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Investor Sophistication, Corporate Governance, the Persistence of Loss, and the Mispricing of Earnings and Earnings Components

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Abstract. This study extends previous studies on accrual anomaly to investigate the emerging market's mispricing of accruals and special items. Specially, I use both Mishkin (1983) test and hedge portfolio test to examine whether the Chinese Stock market's stock price rationally reflect the one-year ahead earnings implications of these earnings components. Additionally, this paper examines the role of local institutional investors' role in the pricing of earnings and their components and whether a firm's corporate governance system has an effect on the market pricing of its earnings and earnings components.

I find that the earnings and earnings components (accruals, cash flows and special items) are all overpriced by the emerging stock market for the full sample. However, when I focused my study only on profitable firm-year sub-sample, only the accrual component of earnings are overpriced significantly. Both cash flows and special items are not significantly overpriced or underpriced by the market. More detailed investigation shows that among the various components of accruals, current assets accruals and depreciation and amortization contribute most to the overpricing of accrual component of earnings. Secondly, I show in the study that firms with higher level of institutional ownership have stock prices that more accurately reflect the persistence of earnings and earnings components. Finally, I find that firms with higher level of ownership concentration result in higher level of market mispricing of their earnings and earnings components. Firms with smaller board size and more external directors have stock prices more accurately reflect the persistence of earnings and earnings components.

Keywords: earnings, cash flows, accruals, special items, mispricing, investor sophistication, corporate governance, loss

1. Introduction

Since Sloan (1996), many studies examine whether the market rationally prices the cash flow and accrual components of earnings. Most of the studies find that the market participants don't recognize the lower persistence of accruals compared with cash flows as reflected in the relative pricing of accruals and cash flow components of earnings. In addition, Xie (2001) finds that the market overprice both the discretionary and non-discretionary part of accruals and the overpricing of total accruals is mainly from the mispricing of discretionary part of accruals. Studies using US data confirm that the accrual anomaly is robust across various samples Zach (2001). However, Pincus et al. (2004)'s international evidence shows that stock prices in U.K. and Japan exhibit under-weighting of cash flows, but there is no evidence of an over-weighting of accruals in any of the countries (Australia, Canada, U.K., France, Germany, and Japan) examined and concludes that the accrual anomaly may be idiosyncratic to U.S. capital markets. The first contribution of my study is to provide evidence of accruals anomaly of emerging stock market of China. It is interesting to look at China for there are different predictions about accrual anomaly. First, it is well accepted that the earnings in China are less value relevant than US (Chan et al, 2001), and the importance of earnings for market pricing is lower and thus functional fixation on earnings is less common or less important in stock pricing. On the other hand, the young age of China's stock market indicate that the local Chinese investors are less

sophisticated than their counterparts in the US and thus suffer more from functional fixation and in turn results in more severe mispricing of accruals.

Studies of accrual-mispricing Sloan (1996) and most earnings-returns research implicitly assumes that the relation between reported earnings and stock-price returns is consistent across firm-years reporting positive and negative earnings. However, positive and negative earnings differ in the positive earnings can potentially persist indefinitely into the future, while negative earnings can only persist to the point of exhausting the cash resources of the firm Chambers (1996). Graham (1996) reports that firms experiencing positive taxable income have a probability of 0.813 of experiencing positive taxable earnings in the subsequent year, while firms reporting negative taxable income have only a 0.577 probability of reporting negative income in the subsequent year, which indicates that negative earnings are less persistent than positive earnings. Hayn (1995) examines the information content of losses by regressing raw returns on firms earnings, partitioned into positive-earnings and negative-earnings observations and finds that when only profitable firm-years are considered, the earnings-returns relations is much stronger than when all firm-years are included in the regression sample. When only loss firm-years are considered, she finds very little evidence that losses are correlated with variation in stock prices. Satin (1992) examines the relation between excess returns and earnings changes for firms reporting negative earnings and finds little or no evidence that loss-firm earnings changes explain any of the variation in excess returns. In sum, these studies provide convincing evidence that significant difference exist between the information content of positive and negative earnings. Differences in positive-earnings information content have been shown to relate to differences in positive-earnings persistence (Kormendi and Lipe 1987; Collins and Kothari 1989; Easton and Zmijewski 1989; Ali

and Zarowin 1992), however, it is not immediately clear that difference in negative-earnings information content will be related to the differences in negative earnings persistence. Investor's use of negative earnings for determining firm value may be much different from that of positive earnings. Sloan (1996)'s framework of testing market efficiency (mispricing) by comparing the market evaluation of earnings components' persistence and the earnings components' persistence with respect to future earnings without discriminating firm-year observations with positive earnings and observations with negative earnings may be problematic. Thus, this study suggest that the testing of market efficiency in the framework of Sloan (1996) should investigate loss and profitable firm-year observations separately and focus on the inferences drawing from positive earnings observations because it is still unclear in the literature how investors use negative earnings in their evaluations of stocks. This paper investigates the emerging market's pricing of earnings and earnings components by taking into account the loss effect and provides evidence for the significant effect of loss firm-year observations on the inferences from Sloan (1996)'s market efficiency test.

Thomas and Zhang (2002) find that the negative relation between accruals and future abnormal returns documented by Sloan (1996) is due mainly to inventory changes. Hribar (2000) shows that changes in inventory and accounts receivable are the only components that are mispriced and concludes that at least part of the accrual mispricing is due to accruals management behavior that is buried in changes in non-cash working capital. Richardson et al. (2004) construct a model showing that less reliable accruals lead to lower earnings persistence and higher mispricing. They develop a comprehensive balance sheet categorization of accruals and rate each

category according to the reliability of the underlying accruals and confirm by empirical tests that less reliable accruals lead to significantly mispricing. Following their classification, I decompose accruals into current asset accruals, current liability accruals, depreciation and other accruals and examine whether different categories lead to different degree of accrual mispricing.

Although there are many studies document the mispricing of accruals and other earnings components, there is little research investigating the contribution factors for the mispricing. Some previous research examining the pricing of accruals has shown that seemingly sophisticated intermediaries do not incorporate the information contained in accruals into earnings forecasts, audit opinions, auditor changes and short sales (Bradshaw et al., 2001; Richardson, 2002; Jegadeesh et al., 2002). Ali, Hwang et al. (2000) find the negative association between current accruals and future stock returns in stronger for firms with greater institutional ownership compared to stocks held primarily by individual investors, which is contradictory to the hypothesis that sophisticated investors suffer less from the fixation effect. Collins et al. (2003) provide the first evidence that more sophisticated financial statement users exhibit more understanding of the implications of accruals. They examine the role of investor sophistication in assessing the valuation implications of accruals. Following previous literature, Collins et al. (2003) consider institutional investors as sophisticated investors and use proportion of common share held by institutional investors as proxy for investor sophistication. Their results show that the degree of accruals mispricing is substantially less for firms with high institutional ownership relative to firms with low institutional ownership firms on the basis of their accruals persistence. The explanation of results is based on Hand (1990)'s EFFH (extended functional fixation

hypothesis, which posits that a firm's stock price is sometimes set by marginal investors who are relatively sophisticated in their understanding and interpretation of accounting data, while at other times prices are set by unsophisticated marginal investors who are less knowledgeable about the properties of accrual accounting. And they reason that firms with high institutional ownership have more chances of price setting by perceived more sophisticated institutional investors and thus lead to more accurate pricing of earnings components. Collins et al. (2003) explain the reasons for their strong contradictory result with Ali et al. (2000) as: firstly, they use accruals taken directly from the cash flow statement and thus suffer less from measurement errors. Secondly, they take into account the effect of the fact that some institutional investors follow passive investment strategies and impose a minimum level of transient ownership when selecting their high institutional ownership sub-sample. They argue that both of the above refinements in their research design remove potentially large sources of measurement error and confounding in the Ali et al. (2000) study and enhance the power of the tests. One important point in the research design of Collins et al. (2003) makes their results questionable and much less generalizable. They exclude firms with total assets less than $50 million or sales less than $25 million, which reduce the sample size substantially without explanation. These firms seem to be particularly suitable candidates for the LIO sub-sample, as typically institutions do not own small-cap stocks Bartov (2003). Following Collins et al. (2003), I investigate the investor's sophistications' effect on mispricing by employing the sample of all firms listed on Shanghai Stock Exchange (The public companies in China are listed either on its Shanghai Stock Exchange or Shenzhen Stock Exchange. I did not have the institutional data for firms listed on Shenzhen Stock Exchange). A survey of Chinese financial newspapers and discussion with exchange staffs, almost

all of the local institutional investors in China are transient traders. This study eliminates the research design problems in both Ali et al. (2000) and Collins et al. (2003) and provides additional and probability more convincing evidence on the association between investor sophistication and accrual mispricing. Recently, both the Chinese government and the World Bank (Kim, Ho et al. 2003) are trying to promote institutional investors in China partly for the purpose of making this large emerging stock market to be more mature and efficient. By investigating the institutional investors role in the pricing of earnings and earnings components, this study provides some implications for the government strategy of developing its stock market.

