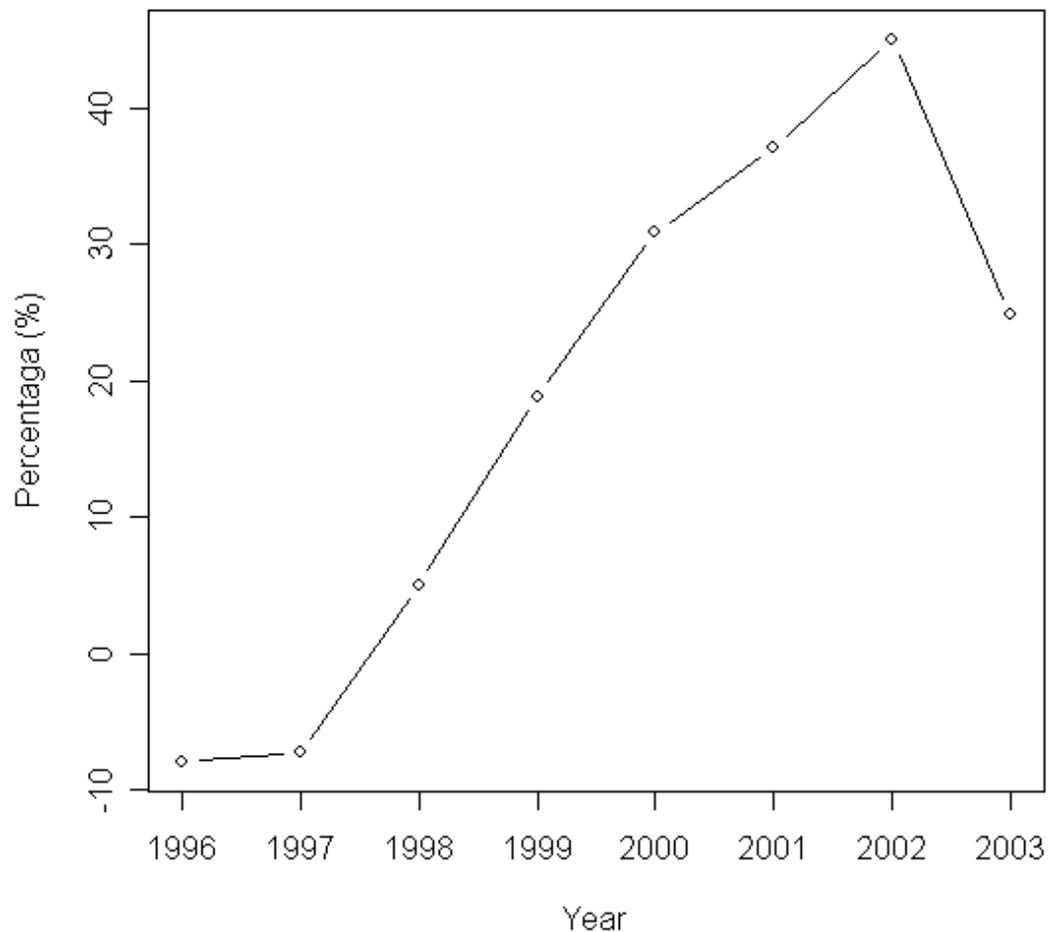


Figure 2: Percentage Difference between Proportion of Small Profit and Proportion of Small Loss Firms in Chinese Stock Market by Year



Note: Each year, we compute the number of small profit firms (ROE between 0% and 10%) as a percentage of all profit firms, and the number of small loss firms (ROE between -10% and 0%) as a percentage of all loss firms. Percentage difference is the difference between the two percentages.