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法律環境和市場特性對於不對稱認列應計項目行為的影響：以中國市場為例

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摘要

本研究以中國上海與深圳的上市公司為研究對象，探討經濟狀況（經濟利得與經濟損失）對應計模型的影響。在應計模型中加入經濟狀況的影響因子後發現，中國企業提列應計項目時，會更快速的認列利得，與Ball and Shivakumar (2006)以美國公司為研究對象時，發現企業會更穩健的認列損失（更快速的認列損失）有所不同。造成此一結果的差異，可能肇因於中國市場和美國市場的法律環境不同所致，由於中國市場的法律環境對投資人的保護較不完善，因此，相較於美國企業，中國的上市公司有更多的機會，利用應計項目來操弄財務報表，調升公司的盈餘（更快速的認列利得），而較不會穩健保守的認列損失。本研究進一步探討中國企業及時認列利得的情形是否因會不同的市場特性而有所改變，結果顯示國營企業、財務艱困公司（ST板塊）、僅在A股市場上市的公司以及帳面價值市價比較高的公司會更快的認列利得。

關鍵詞：應計模型、不對稱認列應計項目、中國市場特性、法律環境

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Are Asymmetrically Recognized Accruals Affected by Different Legal Environments or Market Characteristics? Evidence from China

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Abstract

This paper examines the role of economic gains and losses within the Chinese stock market, with the results of the accruals models indicating that firms in China demonstrate more timely recognition of gains than losses. This result differs significantly from the findings of Ball and Shivakumar (2006) who similarly examined US firms, with such disparity possibly arising from differences in the legal environments of China and the US. The reason for such diversity may be due to the differences in the legal environments of China and the US. Firms in China operate within a very loose legal environment with greater incentives to gloss over their financial statements and fewer incentives for conservatism in their recognition of accruals. We also explore whether the attitude towards the recognition of accruals in Chinese firms differs under various market characteristics. The results reveal that state-owned enterprises (SOEs), 'special treatment' (ST) firms, those firms which are listed only in the domestic A share market and those firms with higher book-to-market ratios demonstrate more timely recognition of accrual gains than losses.

Keywords: *Accruals models, Asymmetrically recognized accruals, Chinese market characteristics, Legal environment.*

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1. INTRODUCTION

Accrual accounting is now considered to be standard practice for most firms, since it provides an accurate description of the firm's current condition. Many of the prior studies indicate that managers may potentially use their reporting discretion to signal private information to the market (Subramanyam 1996; Beneish and Vargus 2002; Louis and Robinson 2005). However, in addition to improving the general standard of financial reporting and adequate disclosure of firms, such discretion can also provide managers with opportunities to use their discretionary accruals to manipulate their financial statements.[1] The most commonly used model to separate the accruals of firms into 'non-discretionary' and 'discretionary' accruals is the Jones (1991) model, which is linear with regard to changes in both total revenue and total investment in durable assets.[2] However, many examples of other studies in which it is argued that the extent of a firm's recognition of accruals can differ significantly under economic gains vis-à-vis economic losses. Therefore, the linear models may not be appropriate for defining discretionary accruals.

The recognition of this shortcoming led to the addition of economic gains and losses into the traditional accrual models by Ball and Shivakumar (2006) as a means of investigating whether the recognition of accruals by firms may be affected by economic gains or losses. Their results reveal that non-linear accruals models, in which the asymmetric recognition of gains and losses is also incorporated, provide significant improvements on earlier model specifications through the provision of a more substantial explanation of the variations in accruals than the equivalent linear specifications. Ball and Shivakumar (2006) further argue that the obvious asymmetry in the timely recognition of losses is essentially attributable to conditional conservatism, which has been shown to serve the useful purpose of reducing the slack in debt covenants.[3]

It is, however, also indicate in many other studies that the conservatism of firms in their recognition of accruals may also be influenced by the legal environment (Claessens, Djankov and Lang 2000; Claessens, Djankov, Fan and Lang 2002; Dyck and Zingales 2004). Within a high-quality legal environment, the appropriate enforcement of the relevant laws provides considerable levels of protection for both investors and debt holders, such that there is less ambiguity in the response to the demand and supply of accounting conservatism. In contrast, within a lower quality legal environment, the managers of firms

[1] It has been argued in a wealth of studies that the managers of financially-distressed firms in particular have much stronger incentives to manipulate their firm's earnings (Jaggi and Lee 2002; Lara, Osma and Mora 2005; Barua, Legoria and Moffitt 2006).

[2] Similar linear assumptions are also implicit in other accruals models, including the Dechow, Kothari and Watts (1998) model and the Dechow and Dichev (2002) model (hereafter, the DD model), both of which specify non-discretionary accruals as a linear function of operating cash flow.

[3] Accounting conservatism is commonly conceptualized as the asymmetric degree of verification required for the recognition of good news as 'gains', relative to that required for the recognition of bad news as 'losses' (see for example: Basu 1997; Ball, Kothari and Robin 2000; Watts 2003a, 2003b).

have less need or desire to recognize accounting conservatism, and therefore have much greater incentives to engage in the manipulation of their financial statements (Leuz, Nanda and Wysocki 2003; Claessens et al. 2002; Dyck and Zingales 2004).

Support is also provided for this viewpoint by Bushman and Piotroski (2006), who note that, in those countries with high-quality legal systems for the protection of investors and debt holders, as compared to the rapid recognition of incremental bad news, the recognition of good news is much slower. In contrast, within those countries lacking in high-quality legal systems, and in which the securities environment remains immature, the conservatism required for the more rapid recognition of losses is non-existent. We therefore speculate that the economic gains and losses affecting firms' conservatism in their recognition of accruals will be influenced by the country's legal system.

As the world's largest emerging market, China has managed to maintain an extremely rapid economic rate of growth since the implementation of its economic reforms in 1978, a time during which the Chinese leadership demonstrated a significant shift towards more pragmatic and open-door policies in virtually all fields. Following this trend, many international investors have also begun to experiment in the Chinese market. Nevertheless, a number of invisible problems were to subsequently give rise to considerable levels of uncertainty for many foreign investors in China, problems which were essentially created by China's distinctive political and institutional settings (Whitley 1994). Then a growing body of literature has begun to indicate the inappropriateness of attempting to analyze the emerging Chinese economy in conventional Western terms (Goto 1982; Biggart and Hamilton 1992; Boisot and Child 1996).

To add insult to injury, however, with the rise in the Chinese economy, a spate of corporate scandals also began to surface within the country's emerging market. Indeed, as revealed by Sun and Zhang (2006), since the establishment of the Chinese stock market in the early-1990s, about 20 percent of all publicly-listed firms in China have been found guilty of serious fraud by the China Securities Regulations Committee (CSRC). It would seem clear, therefore, that within the world's largest emerging market, the Chinese securities market, the legal system for the protection of investors remains in a state of immaturity. Nevertheless, considerable amounts of foreign capital are still being injected into this unfamiliar market. Thus, in the present study, we set out to explore whether the asymmetry found by Ball and Shivakumar (2006) in the timely recognition of accruals is discernible in a country with an immature legal system, such as China.

Our study aims to provide a few extensions to complement the prior studies by providing evidence on the influence of economic gains or losses (conditional conservatism) in the accruals models within a market with immature laws for the protection of investors and debt holders. In addition, we examine listed firms in the Chinese stock market, the

world's largest emerging market, to explore this relationship. For Western investors, the Chinese securities market is rather unfamiliar territory within which many financial crises have already occurred in the past. Therefore, the role of economic gains or losses in accruals models is of considerable interest to all investors in this particular market. Our accruals model results indicate that in China, firms have more timely recognition of gains than losses. That is, firms suffering economic losses will prefer to use income increasing accounting methods. This result differs significantly from the findings of Ball and Shivakumar (2006), who used U.S. companies to explore similar effects. Clearly, such diverse results may arise from the different legal environments in China and the U.S.

There are also a number of characteristics within the Chinese securities market which are markedly different from those of the US, such as the ownership structure, the binary market structure and 'special treatment' firms. Accordingly, following our separation of the full sample into different groups, with such separation being based upon ownership structure, we find that more timely recognition of accrual gains is discernible amongst the state-owned enterprises (SOEs) than amongst the privately-owned enterprises (POEs). This may be as a result of SOEs being subjected to political pressure and the fact there is no clearly accountable representative of the state with the role of monitoring SOE managers. When the sample is separated on the basis of 'special treatment' (ST) firms, we find that there is more timely recognition of accrual gains amongst those firms in receipt of special treatment. This may be attributable to the fact that, since the ST firms are under pressure to raise capital, they ultimately have greater incentives to increase their income. When the sample is separated on a 'binary market' basis, we find that those firms which are listed only in the domestic A share market have more timely recognition of accrual gains than those firms within the binary market. This may be explained by the fact that foreign investors could well have more power to supervise the conservatism of firms in their recognition of accruals.

The remainder of this paper is organized as follows. A review of the literature is provided in Section 2, along with the development of our hypotheses. This is followed in Section 3 by a description of the data sources and the empirical methodology adopted for this study. The descriptive statistics are provided in Section 4, followed by presentation and analysis of the empirical results. Finally, the conclusions drawn from this study are summarized in the closing section.

2. LITERATURE REVIEW

This section is separated into two parts in order to explore the extant literature and to contrast the predictions. Firstly, we provide details of the firms' recognition of accruals affected by fiscal year losses and gains. Secondly, we provide a brief illustration of the legal environment and the influencing the role of economic gains and losses in China.

2.1 ACCRUALS MODELS AND ECNOMIC GAINS AND LOSSES

2.1.1 Timely Recognition of Economic Losses

The influence of economic losses or gains on firms recognition of accruals is already well documented, with many studies having indicated that firms have conservative recognition of accruals (timelier recognition of losses than gains) (Basu 1997; Ball et al. 2000; Giner and Rees 2001; Kothari, Leone and Wasley 2005). Specific reasons have been proposed for such timely recognition of economic losses, or asymmetric conservatism (Ball, Robin and Wu 2003). Firstly, managers generally possess private information on economic losses and gains, information which is generally unobservable to auditors. Since the incentives to disclose gain and loss information are not symmetrical, auditors will generally give greater credence to information on losses; thus, financial reporting tends to specialize, by default, in timely loss recognition.

Secondly, the pricing of debt at the time of issue is unlikely to be influenced to any great extent by the timely incorporation of known gains and losses. However, the post-issue enforcement of coverage and leverage covenants is significantly influenced. Timely loss recognition transfers decision rights more rapidly from loss-making managers to lenders through the earlier triggering of covenant violations based on financial statement ratios. Since economic gains do not trigger covenant violations, debt contracts generate no demand for timely gain recognition. Then timely loss recognition increases the economic efficiency of the contracting of firms with both debt holders and managers.

Basu (1997) notes that the relationship between cash flow and earnings exhibits different incremental slopes when regressed on the positive and negative performance of firms, specifically noting that firms generally recognize losses in a timelier manner than gains. Ball et al. (2000) also provide evidence of firms' recognition of accruals resulting in conditional conservatism, which is commonly conceptualized as the more timely recognition of losses than gains resulting from the asymmetric costs and benefits of reporting verifiable information by managers and/ or firms with incentives to distort their firms' performance (Watts 2003a). The findings of Ball et al. (2000) therefore provide evidence of a non-linear relationship between accruals and economic gains/ losses.