Previous research documents that ownership concentration has a negative effect on the information quality provided by the firm. Fan and Wong (2002) find that the earnings quality is weakened by ownership concentration because the concentrated ownership structure gives the controlling owners both the ability and incentive to manipulate earnings for outright expropriation or to report uninformative earnings to avoid detection of their expropriation activities. Firth et al. (2003) investigate the association of ownership structure and corporate governance with firm's earnings quality and find that concentrated ownership is negatively related to the earnings coefficients and positively related to the magnitude of accrual adjustments for Chinese listed companies. Thus the evidence shows that concentrated ownership may results in lower quality of disclosed information and higher-level information asymmetry. Vafeas (2000) shows that smaller board size is related to higher earnings Informativeness and finds no evidence that the fraction of external directors is associated with earnings informativeness. Klein (2002) finds a negative relation between audit committee and board of directors' independence and abnormal accruals.

Chen and Jaggi (2000) find the ratio of independent board directors is associated with mandatory disclosures and Eng and Mak (2003) extend the study to examine the relation of ownership structure and board composition with voluntary disclosure and find that lower managerial ownership and significant government ownership are associated with increased disclosure while an increase in outside directors reduces corporate disclosure. Gul and Leung (2004) show that CEO duality is associated with lower levels of voluntary corporate disclosures and the expertise of non-executive directors moderates the CEO duality/corporate disclosures relationship. I combine this stream of research with accrual mispricing and argue that ownership structure and corporate governance are associated with both the level and quality of (voluntary) disclosure and in turn related to the degree of mispricing through information asymmetry.

Burgstahler et al. (2002) investigate the mispricing of earnings components by focusing on special items and reject the null hypothesis that price fully reflect the implications of special items for future earnings. On the contrary, Hribar (2000) finds that although special items accruals and LIFO liquidations are both highly transitory, neither appears to be significantly mispriced, suggesting that separate disclosure of an accrual might help mitigate the mispricing. Chen and Yuan (2004) uses non-core earnings to detect earnings management for Chinese firms and the components of non-core earnings, such as profits from sale of fixed assets or subsidy revenues are similar to the special items in US and most are transitory natured. The non-core earnings are presented separately from core earnings in the standard income statement of Chinese firms. Given the contradictory evidence from US studies on special items mispricing, it is interesting to investigate whether the Chinese emerging market

misprices the no-core part of earnings (special items) with probably less sophisticated investors but much more clear presentation of non-core earnings in its income statement.

Finally, I examine whether the degree of mispricing is different across different stock market: A-share market vs. B-share market. Since the B-share market are dominated by foreign investors, who are assumed to be more sophisticated than the local Chinese investors, the degree of mispricing may be lower for stocks listed on B-share market. However, the B-share market in much smaller than A-share market and the information for B-share investors is much less than A-share investors because most of the information are released in Chinese language and the foreign investors may be much less informed. Greater degree of information asymmetry may lead to more mispricing for B-share stocks.

Following Sloan (1996), I conduct both non-linear regression-based tests (Mishkin 1983) and hedge portfolio test to address the research questions. The regression-based test uses a non-linear system of equations that provides a statistical comparison between the market evaluation of earnings components' persistence and the earnings components' persistence with respect to future earnings. On the other hand, the hedge portfolio test forms an accrual based hedge portfolio that invests long in firms in the largest income-decreasing accruals portfolio and short in the largest income-increasing accruals portfolio.

My earnings persistence test shows that accruals are significantly less persistent than cash flows and non-core earnings are significantly less persistent than core earnings.

The persistence of earnings and earnings components for loss-firms' sub-sample is much less than that of profit-firms' sub-sample.

The pricing tests for the full sample show that accruals, cash flows and non-core earnings are all overpriced by the Chinese stock market. However, when I conduct the pricing tests only on the profit-firms sub-sample, only accruals are overpriced significantly. The hedge-portfolio tests reveal that hedge strategies based on a short position in firms with the highest accruals and a long position in firms with lowest accruals earn a significant one-year-ahead abnormal return of 7.6%; on the other hand, the hedge strategies based on the level of non-core earnings earn only a one-year ahead abnormal return of 2.3%.

The pricing tests on the components of accruals show that current asset accruals and depreciation contribute significantly more to the mispricing of accruals than current liability accruals.

The tests on investor sophistication reveal that the degree of earnings and accruals mispricing is substantially less for firms with high institutional ownership relative to firms with low institutional ownership. The accrual-based hedge portfolio tests show that the one-year ahead hedge returns are significantly smaller for firms with high institutional ownership relative to firms with low institutional ownership (9% vs. 5%). The hedge-portfolio tests results indicate that there is some accruals mispricing even for high institutional ownership firms.

The tests on corporate governance role in earnings and accrual mispricing reveal that (1) the degree of mispricing is significantly less for firms with low ownership concentration relative to firms with high ownership concentration; (2) firms with smaller board size and more external directors are less mispriced; (3) there is no

significant evidence indicating that the degree of mispricing is associated with board leader duality and the size of board of supervisors. Additionally, the degree of mispricing is not significantly different between Shanghai Stock Exchange and Shenzhen Stock Exchange for A shares; the degree of mispricing is significantly larger for B-share market than A-share market.

The remainder of the paper is organized as follows. Section 2 provides the institutional background. Section 3 talks about the sample and general descriptive statistics. Section 4 discusses the empirical design and analyzes the research results and robustness test. Section 5 concludes and discusses the limitations and potential future research.

2. Sample and Descriptive Statistics

2.1 Sample Selection

The initial sample included all firms listed on both Shanghai and Shenzhen Stock Exchange from 1998 to 2003. I then eliminated: (1) financial services firms, (2) firm-year observations with negative book values, (3) firms-year observations with missing data on cash flows, operating earnings and the beginning or ending period total assets. (4) Firm-year observations with not enough data to calculate size-adjusted abnormal returns. All the financial, governance and return data are collected from the CSMAR database and the Genius Systems. All of the listed firms in China are required to use the calendar year as their fiscal year. The institutional ownership data are from Shanghai Stock Exchange.

2.2 Variable Measurement

Following (Chen and Yuan 2004), I define operating earnings (EARN) as 'operating earnings' reported in the firm's standard income statement, adjusted by interest expense. I exclude interest expense from operating earnings because interest payments are included in the cash flows from financing activities under Chinese GAAP. Cash flows from operations (CFO) are defined as 'net operating cash flows' as reported in the statement of cash flows. (Hribar and Collins 2000) suggest that total accruals measured directly from the statement of cash flows are accurate, while total accruals estimated using a balance sheep approach contain measure errors. Total accruals (ACCR) are measured as the difference between operating earnings and cash flows from operations. Non-core earnings (NOCORE) are defined as the summery of the three under-the-line items (Chen and Yuan 2004) net of tax: gain (loss) from investments, subsidy income, other non-operating gain or loss (primarily gain or loss from the disposal of fixed assets). Core earnings (CORE) are defined as the difference between net income (NI) and non-core earnings. All of the above variables are scaled by average total assets. I use CSMAR monthly returns file to measure annual buy-and-hold returns for the 12-month period ending six months after the firm's fiscal year end (Wang and Xu 2004). The deadline for publishing annual reports is April 30 of the subsequent year. However, an examination of the annual reports release dates shows that not until six months after the fiscal year end will almost all of the listed firms publish their annual reports. Another consideration for lagging six months is that the financial information broadcast systems of China is much less efficient than those of US and the investors in China are much more dispersed across the country. The results of the paper are robust for different return accumulation period (lagging four months or five months). Following (Sloan 1996) and (Xie 2001) I calculate size-

adjusted returns as the difference between a firm's annual buy-and-hold return and the annual buy-and-hold return for the same 12-month period on the market-capitalization-based portfolio quintile to which the firm belongs. Since the CSMAR database does not provide size portfolios breakpoints, I compute market-capitalization quintile portfolios and the monthly value-weighted portfolio returns following the methodology of CRSP. Because the number of firms in China market is much less than that of US, I calculate quintile break points instead of deciles breakpoints. I classify each firm into a size quintile according to its market value of equity at the end of the month before the return accumulation period. I use both the market value of marketable shares and total shares to proxy for the firm's size and the results of paper are quantitatively and qualitatively similar. Throughout the paper thereafter, I only report results based on the abnormal returns calculated as using the size proxy of market value of marketable shares.

