

The Role of Accounting Accruals in Chinese Firms^{*}

Pepa Kraft¹

Received 9th of April 2014 Accepted 9th of April 2014

© The Author(s) 2014. This article is published with open access by The Hong Kong Polytechnic University

Abstract

Cheng and Li (2013) investigate whether income smoothing improves earnings informativeness for Chinese firms by replicating the research design of Tucker and Zarowin (2006). The results suggest that the relation still holds for a more recent sample of US firms but the relation is different for Chinese firms. These results are interesting, and the authors argue that the poorer information environment in China is a possible culprit for the different results. This discussion raises the issue of what role accruals play in Chinese accounting. I replicate the study by Dechow (1994) in the Chinese market and find evidence consistent with the prediction that earnings exhibit less short-term noise than cash flows and greater associations with stock prices as the performance benchmark. These findings are indicative of accruals playing a similar role for Chinese firms as for US firms but also draw attention to some unresolved questions and areas for future research.

1. Introduction

Earnings smoothing can be used by managers to reveal their private information about future earnings (Ronen and Sadan, 1981; Sankar and Subramanyam, 2001). However, once earnings become “too” smooth, they can be used by managers to garble information (Bhattacharya *et al.*, 2003; Jayaraman, 2008; Leuz *et al.*, 2003; Myers *et al.*, 2007). Cheng and Li (2013) (*CL*) test whether income smoothing garbles earnings information or improves the informativeness of past and current earnings about future earnings cash flows. Their study replicates the research design of Tucker and Zarowin (2006) (*TZ*) for the Chinese market and provides results for the US market for the same more recent period. *CL* find that income smoothers’ future earnings are associated with current stock price returns both for the US during the sample period that *TZ* investigate

^{*} I would like to thank Yina Yang and Lin Qiu for their excellent research assistance. This article was prepared on the basis of the commentary provided on the paper entitled ‘Does Income Smoothing Improve Earnings Informativeness? – A Comparison between the US and China Markets’, which is co-authored by C. S. Agnes Cheng and Shuo Li and was presented at the CAFR Special Issue Conference held on 6-7 December 2013.

¹ Assistant Professor of Accounting, Stern School of Business, New York University; email: pkraft@stern.nyu.edu.

and for a more recent sample period. However, the authors find a different relation for Chinese firms during the period 1998-2008. They attribute these different results to differences in the quality of the information environment.

In my discussion, I would like to focus on the earnings smoothing mechanism as a vehicle for management to provide a better measure of firm performance. More specifically, I refer to the seminal study of Dechow (1994) on the role of accounting accruals in measuring firm performance. Dechow (1994) describes the role of accruals as reducing short-term noise in cash flows. The revenue recognition principle necessitates accruals; for example, advances from customers are not treated as revenue (profit) until the firm delivers the goods or services. Expense matching also necessitates accruals; for example, expenditures on inventory are not treated as expenses until the inventory is sold and revenue generated. In the US and Europe, firms had used accrual accounting instead of cash basis accounting even before government regulators mandated its usage for listed firms. It is plausible to assume that accrual accounting has emerged to bridge the information gap between informed insiders (management) and less informed outsiders such as investors, lenders, and other stakeholders. Under accrual accounting, we expect earnings to have (1) lower volatility than realised cash flows, (2) lower serial correlation in first differences, and (3) a higher association with current-period stock returns. These predictions hold over short measurement intervals such as quarters, years, or 4-year periods. Over the life of the firm and under the assumption of clean surplus accounting, one would expect earnings and cash flows to be equivalent. Accrual accounting results in timing differences over finite measurement intervals. Before we can address the quite advanced research question posed in *TZ*, that is, whether or not the relation between current stock returns and future earnings is stronger for firms with more negative correlations between changes in discretionary accruals and changes in pre-managed earnings, we should assess the more fundamental role of accruals in earnings smoothing for Chinese firms.

I employ the research design of Dechow (1994) to test whether the same basic relations between cash flows, earnings, and stock returns that exist for US firms also hold for Chinese firms. I find that consistent with the findings in the US, (1) earnings have lower volatility than cash flows, (2) changes in cash flows have negative autocorrelations, (3) changes in earnings have negative autocorrelations but exhibit a smaller magnitude than the cash flow autocorrelations, and (4) earnings have higher explanatory power for stock returns than cash flows. These results are consistent with accruals reducing short-term noise and such smoothing leading to more informative performance measures.