2.1.2 Timely Recognition of Economic Gains

Many studies do not support that firms have asymmetric timely recognition of losses, arguing that such firms have incentives to use accruals to manipulate their financial statements and increase their earnings. These studies focus on earnings incentives, providing evidence to show that the reporting of small losses is unusually rare, whilst the reporting of small profits is unusually common. They also show that small declines in reported earnings are unusually rare, whilst small increases in reported earnings are unusually common

(Burgstahler and Dichev 1997; Degeorge, Patel and Zeckhauser 1999). The findings of these studies are interpreted as evidence that managers use accruals to manage their earnings and to avoid reporting declines in earnings and/ or losses.

Accounting researchers look for other types of incentives, such as those provided by explicit contracts, such as debt covenants and bonus plans, essentially because in these settings, the contracting and information costs are arguably higher than those in the capital markets, thereby increasing the likelihood of earnings management being effective. Watts and Zimmerman (1990) indicate that if firms have large debt ratios or are close to violation of their debt convents, the managers of such firms are more likely to select accounting procedures which will effectively shift their reported earnings from future periods so as to raise current period performance. Dichev and Skinner (2002) and Dichev and Tang (2005) also note that incentives to use accruals to manipulate financial statements and increase earnings are greater when firms are close to the violation of debt convents or where managers wish to enhance their personal performance level.

2.1.3 The Role of Economic Gains and Losses

Although there is much disagreement within the extant literature on the general issue of the recognition of accruals, with some studies referring to timelier recognition of gains, whilst others argue that there is timelier recognition of losses, there is, nevertheless, general consensus that firms' recognition of accruals is affected by economic gains or losses. Accordingly, when using the standard linear models to estimate discretionary accruals, as a result of the omission of asymmetry in the role of accruals (in terms of the recognition of gains and losses), these models may be misspecified.

Ball and Shivakumar (2006) incorporate economic gains and losses, an important feature of the earnings process, into the existing accruals models to explore this phenomenon in the US securities markets. Specifically, they see accruals as an expected asymmetric function of firm performance, in which economic losses are captured by the accruals process more timely than economic gains (conservatism in the recognition of accruals). However, with the exception of Ball and Shivakumar (2006), it is rare for studies to take economic gains or losses into consideration when using the existing accruals models. In China some studies discuss the accounting conservatism gradually (Jin 2006; Yu 2002), but most of them are the descriptive research without archival data to support the point of view. Therefore, in the present study, we use archival data to explore the role of accounting conservatism in the accruals models using publicly-listed firms in the Chinese stock market as the study sample.

2.2 LEGAL ENVIRONMENT INFLUENCING THE ROLE OF ECONOMIC GAINS AND LOSSES

The timelier recognition of losses or timelier recognition of gains firm can be influenced by the legal environment (Watts 2003a, 2003b). La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997, 1998) argue that in addition to differences in the legal system, variations in the extent of law enforcement will affect the development of capital markets across countries. It is possible that variations in law enforcement may have predictive power with regard to the demand and supply of accounting information, which is often ignored. Many of the prior studies also indicate that high-quality legal systems protect investors by conferring on them rights to discipline insiders, as well as by enforcing contracts designed to limit insiders' private control benefits (Nenova 2003; Claessens et al. 2002; Dyck and Zingales 2004).

Bushman and Piotroski (2006) explore the financial reporting incentives created by the legal system, noting that the investor protections embodied within corporate and the efficiency and impartiality of the legal system play significant roles in creating incentives for timely recognition of losses. Firms in countries with strong investor protections and high-quality legal systems reflect bad news in reported earnings in a more timely fashion than firms in countries characterized by weak investor protections and low-quality legal systems[4]. As a result, legal systems which effectively protect outside investors reduce the need for insiders to conceal their activities. Leuz et al. (2003) also note that earnings management is more pervasive than conservatism in countries where the legal protection of outside investors is weak, essentially because in these countries insiders enjoy greater private control benefits and hence have stronger incentives to conceal firm performance.

In China, the securities market operates in a centrally-planned economy, whereas the markets of both the US and the UK operate in a free-market economy. Accordingly, the listed firms in China have a completely different ownership structure. Indeed, most of the controlling shareholders in the listed firms are SOEs, which shape the strategies and policies of the company[5]. In addition, the centrally-planned economy of China affects the

[4] Focusing on a sample of European firms with equities traded on multiple exchanges, Raonic, McLeay and Asimakopoulos (2004) examine the importance of equity markets and the impact of legal enforcement on conservatism, and provide limited evidence of an increase in bad news earnings sensitivity with legal enforcement, and a reduction in good news earnings sensitivity with disclosure. Lang, Raedy and Yetman (2003) note that loss recognition increases with US cross-listing, whilst Huijgen and Lubberink (2005) find that more timely recognition of losses is demonstrated by UK firms choosing to cross-list within the US. Both of these results are consistent with the incentives for firms' timelier recognition of losses arising from the stronger legal and regulatory institutions of the US.

[5] Xu (2004) and Firth, Fung and Rui (2006) indicate that there is no clearly accountable representative of the state with the responsibility for monitoring the actions of SOE managers so as to ensure the protection of outsiders. Furthermore, all of the banks in China are also SOEs, and then the State has the sole power to decide which firms can obtain their capital requirements from the financial institutions. Accordingly, debt holders have no incentives to monitor the presentation of financial statements by the managers of the firm.

setting up of security laws for the protection of investors. Individuals in China had no means of possessing any personal assets prior to 1980, and then there was also no requirement for any laws aimed at protecting the rights of investors. Although it is now clear that China has gradually shifted from a centrally-planned economy through its 'open-door' policy[6] and also improved its administrative regulations, its commercial legal system remains immature (Whitley 1994). This provides managers with considerable opportunities for manipulating their firm's earnings.

Since the Chinese market is characterized by immature securities laws for the protection of investors and debt holders, it would be interesting to explore whether firms in the Chinese securities market demonstrate conservatism in their recognition of accruals (as noted by Ball and Shivakumar 2006) or whether they use accruals to manipulate their financial statements. The results of the majority of the prior studies show that firms situated in low-quality legal environments which also experience economic losses do indeed have greater incentives to increase their earnings, as opposed to adopting conservatism in the reporting of their earnings. We therefore construct our related hypothesis, as follows:

H: Listed firms in China recognize gains timelier than losses, other things being equal.

3. DATA SOURCE AND RESEARCH DESIGN

3.1 DATA DESCRIPTION

The data adopted for our discussion of the relationship between accruals and the economic gains/ losses of firms is acquired from the China Stock Market and Accounting Research Database (CSMAR). The sample comprises of all publicly-listed enterprises in the Shanghai and Shenzhen Stock Exchanges. Starting in 1998, the China Securities Regulatory Commission (CSRC) requested that all publicly-listed firms in the Chinese stock markets should compile cash flow statements, along with computation of their discretionary accruals using prior cash flow. Our sample span therefore covers the seven-year period from 1999 to 2006. Only firms with data corresponding with our selection criteria are used in the analysis.

Firstly, we focus on firms whose financial year ends in December of each year. This ensures that the information drawn from the financial statements is available for each year of the study period. Secondly, we select only those firms with no missing data over the 1999-2006 period. These criteria satisfy the requirements of our related computations

[6] Prior to 2003, foreign capital was limited by the Chinese government to investment in only the B share securities market; however, a law was promulgated in 2003 welcoming qualified foreign institution into the A share securities market.

associated with the accruals model. The selection process yielded a total sample of 8,005 firm-year observations.

3.2 LINEAR ACCRUALS MODELS

We incorporate economic gains or losses into the standard accruals models in order to test the hypothesized asymmetry in the relationship between accruals and the economic gains/ losses of firms. Several studies associate different degrees of accruals recognition with different years (Cohen and Lys 2006; Ball and Shivakumar 2006). Accordingly, we include seven year control variables in this study ($Y00_{it}$, $Y01_{it}$, $Y02_{it}$, $Y03_{it}$, $Y04_{it}$, $Y05_{it}$ *and* $Y06_{it}$). Guided by the related theories drawn from the prior studies, we adopt three accruals models in our study, the Jones (1991) model, the Dechow et al. (1998) model (the CF model) and the Dechow and Dichev (2002) model (the D&D model); the model specifications are as follows:

$$\begin{aligned} \textit{Jones Model}: \quad ACC_{it} &= \alpha_0 + \beta_1 \Delta REV_{it} + \beta_2 GPPE_{it} + \beta_3 Y00_{it} + \beta_4 Y01_{it} + \beta_5 Y02_{it} \\ &\quad + \beta_6 Y03_{it} + \beta_7 Y04_{it} + \beta_8 Y05_{it} + \beta_9 Y06_{it} + \varepsilon_{it} \end{aligned} \tag{1-1}$$

$$\begin{aligned} \textit{CF Model}: \quad ACC_{it} &= \alpha_0 + \beta_1 CF_{it} + \beta_2 Y00_{it} + \beta_3 Y01_{it} + \beta_4 Y02_{it} + \beta_5 Y03_{it} + \beta_6 Y04_{it} \\ &\quad + \beta_7 Y05_{it} + \beta_8 Y06_{it} + \varepsilon_{it} \end{aligned} \tag{1-2}$$

$$\begin{aligned} \textit{D\&D Model}: \quad ACC_{it} &= \alpha_0 + \beta_1 CF_{it} + \beta_2 CF_{it-1} + \beta_3 CF_{it+1} + \beta_4 Y00_{it} + \beta_5 Y01_{it} + \beta_6 Y02_{it} \\ &\quad + \beta_7 Y03_{it} + \beta_8 Y04_{it} + \beta_9 Y05_{it} + \beta_{10} Y06_{it} + \varepsilon_{it} \end{aligned} \tag{1-3}$$

Where ACC_{it} are the accruals for firm i in year t (the dependent variable in all regressions) scaled by the average total assets; accruals are defined as earnings (taken from the cash flow statement) minus cash flow from operations (also taken from the cash flow statement); REV_{it} refers to the net revenue for firm i in year t; ΔREV_{it} indicates the change in revenue for firm i in year t ($REV_{it} - REV_{it-1}$) scaled by the average total assets; $GPPE_{it}$ is gross property, plant and equipment for firm i in year t, scaled by the average total assets; and CF_{it} refers to cash flow from operations for firm i in year t (taken from the cash flow statement) scaled by the average total assets; $Y00_{it}$ – $Y06_{it}$ are the respective dummy variables for the sample period from 2000 to 2006; $Y00_{it}$ is equal to 1 if the year is 2000, otherwise 0; $Y01_{it}$ is equal to 1 if the year is 2001, otherwise 0; and so on, for the years 2002 to 2006.