2.3 Descriptive Statistics

Panel A of table 1 provides statistics on the characteristics of the earnings and earnings components examined in this study. The mean (median) of operating earnings is 0.0406 (0.0436), which is higher than the mean operating earnings of US data as reported in (Xie 2001)(mean 0.025 and median 0.048) and lower than the earnings reported in (Collins, Gong et al. 2003)(mean0.052 and median 0.053). The operating cash flows have a mean (median) of 0.0408 (0.0374), while the mean (median) of Xie (2001) and Collins et al. (2003) are 0.069 (0.083) and 0.096 (0.094). The mean (median) of total accruals is –0.0002 (-0.0031), while the mean (median) of Xie (2001) and Collins et al. (2003) are –0.044 (-0.044) and –0.044 (-0.045). The above analyses indicate that the total accruals of Chinese sample are much higher than those of US. The total accruals of US are biased toward negative values because of

depreciation, while the total accruals are distributed rather evenly above and below zero. The mean (median) of non-core earnings is 0.0122 (0.0068). The mean (median) of size-adjusted abnormal return is –0.003 (-0.04), while the mean (median) abnormal return reported in Xie (2001) is 0.007 (-0.059).

Panel B of table 1 reports the mean and median firm-specific Pearson and Spearman correlations between selected variables. The Pearson correlation between operating earnings and cash flows is 0.307 and Spearman is 0.335, which is comparable to the US data (Pearson=0.33, Spearman=0.32). The correlations between earnings and total accruals (Pearson=0.334, Spearman=0.259) are also comparable to those of US (Pearson=0.32, Spearman=0.28). As expected, the correlations between cash flows and total accruals are negative (Pearson=-0.795, Spearman=-0.749) and comparable to those of Xie (2001) (Pearson=-0.67, Spearman=-0.62). The correlations between non-core earnings and operating earnings is mixed (Pearson=0.059, Spearman=-0.056).

3. Empirical Design and Analyses of Results

3.1 Persistence of Earnings and Earnings Components

Following Sloan (1996), the relation between current earnings performance and future earnings performance is expressed as:

$$Earn_{t+1} = a_0 + a_1 Earn_t + v_{t+1} \qquad (1)$$

I estimated equation (1) for the full sample and the two sub-samples: loss and profit firms. Previous studies indicate that losses are highly transitory compared with profits. Panel A of table 2A and table 2B provide the parameter estimates and test for equation (1). The estimate of a_1 for the full sample is 0.5651(table 2A, panel A),

which is consistent with findings for US firms that earnings performance is slowly mean reverting. The t-statistic of 35.67 rejects the null hypothesis that earnings performance is purely transitory (a_1 =0). The F-statistic for the test that earnings performance follows a random walk (a_1 =1) is 753.91, which rejects the null hypothesis. The estimate of a_1 for the loss firms' sample is –0.0979 (t=-2.14), which indicates that for Chinese firms, the losses are nearly purely transitory. The parameter estimates for the profit sample is similar to that of the full sample.

Sloan (1996) indicates that equation (1) is misspecified because it constrains the coefficients on the cash and accrual components of earnings to be equal. He predicts and tests that the coefficient on accruals is smaller than that of cash flows in the following equation:

$$Earn_{t+1} = a_0 + a_1 Accr_t + a_2 Cfo_t + v_{t+1} \qquad (2)$$

Panel B of table 2A reports the parameter estimates for equation (2) on the full sample. The coefficient on the accrual component of earnings is 0.5278, while the coefficient on the cash flow component is 0.6059. An F-test rejects the hypothesis that the two coefficients are equal (F=54.02), which indicates that the accrual component of earnings is less persistent than the cash flow components. Panel B of table 2B provides the coefficients estimates for the loss and profit sub-sample. The coefficients for accruals and cash flows of the loss firms' sample are –0.1091 and –0.0189 respectively, which indicates that both components of loss are highly transitory. The estimates for the profit sample are similar to those of full sample.

$$NI_{t+1} = a_0 + a_1 Core_t + a_2 Nocore_t + v_{t+1} \qquad (3)$$

Panel C of table 2A and table 2B report the estimates for the core and non-core component of net income. The results show that non-core earnings are much less persistent than core earnings as expected.

3.2 Market Pricing of Earnings and Earnings Components

Following Sloan (1996), Xie (2001), Hribar (2000), (Beneish and Vargus 2002), this study use the framework proposed by Mishkin (1983), to test the rational pricing of earnings and earnings components. Specially, I estimate the following regression systems:

System 1:

$$Earn_{t+1} = \gamma_0 + \gamma_1 Earn_t + v_{t+1}. \quad (4)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1[Earn_{t+1} - \gamma_0 - \gamma_1^* Earn_t] + z_{t+1}. \quad (5)$$

System 2:

$$Earn_{t+1} = \gamma_0 + \gamma_1 Accr_t + \gamma_2 Cfo_t + v_{t+1}. \quad (6)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1[Earn_{t+1} - \gamma_0 - \gamma_1^* Accr_t - \gamma_2^* Cfo_t] + z_{t+1}. \quad (7)$$

System 3:

$$NI_{t+1} = \gamma_0 + \gamma_1 NoCore_t + \gamma_2 Core_t + v_{t+1}. \quad (8)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1[NI_{t+1} - \gamma_0 - \gamma_1^* NoCore_t - \gamma_2^* Core_t] + z_{t+1}. \quad (9)$$

All variables in the above systems are defined before. The first equation in the above systems (4,6,8) is a forecasting equation that estimates the forecast coefficients (γ s) of earnings or earnings components for predicting one-year-ahead earnings or net income. The second equation in the above systems (5,7,9) is a valuation equation that estimates the valuation coefficient (γ^* s) that the market assigns to earnings or

earnings components. The two equations in the above systems are jointly estimated using an iterative generalized nonlinear least squares estimation procedure, proceeding in two stages. In the first stage, the two equations in each system are jointly estimated without imposing any constraints on γ s and γ^* s. To test whether the valuation coefficients (γ^* s) are significantly different from their counterpart forecasting coefficients (γ s) obtained in the first stage, the two equations in each system are jointly estimated in the second stage after imposing the rational pricing constraints, $\gamma_x^* = \gamma_x$ ($x=1,2\ldots$). The following likelihood ration statistic is asymptotically $\chi^2(x)$ distributed under the null hypothesis that the market rationally prices earnings or earnings components with respect to their association with one-year-ahead earnings:

$$2NLn(SSR^c / SSR^u),$$

where:

x = the number of rational pricing constraints imposed;

N = the number of sample observations;

Ln = natural logarithm operator;

SSR^c = the sum of squared residuals from the constrained regression in the second stage;

SSR^u = the sum of squared residuals from the unconstrained regressions in the first stage.

The rational pricing of earnings or earnings components is rejected if the above likelihood ratio statistic is sufficiently large.

Results from the estimation of the system in equation (4) and (5) are reported in table 3A1 and table 3A2. Table 3A1 contains results using the full sample, while table 3A2

use the two sub-sample (loss vs. profit). For the full sample, the coefficient on earnings in the forecasting equation γ_1 is 0.6021. The coefficient on earnings in the valuation equation γ_1^* is 0.8131, which larger than its counterpart in the forecasting equation. The likelihood ratio test for market efficiency is 10.59 (p=0.001) and the null hypothesis of market efficiency is rejected. When I focused my analysis on profitable firms, the forecasting coefficient and valuation coefficient is 0.6853 and 0.7732 respectively and the likelihood statistic reduced to 2.84 (p=0.09). This indicates that the significant overpricing of earnings is largely contributed by the transitory nature of loss. Since the valuation of losses with respect to their persistence into future earnings is much different from that of profits, I conclude that the Mishkin (1983) framework of testing market efficiency is not appropriate for loss.

Table 3B1 and 3B2 provide the estimation results for the system of equation (6) and (7). The results indicate that both the accrual component and the cash flow component are overpriced by the market based on the estimation of full sample. However, when I focused the analysis on profitable firms, only the accrual component is overpriced significantly.

Table 3C1 and table 3C2 provide the estimation results for the system of equation (8) and (9). The market overprices non-core earnings if the estimation is based on the full sample. However, if I focused on profitable firms, there is no evidence that the market overprices non-core earnings with respect to its implications for one-year-ahead net income.

To test the robustness of the above results, I also conduct hedge-portfolio tests following Sloan (1996). The hedge-portfolio tests reveal that hedge strategies based on a short position in firms with the highest accruals and a long position in firms with lowest accruals earn a significant one-year-ahead abnormal return of 7.6%; on the

other hand, the hedge strategies based on the level of non-core earnings earn only a one-year ahead abnormal return of 2.3%.

