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Earnings quality and stress levels of Chinese listed companies

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Abstract

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Earnings quality and stress levels of Chinese listed companies

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ABSTRACT

This paper investigates the relation between earnings quality and stress levels of Chinese companies listed in Shanghai and Shenzhen stock exchanges from 2003 to 2007 by classifying them as financially stressed and bankrupt (SB), financially stressed and not bankrupt (SNB), and not financially stressed and not bankrupt (NSNB) firms. We measure the earnings quality by four separate attributes: accruals quality, earnings persistence, earnings predictability, and earnings smoothness. We find that earnings quality levels are parallel to firm's stress levels: the SB firms have the lowest earnings quality measured by each of the four earnings attributes, the SNB firms have a lower earnings quality compared with the SB firms, the NSNB firms have the highest earnings quality. We also find that the earnings quality deteriorated over the study period, the number of SB firms with the lowest earnings quality increased, and the number of NSNB firms with the highest earnings quality decreased for the fiscal years 2003 to 2007.

INTRODUCTION

Earnings measurement is central to the use of the financial statement in evaluating historical performance, forecasting future performance, and valuing equity (Ohlson, 1995; Penman, 2004). A frequently used term relating to the effectiveness of earnings measurement is "earnings quality." Earnings quality is of major importance to accounting practitioners, policymakers, and researchers as it is a premier information item provided in financial statements (Boonlert-U-Thai et al., 2006). Schipper and Vincent (2003) describe earnings quality as the extent to which reported earnings faithfully represent economic income, where faithfulness means that the measurement accurately represents the phenomenon. Dechow and Schrand (2004), analyzing earnings quality from a financial analysis perspective, note that earnings quality represents the accuracy by which it annuitizes the intrinsic value of the firm.

Due to the administrative governance approach adopted in China, regulators often rely on accounting numbers to govern the listed companies (Lu & Liu, 2007). For example, the China Securities Regulatory Commission (CSRC) requires listed firms to meet certain level of return on equity (ROE) before they can apply for a permission to issue additional shares to existing shareholders (rights issues); and the most important criterion for de-listing a listed company is a reported net loss for three consecutive years (Qi et al., 2005). A peculiar feature of Chinese-listed firms is that some of them that should be declared as financial distress and/or should be declared as bankrupt in terms of the criteria used in developed countries are still being listed on the stock markets in China in contrast with that in mature stock markets in developed countries (Ronen & Yaari, 2008).

McKeown, Mutchler, and Hopwood (1991, hereafter MMH) provide a model to divide the firms into financially stressed and non-stressed. They find that the financially stressed and non-stressed firms employ contrasting earnings management techniques and differing earning quality. Altman (2006) on the other hand, develops an Emerging Market Score model (EMS, hereafter) to group firms as bankrupt and non-bankrupt firms which is conceptually different from the MMH model, and states that the bankrupt and non-bankrupt firms can be identified to some extent by earnings quality approaches.

The firms listed on the emerging stock markets of China can be described by both MMH and EMS models. Thus, we borrow the two models to conduct an analysis on earnings quality in relation to the firms' stress of being stressed

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and non-stressed, the bankruptcy status of being bankrupt and non-bankrupt; classifying firms into four quadrants: (1) financially stressed and bankrupt (SB), (2) not financially stressed but bankrupt (NSB), (3) financially stressed and not bankrupt (SNB), and (4) not financially stressed and not bankrupt (NSNB). However, due to the zero sample firms in the quadrant of NSB, our research focuses on firms in the quadrants of SB, SNB, and NSNB by disregarding the firms in the class of NSB.

We find that the SB firms have the lowest earnings quality measured by each of the four earnings attributes. The SNB firms have a lower earnings quality compared with the SB firms. The NSNB firms have the highest earnings quality. Overall, earnings quality levels are parallel to firm's stress levels. Low earrings quality is associated with worse stress, while high quality is associated with better stress. We also find that the earnings quality deteriorated over the study period, the number of SB firms with the lowest earnings quality increased, and the number of NSNB firms with the highest earnings quality decreased for the fiscal years 2003 to 2007.