Following Ball and Shivakumar (2006) we include three variables (VAR_{it}, $DVAR_{it}$ and $DVAR_{it} * VAR_{it}$) into the standard accruals models to test Hypothesis 1 (whether or not the economic gains or losses will affect the recognition of accruals). The piecewise linear regressions are as follows:

$$Jones\ \ Model:\ \ ACC_{it} = \alpha_0 + \beta_1 \Delta REV_{it} + \beta_2 GPPE_{it} + \beta_3 VAR_t + \beta_4 DVAR_t + \beta_5 DVAR_t * VAR_t + \beta_6 Y00_{it} + \beta_7 Y01_{it} + \beta_8 Y02_{it} + \beta_9 Y03_{it} + \beta_{10} Y04_{it} + \beta_{11} Y05_{it} + \beta_{12} Y06_{it} + \varepsilon_{it} \quad (2\text{-}1)$$

$$CF\ \ Model:\ \ ACC_{it} = \alpha_0 + \beta_1 CF_{it} + \beta_2 VAR_t + \beta_3 DVAR_t + \beta_4 DVAR_t * VAR_t + \beta_5 Y00_{it} + \beta_6 Y01_{it} + \beta_7 Y02_{it} + \beta_8 Y03_{it} + \beta_9 Y04_{it} + \beta_{10} Y05_{it} + \beta_{11} Y06_{it} + \varepsilon_{it} \quad (2\text{-}2)$$

$$D\&D\ \ Model:\ \ ACC_{it} = \alpha_0 + \beta_1 CF_{it} + \beta_2 CF_{it-1} + \beta_3 CF_{it+1} + \beta_4 VAR_t + \beta_5 DVAR_t + \beta_6 DVAR_t * VAR_t + \beta_7 Y00_{it} + \beta_8 Y01_{it} + \beta_9 Y02_{it} + \beta_{10} Y03_{it} + \beta_{11} Y04_{it} + \beta_{12} Y05_{it} + \beta_{13} Y06_{it} + \varepsilon_{it} \quad (2\text{-}3)$$

We use three variables (cash flow level, CF_{it}; the change in cash flow, ΔCF_{it}; and industry-adjusted cash flow, $INDADJ\_CF_{it}$) to investigate the economic gains and losses of the firms (VAR_{it}), using a dummy variable to separate economic gains and losses ($DVAR_{it}$ indicates economic losses). CF_{it} indicates cash flow from operations for firm *i* in year *t*. When $CF_{it} < 0$, this indicates that firm *i* has economic losses in year *t*; thus, the dummy variable DCF_{it} has a value of 1; otherwise, if firm *i* has fiscal gains in year *t*, the dummy variable DCF_{it} has a value of 0.

The second proxy substituting for economic gains and losses is the change in cash flow for firm *i* in year *t*, ΔCF_{it}, which is indicated by $CF_{it} - CF_{it-1}$; when $\Delta CF_{it} < 0$, this indicates that firm *i* has less cash flow in year *t* than in year $t-1$; thus the dummy variable $D\Delta CF_{it}$ has a value of 1; otherwise, if firm *i* has more cash flow in year *t* than in year $t-1$, the dummy variable $D\Delta CF_{it}$ has a value of 0.

The final proxy substituting for economic gains and losses, $INDADJ\_CF_{it}$, is the industry-adjusted cash flow for firm *i* in year *t*, which indicates $CF_{it} - MEDIAN\_CF_{it}$ (where $MEDIAN\_CF_{it}$ refers to the median cash flow of all firms within the same industry). When $INDADJ\_CF_{it} < 0$, this indicates that firm *i* has less cash flow in year *t* than the median cash flow of all firms in the same industry; thus the dummy variable $DIND_{it}$ has a value of 1; otherwise, if firm *i* has greater cash flow in year *t* than the median cash flow for all firms within the same industry, the dummy variable $DIND_{it}$ has a value of 0.

3.3 PREDICTIONS

Our primary interest in this study lies in the effects of the economic gains and losses of firms on their accruals. Accordingly, we use the coefficient of $DVAR_{it} * VAR_{it}$ in Models 2.1, 2.2 and 2.3 to capture this affect. When the coefficient of $DVAR_{it} * VAR_{it}$ is positive, this indicates the greater likelihood of a firm demonstrating timely recognition of losses than gains, thereby indicating that the firm demonstrates conditional conservatism in its recognition of accruals, as argued by Ball and Shivakumar (2006). Conversely, when the coefficient of $DVAR_{it} * VAR_{it}$ is negative, this indicates that the firm demonstrates more timely recognition of gains than losses, thereby indicating that when the firm experiences

fiscal year losses, it may use reorganization accruals to increase its earnings, consistent with Burgstahler and Dichev (1997).

4. EMPIRICAL RESULTS AND ANALYSIS

4.1 SUMMARY STATISTICS

Table 1 presents the details of the sample. In panel A, we classified the samples into five different industries according to the industry codes appearing in the CSMAR database. Almost 62.92 per cent of the firms (5,037 firm-year observations) fell into the category of industrial (manufacturing) industries, whilst a further 17.41 per cent (1,394 firm-year observations) were in general industries, 5.41 per cent (433 firm-year observations) in commercial industries and 9.42 per cent (754 firm-year observations) in public utilities industries. Only 4.83 per cent of the firms (387 firm-year observations) fell into the category of real estate (property) development industries. The samples are classified by year in Panel B, from which we can see that the number of listed firms in China shows a steady increase except the years 2004 and 2005.

The samples are classified by firm characteristics in Panel C. There are negative cash flows from operations (CF_{it}<0) in almost 20.65 per cent of the firm-years, whilst the cash flows from operations are less than those in the previous year (ΔCF_{it}<0) in a further 44.70 per cent of the firm-years. From our separation of the sample based upon the median of the industry-adjusted cash flows ($INDADJ\_CF_{it}$), we find that in 50 per cent of the firm-years, the cash flows from operations are less than the median industry-adjusted cash flows ($INDADJ\_CF_{it}$ <0). A total of 812 of the firm-year observations (10.14 per cent) are in the binary market (listed in both the A and B share markets), whilst 4,982 of the firm-year observations (62.24 per cent) involve SOEs.

The descriptive statistics are presented in Panel D, from which we find that the mean of a firm's ACC_{it} is –0.025, the mean of ΔREV_{it} is 0.028, the mean of $GPPE_{it}$ is 0.399, and the mean of ΔCF_{it} is 0.043. The correlation matrix, which is presented in Panel E, demonstrates that there are no serious problems between the correlations.

Table 1 Summary Statistics

Panel A: Total firm sample, by industry		
Industry	No. of Firm-year Observations	%
Public Utilities	754	9.42%
Real Estate (Property) Development	387	4.83%
General	1394	17.41%
Industrial (Manufacturing)	5037	62.92%
Commercial	433	5.41%
Total Sample	8005	100.00%

Table 1 Summary Statistics (continue)

Panel B: Total firm sample, by year

Year	No. of Firm-year Observations	%
1999	515	6.43%
2000	882	11.02%
2001	958	11.97%
2002	1047	13.08%
2003	1139	14.23%
2004	1067	13.33%
2005	1057	13.20%
2006	1340	16.74%
Total Sample	8005	100.00%

Panel C: Total firm sample, by the characteristic

Characteristic	No. of Firm-year Observations	%
Economic gains and losses (DCF_{it})		
$CF_{it}<0$	1653	20.65%
$\Delta CF_{it}<0$	3578	44.70%
$INDADJ\_CF_{it}<0$	4002	50.00%
Binary market		
Existed in binary market	812	10.14%
Existed in single market	7193	89.86%
Ownership Structure		
POEs	4,982	62.24%
SOEs	3,023	37.76%

Panel D: Descriptive statistics

Variables[a]	Mean	Median	Std. Dev.	Minimum	Maximum
ACC_{it}	–0.025	–0.041	0.098	–1.946	1.616
ΔREV_{it}	0.028	0.006	0.105	–0.613	2.802
$GPPE_{it}$	0.399	0.357	0.287	0.000	9.103
ΔCF_{it}	0.043	0.046	0.304	–24.972	1.069

Panel E: Correlations Matrix[b]

Variables[a]	ACC_{it}	ΔREV_{it}	$GPPE_{it}$	CF_{it}
ACC_{it}	1.000	0.046 (<0.001)	–0.099 (<0.001)	–0.679 (<0.001)
ΔREV_{it}	0.073 (<0.001)	1.000	0.094 (<0.001)	0.154 (<0.001)
$GPPE_{it}$	–0.163 (<0.001)	0.157 (<0.001)	1.000	0.273 (<0.001)
CF_{it}	–0.657 (<0.001)	0.247 (<0.001)	0.342 (<0.001)	1.000

a. REV_{it} refers to the net revenue in year t; ΔREV_{it} indicates the change in revenue in year t, ($REV_{it} - REV_{it-1}$, scaled by average total assets); $GPPE_{it}$ is gross property, plant and equipment, scaled by average total assets; and CF_{it} refers to cash flow from operations in year t (taken from the cash flow statement), scaled by average total assets. When $CF_{it}<0$, this indicates that firm i has economic losses in year t; thus, the dummy variable DCF_{it} has a value of 1; otherwise, if firm i has fiscal gains in year t, the dummy variable DCF_{it} has a value of 0. ΔCF_{it} indicates the change in cash flow from operations in year t, ($CF_{it} - CF_{it-1}$, scaled by average total assets). When $\Delta CF_{it}<0$, this indicates that firm i has less cash flow in year t than in year $t-1$; thus the dummy variable $D\Delta CF_{it}$ has a value of 1; otherwise, if firm i has more cash flow in year t than in year $t-1$, $D\Delta CF_{it}$ has a value of 0.

b. The upright sight is the Pearson correlations coefficients and the down left is the Spearman correlations coefficients.

4.2 LINEAR ACCRULS MODELS

As in the prior studies, Models 1-1, 1-2 and 1-3 are replicated in linear form in Table 2, with no allowance for the effects of current-period cash flow gains or losses. The dependent variable in all specifications is current-year accruals. The coefficients of CF_{it} in Models 1-2 and 1-3 are significantly negative (p-value <0.01), which means that firms with greater cash flows in the current year will recognize less accruals, this result is in consistent with the findings of Dechow et al. (1998) and Ball and Shivakumar (2006). Furthermore, the R^2 is much higher in Models 1-1, 1-2 and 1-3 than the R^2 reported in Ball and Shivakumar (2006); this may be caused by the addition of the dummy variable controlling for the year effects in the present study.

Table 2 Linear Accrual Regression Replications

Variables[a]	Jones Model[b]		CF Model[b]		D&D Model[b]	
	Coeff.[c]	*t*-stat.	Coeff.[c]	*t*-stat.	Coeff.[c]	*t*-stat.
Constant	0.017	0.668	0.062***	3.261	0.045**	2.277
ΔREV_{it}	0.021***	4.930	–	–	–	–
$GPPE_{it}$	–0.048***	–9.238	–	–	–	–
CF_{it}	–	–	–0.715***	–82.911	–0.811***	–72.905
CF_{it-1}	–	–	–	–	0.467**	18.359
CF_{it+1}	–	–	–	–	0.021*	1.852
$Y00_{it}$	0.005	0.178	0.002	0.122	0.005	0.227
$Y01_{it}$	–0.025	–0.943	–0.036*	–1.792	–0.037*	–1.801
$Y02_{it}$	–0.065**	–2.409	–0.057***	–2.870	–0.055***	–2.704
$Y03_{it}$	–0.035	–1.327	–0.039**	–1.966	–0.044**	–2.177
$Y04_{it}$	–0.051*	–1.903	–0.049**	–2.483	–0.052**	–2.565
$Y05_{it}$	–0.079***	–2.957	–0.076***	–3.852	–0.077***	–3.775
$Y06_{it}$	–0.064**	–2.407	–0.047**	–2.414	–	–
No. of Obs.	8,005		8,005		6,007	
Adj. R^2	0.022		0.467		0.484	

a. REV_{it} refers to the net revenue in year t; ΔREV_{it} indicates the change in revenue in year t, ($REV_{it} - REV_{it-1}$, scaled by average total assets); $GPPE_{it}$ is gross property, plant and equipment, scaled by average total assets; and CF_{it} refers to cash flow from operations in year t (taken from the cash flow statement), scaled by average total assets. The dependent variable is ACC_{it}, which is the accruals in year t (the dependent variable in all regressions), scaled by the average total assets. Accruals are defined as earnings (taken from the cash flow statement) minus cash flow from operations (also taken from the cash flow statement). $Y00$-$Y06$ are respective dummy variables for the sample period from 2000 to 2006; $Y00$ is equal to 1 if the year is 2000, otherwise 0; $Y01$ is equal to 1 if the year is 2001, otherwise 0 (and so on for years 2002 to 2006).

b. The model specifications are as follows:

$$Jones\ \ Model: \ ACC_{it} = \alpha_0 + \beta_1 \Delta REV_{it} + \beta_2 GPPE_{it} + \beta_3 Y00_{it} + \beta_4 Y01_{it} + \beta_5 Y02_{it} + \beta_6 Y03_{it} + \beta_7 Y04_{it} + \beta_8 Y05_{it} + \beta_9 Y06_{it} + \varepsilon_{it}$$

$$CF\ \ Model: \ ACC_{it} = \alpha_0 + \beta_1 CF_{it} + \beta_2 Y00_{it} + \beta_3 Y01_{it} + \beta_4 Y02_{it} + \beta_5 Y03_{it} + \beta_6 Y04_{it} + \beta_7 Y05_{it} + \beta_8 Y06_{it} + \varepsilon_{it}$$

$$D\ \&\ D\ \ Model: \ ACC_{it} = \alpha_0 + \beta_1 CF_{it} + \beta_2 CF_{it-1} + \beta_3 CF_{it+1} + \beta_4 Y00_{it} + \beta_5 Y01_{it} + \beta_6 Y02_{it} + \beta_7 Y03_{it} + \beta_8 Y04_{it} + \beta_9 Y05_{it} + \beta_{10} Y06_{it} + \varepsilon_{it}$$

c. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.