3.3 Market Pricing of Accrual Components

In this section, I decompose accruals into current assets accruals, current liability accruals, depreciation, and other accruals and investigate which category of accruals is mispriced.

$$Earn_{t+1} = \gamma_0 + \gamma_1 Acc\_CA_t + \gamma_2 Acc\_CL_t + \gamma_3 Acc\_DA_t + \gamma_4 Acc\_Oth_t + \gamma_5 Cfo_t + v_{t+1}. \quad (10)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1[Earn_{t+1} - \gamma_0 - \gamma_1^* Acc\_CA_t - \gamma_2^* Acc\_CL_t - \gamma_3^* Acc\_DA_t - \gamma_4^* Acc\_Oth_t - \gamma_5^* Cfo_t] + z_{t+1}. \quad (11)$$

The results from table 4 indicate that depreciation and amortization contribute most to the overall mispricing of accruals.

3.4 Investor Sophistication and Mispricing of Accruals

The Mishkin (1983) tests of this part are based on the following systems:

Earnings:

$$Earn_{t+1} = \gamma_0 + \gamma_1 Earn_t + \gamma_{1H} H\_Earn_t + v_{t+1}. \quad (12)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1[Earn_{t+1} - \gamma_0 - \gamma_1^* Earn_t - \gamma_{1H}^* H\_Earn_t] + z_{t+1}. \quad (13)$$

Accruals:

$$Earn_{t+1} = \gamma_0 + \gamma_1 Accr_t + \gamma_{1H} H\_Accr_t + \gamma_2 Cfo_t + \gamma_{2H} H\_Cfo_t + v_{t+1}. \quad (14)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1[Earn_{t+1} - \gamma_0 - \gamma_1^* Accr_t - \gamma_{1H}^* H\_Accr_t - \gamma_2^* Cfo_t - \gamma_{2H}^* H\_Cfo_t] + z_{t+1}. \quad (15)$$

H is an indicator variable that equals to one for firms in the high institutional ownership sub-sample and zero for firms in the low ownership sub-sample. *H_Earn=H*Earn, H_Accr=H*Accr; H_Cfo=H*CFO.*

Table 5A provides the descriptive statistics for selected variables in the investor sophistication test. This part of the paper is based on firm-year observations from 1998-2002 for firms listed on Shanghai Stock Exchange. All the firms are divided into two groups annually based on their institutional ownership. The results are provided in table 5B1 and table 5B2. The results show that for firms in the high institutional ownership (HIO) the earnings or accruals are not mispriced significantly, while the earnings or accruals for firms in the low institutional ownership are overpriced significantly by the market. Further analysis by accrual-based hedge-portfolio method shows that the one-year ahead hedge returns are significantly smaller for firms with high institutional ownership relative to firms with low institutional ownership (9% vs. 5%), which is consistent from the results of Mishkin (1983) test.

3.5 Corporate Governance and Mispricing

This section examine whether the corporate governance system play a role in the process of market pricing of earnings and earnings components. We conduct Mishkin (1983) test based on the following systems:

Earnings:

$$Earn_{t+1} = \gamma_0 + \gamma_1 Earn_t + \gamma_{1D} D\_Earn_t + v_{t+1}. \quad (16)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1[Earn_{t+1} - \gamma_0 - \gamma_1^* Earn_t - \gamma_{1D}^* D\_Earn_t] + z_{t+1}. \quad (17)$$

Accruals:

$$Earn_{t+1} = \gamma_0 + \gamma_1 Accr_t + \gamma_{1D} D\_Accr_t + \gamma_2 Cfo_t + \gamma_{2D} D\_Cfo_t + v_{t+1}. \quad (18)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1 [Earn_{t+1} - \gamma_0 - \gamma_1^* Accr_t - \gamma_{1D}^* D\_Accr_t - \gamma_2^* Cfo_t - \gamma_{2D}^* D\_Cfo_t] + z_{t+1}. \quad (19)$$

All the variables are defined before except *D.*

D is an indicator variable which equal to 1 when the observation is:

1. In the high ownership concentration group, 0 otherwise;
2. Listed on Shanghai Stock Market, 0 otherwise;
3. In big board-size group, 0 otherwise;
4. A firm with CEO on board, 0 otherwise;
5. A firm with external directors, 0 otherwise;
6. In big supervisory board group;
7. B-shares, 0 if A-shares.

Ownership concentration is defined as the percent of shares held by the largest shareholder (Bai, Liu et al. 2004) of the company. The firms are sorted annually by the largest shareholding and divided into three groups. Firms in the bottom group are defined as low ownership concentration, while firms in the top group are defined as high ownership concentration. Board size and supervisor board size groups are based on annual sorting into two groups.

D_* is an interactive term which equal to D times *.

The results of this section are provided in table 6A and table 6B. The results indicates that: (1) the degree of mispricing is significantly less for firms with low ownership concentration relative to firms with high ownership concentration; (2) firms with

smaller board size and more external directors are less mispriced; (3) there is no significant evidence indicating that the degree of mispricing is associated with board leader duality and the size of board of supervisors. Additionally, the degree of mispricing is not significantly different between Shanghai Stock Exchange and Shenzhen Stock Exchange for A shares; the degree of mispricing is significantly larger for B-share market than A-share market.

4. Conclusion and Discussion

This study extends previous studies on accrual anomaly to investigate the emerging market's mispricing of accruals and special items. Specially, I use both Mishkin (1983) test and hedge portfolio test to examine whether the Chinese Stock market's stock price rationally reflect the one-year ahead earnings implications of these earnings components. Additionally, this paper examines the role of local institutional investors' role in the pricing of earnings and their components and whether a firm's corporate governance system has an effect on the market pricing of its earnings and earnings components.

I find that the earnings and earnings components (accruals, cash flows and special items) are all overpriced by the emerging stock market for the full sample. However, when I focused my study only on profitable firm-year sub-sample, only the accrual component of earnings are overpriced significantly. Both cash flows and special items are not significantly overpriced or underpriced by the market. More detailed investigation shows that among the various components of accruals, current assets accruals and depreciation and amortization contribute most to the overpricing of accrual component of earnings. Secondly, I show in the study that firms with higher level of institutional ownership have stock prices that more accurately reflect the

persistence of earnings and earnings components. Finally, I find that firms with higher level of ownership concentration result in higher level of market mispricing of their earnings and earnings components. Firms with smaller board size and more external directors have stock prices more accurately reflect the persistence of earnings and earnings components.

This paper implies that while using Mishkin (1983) framework in the testing of market efficiency, a researcher should pay special attention to the loss firm-year observations and suggests that if the researcher cannot have an appropriate valuation equation for loss firms in the valuation equation of Mishkin test, the study should focus on the profit firm-year observations or at least analysis loss firms and profitable firms separately. I suggest future research should re-examine the market anomalies documented by previous studies (eg. Sloan 1996) by taking this consideration into account.

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TABLE 1
Descriptive Statistics and Correlations of Earnings, Operating Cash Flows, Total Accruals and Non-Core Earnings

Panel A: Descriptive Statistics

Variables	*Mean*	*Std Dev*	*Max*	*75%*	*Median*	*25%*	*Min*
EARN	0.0406	0.0564	0.3833	0.0686	0.0436	0.0171	-0.3768
CFO	0.0408	0.0875	0.6940	0.0872	0.0374	-0.0026	-0.5973
ACCR	-0.0002	0.0884	0.7532	0.0442	-0.0031	-0.0464	-0.7168
NOCORE	0.0122	0.0267	0.2796	0.0197	0.0068	0.0003	-0.2236
SZ_AJR	-0.0033	0.2871	3.5951	0.0844	-0.0408	-0.1427	-0.9066

Panel B: Pearson (above Diagonal) and Spearman (below Diagonal) Correlations

	EARN	*CFO*	*ACCR*	*NOCORE*
EARN		0.307	0.334	0.059
		(0.000)	(0.000)	(0.001)
CFO	0.335		-0.795	-0.039
	(0.000)		(0.000)	(0.023)
ACCR	0.259	-0.749		0.076
	(0.000)	(0.000)		(0.000)
NOCORE	-0.056	-0.065	0.095	
	(0.001)	(0.000)	(0.000)	

1. Table 1 is based on 3,290 firm-year observations during 1998-2002 (Financial statement items are from 1998 to 2001 and returns are from 1999 to 2002.
2. Variable definitions:
EARN = Operating Earnings as reported in the firm's standard income statement plus interest expense (Under China's GAAP, interest expense reported above operating earnings);
CFO = Cash from Operations as reported in the firm's standard statement of cash flows;
ACCR = total accruals = EARN – CFO;
NOCORE = Non-operating earnings as reported in the firm's standard income statement;
SZ_AJR = size-adjusted abnormal returns = then difference between a firm's annual buy-and-hold returns and the buy-and-hold returns for the same 12-month period (ending six month after the fiscal year end) on the market-capitalization-base portfolio quintile to which the firm belongs (while calculating portfolios returns and assigning the quintiles, size is based on total value of marketable shares of the company and portfolio returns are value-weighted. I calculated returns based on market value of total number of shares and equally-weighted portfolios, and the results through out the study are qualitatively and quantitatively similar.
All variables except returns are deflated by average total assets.