This research contributes to the literature in two ways. First, to our best knowledge, no research has been conducted before ours on whether and how the four earnings attributes (accruals quality, earnings persistence, earnings predictability, and earnings smoothness) are various among the three types of firms (SB, SNB, and NSNB). Our research provides empirical evidence of significant differences, thus filling a void of the literature. Second, this research is among few comprehensive analyses on earnings quality across the listed firms of new emerging Chinese market. The interactive classification of firms, by using criteria originally created in developed market, discloses the stress of Chinese listed companies, and accordingly, the firm earnings quality are assessed from four types of earnings attributes. The results are new evidence that earnings quality levels are parallel to stress levels in the new emerging Chinese market.

In the next section, we provide a literature review and stress classification. Then we describe the sample selection and data. The results are presented in the results and analyses section. After that we provide the sensitivity analysis, while the conclusions are presented in the last section of this paper.

LITERATURE REVIEW AND FINANCIAL STATUDS CLASSIFICATION

ACCRUALS QUALITY

Accruals comprise the difference between the earnings and the cash (Francis et al., 2004). One role of accruals is to shift or adjust the recognition of cash flows over time so that the adjusted numbers become better in measuring firm performance (Boonlert-U-Thai et al., 2006). Accruals quality as a measure of earnings quality is based on the view that earnings can be matched more closely into cash flow from operations. Dechow and Dichev (2002) measure earnings quality captures the mapping of total current accruals into last-period, current-period, and next-period cash flow from operations. The measure of accruals quality in this study is based on the Dechow and Dichev's (2002) model as follows:

$$\frac{TCA_{j,t}}{TotalAsset_{j,t-1}} = b_0 + b_1 * \frac{CFO_{j,t-1}}{TotalAsset_{j,t-1}} + b_2 * \frac{CFO_{j,t}}{TotalAsset_{j,t-1}} + b_3 * \frac{CFO_{j,t+1}}{TotalAsset_{j,t-1}} + \varepsilon_{j,t} \quad (1)$$

Where:

$TCA_{j,t}$	Firm j's total current accruals in year t;
$Total\ Asset_{j,t-1}$	Firm j's total assets in year t–1; and
$CFO_{j,t}$	Firm j's cash flow from operations in year t;

The measure of accruals quality is based on the standard deviation of estimated residual ($\sigma(\hat{\varepsilon}_{j,t})$, hereafter, Stdresid), which refers to the extent to which current accruals map onto operating cash-flow realizations. Large (small) values of Stdresid correspond to lower (higher) accruals quality and lower (higher) earnings quality.

EARNINGS PERSISTENCE

To measure persistence, researchers generally estimate a regression of the future value of the variable on its current value (Dechow & Schrand, 2004). Kormendi and Lipe (1987) use firm-level regressions of current earnings on previous year's earnings to estimate the slope-coefficient estimates of earnings persistence. This study employs the measure in Kormendi and Lipe (1987) to test earnings persistence using the following equation:

$$\frac{Earn_{j,t}}{TotalAssets_{j,t-1}} = \alpha + \delta_1 * \frac{Earn_{j,t-1}}{TotalAsset_{j,t-1}} + V_{j,t} \quad (2)$$

Where:

$Earn_{j,t}$	Firm's j net income before extraordinary items in year t; and
$Earn_{j,t-1}$	Firm's j net income before extraordinary items in year t−1.

The measure capturing earnings persistence is based on the slope-coefficient estimate (δ_1, hereafter, Persist). Values of δ_1 close to one (or greater than one) indicate highly persistent earnings while values close to zero imply highly transitory earnings. Persistent earnings are viewed as higher quality, while transitory earnings are viewed as lower quality.

EARNINGS PREDICTABILITY

Lipe (1990) provides a measure of earnings predictability as it is reflected in the variance of the earnings shocks (as variance increases, the predictability decreases). Francis et al. (2004) measure earnings predictability using the square root of the estimated error-variance from the earnings-persistence equation. In this study, earnings predictability is calculated using the square root of the error variance from equation of earnings persistence:

$$\Pr ed_{j,t} = \sqrt{\sigma^2(\hat{v}_{j,t})} \quad (3)$$

Where:

$\sigma^2(\hat{v}_{j,t})$	Estimated-error variance of firm j in year t, calculated from Equation (2).