II. What do we know about the role of accounting accruals?

Dechow (1994) and numerous accounting textbooks explain that earnings are a summary measure of firm performance produced under the accrual basis of accounting. Dechow (1994) examines how accruals improve earnings' informativeness about underlying firm performance. The view adopted by Dechow (1994) is that the primary role of accruals is to overcome the mismatching problem that arises under the cash basis of accounting. Firms report their performance over finite intervals to equity investors, lenders, and other stakeholders. Firms also specify measures of performance in various contracts for managerial compensation and financing arrangements. A potential performance measure is realised cash flow. However, realised cash flow is a noisy measure of firm performance because it has timing and matching problems over finite time periods. Accrual accounting enhances performance measurement by altering the timing of revenue recognition and expense matching by de-linking earnings from the

exact time of cash receipts and disbursements.

Under the revenue recognition principle, the firm recognises revenue once it has delivered the goods or service and cash collection is reasonably certain. Expenses are matched to the periods in which they generate revenue. These principles are supposed to enhance performance measurement. However, the use of accruals is subject to managerial discretion, which can be exploited by opportunistic management. To the extent that managers garble earnings to distort measures of firm performance, earnings will be a less informative measure. The accrual process represents a trade-off between these two problems. Dechow's (1994) first hypothesis is as follows:

Hypothesis 1: There is a stronger contemporaneous association between stock returns and earnings than between stock returns and realised cash flows over finite measurement intervals.

A finite measurement interval in this discussion is defined as one year. Dechow (1994) goes beyond the simple prediction above and also examines whether the association of stock returns with realised cash flow improves relative to the association of stock returns with earnings as the measurement interval increases. Dechow (1994) finds that accruals improve earnings' ability to measure firm performance, as reflected in stock returns. Accruals improve earnings' informativeness to a greater extent if (1) the performance measure interval is shorter, (2) the firm's working capital requirements are more volatile, and (3) the firm's operating cycle is longer.

III. Accounting earnings and cash flows as measures of firm performance in Chinese firms

To test Dechow's (1994) first hypothesis, I construct a sample of Chinese firms. Similar to *CL*, I focus only on Chinese tradable A-shares on the Shanghai and Shenzhen exchanges and use the China Stock Market and Accounting Research (CSMAR) Financial Statement Database, Trading Database, and Financial Analyst Database to collect data on accounting variables and stock returns. For my tests, I examine annual measurement intervals for the period from 1998 to 2011. Firms are required to have accounting data available on CSMAR. Firm observations are excluded if they do not have data to calculate earnings per share or cash from operations per share. Firms are also required to have monthly stock returns available on CSMAR. The sample excludes firms with fewer than 12 subsequent monthly returns and firms with fiscal-year ends other than December. All financial statement variables used in the empirical test are on a per-share basis and scaled by beginning-of-period price. Scaling by price avoids spurious correlations and mitigates problems with heteroskedasticity. The final sample has 1,375 firms representing 15,260 firm-years. The main variables are as follows:

- Earnings per share scaled by beginning-of-period price (E).
- Cash flow from operations per share scaled by beginning-of-period price (CFO).
- Stock return for firm i over interval t , where t is the contemporaneous year, minus the value-weighted market index over the corresponding fiscal period.

The market returns represent the value-weighted returns of all stocks. Weightings are calculated using two methods: the current-value-weighted average, where the average is weighted by tradable shares ($R_{current}$), and the total-value-weighted average, where the average is weighted by total shares (R_{total}).

Table 1 presents the descriptive statistics of the variables used in the analysis. E has

a mean (median) value of 0.054 (0.051). Around 12.8% of all firm-years have negative earnings. *CFO* has a mean (median) value of 0.137 (0.065). Around 23.3% of all firm-years have negative operating cash flows. For firms in steady states, earnings approximately exceed *CFO* by the amount of depreciation as changes in working capital accounts cancel out. Consistent with this, the mean (median) difference between earnings and *CFO* is -0.083 (-0.024). Furthermore, *CFO* has more negative realisations than *E* and a greater standard deviation by a factor of almost two. The mean (median) value of *Rcurrent* equals 0.161 (0.071). The mean (median) value of *Rtotal* equals 0.300 (0.072). Firms' stock returns have substantially more negative realisations than both earnings and cash flows and exhibit greater standard deviations.