TABLE 2A
Results from OLS Regressions of Future Earnings on Current Earnings and The Components of Earnings

Panel A: Regression of Operating Earnings on Lagged Operating Earnings

$$Earn_{t+1} = a_0 + a_1 Earn_t + v_{t+1} \quad (1)$$

	Coef-est.	t-stat	Sig. Level	Adj. Rsq.
a_0	0.0096	8.74	<0.0001	
a_1	0.5651	35.67	<0.0001	0.2788
TEST		*F-stat*	*Sig. Level*	
a_1=1		753.91	<0.0001	

Panel B: Regression of Operating Earnings on Lagged Accruals and Cash Flows

$$Earn_{t+1} = a_0 + a_1 Accr_t + a_2 Cfo_t + v_{t+1} \quad (2)$$

	Coef-est.	t-stat	Sig. Level	Adj. Rsq.
a_0	0.0079	7.12	<0.0001	
a_1	0.5278	31.96	<0.0001	
a_2	0.6059	36.35	<0.0001	0.2902
TEST		*F-stat*	*Sig. Level*	
$a_1 = a_2$		54.02	<0.0001	

Panel C: Regression of Net Income on Lagged Core Operating Earnings and Non-Core Earnings

$$NI_{t+1} = a_0 + a_1 Core_t + a_2 Nocore_t + v_{t+1} \quad (3)$$

	Coef-est.	t-stat	Sig. Level	Adj. Rsq.
a_0	0.0142	9.86	<0.0001	
a_1	0.5576	28.34	<0.0001	
a_2	0.3032	7.30	<0.0001	0.2114
TEST		*F-stat*	*Sig. Level*	
$a_1 = a_2$		29.33	<0.0001	

1. The above regressions are based on 3,290 firm-year observations with earnings data.
2. NI is the Net Income number as reported in a firm's income statement scaled by average total assets and other variable definitions are the same as in Table 1.

TABLE 2B

Results from OLS Regressions of Future Earnings on Current Earnings and The Components of Earnings-Profit vs. Loss Sub-Samples

Panel A: Regression of Operating Earnings on Lagged Operating Earnings

$$Earn_{t+1} = a_0 + a_1 Earn_t + v_{t+1} \quad (1)$$

	Loss Firms			Profit Firms		
Variable	*Coef-est*	*t-stat*	*Adj. Rsq.*	*Coef-est*	*t-stat*	*Adj. Rsq.*
a_0	-0.0359	-11.98	0.0048	0.0186	18.41	0.3834
a_1	-0.0979	-2.14		0.5682	39.77	

Panel B: Regression of Operating Earnings on Lagged Accruals and Cash Flows

$$Earn_{t+1} = a_0 + a_1 Accr_t + a_2 Cfo_t + v_{t+1} \quad (2)$$

	Loss Firms			Profit Firms		
Variable	*Coef-est*	*t-stat*		*Coef-est*	*t-stat*	*Adj. Rsq.*
a_0	-0.0368	-12.25		0.0182	18.10	
a_1	-0.1091	-2.38	0.0130	0.5473	36.60	0.3882
a_2	-0.0189	-0.35		0.5782	40.16	

Panel C: Regression of Net Income on Lagged Core Operating Earnings and Non-Core Earnings

$$NI_{t+1} = a_0 + a_1 Core_t + a_2 Nocore_t + v_{t+1} \quad (3)$$

	Loss Firms			Profit Firms		
Variable	*Coef-est*	*t-stat*		*Coef-est*	*t-stat*	*Adj. Rsq.*
a_0	-0.0383	-8.99		0.0194	15.82	
a_1	-0.2218	-3.48	0.0326	0.5969	37.60	0.3760
a_2	0.4291	4.64		0.5046	16.16	

1. The above regressions are based on 2,542 firm-year observations for the profit sample and 747 observations for the loss sample with earnings data.
2. All variable are defined as previous tables.

TABLE 3A.1
Results from Nonlinear Generalized Least Squares Estimation of the Market Pricing of Current Earnings with Respect to Their Implications for One-Year-Ahead Earnings

Panel A: Market Pricing of Current Earnings with Respect to Their Implications for One-Year-Ahead Earnings

$$Earn_{t+1} = \gamma_0 + \gamma_1 Earn_t + v_{t+1}. \quad (4)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1[Earn_{t+1} - \gamma_0 - \gamma_1^* Earn_t] + z_{t+1}. \quad (5)$$

Parameter	*Estimate*	*Asymptotic Std. Error*	*t-stat*
γ_1	0.6021	0.0142	(42.4937)
γ_1*	0.8131	0.0653	(12.4474)

Panel B: Tests of Rational Pricing of Earnings

Null Hypotheses	*Likelihood Ratio Statistic*	*Marginal Significance Level*
γ_1=1	788.2342	<0.0001
$\gamma_1 = \gamma_1$*	10.5953	0.0011

1. Elations (4) and (5) are jointly estimated using and iterative generalized nonlinear least squares estimation procedure based on 3,291 observations during 1998-2001.
2. The variables are defined as in Table 1.

TABLE 3A.2
Results from Nonlinear Generalized Least Squares Estimation of the Market Pricing of Current Earnings with Respect to Their Implications for One-Year-Ahead Earnings-Loss vs. Profit Firms

Panel A: Market Pricing of Current Earnings with Respect to Their Implications for One-Year-Ahead Earnings

$$Earn_{t+1} = \gamma_0 + \gamma_1 Earn_t + v_{t+1}. \quad (4)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1[Earn_{t+1} - \gamma_0 - \gamma_1^* Earn_t] + z_{t+1}. \quad (5)$$

	Loss Firms			*Profit Firms*	
Parameter	*Estimate*	*t-stat*	*Parameter*	*Estimate*	*t-stat*
γ_1	-0.0627	-1.30	γ_1	0.6853	61.59
γ_1*	1.2920	3.75	γ_1*	0.7732	14.99

Panel B: Tests of Rational Pricing of Earnings

	Loss Firms			*Profit Firms*	
Null Hypotheses	*LR- stat*	*Marginal Significance Level*	*Null Hypotheses*	*LR- stat*	*Marginal Significance Level*
γ_1=1	489.23	<0.0001	γ_1=1	800.11	<0.0001
$\gamma_1=\gamma_1$*	30.72	<0.0001	$\gamma_1=\gamma_1$*	2.84	0.0919

1. Elations (4) and (5) are jointly estimated using and iterative generalized nonlinear least squares estimation procedure based on 748 observations of loss firms and 2,543 profit firms during 1998-2001.
2. The variables are defined as in Table 1.

TABLE 3B.1
Results from Nonlinear Generalized Least Squares Estimation of the Market Pricing of Operating Cash Flows, Total Accruals with Respect to Their Implications for One-Year-Ahead Earnings

Panel A: Market Pricing of Earnings Components with Respect to Their Implications for One-Year-Ahead Earnings

$$Earn_{t+1} = \gamma_0 + \gamma_1 Accr_t + \gamma_2 Cfo_t + v_{t+1}. \quad (6)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1[Earn_{t+1} - \gamma_0 - \gamma_1^* Accr_t - \gamma_2^* Cfo_t] + z_{t+1}. \quad (7)$$

Parameter	*Estimate*	*Asymptotic Std. Error*	*t-stat*
γ_1	0.5510	0.0153	35.9032
γ_2	0.6366	0.0147	43.3996
γ_1^*	0.9005	0.0767	11.7390
γ_2^*	0.7651	0.0689	11.0987
γ_1 / γ_1^*	0.6118		
γ_2 / γ_2^*	0.8320		

Panel B: Tests of Rational Pricing of Earnings Components

Null Hypotheses	*Likelihood Ratio Statistic*	*Marginal Significance Level*
$\gamma_1 = \gamma_1^*$	22.8541	<0.0001
$\gamma_2 = \gamma_2^*$	3.3467	0.0673
$\gamma_1 / \gamma_1^* = \gamma_2 / \gamma_2^*$	23.9255	<0.0001

1. Elations (6) and (7) are jointly estimated using and iterative generalized nonlinear least squares estimation procedure based on 3,291 observations during 1998-2001.
2. The variables are defined as in Table 1.