Our measure of earnings predictability is the standard deviation of the residuals ($\hat{\varepsilon}_j$) from Eq (2). Large values of $Pred_{j,t}$ imply less predictable earnings and lower earnings quality.

EARNINGS SMOOTHNESS

Discussions of the benefits of smooth earnings include Demski (1998), Wysocki (2004), and Francis et al. (2004). Arguments that smoothness is a desirable earnings attribute derive from the view that managers use their private information about future income to smooth out transitory fluctuations and thereby achieve a more representative, hence more useful, reported earnings number. In measuring smoothness, Bowen et al. (2003) measure earnings smoothness as the standard deviation of cash flow from operations divided by the standard deviation of earnings. This study employs the measure in Bowen's study and uses the following equation:

$$Smooth_{j,t} = \frac{\sigma(CFO_{j,t}/TotalAssets_{j,t-1})}{\sigma(Earn_{j,t}/TotalAsset_{j,t-1})} \quad (4)$$

Where:

σ	Firm j's standard deviation;
$CFO_{j,t}$	Firm j's operating cash flows in year t (indirect approach); and
$\Sigma(Earn_{j,t})$	Firm j's net income before extraordinary items in year t.

Ratios in excess of one indicate more variability in operating cash flows relative to the variability of earnings, which implies the use of accruals to smooth earnings. Thus, large (small) values of Smooth indicate more (less) earnings smoothness and low (high) earnings quality.

MMH FIRM –YEAR MODEL

According to McKeown et al. (1991), the MMH firm-year model classified a company in the stressed category if it exhibited at the least one of the following financial distress signals:

(1) Negative working capital in the current year;
(2) A loss from operations in any of the three years prior to bankruptcy;
(3) A retained earnings deficit in year-3 (where year-1 is the last financial statement date preceding bankruptcy); and
(4) A bottom-line loss in any of the last three pre-bankruptcy years.

The MMH firm-year model is adopted in this study to classify Chinese listed companies as stressed and non-stressed in the classification of both bankrupt and non-bankrupt firms.

EMERGING MARKET SCORE MODEL (EMS MODEL)

EMS model is a predictive model which combined four different financial ratios to determine the likelihood of bankruptcy amongst companies (Altman, 2006). This model was first developed in the mid-1990s to provide an analytical framework for the then-growing, but still nascent emerging market firms issuing bonds in nonlocal currency (usually US dollars) (Altman, 2006). In the Chinese capital market context, unusual to many other stock exchanges, some firms are in financial bankrupt in terms of the criteria used in developed countries but are still being listed on the stock exchanges flagging their near-bankruptcy or bankruptcy status to investors. Therefore, bankrupt firms have a pre-bankruptcy status in this study. Due to the anomalous listing system in Chinese stock exchange, we use the EMS model to split sample observation of firm-year into bankrupt and non-bankrupt categories using Z-scores of firm-year observations.

The EMS model is as follows (Altman, 2006):

EM Score = 6.56*X1 + 3.26*X2 + 6.72*X3 + 1.05*X4 +3.25 (5)

EM Score below 0 indicates a bankrupt condition

Where

X1 = working capital/total assets;

X2 = retained earnings/total assets;

X3 = EBIT/total assets; and

X4 = book value of equity/total liabilities.

Altman (2006) states that the EMS model was tested on samples of manufacturers and non-manufacturers, public firms, private firms, and specific industries (e.g., retailers, telecoms, airlines, etc.), over 20 countries including China, and its accuracy and reliability have remained high.