Table 1 Descriptive statistics of data for the annual intervals

| | mean | Sd | p50 | p75 | p25 | N | Percent negative |
|--|-------|-------|-------|-------|--------|--------|------------------|
| Earnings (<i>E</i>) | 0.054 | 0.293 | 0.051 | 0.113 | 0.015 | 15,260 | 12.80 |
| Cash flow from operations (<i>CFO</i>) | 0.137 | 0.567 | 0.065 | 0.183 | 0.004 | 15,260 | 23.32 |
| Stock return (<i>Rcurrent</i>) | 0.161 | 2.997 | 0.071 | 0.849 | -0.519 | 15,260 | 46.59 |
| Stock return (<i>Rtotal</i>) | 0.300 | 2.907 | 0.072 | 0.874 | -0.513 | 15,260 | 46.53 |

Table 2 examines whether cash flows have time-series properties consistent with them suffering from matching problems. If cash flows suffer from temporary mismatching of cash receipts and payments, then this suggests that changes in cash flows will exhibit negative autocorrelations. Hence, changes in cash flows are likely to contain temporary components that are reversed over time. Under accrual accounting, revenues are recognised when products and services are delivered and cash collection is reasonably certain and expenses are then matched to the period in which they help generate revenue. Hence, changes in accruals will also exhibit negative autocorrelations. Table 2 Panel A presents firm-specific first-order annual autocorrelations for cash flow from operations and earnings. The results indicate that changes in operating cash flow per share exhibit an average negative autocorrelation of -0.3804. Changes in earnings per share have a smaller negative autocorrelation of -0.2334. The results are consistent with cash flows containing larger temporary components than earnings. Table 2 Panel B reports the correlation between changes in cash flow from operations and changes in earnings. The average correlation between these measures equals 0.3073. Overall, these results are consistent with the matching principle. They are also consistent with the alternative view that firms use accruals to opportunistically smooth earnings regardless of whether this improves earnings' ability to measure firm performance.

Table 2 Firm-specific annual first-order autocorrelation coefficients and Pearson correlations

| | Mean | Median |
|---|---------|---------|
| Panel A: Firm-specific annual first-order autocorrelation coefficients | | |
| Performance measures | | |
| Change in operating cash flow per share | -0.3804 | -0.4011 |
| Change in earnings per share | -0.2334 | -0.3123 |
| Panel B: Firm-specific Pearson correlations of annual changes in E and CFO | | |
| Corr(Change in CFO per share(t-1, t), Change in E per share(t-1, t)) | 0.3073 | 0.3715 |

Hypothesis 1 predicts that earnings will have a stronger association with stock returns than cash flow from operations over short measurement intervals. The hypothesis is examined by performing two pooled regressions: (1) stock returns on earnings and (2) stock returns on cash flow from operations. The study compares each performance measure's association with stock returns. Stock returns serve as the benchmark measure of firm performance. Higher associations with stock returns are judged to be a more informative measure of firm performance.

I estimate the following models:

$$R_{it} = \alpha + \beta E_{it} \quad (1)$$

$$R_{it} = \alpha + \beta CFO_{it} \quad (2)$$

E and CFO are defined above. R equals $R_{current}$ or R_{total} in an alternative specification.

Table 3 presents the results. The R-squared is larger in regressions including earnings relative to the regressions including cash flows. When $R_{current}$ is the dependent variable, the R-squared for the annual observations is 0.18 for earnings and 0.08 for cash flow from operations. When R_{total} is the dependent variable, the R-squared for the annual observations is 0.30 for earnings and 0.06 for cash flow from operations. However, cash flow from operations is slightly more strongly associated with stock returns. The explanatory power of cash flow from operations relative to earnings is measured by the ratio of R-squared from the cash flow regression to the R-squared from the earnings regression. A ratio of less than one indicates that the earnings explain more of the variation in stock returns than the cash flows. The ratio is 0.44 for $R_{current}$ and 0.20 for R_{total} . This is consistent with earnings exhibiting higher explanatory power than cash flows.