TABLE 3B.2
Results from Nonlinear Generalized Least Squares Estimation of the Market Pricing of Operating Cash Flows, Total Accruals with Respect to Their Implications for One-Year-Ahead Earnings-Loss vs. Profit Firms

Panel A: Market Pricing of Earnings Components with Respect to Their Implications for One-Year-Ahead Earnings

$$Earn_{t+1} = \gamma_0 + \gamma_1 Accr_t + \gamma_2 Cfo_t + v_{t+1}. \quad (6)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1[Earn_{t+1} - \gamma_0 - \gamma_1^* Accr_t - \gamma_2^* Cfo_t] + z_{t+1}. \quad (7)$$

Loss Firms			*Profit Firms*		
Parameter	*Estimate*	*t-stat*	*Parameter*	*Estimate*	*t-stat*
γ_1	-0.0693	-1.44	γ_1	0.6502	52.16
γ_2	-0.0056	-0.10	γ_2	0.6923	62.32
γ_1^*	1.4081	3.76	γ_1^*	0.7920	13.36
γ_2^*	0.8263	2.47	γ_2^*	0.7700	14.80
γ_1/γ_1^*	-0.0492		γ_1/γ_1^*	0.8209	
γ_2/γ_2^*	-0.0068		γ_2/γ_2^*	0.8991	

Panel B: Tests of Rational Pricing of Earnings Components

Loss Firms			*Profit Firms*		
Null Hypotheses	*LR- stat*	*Marginal Significance Level*	*Null Hypotheses*	*LR- stat*	*Marginal Significance Level*
$\gamma_1 = \gamma_1^*$	34.04	<0.0001	$\gamma_1 = \gamma_1^*$	5.75	0.0165
$\gamma_2 = \gamma_2^*$	7.65	0.0057	$\gamma_2 = \gamma_2^*$	2.17	0.1405
$\gamma_1/\gamma_1^* = \gamma_2/\gamma_2^*$	0.74	0.3897	$\gamma_1/\gamma_1^* = \gamma_2/\gamma_2^*$	4.39	0.0362

1. Elations (6) and (7) are jointly estimated using and iterative generalized nonlinear least squares estimation procedure based on 748 observations of loss firms and 2,543 profit firms during 1998-2001.
2. The variables are defined as in Table 1.

TABLE 3C.1
Results from Nonlinear Generalized Least Squares Estimation of the Market Pricing of Core-Operating Earnings, Non-Core Earnings with Respect to Their Implications for One-Year-Ahead Net Income

Panel A: Market Pricing of Net Income Components with Respect to Their Implications for One-Year-Ahead Net Incomes

$$Earn_{t+1} = \gamma_0 + \gamma_1 NoCore_t + \gamma_2 Core_t + v_{t+1}. \quad (8)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1[Earn_{t+1} - \gamma_0 - \gamma_1^* NoCore_t - \gamma_2^* Core_t] + z_{t+1}. \quad (9)$$

Parameter	*Estimate*	*Asymptotic Std. Error*	*t-stat*
γ_1	0.3451	0.0410	8.4264
γ_2	0.6089	0.0178	34.1318
γ_1^*	1.0565	0.1707	6.1874
γ_2^*	0.7963	0.0724	11.0037
γ_1/γ_1^*	0.3266		
γ_2/γ_2^*	0.7647		

Panel B: Tests of Rational Pricing of Income Components

Null Hypotheses	*Likelihood Ratio Statistic*	*Marginal Significance Level*
$\gamma_1 = \gamma_1^*$	17.7056	<0.0001
$\gamma_2 = \gamma_2^*$	6.3296	0.0119
$\gamma_1/\gamma_1^* = \gamma_2/\gamma_2^*$	10.5458	0.0012

1. Elations (8) and (9) are jointly estimated using and iterative generalized nonlinear least squares estimation procedure based on 3,291 observations during 1998-2001.
2. The variables are defined as in Table 1 and Table 2.

TABLE 3C.2
Results from Nonlinear Generalized Least Squares Estimation of the Market Pricing of Core-Operating Earnings, Non-Core Earnings with Respect to Their Implications for One-Year-Ahead Net Income

Panel A: Market Pricing of Net Income Components with Respect to Their Implications for One-Year-Ahead Net Incomes

$$Earn_{t+1} = \gamma_0 + \gamma_1 NoCore_t + \gamma_2 Core_t + v_{t+1}. \quad (8)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1[Earn_{t+1} - \gamma_0 - \gamma_1^* NoCore_t - \gamma_2^* Core_t] + z_{t+1}. \quad (9)$$

Loss Firms			*Profit Firms*		
Parameter	*Estimate*	*t-stat*	*Parameter*	*Estimate*	*t-stat*
γ_1	0.3130	3.36	γ_1	0.6175	20.33
γ_2	-0.1595	-2.43	γ_2	0.7185	58.62
γ_1^*	1.6982	4.21	γ_1^*	0.6710	5.28
γ_2^*	1.0046	3.38	γ_2^*	0.8048	15.56
γ_1/γ_1^*	0.1843		γ_1/γ_1^*	0.9203	
γ_2/γ_2^*	-0.1588		γ_2/γ_2^*	0.8928	

Panel B: Tests of Rational Pricing of Earnings Components

Loss Firms			*Profit Firms*		
Null Hypotheses	*LR- stat*	*Marginal Significance Level*	*Null Hypotheses*	*LR- stat*	*Marginal Significance Level*
$\gamma_1 = \gamma_1^*$	14.33	0.0002	$\gamma_1 = \gamma_1^*$	0.17	0.6819
$\gamma_2 = \gamma_2^*$	20.42	<0.0001	$\gamma_2 = \gamma_2^*$	2.68	0.1015
$\gamma_1/\gamma_1^* = \gamma_2/\gamma_2^*$	12.57	0.0004	$\gamma_1/\gamma_1^* = \gamma_2/\gamma_2^*$	0.02	0.8859

1. Elations (8) and (9) are jointly estimated using and iterative generalized nonlinear least squares estimation procedure based on 748 observations of loss firms and 2,543 profit firms during 1998-2001.
2. The variables are defined as in Table 1 and Table 2.

TABLE 4
Results from Nonlinear Generalized Least Squares Estimation of the Market Pricing of Different Accrual Components with Respect to Their Implications for One-Year-Ahead Earnings

Panel A: Market Pricing of Accruals Components with Respect to Their Implications for One-Year-Ahead Earnings

$$Earn_{t+1} = \gamma_0 + \gamma_1 Acc\_CA_t + \gamma_2 Acc\_CL_t + \gamma_3 Acc\_DA_t + \gamma_4 Acc\_Oth_t + \gamma_5 Cfo_t + v_{t+1}. \quad (10)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1[Earn_{t+1} - \gamma_0 - \gamma_1^* Acc\_CA_t - \gamma_2^* Acc\_CL_t - \gamma_3^* Acc\_DA_t - \gamma_4^* Acc\_Oth_t - \gamma_5^* Cfo_t] + z_{t+1}. \quad (11)$$

Parameter	*Estimate*	*Asymptotic Std. Error*	*t-stat*
γ_1	0.5428	0.0248	21.8494
γ_2	0.5203	0.0296	17.5648
γ_3	0.4108	0.0584	7.0304
γ_4	0.5115	0.0364	14.0405
γ_1^*	0.7227	0.0940	7.6886
γ_2^*	0.6663	0.1112	5.9915
γ_3^*	1.1390	0.2272	5.0138
γ_4^*	0.8175	0.1385	5.9020

Panel B: Tests of Rational Pricing of Accruals Components

Null Hypotheses	*Likelihood Ratio Statistic*	*Marginal Significance Level*
$\gamma_1 = \gamma_1^*$	3.5163	0.0608
$\gamma_2 = \gamma_2^*$	1.6310	0.2016
$\gamma_3 = \gamma_3^*$	10.4113	0.0013
$\gamma_4 = \gamma_4^*$	4.7316	0.0296

1. Elations (10) and (11) are jointly estimated using and iterative generalized nonlinear least squares estimation procedure based on 1,801 observations during 2000-2001.
2. Variables definition:
ACC_CA: current asset accruals which includes receivables, inventory and deferrals as reported in the indirect-method part of state of cash flows;
ACC_CL: current liability accruals which includes payables and provisions as reported in the indirect-method part of state of cash flows;
ACC_DA: depreciation and amortization of long-term assets;

TABLE 4A (Continued)
Results from Nonlinear Generalized Least Squares Estimation of the Market Pricing of Different Accrual Components with Respect to Their Implications for One-Year-Ahead Earnings

Note 2 continued:
ACC_Oth: ACCR-ACC_CA-ACC_CL-ACC_DA;
All other variables are defined as in Table 1.