SAMPLE SELECTION AND DATA

The sample comprises firms that issued A-shares and were listed on the Shanghai and Shenzhen stock exchanges for the fiscal years 2003 to 2007. This study measures the four earnings attributes on a firm- and year-specific basis, using the relevant accounting information for rolling five-year windows, t-4,…t. For example, the firm-years 1999 to 2003 are used to calculate the earnings attributes for the year 2003; the firm-years 2000 to 2004 for the year 2004, and the firm-years 2003 to 2007 for the year 2007. Since the computation of accruals quality requires past and future one firm-year's observation data, so we cover the data period from 1998 to 2008.

To mitigate concern that differences in sample composition might drive comparisons for each kind of firm, we further requires that data on all variables are available for each year for the sample period. The data are collected from the CSMAR (China Stock Market and Accounting Research) Financial Databases developed by the Shenzhen GTA Information Technology Co. After eliminating firms in banks and financial institutions, the final sample consists of 987 firms with a total of 4935 firm-year observations for the period 2003-2007.

Table 1 presents the classification of the firms. A few items are noteworthy. First, we find zero sample-year observations for NSB, and so analysis of NSB class of firms is disregarded in this paper. Therefore, we analyze only three kinds of firms (SB, SNB, and NSNB) in this study. In addition, the earnings quality has deteriorated over time[1] – as evidenced by the declining NSNB firm numbers from 483 (2003) to 344 (2007) and increasing numbers of SB and SNB firms from 42 to 81 and 462 to 562 in 2003 and 2007, respectively.

Insert Table 1 about here

RESULTS AND ANALYSES

[1] Tables 2, 3, 4 and 5 reveal that NSNB firms have the highest earnings quality for each of the four earnings attributes during the period 2003-2007. SB firms have the lowest earnings quality for each of the four earnings attributes during the period 2003-2007.

ACCRUALS QUALITY

In this section we test earnings quality measured as accruals quality value. Table 2 reports the mean results of Equation (1) using a firm- and year-specific basis, rolling five-year windows from total current accruals on past, current, and future cash flow from operations.

As shown in Table 2, SB firms have the biggest standard deviation of residuals in 2003, 2005, 2006, 2007, and NSNB firms have the smallest ones in 2003, 2004, 2006, and 2007. The results indicate that SB firms have the lowest accruals quality and NSNB firms have the highest accruals quality, which indicates that SB firms' accruals are more dispersed and have more underlying volatility in the company's operations than NSNB firms. We use analysis of variance (ANOVA) to test the significantly different between the SB, SNB and NSNB firms. The results indicate that there is significant difference between three firm categories in 2003 (P<0.000), 2006 (P<0.000), 2007(P<0.000), and less significantly different in 2004 (P< 0.075). In addition, the total mean of accruals quality is also significantly different as P<0.000.

The Table 2 also shows that the SNB firms with standard deviation of residuals have the largest and smallest in 2004 and 2005, respectively, which indicates that SNB firms have lowest and highest accruals quality in these two years. We believe that this is a temporary aberration and that the long-run trend is that SB firms have the lowest earnings quality while the NSNB firms have the highest earnings quality.

Insert Table 2 about here

EARNINGS PERSISTENCE

Table 3 reports the mean results relative to earnings persistence value. Dechow and Schrand (2004) demonstrate that identifying earnings persistence is of practical importance because the knowledge enhances earnings predictions – a key step in valuation. For each firm-year, we estimate Equation (2) using rolling five-year windows of current earnings on last year's earnings to estimate the slope-coefficient estimates of earnings persistence.

The results show that the coefficient on NSNB firms is significantly positive; for example, in 2003 (1.231, P < 0.000), 2004 (1.330, P < 0.000), 2005 (0.995, P < 0.000), 2006 (1.139, P <0.000), and 2007 (1.382, P < 0.000), which shows that NSNB firms have highly persistent earnings and high earnings quality. In addition, SNB firms have less persistence and lower earnings quality than NSNB firms, as in 2003 (0.263, P < 0.000), 2004 (0.274, P < 0.000), 2005 (0.222, P < 0.000), 2006 (0.208, P <0.000), and 2007 (0.302, P < 0.003),

In contrast, SB firms have values that are negative or close to zero: in 2004 (-0.162, P < 0.030), 2005 (0.005, P < 0.882), 2006 (0.033, P < 0.309), and 2007 (-0.284, P < 0.007). The findings indicate that SB firms have highly transitory earnings and lower earnings quality, the exception is the 2003 value of 0.177 (P < 0.035). The analysis of variance test shows that the SB, SNB, and NSNB firms are significantly different in 2003 (P< 0.004), 2004 (P< 0.000), 2007 (P< 0.000), and less significant difference in 2005 (P< 0.030), 2006 (P< 0.061).