4.3 PIECEWISE LINEAR ACCRULS MODELS

An asymmetric, piecewise linear allowance for fiscal year gains and losses is incorporated into Tables 3, 4 and 5. Table 3 uses the cash flow level, CF_{it}, as a proxy for fiscal year gains and losses. The coefficient for testing Hypothesis is $DCF_{it} * CF_{it}$, which represents the interaction between the cash flow variables and the loss dummies. In all three models in Table 3, the F values are significantly different from zero (ranging between 26.48 and 14.83); these models are, therefore, meaningful for the examination of our hypotheses. The coefficient of $DCF_{it} * CF_{it}$ in the Jones model is –0.431 and significant at the 1 per cent level (t = –18.447, p <0.01); the coefficient of $DCF_{it} * CF_{it}$ in the CF model is –0.502 and significant at the 1 per cent level (t = –21.317, p <0.01); and the coefficient of $DCF_{it} * CF_{it}$ in the D&D model is –0.387 and significant at the 1 per cent level (t = –13.641, p <0.01). All three models are statistically and significantly negative, which indicates that firms with fiscal year gains have more timely recognition of accruals than those with fiscal year losses. In other words, the results show that firms experiencing fiscal year losses in the Chinese stock market will use accruals to manipulate their financial statements, as opposed to those with fiscal year losses, who demonstrate conservatism in their recognition of accruals, as noted by Ball and Shivakumar (2006) in their examination of the US stock market.

The Chow (1960) test, used to determine whether structural changes occurred during the different fiscal year gains vis-à-vis fiscal year losses, reveal an F value of 81.08 (p <0.001). Accordingly, the model confirms the presence of structural changes in different fiscal year conditions. As compared with the linear specifications in Table 2, the adjusted R^2 values for the piecewise linear specifications in Table 3 are substantially increased, confirming that the asymmetric recognition of the different fiscal year conditions plays an important role in accruals accounting.

Table 3 uses the cash flow level, CF_{it}, as a proxy for economic gains and losses. The coefficient for testing Hypothesis is $DCF_{it} * CF_{it}$, which represents the interaction between the cash flow variables and the loss dummies. The coefficient of $DCF_{it} * CF_{it}$ is negative and significant at the 0.01 level, which indicates that firms suffering economic losses have greater incentives to use accruals to manipulate their financial statements and increase their income, as opposed to demonstrating conservatism in their recognition of accruals. We use the change in cash flow (ΔCF_{it}) and industry-adjusted cash flow ($INDADJ\_CF_{it}$) separately, in Tables 4 and 5, as the respective proxies for economic gains and losses.

The coefficient of $\Delta DCF_{it} * CF_{it}$ in Table 4 is significantly negative at the 0.01 level, whilst the coefficient of $DIND_{it} * INDADJ\_CF_{it}$ in Table 5 is also significantly negative at the 0.01 level. These results are similar to those presented in Table 3, both thereby indicating that firms suffering economic losses will tend to gloss over their financial statements in order to increase their income.

4.4 ROBUSTNESS ANALYSIS

4.4.1 The Ownership Structure Effect

Within most Chinese firms, there is one dominant shareholder whose ownership is considerably higher than the next largest shareholder. It has been reported that across all listed firms in China, the largest shareholder invariably has substantial control over the firm (Xu 2004). The main block holder in a considerable proportion of all firms in China is usually either the State or a legal entity, although there are now growing numbers of cases where the dominant shareholder is either a private business or a non-state institution (Firth et al. 2006).

Table 3 Piecewise Linear Accrual Regressions (proxy for economic loss, $CF_{it} < 0$)

Variables[a]	Jones Model[b]		CF Model[b]		D&D Model[b]	
	Coeff.[c]	*t*-stat.	Coeff.[c]	*t*-stat.	Coeff.[c]	*t*-stat.
Constant	0.019	1.044	0.051***	2.759	0.042**	2.168
ΔREV_{it}	0.049***	16.027	–	–	–	–
$GPPE_{it}$	0.035***	9.088	–	–	–	–
CF_{it}	–0.666***	–56.588	–0.611***	–52.603	–0.731***	–44.138
CF_{it-1}	–	–	–	–	0.428***	17.040
CF_{it+1}	–	–	–	–	0.014	1.208
DCF_{it}	–0.004***	–7.274	0.054***	–8.692	0.060***	–8.430
$DCF_{it} * CF_{it}$	–0.431***	–18.447	–0.502***	–21.317	–0.387***	–13.641
$Y00_{it}$	–0.005	–0.260	–0.003	–0.173	0.001	0.048
$Y01_{it}$	–0.037*	–1.940	–0.040**	–2.083	–0.040**	–1.976
$Y02_{it}$	–0.061***	–3.232	–0.062***	–3.207	–0.058***	–2.914
$Y03_{it}$	–0.052***	–2.755	–0.047**	–2.430	–0.047**	–2.376
$Y04_{it}$	–0.062***	–3.301	–0.056***	–2.903	–0.057***	–2.838
$Y05_{it}$	–0.078***	–4.163	–0.080***	–4.142	–0.078***	–3.927
$Y06_{it}$	–0.054***	–2.920	–0.053**	–2.771	–	–
No. of Obs.	8,005		8,005		6,007	
Adj. R^2	0.518		0.497		0.502	

a. REV_{it} refers to the net revenue in year *t*; ΔREV_{it} indicates the change in revenue in year *t*, ($REV_{it} - REV_{it-1}$, scaled by average total assets); $GPPE_{it}$ is gross property, plant and equipment, scaled by average total assets; and CF_{it} refers to cash flow from operations in year *t* (taken from the cash flow statement), scaled by average total assets. When $CF_{it} < 0$, this indicates that firm *i* has economic losses in year *t*; thus, the dummy variable DCF_{it} has a value of 1; otherwise, if firm *i* has fiscal gains in year *t*, the dummy variable DCF_{it} has a value of 0. The dependent variable is ACC_{it}, which is the accruals in year *t* (the dependent variable in all regressions), scaled by the average total assets. Accruals are defined as earnings (taken from the cash flow statement) minus cash flow from operations (also taken from the cash flow statement). *Y*00-*Y*06 are respective dummy variables for the sample period from 2000 to 2006; *Y*00 is equal to 1 if the year is 2000, otherwise 0; *Y*01 is equal to 1 if the year is 2001, otherwise 0 (and so on for years 2002 to 2006).

b. The model specifications are as follows:

$$Jones\ \ Model: \quad ACC_{it} = \alpha_0 + \beta_1 \Delta REV_{it} + \beta_2 GPPE_{it} + \beta_3 CF_{it} + \beta_4 DCF_{it} + \beta_5 DCF_{it} * CF_{it} + \beta_6 Y00_{it} + \beta_7 Y01_{it} + \beta_8 Y02_{it} + \beta_9 Y03_{it} + \beta_{10} Y04_{it} + \beta_{11} Y05_{it} + \beta_{12} Y06_{it} + \varepsilon_{it}$$

$$CF\ \ Model: \quad ACC_{it} = \alpha_0 + \beta_1 CF_{it} + \beta_2 DCF_{it} + \beta_3 DCF_{it} * CF_{it} + \beta_4 Y00_{it} + \beta_5 Y01_{it} + \beta_6 Y02_{it} + \beta_7 Y03_{it} + \beta_8 Y04_{it} + \beta_9 Y05_{it} + \beta_{10} Y06_{it} + \varepsilon_{it}$$

$$D\ \&\ D\ \ Model: \quad ACC_{it} = \alpha_0 + \beta_1 CF_{it} + \beta_2 CF_{it-1} + \beta_3 CF_{it+1} + \beta_4 DCF_{it} + \beta_5 DCF_{it} * CF_{it} + \beta_6 Y00_{it} + \beta_7 Y01_{it} + \beta_8 Y02_{it} + \beta_9 Y03_{it} + \beta_{10} Y04_{it} + \beta_{11} Y05_{it} + \varepsilon_{it}$$

c. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.

Table 4 Piecewise Linear Accrual Regressions (proxy for economic loss, $\Delta CF_{it} < 0$)

Variables[a]	Jones Model[b]		CF Model[b]		D&D Model[b]	
	Coeff.[c]	*t*-stat.	Coeff.[c]	*t*-stat.	Coeff.[c]	*t*-stat.
Constant	0.019	0.952	0.038**	2.057	0.046**	2.315
ΔREV_{it}	0.038***	11.539	–	–	–	–
$GPPE_{it}$	–0.030***	–7.425	–	–	–	–
CF_{it}	–	–	–0.513***	–40.595	–0.779***	–43.532
CF_{it-1}	–	–	–	–	0.422	11.742
CF_{it+1}	–	–	–	–	0.022***	1.889
ΔCF_{it}	–0.553***	–41.623	–0.166***	–10.947	–	–
$D\Delta CF_{it}$	–0.029***	–5.241	–0.014***	–2.746	–0.024***	–3.945
$D\Delta CF_{it} * \Delta CF_{it}$	–0.169***	–8.119	–0.207***	–10.891	–0.118***	–5.024
$Y00_{it}$	–0.004	–0.180	–0.001	–0.042	0.003	0.163
$Y01_{it}$	–0.043**	–2.079	–0.041**	–2.140	–0.037*	–1.839
$Y02_{it}$	–0.068***	–3.291	–0.059***	–3.113	–0.055***	–2.714
$Y03_{it}$	–0.060***	–2.894	–0.048**	–2.496	–0.044**	–2.178
$Y04_{it}$	–0.065***	–3.113	–0.055***	–2.884	–0.053***	–2.628
$Y05_{it}$	–0.089***	–4.303	–0.081***	–4.234	–0.077***	–3.786
$Y06_{it}$	–0.069***	–3.329	–0.053***	–2.783	–	–
No. of Obs.	8,005		8,005		6,007	
Adj. R^2	0.413		0.503		0.487	

a. REV_{it} refers to the net revenue in year *t*; ΔREV_{it} indicates the change in revenue in year *t*, ($REV_{it} - REV_{it-1}$, scaled by average total assets); $GPPE_{it}$ is gross property, plant and equipment, scaled by average total assets; CF_{it} refers to cash flow from operations in year *t* (taken from the cash flow statement), scaled by average total assets; and ΔCF_{it} indicates the change in cash flow from operations in year *t*, ($CF_{it} - CF_{it-1}$, scaled by average total assets). When $\Delta CF_{it} < 0$, this indicates that firm *i* has less cash flow in year *t* than in year $t-1$; thus the dummy variable $D\Delta CF_{it}$ has a value of 1; otherwise, if firm *i* has more cash flow in year *t* than in year $t-1$, $D\Delta CF_{it}$ has a value of 0. The dependent variable is ACC_{it}, which is the accruals in year *t* (the dependent variable in all regressions), scaled by the average total assets. Accruals are defined as earnings (taken from the cash flow statement) minus cash flow from operations (also taken from the cash flow statement). *Y*00-*Y*06 are respective dummy variables for the sample period from 2000 to 2006; *Y*00 is equal to 1 if the year is 2000, otherwise 0; *Y*01 is equal to 1 if the year is 2001, otherwise 0 (and so on for years 2002 to 2006).