TABLE 5A

Descriptive Statistics of Earnings, Cash Flows, Accruals, Non-core Earnings for Firms with High vs. Lo

Variable	*Mean*		*Std Dev*		*Max*		*75%*		*Median*		
	HIO	LIO	HIO	LIO	HIO	LIO	HIO	LIO	HIO	LIO	HIO
EARN	0.0625	0.0544	0.0398	0.0388	0.3833	0.3101	0.0807	0.0697	0.0575	0.0478	0.03
CFO	0.0566	0.0458	0.0866	0.0831	0.4041	0.4137	0.1071	0.0893	0.0599	0.0408	0.01
ACCR	0.0059	0.0086	0.0842	0.0818	0.6321	0.3804	0.0478	0.0528	-0.0027	0.0043	-0.04
INS	14.6377	2.0123	11.1048	1.0752	79.4629	4.2235	19.1338	2.7974	10.7847	1.8577	6.72
SZ_AJR	0.0275	-0.0089	0.2783	0.2665	2.2840	1.9727	0.1235	0.0510	-0.0169	-0.0429	-0.12

1. The above table is based on 1,346 firm-year observations with non-negative profits during 1998-2001 for stocks
Exchange with institutional ownership data.
2. All firm-years are ranked annually on the percentage of institutional ownership. Top-half of firm-years are assign
ownership group and the bottom half are assigned to low institutional ownership group.
3. The empirical results of this part are robust to the grouping methods of high vs. low institutional ownerships.

TABLE 5B-1

Results from Nonlinear Generalized Least Squares Estimation of the Market Pricing of Current Earnings with Respect to Their Implications for One-Year-Ahead Earnings-High vs. Low Institutional Ownership

Panel A: Market Pricing of Current Earnings with Respect to Their Implications for One-Year-Ahead Earnings-HIO vs. LIO

$$Earn_{t+1} = \gamma_0 + \gamma_1 Earn_t + \gamma_{1H} H\_Earn_t + v_{t+1}. \quad (14)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1[Earn_{t+1} - \gamma_0 - \gamma_1^* Earn_t - \gamma_{1H}^* H\_Earn_t] + z_{t+1}. \quad (15)$$

Parameter	*Estimate*	*Asymptotic Std. Error*	*t-stat*
γ_1	0.5974	0.0188	31.86
γ_{1H}	0.1372	0.0206	6.67
γ_1^*	0.9596	0.1004	9.56
γ_{1H}^*	-0.3286	0.1145	-2.87
γ_1/γ_1^*	0.6226		
$(\gamma_1+\gamma_{1H})/(\gamma_1^*+\gamma_{1H}^*)$	1.1642		

Panel B: Tests of Rational Pricing of Earnings

Null Hypotheses		*Likelihood Ratio Statistic*	*Marginal Significance Level*
$\gamma_1 = \gamma_1^*$	L.R.	15.92	0.0001
$\gamma_1+\gamma_{1H} = \gamma_1^*+\gamma_{1H}^*$	L.R.	1.83	0.1758
$\gamma_1/\gamma_1^* = (\gamma_1+\gamma_{1H})/(\gamma_1^*+\gamma_{1H}^*)$	L.R.	22.70	<0.0001

1. Elations (14) and (15) are jointly estimated using and iterative generalized nonlinear least squares estimation procedure based on 1,346 observations during 1998-2001 from Shanghai Stock Exchange.
2. Variable definitions:
H: An indicator variable that equals to one for firms in the high institutional ownership sub-sample and zero for firms in the low ownership sub-sample. *H_Earn=H*Earn.*

TABLE5B2

Results from Nonlinear Generalized Least Squares Estimation of the Market Pricing of Accrual Component of Earnings with Respect to Their Implications for One-Year-Ahead Earnings-HIO vs. LIO

Panel A: Market Pricing of Accruals with Respect to Their Implications for One-Year-Ahead Earnings-HIO vs. LIO

$$Earn_{t+1} = \gamma_0 + \gamma_1 Accr_t + \gamma_{1H} H\_Accr_t + \gamma_2 Cfo_t + \gamma_{2H} H\_Cfo_t + v_{t+1}. \quad (16)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1[Earn_{t+1} - \gamma_0 - \gamma_1^* Accr_t - \gamma_{1H}^* H\_Accr_t - \gamma_2^* Cfo_t - \gamma_{2H}^* H\_Cfo_t] + z_{t+1}. \quad (17)$$

Parameter	*Estimate*	*Asymptotic Std. Error*	*t-stat*
γ_1	0.5581	0.0207	26.96
γ_{1H}	0.1452	0.0245	5.94
γ_2	0.6117	0.0189	32.34
γ_{2H}	0.1303	0.0207	6.29
γ_1^*	1.0016	0.1157	8.66
γ_{1H}^*	-0.3826	0.1370	-2.79
γ_2^*	0.9473	0.1014	9.34
γ_{2H}^*	-0.3167	0.1161	-2.73
γ_1 / γ_1^*	0.5572		
γ_2 / γ_2^*	0.6457		
$(\gamma_1 + \gamma_{1H})/(\gamma_1^* + \gamma_{1H}^*)$	1.1362		
$(\gamma_2 + \gamma_{2H})/(\gamma_2^* + \gamma_{2H}^*)$	1.1767		

Panel B: Tests of Rational Pricing of Earnings

Null Hypotheses	*Likelihood Ratio Statistic*	*Marginal Significance Level*
$\gamma_1 = \gamma_1^*$	18.89	0.0000
$\gamma_2 = \gamma_2^*$	12.95	0.0003
$\gamma_1 + \gamma_{1H} = \gamma_1^* + \gamma_{1H}^*$	0.86	0.3549
$\gamma_2 + \gamma_{2H} = \gamma_2^* + \gamma_{2H}^*$	2.06	0.1514
$\gamma_1 / \gamma_1^* = (\gamma_1 + \gamma_{1H})/(\gamma_1^* + \gamma_{1H}^*)$	20.75	0.0000
$\gamma_2 / \gamma_2^* = (\gamma_2 + \gamma_{2H})/(\gamma_2^* + \gamma_{2H}^*)$	19.61	0.0000

Table 5B.2 (cont.)

1. Elations (16) and (17) are jointly estimated using and iterative generalized nonlinear least squares estimation procedure based on 1,346 observations during 1998-2001 from Shanghai Stock Exchange.
2. Variable definitions:
H: An indicator variable that equals to one for firms in the high institutional ownership sub-sample and zero for firms in the low ownership sub-sample. *H_Earn=H*Earn; H_Accr=H*Accr; H_Cfo=H*CFO.*

TABLE6A
Results from Nonlinear Generalized Least Squares Estimation of the Market Pricing of Current Earnings with Respect to Their Implications for One-Year-Ahead Earnings-The Effect of Governance

$$Earn_{t+1} = \gamma_0 + \gamma_1 Earn_t + \gamma_{1D} D\_Earn_t + v_{t+1}. \quad (19)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1 [Earn_{t+1} - \gamma_0 - \gamma_1^* Earn_t - \gamma_{1D}^* D\_Earn_t] + z_{t+1}. \quad (20)$$

TOP1 Share:

Forecasting Coefficients			*Valuation Coefficients*		
Parameter	*Estimate*	*t-stat*	*Parameter*	*Estimates*	*t-stat*
γ_1	0.5875	22.4504	γ_1^*	0.7828	6.6074
γ_{1D}	-0.0038	-0.1079	γ_{1D}^*	0.2913	1.8038
	Overpricing Magnitude		*LR statistic*	*Significance*	
γ_1 / γ_1^*	1.3326		2.6604	0.1029	
$(\gamma_1 + \gamma_{1D})/(\gamma_1^* + \gamma_{1D}^*)$	1.8405		16.1180	0.0001	

Stock Market:

Forecasting Coefficients			*Valuation Coefficients*		
Parameter	*Estimate*	*t-stat*	*Parameter*	*Estimates*	*t-stat*
γ_1	0.5807	29.8992	γ_1^*	0.8609	9.6144
γ_{1D}	0.0416	1.6114	γ_{1D}^*	-0.0922	-0.7963
	Overpricing Magnitude		*LR statistic*	*Significance*	
γ_1 / γ_1^*	1.4826		9.9147	0.0016	
$(\gamma_1 + \gamma_{1D})/(\gamma_1^* + \gamma_{1D}^*)$	1.2353		2.8562	0.0910	

Board of Directors

Forecasting Coefficients			*Valuation Coefficients*		
Parameter	*Estimate*	*t-stat*	*Parameter*	*Estimates*	*t-stat*
γ_1	0.6028	22.2305	γ_1^*	0.6351	5.4101
γ_{1D}	0.0392	1.1024	γ_{1D}^*	0.2415	1.5565
	Overpricing Magnitude		*LR statistic*	*Significance*	
γ_1 / γ_1^*	1.0536		0.0719	0.7886	
$(\gamma_1 + \gamma_{1D})/(\gamma_1^* + \gamma_{1D}^*)$	1.3656		4.0938	0.0430	

Table6A (continued)

Duality:

Forecasting Coefficients			*Valuation Coefficients*		
Parameter	*Estimate*	*t-stat*	*Parameter*	*Estimates*	*t-stat*
γ_1	0.6252	29.0492	γ_1^*	0.7059	6.9020
γ_{1D}	0.0049	0.1348	γ_{1D}^*	0.2276	1.3167
	Overpricing Magnitude		*LR statistic*	*Significance*	
γ_1 / γ_1^*	1.1290		0.5997	0.4387	
$(\gamma_1 + \gamma_{1D})/(\gamma_1^* + \gamma_{1D}^*)$	1.4815		4.1282	0.0422	