Insert Table 3 about here

EARNINGS PREDICTABILITY

Table 4 provides the mean results of testing earnings predictability value using a firm- and year-specific basis and rolling five-year windows. Francis et al. (2004) provide a measure of earnings predictability by using the square root of the error variance from Equation (3). Large values of $Pred_{j,t}$ imply less predictable earnings and lower earnings quality.

The results show huge differences among the three types of firms. SB firms have large values of predictability – in 2003 (0.609), 2004 (0.288), 2005 (0.226), 2006 (0.339), and 2007 (0.685) – and therefore less predictable earnings. The NSNB firms have the smallest values of predictability compared to SB and SNB firms in each year, which indicates that NSNB firms have most predictable earnings. In addition, SNB firms stand between SB and NSNB firms, as having moderately predictable earnings. This evidence indicates that SB firms are least likely to have

higher earnings quality, SNB firms are likely to have higher earnings quality, and NSNB firms have the highest earnings quality. Analysis of variance tests show the results for each year (P <0.000), which indicates that there is significantly different between the three firm categories in the period of 2003-2007.

Insert Table 4 about here

EARNINGS SMOOTHNESS

Table 5 shows the mean results relative to smoothness value. The results of Equation (4) measured earnings smoothness as the ratio of standard deviation of operating cash flows divided by the standard deviation of earnings based on a firm- and year-specific basis.

An earnings management strategy that has survived the test of time is smoothing (Ronen & Yaari, 2008). Smoothing is the dampening of fluctuations in the series of reported earnings. Managers will take action to increase earnings when earnings are relatively low and to decrease earnings when earnings are relatively high (Bao & Bao, 2004). As Table 5 indicates, SB firms have the highest ratio in 2003 (2.398), 2004 (2.227), 2005 (1.559), 2007 (1.867), and SNB firms have ones in 2006 (2.067). In contrast, NSNB firms have the smallest ratio: 1.873, 1.436, 1.146, 0.825, and 1.335 in each year, which shows that SB firms have the lowest earnings quality and NSNB firms have the highest earnings quality. Analysis of variance test also indicates the significant difference between the SB, SNB, and NSNB firms as P < 0.000 for each year.

Insert Table 5 about here

SENSITIVITY ANALYSIS

CHANGES IN EMS DEFAULT EQUIVALENT RATING

According to Altman (2006), the EMS system is suitable for manufacturers and non-manufacturers, public firms, private firms, and specific industries (e.g., retailers, telecoms, airlines, etc.), and builds in over 20 countries throughout the world. Actual EMS default equivalent rating (D) scores below 1.75 are used as the proxy for D (in main test, EMS default equivalent rating of 0 is rated D). We consider each earnings attribute result to the default equivalent rating of 1.75 to estimating the earnings quality for this sensitivity analysis. This EMS model shows all earnings attributes in SB firms slightly improved, and that SNB firms slightly dropped in each year. Then we repeat the firm- and year-specific basis tests for the sample firms for which we have four earnings attribute estimates (n = 4935 firm-years for the period 2003-2007). The main results show a pattern on the four earnings attributes that is quite similar to this sensitivity analysis.