b. The model specifications are as follows:

$$Jones\ \ Model: \quad ACC_{it} = \alpha_0 + \beta_1 \Delta REV_{it} + \beta_2 GPPE_{it} + \beta_3 CF_{it} + \beta_4 \Delta CF_{it} + \beta_5 D\Delta CF_{it} + \beta_6 D\Delta CF_{it} * \Delta CF_{it} + \beta_7 Y00_{it} + \beta_8 Y01_{it} + \beta_9 Y02_{it} + \beta_{10} Y03_{it} + \beta_{11} Y04_{it} + \beta_{12} Y05_{it} + \beta_{13} Y06_{it} + \varepsilon_{it}$$

$$CF\ \ Model: \quad ACC_{it} = \alpha_0 + \beta_1 CF_{it} + \beta_2 \Delta CF_{it} + \beta_3 D\Delta CF_{it} + \beta_4 D\Delta CF_{it} * \Delta CF_{it} + \beta_5 Y00_{it} + \beta_6 Y01_{it} + \beta_7 Y02_{it} + \beta_8 Y03_{it} + \beta_9 Y04_{it} + \beta_{10} Y05_{it} + \beta_{11} Y06_{it} + \varepsilon_{it}$$

$$D\&D\ \ Model: \quad ACC_{it} = \alpha_0 + \beta_1 CF_{it} + \beta_2 CF_{it-1} + \beta_3 CF_{it+1} + \beta_4 \Delta CF_{it} + \beta_5 D\Delta CF_{it} + \beta_6 D\Delta CF_{it} * \Delta CF_{it} + \beta_7 Y00_{it} + \beta_8 Y01_{it} + \beta_9 Y02_{it} + \beta_{10} Y03_{it} + \beta_{11} Y04_{it} + \beta_{12} Y05_{it} + \varepsilon_{it}$$

c. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.

We therefore separate the sample into privately-owned and state-owned enterprises (POEs and SOEs), in order to test whether the asymmetry in the relationship between accruals and the economic gains/ losses of the firms is affected by the ownership structure; the results are reported in Table 6. The left-hand column of Table 6 reports the empirical results of the relationship between accruals and the economic gains/ losses in the SOEs, whilst the right-hand column reports the empirical results on the relationship between accruals and the economic gains/ losses in the POEs.

Table 5 Piecewise Linear Accrual Regressions (proxy for economic loss, $INDADJ\_CF_{it} < 0$)

Variables[a]	Jones Model[b]		CF Model[b]		D&D Model[b]	
	Coeff.[c]	*t*-stat.	Coeff.[c]	*t*-stat.	Coeff.[c]	*t*-stat.
Constant	–0.018	–0.926	0.064***	3.341	0.060**	2.993
ΔREV_{it}	0.052***	16.636	–	–	–	–
$GPPE_{it}$	0.018***	4.561	–	–	–	–
CF_{it}	–	–	–0.644***	–48.067	–0.789***	–39.738
CF_{it-1}	–	–	–	–	0.437***	17.271
CF_{it+1}	–	–	–	–	0.013	1.165
$INDADJ\_CF_{it}$	–0.680***	–49.437	–	–	–	–
$DIND_{it}$	–0.046***	–9.119	–0.053***	–10.430	–0.053***	–8.910
$DIND_{it}$ * $INDADJ\_CF_{it}$	–0.305***	–13.890	–0.333***	–15.123	–0.193***	–6.926
$Y00_{it}$	–0.009	–0.480	–0.003	–0.136	0.002	0.115
$Y01_{it}$	–0.041**	–2.146	–0.039**	–2.020	–0.038*	–1.876
$Y02_{it}$	–0.077***	–3.994	–0.061***	–3.170	–0.056***	–2.793
$Y03_{it}$	–0.060***	–3.135	–0.046**	–3.382	–0.046**	–2.296
$Y04_{it}$	–0.071***	–3.700	–0.055***	–2.856	–0.055***	–2.726
$Y05_{it}$	–0.092***	–4.806	–0.080***	–4.101	–0.077***	–3.826
$Y06_{it}$	–0.073***	–3.854	–0.052**	–2.712	–	–
No. of Obs.	8,005		8,005		6,007	
Adj. R^2	0.498		0.487		0.495	

a. REV_{it} refers to the net revenue in year *t*; ΔREV_{it} indicates the change in revenue in year *t*, ($REV_{it} - REV_{it-1}$, scaled by average total assets); $GPPE_{it}$ is gross property, plant and equipment, scaled by average total assets; CF_{it} refers to cash flow from operations in year *t* (taken from the cash flow statement), scaled by average total assets; and $INDADJ\_CF_{it}$, is the industry-adjusted cash flow for firm *i* in year *t*, which indicates $CF_{it} - MEDIAN\_CF_{it}$ (where $MEDIAN\_CF_{it}$ refers to the median cash flow of all firms within the same industry). When $INDADJ\_CF_{it} < 0$, this indicates that firm *i* has less cash flow in year *t* than the median cash flow of all firms in the same industry; thus the dummy variable $DIND_{it}$ has a value of 1; otherwise, if firm *i* has greater cash flow in year *t* than the median cash flow for all firms within the same industry, the dummy variable $DIND_{it}$ has a value of 0. The dependent variable is ACC_{it}, which is the accruals in year *t* (the dependent variable in all regressions), scaled by the average total assets. Accruals are defined as earnings (taken from the cash flow statement) minus cash flow from operations (also taken from the cash flow statement). *Y*00-*Y*06 are respective dummy variables for the sample period from 2000 to 2006; *Y*00 is equal to 1 if the year is 2000, otherwise 0; *Y*01 is equal to 1 if the year is 2001, otherwise 0 (and so on for years 2002 to 2006).

b. The model specifications are as follows:

$$Jones\ Model: \quad ACC_{it} = \alpha_0 + \beta_1 \Delta REV_{it} + \beta_2 GPPE_{it} + \beta_3 CF_{it} + \beta_4 INDADJ\_CF_{it} + \beta_5 DIND_{it} + \beta_6 IND{*}\, INDADJ\_CF_{it} + \beta_7 Y00_{it} + \beta_8 Y01_{it} + \beta_9 Y02_{it} + \beta_{10} Y03_{it} + \beta_{11} Y04_{it} + \beta_{12} Y05_{it} + \beta_{13} Y06_{it} + \varepsilon_{it}$$

$$CF\ \ Model: \quad ACC_{it} = \alpha_0 + \beta_1 CF_{it} + \beta_2 INDADJ\_CF_{it} + \beta_3 DIND_{it} + \beta_4 IND{*}\, INDADJ\_CF_{it} + \beta_5 Y00_{it} + \beta_6 Y01_{it} + \beta_7 Y02_{it} + \beta_8 Y03_{it} + \beta_9 Y04_{it} + \beta_{10} Y05_{it} + \beta_{11} Y06_{it} + \varepsilon_{it}$$

$$D\&D\ \ Model: \quad ACC_{it} = \alpha_0 + \beta_1 CF_{it} + \beta_2 CF_{it-1} + \beta_3 CF_{it+1} + \beta_4 INDADJ\_CF_{it} + \beta_5 DIND_{it} + \beta_6 IND{*}\, INDADJ\_CF_{it}$$ c

$$+ \beta_7 Y00_{it} + \beta_8 Y01_{it} + \beta_9 Y02_{it} + \beta_{10} Y03_{it} + \beta_{11} Y04_{it} + \beta_{12} Y05_{it} + \varepsilon_{it}$$

c. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.

The coefficient on $DCF_{it} * CF_{it}$ for the SOEs is negative and significant at the 0.01 per cent level, which indicates that SOEs suffering economic losses have greater incentives to use accruals to manipulate their financial statements. The coefficient on $DCF_{it} * CF_{it}$ is insignificant in the POE group, which indicates that the recognition of accruals by POEs is not affected by economic gains and losses. In summary, SOE managers are apparently faced with pressure to increase the performance of the firms. Thus, they have greater incentives to manipulate their financial statements and create the impression of increased

earnings. Conversely, POE mangers are not faced with pressure to perform, and thus, there is no incentive for them to use accruals to artificially increase their reported income.

Table 6 Robustness Analysis in Different Ownership Structure (Jones Model, proxy for economic loss, $CF_{it} < 0$)

	State-owned enterprises (SOEs)		Privately-owned enterprises (POEs)	
Variables[a]	Coeff.[c]	*t*-stat.	Coeff.[c]	*t*-stat.
Constant	0.031	1.090	0.001	0.050
ΔREV_{it}	0.048***	9.380	0.027***	6.590
$GPPE_{it}$	–0.027***	–4.450	–0.038***	–7.380
CF_{it}	–0.504***	–29.520	–0.677***	–31.200
DCF_{it}	–0.027***	–3.550	–0.032***	–4.330
$DCF_{it} * CF_{it}$	–0.229***	–8.300	–0.018	–0.560
$Y00_{it}$	–0.024	–0.850	0.033	1.130
$Y01_{it}$	–0.064**	–2.260	–0.002	–0.080
$Y02_{it}$	–0.090***	–3.160	–0.029	–0.990
$Y03_{it}$	–0.085***	–2.990	–0.011	–0.390
$Y04_{it}$	–0.096***	–3.390	–0.005	–0.170
$Y05_{it}$	–0.127***	–4.430	–0.035	–1.220
$Y06_{it}$	–0.100***	–3.540	–0.024	–0.820
The different of coefficient $DCF_{it} * CF_{it}$ in SOEs and POEs (F-value)			57.326	
Adj. R^2	0.392		0.480	
No. of Obs.	4,982		3,023	

a. REV_{it} refers to the net revenue in year *t*; ΔREV_{it} indicates the change in revenue in year *t*, ($REV_{it} - REV_{it-1}$, scaled by average total assets); $GPPE_{it}$ is gross property, plant and equipment, scaled by average total assets; CF_{it} refers to cash flow from operations in year *t* (taken from the cash flow statement), scaled by average total assets; and DCF_{it} is a dummy variable, when $CF_{it} < 0$, the dummy variable DCF_{it} has a value of 1; otherwise, DCF_{it} has a value of 0. The dependent variable is ACC_{it}, which is the accruals in year *t* (the dependent variable in all regressions), scaled by the average total assets. Accruals are defined as earnings (taken from the cash flow statement) minus cash flow from operations (also taken from the cash flow statement). *Y*00-*Y*06 are respective dummy variables for the sample period from 2000 to 2006; *Y*00 is equal to 1 if the year is 2000, otherwise 0, and so on for years 2002 to 2006.

b. The model specifications are as follows:

$$Piecewise\ Jones\ Model:\ ACC_{it} = \alpha_0 + \beta_1 \Delta REV_{it} + \beta_2 GPPE_{it} + \beta_3 CF_{it} + \beta_4 DCF_{it} + \beta_5 DCF_{it} * CF_{it} + \beta_6 Y00_{it} + \beta_7 Y01_{it} + \beta_8 Y02_{it} + \beta_9 Y03_{it} + \beta_{10} Y04_{it} + \beta_{11} Y05_{it} + \beta_{12} Y06_{it} + \varepsilon_{it}$$

c. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.