External Directors:

Forecasting Coefficients			*Valuation Coefficients*		
Parameter	*Estimate*	*t-stat*	*Parameter*	*Estimates*	*t-stat*
γ_1	0.6316	34.5196	γ_1^*	0.7989	9.7639
γ_{1D}	-0.0262	-0.5713	γ_{1D}^*	-0.2216	-1.0947
	Overpricing Magnitude		*LR statistic*	*Significance*	
γ_1 / γ_1^*	1.2650		4.1020	0.0428	
$(\gamma_1 + \gamma_{1D})/(\gamma_1^* + \gamma_{1D}^*)$	0.9536		0.0212	0.8842	

Board of Supervisors:

Forecasting Coefficients			*Valuation Coefficients*		
Parameter	*Estimate*	*t-stat*	*Parameter*	*Estimates*	*t-stat*
γ_1	0.5540	24.2171	γ_1^*	0.7675	8.1666
γ_{1D}	0.0968	3.2462	γ_{1D}^*	-0.0636	-0.5251
	Overpricing Magnitude		*LR statistic*	*Significance*	
γ_1 / γ_1^*	1.3853		4.9844	0.0256	
$(\gamma_1 + \gamma_{1D})/(\gamma_1^* + \gamma_{1D}^*)$	1.0815		0.3407	0.5594	

1. Elations (19) and (20) are jointly estimated using and iterative generalized nonlinear least squares estimation procedure based on firm-year observations with relevant corporate governance data during 1999-2001.
2. Variables definitions:

TABLE6B

Results from Nonlinear Generalized Least Squares Estimation of the Market Pricing of Accrual Component of Earnings with Respect to Their Implications for One-Year-Ahead Earnings-The Effect of Governance

$$Earn_{t+1} = \gamma_0 + \gamma_1 Accr_t + \gamma_{1D} D\_Accr_t + \gamma_2 Cfo_t + \gamma_{2D} D\_Cfo_t + v_{t+1}. \quad (18)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1 [Earn_{t+1} - \gamma_0 - \gamma_1^* Accr_t - \gamma_{1D}^* D\_Accr_t - \gamma_2^* Cfo_t - \gamma_{2D}^* D\_Cfo_t] + z_{t+1}. \quad (19)$$

Top1 Shares:

Forecasting Coefficients			*Valuation Coefficients*		
Parameter	*Estimate*	*t-stat*	*Parameter*	*Estimates*	*t-stat*
γ_1	0.5533	19.7100	γ_1^*	0.7924	6.0581
γ_{1D}	-0.0210	-0.5366	γ_{1D}^*	0.3775	2.0523
	Overpricing Magnitude		*LR statistic*	*Significance*	
γ_1 / γ_1^*	1.4322		γ_1^*	0.0690	
$(\gamma_1 + \gamma_{1D})/(\gamma_1^* + \gamma_{1D}^*)$	2.1980		γ_{1D}^*	0.0000	

Stock Market:

Forecasting Coefficients			*Valuation Coefficients*		
Parameter	*Estimate*	*t-stat*	*Parameter*	*Estimates*	*t-stat*
γ_1	0.5282	24.7108	γ_1^*	0.9360	8.9259
γ_{1D}	0.0443	1.5277	γ_{1D}^*	-0.0682	-0.5039
	Overpricing Magnitude		*LR statistic*	*Significance*	
γ_1 / γ_1^*	1.7719		γ_1^*	0.0001	
$(\gamma_1 + \gamma_{1D})/(\gamma_1^* + \gamma_{1D}^*)$	1.5158		γ_{1D}^*	0.0030	

Board of Directors:

Forecasting Coefficients			*Valuation Coefficients*		
Parameter	*Estimate*	*t-stat*	*Parameter*	*Estimates*	*t-stat*
γ_1	0.5520	18.6579	γ_1^*	0.7437	5.4808
γ_{1D}	0.0276	0.6753	γ_{1D}^*	0.2433	1.3015
	Overpricing Magnitude		*LR statistic*	*Significance*	
γ_1 / γ_1^*	1.3473		1.9490	0.1627	
$(\gamma_1 + \gamma_{1D})/(\gamma_1^* + \gamma_{1D}^*)$	1.7028		8.3594	0.0038	

Table 6B(cont.)

Duality:

Forecasting Coefficients			*Valuation Coefficients*		
Parameter	*Estimate*	*t-stat*	*Parameter*	*Estimates*	*t-stat*
γ_1	0.5512	22.9861	γ_1^*	0.8046	6.5440
γ_{1D}	0.0362	0.8866	γ_{1D}^*	0.3228	1.5610
	Overpricing Magnitude		*LR statistic*	*Significance*	
γ_1 / γ_1^*	1.4599		4.2776	0.0386	
$(\gamma_1 + \gamma_{1D})/(\gamma_1^* + \gamma_{1D}^*)$	1.9193		9.6133	0.0019	

External Directors:

Forecasting Coefficients			*Valuation Coefficients*		
Parameter	*Estimate*	*t-stat*	*Parameter*	*Estimates*	*t-stat*
γ_1	0.5716	28.5393	γ_1^*	0.9087	9.3181
γ_{1D}	-0.0536	-0.9806	γ_{1D}^*	-0.2000	-0.7906
	Overpricing Magnitude		*LR statistic*	*Significance*	
γ_1 / γ_1^*	1.5897		12.6736	0.0004	
$(\gamma_1 + \gamma_{1D})/(\gamma_1^* + \gamma_{1D}^*)$	1.3682		0.6205	0.4309	

Board of Supervisors:

Forecasting Coefficients			*Valuation Coefficients*		
Parameter	*Estimate*	*t-stat*	*Parameter*	*Estimates*	*t-stat*
γ_1	0.4952	19.6223	γ_1^*	0.7913	7.2235
γ_{1D}	0.0861	2.5248	γ_{1D}^*	0.0545	0.3781
	Overpricing Magnitude		*LR statistic*	*Significance*	
γ_1 / γ_1^*	1.5979		7.3010	0.0069	
$(\gamma_1 + \gamma_{1D})/(\gamma_1^* + \gamma_{1D}^*)$	1.4549		6.3638	0.0116	

1. Elations (18) and (19) are jointly estimated using and iterative generalized nonlinear least squares estimation procedure based on firm-year observations with relevant corporate governance data during 1999-2001.
2. Variables definitions:
All the variables are defined before.

TABLE7A

Results from Nonlinear Generalized Least Squares Estimation of the Market Pricing of Accrual Component of Earnings with Respect to Their Implications for One-Year-Ahead Earnings-A vs. B

Panel A: Market Pricing of Accruals with Respect to Their Implications for One-Year-Ahead Earnings-A vs. B

$$Earn_{t+1} = \gamma_0 + \gamma_1 Accr_t + \gamma_{1M} M\_Accr_t + \gamma_2 Cfo_t + \gamma_{2M} M\_Cfo_t + v_{t+1}. \quad (20)$$

$$SZ\_AJR_{t+1} = \delta_0 + \delta_1 [Earn_{t+1} - \gamma_0 - \gamma_1^* Accr_t - \gamma_{1M}^* M\_Accr_t - \gamma_2^* Cfo_t - \gamma_{2M}^* M\_Cfo_t] + z_{t+1}. \quad (21)$$

Parameter	*Estimate*	*Asymptotic Std. Error*	*t-stat*
γ_1	0.469707	0.055961	8.393468
γ_{1M}	0.187764	0.073551	2.552828
γ_1^*	1.28227	0.565415	2.267839
γ_{1M}^*	1.446797	0.781273	1.851845
γ_1 / γ_1^*	0.3663		
$(\gamma_1 + \gamma_{1M})/(\gamma_1^* + \gamma_{1M}^*)$	0.2409		

Panel B: Tests of Rational Pricing of Earnings

Null Hypotheses		*Likelihood Ratio Statistic*	*Marginal Significance Level*
$\gamma_1 = \gamma_1^*$	L.R.	2.79	0.0948
$\gamma_1 + \gamma_{1M} = \gamma_1^* + \gamma_{1M}^*$	L.R.	24.93	<0.0001
$\gamma_1 / \gamma_1^* = (\gamma_1 + \gamma_{1M})/(\gamma_1^* + \gamma_{1M}^*)$	L.R.	1.16	0.2805

1. Elations (20) and (21) are jointly estimated using and iterative generalized nonlinear least squares estimation procedure based on 603 observations during 1998-2001 which were listed on both A and B-share market.
2. Variable definitions:
M: An indicator variable that equals to one for observations from B-share sub-sample and zero for observations in A-share sub-sample. *M_Earn=M*Earn; M_Accr=M*Accr; M_Cfo=M*CFO.*