USING THE Z-SCORE MODEL (1993 ALTMAN MODEL)

The alternative bankruptcy model we employ to classify the Chinese listed companies is consistent with 1993 Altman model[2]. The Altman model is useful within an industry where the type of financing of assets differs greatly among firms and where important adjustments need to be made (Altman, 1993). Ideally, we obtain four category classifications: SB, SNB, NSB, and NSNB firms. Since the NSB firms (8, 23, 19, 10, and 8, respectively in each year), do not meet the minimum sample size for regression, we calculate each earnings attribute based on the three remaining firm classifications (SB, SNB, and NSNB) for Chinese listed companies. Interestingly, the number of SB

[2] Z'' = 6.56 (X1)+ 3.26 (X2) + 6.72 (X3) +1.05 (X4)
Z'' < 1.10 = Zone I (no errors in bankruptcy classification).
Where
X1 = working capital/total assets;
X2 = retained earnings/total assets;
X3 = EBIT/total assets; and
X4 = book value of equity/total liabilities.

firms rose dramatically, whereas that of SNB firms fell significantly. We obtain similar results for models and conclude that our findings are robust to the main test.

CHANGES IN SCALING THE ACCOUNTING VARIABLES BY AVERAGE

Our earnings quality tests are based on scaling by the beginning total assets. We alternatively used accounting variables by average total assets to calculate the four earnings attributes for the three firm categories. These results also do not differ qualitatively from the results in our main analysis.

CHANGES IN ACCRUALS QUALITY MODEL

A recent study by Boonlert-U-Thai et al. (2006) proposes a modified Dechow and Dichev (2002) model, arguing that the changes in sales revenue and property, plant, and equipment are important in forming expectations about current accruals, over the effects of operating cash flows. We repeated earnings quality tests separately for each group based on the Boonlert-U-Thai model, and the results are very close to those for the main test.

USING CFP PERSISTENCE MODEL

Dechow and Schrand (2004) evaluated persistence of earnings and of cash from operations, to calculate which one is more persistent. Their study focused on whether investors understand that the quality of earnings is a function of whether the earnings are backed by cash flows from operations. With respect to the firm- and year-specific basis tests of earnings persistence, we investigate the cash flows from operations to identify the persistence of SB, SNB and NSNB firms[3]. The results show that earnings are, on average, more persistent than cash flows. The results are somewhat weaker, but we find that persistence tests confirm our prior results: NSNB firms are more significantly persistent than SNB and SB firms in the three firms-years of 2003, 2004, and 2007.

EARNINGS PREDICTABILITY BASED ON CFO PERSISTENCE

We evaluate an alternative measure of earnings predictability based on forecast errors taken from CFO persistence, by performing the firm- and year-specific basis regressions to calculate the forecast error of annual CFO. Results using this CFO persistence-based proxy for earnings predictability are quite similar to our initial results.

CONCLUSION

This paper investigates the relations between earnings quality (accruals quality, earnings persistence, earnings predictability, and earnings smoothness) and the stress levels of Chinese listed companies. The results, based on the indicators from regression analyses, show that SB firms have the lowest earnings quality, SNB firms have a lower earnings quality in comparison with SB firms, and NSNB firms have the highest earnings quality. Thus, we argue that earnings quality levels are parallel to stress levels. High earnings quality is associated with better stress, while low earnings quality is accompanied by worse stress of firms.

The novelty of this research is that we classify the Chinese companies by two interactive dimensions of financial stressed levels and bankrupt levels. Accordingly, we investigate the difference of earnings quality measured by four earnings attributes. Thus, we contribute new component to the earnings quality literature from a new angle. In particular, this research is probably among the first several comprehensive studies on the listed companies of new emerging market of China. The foremost evidences from the largest emerging market of the world are quite meaningful in the literature.

This paper raises several questions for future research. First, future research could use a bankruptcy model that is industry-specific so that differences in industry characteristics that influence each earnings attribute could be included in the model. A second avenue for future study is to identify another proxy for earnings quality, such as the market-based attributes, value relevance, timeliness, and conservatism. Third, a future study could seek to evaluate the non-financial analysis based on earnings quality in Chinese listed companies, which has not yet been extensively explored in the accounting literature.

[3] The regression model is as follows:
$CFO_{j,t} = a + b * CFO_{j,t-1} + \varepsilon_{j,t-1}$
Where b is the cash flow persistence parameter.