4.4.2 The Special Treatment (ST) Effect

'Special treatment' (ST) status was introduced by the CSRC in 1998 as a mechanism aimed at providing signals of loss-making firms to investors. Typically, a firm will be in receipt of ST status for the following three main reasons: (i) a listed company which has registered negative net profits for two or more consecutive fiscal years; (ii) a listed company in which shareholder equity is lower than the company's registered capital (the par value of the share); and (iii) a company whose operations have ceased, and where there is no hope of such operations being restored within three months as a result of natural

disasters or serious accidents, or where the company is involved in damaging litigation or arbitration.

Watts and Zimmerman (1990) provide evidence to show that firms with financial problems are more likely to select accounting procedures that will effectively shift their reported earnings from future periods to the current period. Duke and Hunt (1990) and Press and Weintrop (1990) and Sweeney (1994) also present empirical evidence to support this assertion. We therefore separate the sample into two groups, those with and without ST status, in order to test whether the asymmetric relationship between accruals and the economic gains/ losses of the firms is affected by financial problems; the results are reported in Table 7.

Table 7 Robustness Analysis in Different Level of Financial Distress (Firms in Receiving Special Treatment Status: ST Firms)(Jones model, proxy for economic loss, $CF_{it} < 0$)

	Enterprises receiving special treatment (ST)		Enterprises not receiving special treatment (ST)	
Variables[a]	Coeff.[c]	*t*-stat.	Coeff.[c]	*t*-stat.
Constant	0.002	0.020	0.038**	2.180
ΔREV_{it}	0.090***	4.840	0.024***	8.810
$GPPE_{it}$	0.051***	2.190	–0.048***	–14.560
CF_{it}	–0.411***	–11.740	–0.614***	–45.500
DCF_{it}	–0.057**	–2.520	–0.031***	–6.590
$DCF_{it} * CF_{it}$	–0.343***	–5.200	–0.113***	–5.780
$Y00_{it}$	–0.048	–0.550	0.001	0.070
$Y01_{it}$	–0.127	–1.480	–0.032*	–1.800
$Y02_{it}$	–0.166*	–1.930	–0.052***	–2.970
$Y03_{it}$	–0.149*	–1.730	–0.045***	–2.620
$Y04_{it}$	–0.217**	–2.520	–0.035***	–2.000
$Y05_{it}$	–0.302***	–3.480	–0.054***	–3.080
$Y06_{it}$	–0.249***	–2.890	–0.041***	–2.350
The different of coefficient $DCF_{it} * CF_{it}$ in better and worse debt contract conditions (F-value)			29.522	
Adj. R^2	0.317		0.525	
No. of Obs.	4,002		4,002	

a. REV_{it} refers to the net revenue in year *t*; ΔREV_{it} indicates the change in revenue in year *t*, ($REV_{it} - REV_{it-1}$, scaled by average total assets); $GPPE_{it}$ is gross property, plant and equipment, scaled by average total assets; CF_{it} refers to cash flow from operations in year *t* (taken from the cash flow statement), scaled by average total assets; and DCF_{it} is a dummy variable, when $CF_{it} < 0$, the dummy variable DCF_{it} has a value of 1; otherwise, DCF_{it} has a value of 0. The dependent variable is ACC_{it}, which is the accruals in year *t* (the dependent variable in all regressions), scaled by the average total assets. Accruals are defined as earnings (taken from the cash flow statement) minus cash flow from operations (also taken from the cash flow statement). *Y*00-*Y*06 are respective dummy variables for the sample period from 2000 to 2006; *Y*00 is equal to 1 if the year is 2000, otherwise 0, and so on for years 2002 to 2006.

b. The model specifications are as follows:

$$\textit{Piecewise Jones Model}: \quad ACC_{it} = \alpha_0 + \beta_1 \Delta REV_{it} + \beta_2 GPPE_{it} + \beta_3 CF_{it} + \beta_4 DCF_{it} + \beta_5 DCF_{it} * CF_{it} + \beta_6 Y00_{it} + \beta_7 Y01_{it} + \beta_8 Y02_{it} + \beta_9 Y03_{it} + \beta_{10} Y04_{it} + \beta_{11} Y05_{it} + \beta_{12} Y06_{it} + \varepsilon_{it}$$

c. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.

The left-hand column of Table 7 reports the empirical results of the relationship between accruals and the economic gains/ losses of firms in those firms with ST status, whilst the right-hand column reports the empirical results on the relationship between accruals and the economic gains/ losses of those firms which are not subject to ST. For

those firms included in the ST group, the estimated coefficient on $DCF_{it} * CF_{it}$ in the Jones model is –0.343 (significant at the 1 per cent level). This is much higher than that for the group demonstrating worse debt contract conditions, for which the coefficient on $DCF_{it} * CF_{it}$ is –0.113 (F = 29.52). This result provides support for the assumption that firms with ST status have greater incentives to use their accruals to artificially raise their income. Similar results are obtained for both the CF and D&D models.

4.4.3 The Book-to-market Ratio Effect

Accounting conservatism is defined as the understatement of the asset value of a firm and the overstatement of the value of the firm's liabilities. Accordingly, conservatism is measured using a firm's book-to-market ratio, based upon the assumption that, ceteris paribus, firms using conservative accounting methods will report lower net assets and lower book-to-market ratios. The assumption that firms using conservative accounting methods will have lower book-to-market ratios is supported by the empirical results of Beaver and Ryan (2000). Thus, firms demonstrating more conservatism in their financial reporting will exhibit timelier recognition of losses. We separate the sample firms into two groups – those with higher and lower book-to-market ratios – to examine whether the asymmetry that exists in the relationship between accruals and the economic gains/ losses of the firms is affected by the different attitudes towards the recognition of accruals.

We use the median book-to-market ratio of the firms within the same industry and the same year to separate the firms' attitude towards conservatism in the recognition of accounting items. If the book-to-market ratio of the firm is lower than the median ratio, they are assigned to the group referred to as 'more conservatism', whilst those firms with a book-to-market ratio which is higher than the median ratio are assigned to the 'less conservatism' group. The results are reported in Table 8.

The left-hand column of Table 8 reports the empirical results of the relationship between accruals and the economic gains/ losses of those firms with more conservatism in their recognition of accounting items (lower book-to-market ratio), whilst the right- hand column reports the relationship between accruals and the economic gains/ losses of firms with less conservatism in their recognition of accounting items (higher book-to-market ratio). For those firms with more conservatism, the estimated coefficient on $DCF_{it} * CF_{it}$ in the Jones model is not significant. However, in the less conservatism group, the coefficient on $DCF_{it} * CF_{it}$ is –0.543 and significant at the 1 per cent level. This result indicates that those firms with a lower book-to-market ratio (more conservatism) have fewer incentives to use accruals to artificially increase their income. Similar results are also obtained for both the CF and D&D models.[7]

[7] Following Beaver and Ryan (2000) we also use the quartile book-to-market of all firms within the same industry and the same year in order to more precisely separate the level of conservatism for each of the

Table 8 Robustness Analysis in Different Conservatism Condition (Jones model, proxy for economic loss, $CF_{it} < 0$)

	Lower book-to-market ratio		Higher book-to-market ratio	
Variables[a]	Coeff.[c]	*t*-stat.	Coeff.[c]	*t*-stat.
Constant	0. 605***	3.561	−0. 801	−1. 752
ΔREV_{it}	0.046***	7.723	0.150***	8.524
$GPPE_{it}$	0.062***	9.642	0.034***	7.059
CF_{it}	−0.712***	−52.599	−0.479***	−23.214
DCF_{it}	0.204*	1.657	−0.031***	−6.352
$DCF_{it} * CF_{it}$	−0.215	−1.106	−0.543***	−13.529
$Y00_{it}$	−0.003	−0.207	−0.009	−0.277
$Y01_{it}$	−0.023**	−2.008	−0.041*	−1.263
$Y02_{it}$	−0.032***	−3. 727	−0.070**	−2.151
$Y03_{it}$	−0.079***	−3.009	−0.067*	−1. 576
$Y04_{it}$	−0.049***	−2.863	−0.083**	−2.539
$Y05_{it}$	−0.068***	−3. 264	−0.181***	−3. 804
$Y06_{it}$	−0.042***	−2.687	−0.566**	−2.052
The different of coefficient $DCF_{it} * CF_{it}$ in better and worse debt contract conditions (F-value)			67.279	
Adj. R^2	0.421		0.286	
No. of Obs.	4,002		4,002	

a. REV_{it} refers to the net revenue in year *t*; ΔREV_{it} indicates the change in revenue in year *t*, ($REV_{it} - REV_{it-1}$, scaled by average total assets); $GPPE_{it}$ is gross property, plant and equipment, scaled by average total assets; CF_{it} refers to cash flow from operations in year *t* (taken from the cash flow statement), scaled by average total assets; and DCF_{it} is a dummy variable, when $CF_{it} < 0$, the dummy variable DCF_{it} has a value of 1; otherwise, DCF_{it} has a value of 0. The dependent variable is ACC_{it}, which is the accruals in year *t* (the dependent variable in all regressions), scaled by the average total assets. Accruals are defined as earnings (taken from the cash flow statement) minus cash flow from operations (also taken from the cash flow statement). *Y*00-*Y*06 are respective dummy variables for the sample period from 2000 to 2006; *Y*00 is equal to 1 if the year is 2000, otherwise 0, and so on for years 2002 to 2006.

b. The model specifications are as follows:

$$Piecewise\ \ Jones\ \ Model:\ \ ACC_{it} = \alpha_0 + \beta_1 \Delta REV_{it} + \beta_2 GPPE_{it} + \beta_3 CF_{it} + \beta_4 DCF_{it} + \beta_5 DCF_{it} * CF_{it} + \beta_6 Y00_{it} + \beta_7 Y01_{it} + \beta_8 Y02_{it} + \beta_9 Y03_{it} + \beta_{10} Y04_{it} + \beta_{11} Y05_{it} + \beta_{12} Y06_{it} + \varepsilon_{it}$$

c. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.

4.4.4 The Binary Market Structure Effects

The binary market structure is one of the distinguishing features between listed firms in China and other countries (Poon, Firth and Fung 1998; Chen, Su and Wu 2007). Most of the listed companies in China issue only A shares to domestic investors, but some (about 10 per cent) also issue B shares to overseas investors. Since their introduction, B shares have served as a means of attracting foreign investors to Chinese enterprises and joint ventures, as well as acting as a mechanism for the development of the markets themselves (Zee 1992). According to Chinese stock market regulations, companies which issue both A and B shares are required to publish two sets of financial statements in accordance with Chinese GAAP and international accounting standards.

firms. Those firms with book-to-market values that are lower than the first quartile are assigned to the group with more conservatism, whilst those firms with book-to-market values that are higher than the third quartile are assigned to the group with lesser conservatism. The results remain similar to the primary results.