REFERENCES

Altman, I.1993, *Bankruptcy & distressed restructurings: Analytical issues and investment opportunities,* John Wiley & Sons, Inc, Hoboken, New Jersey.

Altman, I. 2006, *Corporate financial distress and bankruptcy*, John Wiley & Sons, Inc, Hoboken, New Jersey.

Bao, B. & Bao, D. 2004, 'Income smoothing, earnings quality and firm valuation', *Journal of Business Finance & Accounting*, Vol.31, Issue.9, pp.365-383.

Boonlert-U-Thai, K., Meek, G. & Nabar, S.2006, 'Earnings attributes and investor-protection: International evidence', *The International Journal of Accounting*, Vol. Issue.41, pp.327-357.

Bowen, R., Rajgopal, S. & Venkatachalam, M.2003, 'Accounting discretion, corporate governance and firm performance', Working paper, University of Washington and Duke University, 13, March.

Dechow, M. & Dichev, D.2002, 'The quality of accruals and earnings: The role of accruals estimation errors', *The Accounting Review*, Vol.77, pp.35-59.
Dechow, M. & Schrand, C. 2004, '*Earnings Quality*', Research Foundation of CFA Institute.

Demski, J. 1998, 'Performance measure manipulation', *Contemporary Accounting Research,* Vol.15, pp. 261-285.

Francis, J., Olsson, P. & Schipper K. 2004, 'Costs of equity and earnings attributes', *The Accounting Review*, Vol.79, pp.967-1010.

Kormendi, R. & Lipe, R.1987, 'Earnings innovations, earnings persistence, and stock returns', *Journal of Business*, Vol.60, pp. 323-345.

Lipe, R.1990, 'The relation between stock returns and accounting earnings given alternative information', *The Accounting Review*, Vol.65, pp.49-71.

Lu, Q. & Liu, Z.2007, 'Corporate governance and Earnings management in the Chinese listed companies: A tunneling perspective', *Journal of Corporate Finance*, Vol.13, pp.881-906.

McKeown, J., Mutchter, J. & Hopwood, W. 1991, 'Towards an explanation of auditor failure to modify the audit opinion of bankrupt companies', *Auditing: A Journal of Practice and Theory*, Vol.10 (Supplement), pp.1-13.

Ohlson, J. 1995, 'Earnings, book values and dividends in security valuation', *Contemporary Accounting Research*, Vol.11, pp.661-687.

Penman, S. 2004, '*Financial statement analysis and security valuation*', New York, NY: McGraw-Hill.

Qi, D., Wu, D. & Wu, W.2005, 'Market consequences of earnings management in response to security regulations in China', *Contemporary Accounting Research*, Vol.22, Issue.1, pp.95-140.

Ronen, J. & Yaari, V. 2008, '*Earnings management – Emerging insights in theory, practice, and research*', Springer Science+Business Media, LLC.

Schipper, K. & Vincent, L. 2003, 'Earnings quality. *Accounting Horizons*, Annual, pp. 97-111.

Wysocki, P.D. 2004, 'Discussion of ultimate ownership, income management, and legal and extra-legal institutions', *Journal of Accounting Research*, Vol. 42, pp. 463-474.

Table 1: Sample Composition

	SB	SNB	NSNB	Total
2003	42	462	483	987
2004	58	501	428	987
2005	78	541	368	987
2006	87	566	334	987
2007	81	562	344	987

Notes: The samples listed on A-shares and in Shanghai and Shenzhen stock exchanges for the fiscal years 2003 to 2007. There were zero NSB firms in each year. Therefore, we have only three kinds of firm (SB, SNB, and NSNB) in this study. The final sample consists of 987 firms with a total of 4935 firm-year observations for the period 2003-2007.

Table 2: Earnings Quality Metrics

Results of mean test and F-test for Accruals Quality

	SB(Mean)	SNB(Mean)	NSNB(Mean)	F-test	Probability
2003	0.411	0.374	0.098	10.34	0.000***
2004	0.180	0.249	0.138	2.59	0.075**
2005	0.213	0.179	0.184	1.95	0.142
2006	1.019	0.279	0.172	8.55	0.000***
2007	1.855	0.357	0.216	21.30	0.000***
Total	1.058	0.3095	0.1638	28.99	0.000***

Analysis of Variance (ANOVA) is used to test the significantly different between the SB, SNB, and NSNB firms.
*Significant at better than the 10% level.
**Significant at better than the 5% level.
***Significant at better than the 1% level.