Table 9 Robustness Analysis in Binary Market (Jones model, proxy for economic loss, $CF_{it} < 0$)

	Existed in single market		Existed in binary market	
Variables[a]	Coeff.[c]	*t*-stat.	Coeff.[c]	*t*-stat.
Constant	0.085	1.150	0.017	0.790
ΔREV_{it}	0.073***	3.290	0.038***	11.260
$GPPE_{it}$	–0.079***	–4.990	–0.029***	–6.950
CF_{it}	–0.361***	–3.490	–0.554***	–41.150
DCF_{it}	–0.012	–0.550	–0.029***	–5.130
$DCF_{it} * CF_{it}$	–0.433***	–3.100	–0.231***	–7.880
$Y00_{it}$	–0.080	–1.070	0.000	–0.020
$Y01_{it}$	–0.137*	–1.830	–0.040*	–1.860
$Y02_{it}$	–0.179**	–2.400	–0.064***	–3.020
$Y03_{it}$	–0.134*	–1.780	–0.057***	–2.680
$Y04_{it}$	–0.099	–1.310	–0.063***	–2.970
$Y05_{it}$	–0.099	–1.310	–0.089***	–4.160
$Y06_{it}$	–0.091	–1.210	–0.067***	–3.200
The different of coefficient $DCF_{it} * CF_{it}$ in better and worse debt contract conditions (F-value)			47.260	
Adj. R^2	0.394		0.414	
No. of Obs.	4,002		4,002	

a. REV_{it} refers to the net revenue in year *t*; ΔREV_{it} indicates the change in revenue in year *t*, ($REV_{it} - REV_{it-1}$, scaled by average total assets); $GPPE_{it}$ is gross property, plant and equipment, scaled by average total assets; CF_{it} refers to cash flow from operations in year *t* (taken from the cash flow statement), scaled by average total assets; and DCF_{it} is a dummy variable, when $CF_{it} < 0$, the dummy variable DCF_{it} has a value of 1; otherwise, DCF_{it} has a value of 0. The dependent variable is ACC_{it}, which is the accruals in year *t* (the dependent variable in all regressions), scaled by the average total assets. Accruals are defined as earnings (taken from the cash flow statement) minus cash flow from operations (also taken from the cash flow statement). *Y*00-*Y*06 are respective dummy variables for the sample period from 2000 to 2006; *Y*00 is equal to 1 if the year is 2000, otherwise 0, and so on for years 2002 to 2006.

b. The model specifications are as follows:

$$Piecewise\ \ Jones\ \ Model:\ \ ACC_{it} = \alpha_0 + \beta_1 \Delta REV_{it} + \beta_2 GPPE_{it} + \beta_3 CF_{it} + \beta_4 DCF_{it} + \beta_5 DCF_{it} * CF_{it} + \beta_6 Y00_{it} + \beta_7 Y01_{it} + \beta_8 Y02_{it} + \beta_9 Y03_{it} + \beta_{10} Y04_{it} + \beta_{11} Y05_{it} + \beta_{12} Y06_{it} + \varepsilon_{it}$$

c. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.

Merton (1987) suggests that an increase in the size of the firm's investor base will lower incentives for managers to manipulate their financial statements. The binary market structure in China provides just such a testing opportunity. The results of this test are reported in Table 9, where the left-hand column reports the results for the A share market and the right-hand column reports the results for the B share market. For those firms in the A share market, the estimated coefficient on $DCF_{it} * CF_{it}$ in the Jones model is –0.433 and significant at the 1 per cent level, much higher than in the binary market group, where the coefficient on $DCF_{it} * CF_{it}$ is –0.231 (F = 47.26). This result provides support for the supposition that firms in the binary market have less incentive to use accruals to artificially raise their income.[8] Similar results are also obtained for both the CF and D&D models.

[8] We also separate the sample firms into two groups – those issue both A and H shares market and issue only A shares. This result also provides support for the supposition that firms in the binary market have less incentive to use accruals to artificially raise their income.

4.4.5 The Strength of Legal System Effects

Firth et al. (2006) indicate that firms' governance institutions are influenced by regional differences. In Shenzhen stock exchange the initial public offering (IPO) activity was suspended from September 2000 as the Chinese government pondered merging its bourses into a single exchange in Shanghai. The IPO system in the Shenzhen Stock Exchange was released on 1st September, 2004, but only for the small and medium sized enterprises. Accordingly, we reasonable speculated that the strength of legal system in the Shanghai Stock Exchange and Shenzhen Stock Exchange is different. Following Firth et al. (2006) we group firms into different regions, Shanghai Stock Exchange and Shenzhen Stock Exchange, in order to examine whether the asymmetry that exists in the relationship between accruals and the economic gains/ losses of the firms is affected by the different strength of legal system.

The left-hand column of Table 10 reports the empirical results of the relationship between accruals and the economic gains/ losses of firms in those firms in the Shanghai Stock Exchange, whilst the right-hand column reports the empirical results on the relationship between accruals and the economic gains/ losses of those firms in the Shenzhen Stock Exchange. For those firms included in the Shanghai Stock Exchange, the estimated coefficient on $DCF_{it} * CF_{it}$ in the Jones model is –0.410 (significant at the 1 per cent level). This is much higher than that for the group in the Shenzhen Stock Exchange, for which the coefficient on $DCF_{it} * CF_{it}$ is –0.438 (F = 7.62). This result provides support for the assumption that firms in the Shenzhen Stock Exchange with less strength of legal system have greater incentives to use their accruals to artificially raise their income. Similar results are obtained for both the CF and D&D models.

4.4.6 Proxy for Economic Gains and Losses Based on Stock Market Returns

Roychowdhury and Watts (2005) argue that market value includes un-booked items, such as growth options and synergies, which are less relevant for accounting purposes. While changes in market value of equity generally incorporate more information than financial statement–based "book" variables, they incorporate information about un-booked items that cannot generate accrued gains or losses. Accordingly, we also use a proxy to substitute for economic gains and losses based on stock market returns, as in Basu (1997) and Ball and Shivakumar (2006). $MKTRET_t$ is the weighted market return in year *t*, whilst RET_{it} indicates the stock return for firm *i* in year *t*. $ABNRET_{it}$, which is the difference between the stock return and weighted market return for firm *i* in year *t*, is indicated by $RET_{it-1} - MKTRET_{it}$.

Table 10 Robustness Analysis in Different Security Market (Jones model, proxy for economic loss, $CF_{it} < 0$)

	Shanghai Stock Exchange		Shenzhen Stock Exchange	
Variables[a]	Coeff.[c]	*t*-stat.	Coeff.[c]	*t*-stat.
Constant	–0.013	–0.546	0.055*	1.899
ΔREV_{it}	0.043***	11.556	0.057***	10.935
$GPPE_{it}$	0.032***	7.031	0.040***	5.803
CF_{it}	–0.662***	–52.324	–0.684***	–26.437
DCF_{it}	–0.035***	–4.616	–0.059***	–5.659
$DCF_{it} * CF_{it}$	–0.410***	–15.563	–0.438***	–9.715
$Y00_{it}$	0.025	1.003	–0.036	–1.211
$Y01_{it}$	0.011	0.460	–0.091***	–3.074
$Y02_{it}$	–0.021	–0.882	–0.105***	–3.540
$Y03_{it}$	–0.013	–0.533	–0.095***	–3.220
$Y04_{it}$	–0.021	–0.866	–0.112***	–3.749
$Y05_{it}$	–0.041	–1.697	–0.119***	–4.030
$Y06_{it}$	–0.023	–0.958	–0.088***	–2.998
The different of coefficient $DCF_{it} * CF_{it}$ in better and worse debt contract conditions (F-value)			7.620	
Adj. R^2	0.576		0.440	
No. of Obs.	4,722		3,280	

a. REV_{it} refers to the net revenue in year *t*; ΔREV_{it} indicates the change in revenue in year *t*, ($REV_{it} - REV_{it-1}$, scaled by average total assets); $GPPE_{it}$ is gross property, plant and equipment, scaled by average total assets; CF_{it} refers to cash flow from operations in year *t* (taken from the cash flow statement), scaled by average total assets; and DCF_{it} is a dummy variable, when $CF_{it} < 0$, the dummy variable DCF_{it} has a value of 1; otherwise, DCF_{it} has a value of 0. The dependent variable is ACC_{it}, which is the accruals in year *t* (the dependent variable in all regressions), scaled by the average total assets. Accruals are defined as earnings (taken from the cash flow statement) minus cash flow from operations (also taken from the cash flow statement). *Y*00-*Y*06 are respective dummy variables for the sample period from 2000 to 2006; *Y*00 is equal to 1 if the year is 2000, otherwise 0, and so on for years 2002 to 2006.

b. The model specifications are as follows:

$$Piecewise\ Jones\ Model:\ ACC_{it} = \alpha_0 + \beta_1 \Delta REV_{it} + \beta_2 GPPE_{it} + \beta_3 CF_{it} + \beta_4 DCF_{it} + \beta_5 DCF_{it} * CF_{it} + \beta_6 Y00_{it} + \beta_7 Y01_{it} + \beta_8 Y02_{it} + \beta_9 Y03_{it} + \beta_{10} Y04_{it} + \beta_{11} Y05_{it} + \beta_{12} Y06_{it} + \varepsilon_{it}$$

c. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.

We use stock market return to investigate the economic gains and losses of the firms, using a dummy variable, $DABNRET_{it}$, to separate economic gains and losses. When $ABNRET_{it} < 0$, this indicates that firm *i* has a lower stock return than market return in year *t*, in which case the dummy variable, $DABNRET_{it}$, has a value of 1. Alternatively, if firm *i* has a higher stock return than market return in year *t*, then the dummy variable $DABNRET_{it}$ has a value of 0.

Table 11 uses the stock market return as a proxy for economic gains and losses. The coefficient for testing Hypothesis is $DABNRET_{it} * ABNRET_{it}$, which represents the interaction between the cash flow variables and the loss dummies. The coefficient of $DABNRET_{it} * ABNRET_{it}$ is negative and significant at the 0.01 level, which indicates that firms suffering economic losses have greater incentives to use accruals to manipulate their financial statements and increase their income, which is similar to the primary results.