The standard deviation of the residuals (Stdresid) is calculated based on the residuals from the following firm- and year-specific basis regressions:
$TCA_{j,t}$ /Total Assets $_{j,t-1} = b_0 + b_1 * CFO_{j,t-1}$/Total Assets $_{j,t-1} + b_2 * CFO_{j,t}$ /Total Assets $_{j,t-1} +$
$b_3 * CFO_{j,t+1}$ / Total Assets $_{j,t-1} + \varepsilon_{j,t}$
All variables are scaled by the beginning total assets.
The initial sample comprises 4935 firm-year observations for the period 2003-2007.

Table 3: Earnings Quality Metrics

Results of mean test and F-test for Earnings Persistence

	SB(Mean)	SNB(Mean)	NSNB(Mean)	F-test	Probability
2003	0.177	0.263	1.231	5.49	0.004***
2004	-0.162	0.274	1.330	14.32	0.000***
2005	0.005	0.222	0.995	3.52	0.030**
2006	0.033	0.208	1.139	2.81	0.061*
2007	-0.284	0.302	1.382	10.29	0.000***
Total	-0.001	0.251	1.234	11.54	0.000***

Analysis of Variance (ANOVA) is used to test the significantly different between the SB, SNB, and NSNB firms.
*Significant at better than the 10% level.
**Significant at better than the 5% level.
***Significant at better than the 1% level.

Earnings persistence is calculated based on the following firm- and year-specific basis regressions:
$Earn_{j,t}$/Total Assets $_{j,t-1} = \alpha_0 + \delta_1 * Earn_{j,t-1}$/Total Assets $_{j,t-1} + \varepsilon_{j,t}$
All variables are scaled by the beginning total assets.
The initial sample comprises 4935 firm-year observations for the period 2003-2007.

Table 4: Earnings Quality Metrics

Results of mean test and F-test for Earnings Predictability

	SB(Mean)	SNB(Mean)	NSNB(Mean)	F-test	Probability
2003	0.609	0.060	0.027	34.54	0.000***
2004	0.288	0.064	0.048	21.22	0.000***
2005	0.226	0.060	0.042	28.66	0.000***
2006	0.339	0.062	0.033	18.32	0.000***
2007	0.685	0.157	0.081	16.16	0.000***
Total	0.498	0.092	0.051	52.69	0.000***

Analysis of Variance (ANOVA) is used to test the significantly different between the SB, SNB, and NSNB firms.

*Significant at better than the 10% level.
**Significant at better than the 5% level.
***Significant at better than the 1% level.

Earnings predictability is calculated using the square root of the error variance from earnings persistence.
All variables are scaled by the beginning total assets.
The initial sample comprises 4935 firm-year observations for the period 2003-2007.

Table 5: Earnings Quality Metrics

Results of mean test and F-test for Earnings Smoothness

	SB(Mean)	SNB(Mean)	NSNB(Mean)	F-test	Probability
2003	2.398	2.234	1.873	24.56	0.000***
2004	2.227	2.081	1.436	15.45	0.000***
2005	1.559	1.315	1.146	36.96	0.000***
2006	2.030	2.067	0.825	44.86	0.000***
2007	1.867	1.593	1.335	51.27	0.000***
Total	1.931	1.693	1.331	35.66	0.000***

Analysis of Variance (ANOVA) is used to test the significantly different between the SB, SNB, and NSNB firms.
*Significant at better than the 10% level.
**Significant at better than the 5% level.
***Significant at better than the 1% level.

Earnings smoothness is calculated by the ratio of standard deviation of CFO and standard deviation of Earn.
All variables are scaled by the beginning total assets.
The initial sample comprises 4935 industry-level observations for the period 2003-2007.