Table 11 Piecewise Linear Accrual Regressions (market proxy for economic loss, $ABNRET_{it} < 0$)

Variables[a]	Jones Model[b]		CF Model[b]		D&D Model[b]	
	Coeff.[c]	*t*-stat.	Coeff.[c]	*t*-stat.	Coeff.[c]	*t*-stat.
Constant	0.025	1.360	0.048**	2.557	0.012**	2.168
ΔREV_{it}	0.056***	18.517	–	–	–	–
$GPPE_{it}$	0.022***	5.700	–	–	–	–
CF_{it}	–0.588***	–40.656	–0.535***	–37.762	–0.649***	–46.832
CF_{it-1}	–	–	–	–	0.082***	3.146
CF_{it+1}	–	–	–	–	0.054***	4.679
$DABNRET_{it}$	–0.012**	–2.053	–0.015**	–2.444	0.005***	2.968
$DABNRET_{it}$ * $ABNRET_{it}$	–0.209***	–18.034	–0.233***	–20.107	–0.288***	–14.633
$Y00_{it}$	0.001	0.044	0.006	0.283	0.013	0.583
$Y01_{it}$	–0.033*	–1.733	–0.035*	–1.783	–0.025	–1.178
$Y02_{it}$	–0.057***	–3.027	–0.056***	–2.874	–0.039*	–1.835
$Y03_{it}$	–0.049***	–2.584	–0.041**	–2.135	–0.029	–1.371
$Y04_{it}$	–0.056***	–2.982	–0.048**	–2.490	–0.026	–1.243
$Y05_{it}$	–0.075***	–3.943	–0.074***	–3.821	–0.047**	–2.214
$Y06_{it}$	–0.052***	–2.798	–0.049**	–2.543	–	–
No. of Obs.	8,005		8,005		6,007	
Adj. R^2	0.513		0.493		0.520	

a. REV_{it} refers to the net revenue in year *t*; ΔREV_{it} indicates the change in revenue in year *t*, ($REV_{it} - REV_{it-1}$, scaled by average total assets); $GPPE_{it}$ is gross property, plant and equipment, scaled by average total assets; CF_{it} refers to cash flow from operations in year *t* (taken from the cash flow statement), scaled by average total assets; and $ABNRET_{it}$ is the stock market return. When $ABNRET_{it} < 0$, this indicates that firm *i* has a lower stock return than market return in year *t*, in which case the dummy variable, $DABNRET_{it}$, has a value of 1. Alternatively, if firm *i* has a higher stock return than market return in year *t*, then the dummy variable $DABNRET_{it}$ has a value of 0. The dependent variable is ACC_{it}, which is the accruals in year *t* (the dependent variable in all regressions), scaled by the average total assets. Accruals are defined as earnings (taken from the cash flow statement) minus cash flow from operations (also taken from the cash flow statement). *Y*00-*Y*06 are respective dummy variables for the sample period from 2000 to 2006; *Y*00 is equal to 1 if the year is 2000, otherwise 0; *Y*01 is equal to 1 if the year is 2001, otherwise 0 (and so on for years 2002 to 2006).

b. The model specifications are as follows:

$$Jones\ \ Model:\ \ ACC_{it} = \alpha_0 + \beta_1 \Delta REV_{it} + \beta_2 GPPE_{it} + \beta_3 CF_{it} + \beta_4 DABNRET_{it} + \beta_5 DABNRET_{it} * ABNRET_{it} + \beta_6 Y00_{it} + \beta_7 Y01_{it} + \beta_8 Y02_{it} + \beta_9 Y03_{it} + \beta_{10} Y04_{it} + \beta_{11} Y05_{it} + \beta_{12} Y06_{it} + \varepsilon_{it}$$

$$CF\ \ Model:\ \ ACC_{it} = \alpha_0 + \beta_1 CF_{it} + \beta_2 DABNRET_{it} + \beta_3 DABNRET_{it} * ABNRET_{it} + \beta_4 Y00_{it} + \beta_5 Y01_{it} + \beta_6 Y02_{it} + \beta_7 Y03_{it} + \beta_8 Y04_{it} + \beta_9 Y05_{it} + \beta_{10} Y06_{it} + \varepsilon_{it}$$

$$D\&D\ \ Model:\ \ ACC_{it} = \alpha_0 + \beta_1 CF_{it} + \beta_2 CF_{it-1} + \beta_3 CF_{it+1} + \beta_4 DABNRET_{it} + \beta_5 DABNRET_{it} * ABNRET_{it} + \beta_6 Y00_{it} + \beta_7 Y01_{it} + \beta_8 Y02_{it} + \beta_9 Y03_{it} + \beta_{10} Y04_{it} + \beta_{11} Y05_{it} + \varepsilon_{it}$$

c. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.

4.4.7 Asymmetrically Recognized Accruals and the Predictability of Cash Flows

Ball and Shivakumar (2006) indicate that when the recognition of gain or loss accruals is incorporated into a firm's current earnings information on changes in expected future cash flows, this should improve the ability of the firm's earnings to predict future cash flows. Accordingly, we report whether such an outcome is also discernible in the Chinese securities market. We use the Ball and Shivakumar (2006) model to estimate the piecewise linear regression of future cash flows, as follows:

$$CF_{it+j} = \alpha_0 + \beta_1 CF_{it-1} + \beta_2 ACC_{it-1} + \beta_3 CF_t + \beta_4 ACC_t + \beta_5 DVAR_{it} + \beta_6 CF_t \times DVAR_t + \beta_7 ACC_t * DVAR_t + \varepsilon_{it+j}$$

where j = 1 to 3.

If gain and loss accruals asymmetrically incorporate information on expected future cash flow changes, we should find that the piecewise linear specification is better at predicting future cash flows than a conventional linear model. The results are reported in Table 12, where the dependent variable is operating cash flow; the columns present the results for each of the three subsequent years (j = 1 to 3).

For comparison, the results are also presented for a conventional linear model which does not incorporate the asymmetry of loss recognition. The row entitled 'R^2 *ratio*' presents the proportional increase in adjusted R^2 obtained by the non-linear model. The results reveal that the R^2 *ratio* is higher than 1 in all of the groups, which indicates that the piecewise linear specification will be better at predicting future cash flows.

Table 12 Ability of Asymmetrically Recognized Accruals to Predict Future Operating Cash Flow (proxy for economic loss, $CF_{it} < 0$)

	CF_{it+1}		CF_{it+2}		CF_{it+3}	
Variables[a]	Coeff.[c]	Coeff.[c]	Coeff.[c]	Coeff.[c]	Coeff.[c]	Coeff.[c]
Constant	0.031 ***	0.052 *	0.073 ***	0.074 *	0.062 *	0.076 *
CF_{it-1}	0.059 ***	0.063 ***	0.130 **	0.130 **	0.335 **	0.321 **
ACC_{it-1}	0.507 ***	0.500 **	0.192 **	0.187 **	0.272 *	0.263 **
CF_{it}	–0.049 ***	–0.066 ***	0.104 ***	0.119 ***	–0.096 **	–0.145 **
ACC_{it}	–0.084 *	0.006 **	0.024	0.023 **	–0.117	–0.173 *
DCF_{it}		–0.045 *		–0.020		–0.066
$DCF_{it} * CF_{it}$		–0.289 ***		–0.147 **		–0.092 *
$DCF_{it} * ACC_{it}$		0.330 **		0.063 **		0.174
Adj. R^2	0.298	0.421	0.222	0.319	0.129	0.182
R^2 *ratio*	1.413		1.437		1.411	
No. of Obs.	600					

a. CF_{it} refers to cash flow from operations in year t (taken from the cash flow statement), scaled by average total assets; and DCF_{it} is a dummy variable, when $CF_{it} < 0$, the dummy variable DCF_{it} has a value of 1; otherwise, DCF_{it} has a value of 0. The dependent variable is ACC_{it}, which is the accruals in year t (the dependent variable in all regressions), scaled by the average total assets. Accruals are defined as earnings (taken from the cash flow statement) minus cash flow from operations (also taken from the cash flow statement). *Y*00-*Y*06 are respective dummy variables for the sample period from 2000 to 2006; *Y*00 is equal to 1 if the year is 2000, otherwise 0, and so on for years 2002 to 2006.

b.The model specifications are as follows:

$$CF_{it+j} = \alpha_0 + \beta_1 CF_{it-1} + \beta_2 ACC_{it-1} + \beta_3 CF_t + \beta_4 ACC_t + \beta_5 DVAR_{it} + \beta_6 CF_t \times DVAR_t + \beta_7 ACC_t * DVAR_t + \varepsilon_{it+j}$$

c. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.

4.4.8 Other Effects

The measurement of accruals in many of the prior studies is based upon the Dechow and Dichev (2002) model of working capital accruals, in which total working capital accruals are separated into an 'explained' element, which is correlated with past, current or future cash flows, and an 'abnormal' element. We therefore also adopt the Dechow and

Dichev (2002) model for use in our attempt to determine whether there are any changes in the role of economic gains and losses for the working capital accruals model. We find that the results remain similar to the primary results.

Since many of the prior studies indicate that firms in different industries have different attitudes towards the recognition of accruals, as a further test for robustness, we separate the sample into six groups, by industry, to determine whether there are any changes in the accruals models in the roles of economic gains and losses for different industries. Results similar to the primary results are shown for each group, thereby once again confirming the robustness of the results of the present study.

We also separate the sample, by year, to determine whether there are any changes in the accruals models in the roles of economic gains and losses, for different years. Results similar to the primary results are shown for each group, thereby, once again confirming the robustness of the results of the present study. However, with the passage of time, it is apparent that the tendency for firms to use accruals to manipulate their financial statements and increase their income is being alleviated, a result which may be due to improvements in the securities environment.

5. CONCLUSIONS

China has managed to achieve and maintain an extremely rapid economic growth rate since the implementation of its economic reforms in 1978, a time when the Chinese leadership demonstrated a significant shift towards more pragmatic and open-door policies in virtually all fields. Following this trend, many international investors have also begun to experiment in the Chinese market. In order to keep pace with the changing times, the Chinese government decided to amend many of its relevant laws and administrative regulations so as to encourage international capital inflows into China's financial markets. Nevertheless, the laws pertaining to business in China have not kept pace with China's market growth. Thus, foreign investors have less protection in the Chinese securities market, an environment in which firms have greater opportunities to use accruals to manipulate their financial statements.

We use publicly-listed firms in the Chinese securities market as our study sample in an attempt to provide more information on this new emerging market for potential Western investors, since any factor which may affect firms' recognition of accruals in the Chinese securities market is very important for investors and debt holders. Some of the prior studies indicate that firms' recognition of accruals will be affected by their economic gains and losses. By incorporating economic gains and losses into the accruals models, Ball and Shivakumar (2006) found that US firms have more timely recognition of economic losses than economic gains (conditional conservatism). Since many studies note that the

conditional conservatism of firms will also be affected by the legal environment, we explore whether firms in the Chinese securities market, an immature legal environment with regard to investor protections, demonstrate conservatism (timely recognition of economic losses) in their recognition of accruals. Our results indicate that firms demonstrate more timely recognition of gains than losses, results which run contrary to Basu (1997) and Ball and Shivakumar (2006). The reason for such diversity may be due to the differences in the legal environments of China and the US. Firms in China operate within a both loose enactment and enforcement of commercial laws (Cao and Hou 2001; Sun and Zhang 2006) with greater incentives to gloss over their financial statements and fewer incentives for conservatism in their recognition of accruals.

The securities markets in China have a number of special characteristics which differ markedly from those of the US markets, a situation which is essentially attributable to the effects of the country's centrally-planned economy. In this study, we explore whether there are differences in the attitude of Chinese firms, with regard to their recognition of accruals, under various market characteristics. Our results show that SOEs, ST firms, those firms with higher book-to-market ratios and those firms which are listed only in the domestic A share market have more timely recognition of accrual gains than losses.

These results may be partly due to the fact that within SOEs, the controlling shareholder is the government, and there is no clearly accountable representative of the state with responsibility for monitoring SOE managers. They have more opportunities for engaging in earnings management. The ST firms are under pressure to collect capital from outsiders, and since they are faced with an immature institutional securities environment, they have more incentives to increase financial income. The less conservatism firms also have more incentives to manipulate financial statements and increase income, while firms in the binary market face greater institutional supervision and have less opportunity to engage in such manipulation.

We conclude that investors and debt holders need to be more conservative when analyzing the financial statements of firms in China, particularly those of SOEs, ST firms, higher book-to-market ratio firms and the firms listed only in the domestic A share market. According to our results, investors and debt holders attract to Chinese stock market do indeed pay more attention to understand the legal environments and market characteristics in China, which is much different from the Western countries. The government in China has recently opened its doors to international investors, allowing them to inject capital into the Chinese securities market. If such investors are confident that the financial statements of firms are fairly accurate, they can use them to make better investment decisions, which may well result in further injections of capital into the Chinese stock market.

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