Table 3 Tests comparing the association of earnings and the association of cash flows with stock returns (adjusted for market-wide movements) over annual measurement intervals

| Dependent variable | <i>R_{current}</i> | | <i>R_{total}</i> | |
|---|----------------------------|-------------------------------|--------------------------|-------------------------------|
| | Earnings (E) | Cash from operations (Direct) | Earnings (E) | Cash from operations (Direct) |
| Annual | | | | |
| Intercept | 0.441*** (5.32) | -0.157*** (-3.67) | 0.547*** (6.82) | -0.129** (-3.12) |
| Coefficient | 0.137*** (5.57) | 0.182*** (7.31) | 0.271*** (11.33) | 0.318*** (13.13) |
| Adj. R-square | 0.18 | 0.08 | 0.30 | 0.06 |
| Ratio between CFO Adjusted R-Squared and E Adjusted R-Squared | | 0.44 | | 0.20 |

Note: t statistics in parentheses. * p<0.05, ** p<0.01, *** p<0.001

IV. Conclusion and suggestions for future research

Dechow (1994) hypothesises that one role of accounting accruals is to provide a measure of short-term performance that more closely reflects expected cash flows than realised cash flows. The results for the Chinese market are consistent with this prediction. Dechow (1994) documents the benefits of accrual accounting. In particular, her study explains why firms report earnings to investors and why banks and other lenders specify earnings in contracts rather than cash flows. The benefit of the revenue recognition and expense matching principles is that in accruing cash receipts and disbursements, firms attain a more useful measure of their performance. Overall, the evidence suggests that accruals play an important role in improving the ability of earnings to reflect firm performance.

Assuming clean surplus accounting, over long intervals that approach the life of the firm, earnings and realised cash flows are expected to converge as measures of firm performance. Furthermore, Dechow (1994) exploits the cross-sectional variation in the volatility of firms' working capital requirements and investing and financing activities and the different lengths of firms' operating cycles. For Chinese firms, an additional cross-sectional variation is the presence of state-owned enterprises; *CL* report that 72% of the firms in their sample are classified as such. Under code law, the properties of accounting income and, more precisely the role of accruals, are likely to be influenced more by the payout preferences and information demands of the agents of labour, capital, and *government* and less by the demand for public disclosure (Ball *et al.*, 2000). In this vein, Cahan *et al.* (2008) implement the research design of *TZ* and study 44 countries (but not China) and find that the earnings informativeness of income smoothers is a function of the strength of institutional features such as investor protection. Income smoothing appears to be a common corporate practice around the world (Leuz *et al.*, 2003). However, it is difficult to disentangle the smoothness of reported earnings that reflect (1) the smoothness of the fundamental earnings process of a firm's business model and age, (2) the properties of accounting rules such as revenue recognition and expense matching to reduce noise, and (3) intentional earnings manipulation (Dechow *et al.*, 2010).

"Open Access. This article is distributed under the terms of the Creative Commons Attribution License which permits any use, distribution, and reproduction in any medium, provided the original author(s) and the source are credited."

References

- Ball, R., Kothari, S., and Robin, A. (2000), 'The Effect of International Institutional Factors on Properties of Accounting Earnings', *Journal of Accounting and Economics* 29 (1): 1-51.
- Bhattacharya, U., Daouk, H., and Welker, M. (2003), 'Accounting Quality and Debt Contracting', *The Accounting Review* 78 (3): 641-678.
- Cahan, S. F., Liu, G., and Sun, J. (2008), 'Investor Protection, Income Smoothing, and Earnings Informativeness', *Journal of International Accounting Research* 7 (1): 1-24.
- Cheng, C. S. A. and Li, S. (2013), 'Does Income Smoothing Improve Earnings Informativeness? - A Comparison between the US and China Markets', Working Paper, The Hong Kong Polytechnic University.

- Dechow, P., Ge, W., and Schrand, C. (2010), 'Understanding Earnings Quality: A Review of the Proxies, their Determinants and their Consequences', *Journal of Accounting and Economics* 50 (23): 344-401.
- Dechow, P. M. (1994), 'Accounting Earnings and Cash Flows as Measures of Firm Performance: The Role of Accounting Accruals', *Journal of Accounting and Economics* 18 (1): 3-42.
- Jayaraman, S. (2008), 'Earnings Volatility, Cash Flow Volatility, and Informed Trading', *Journal of Accounting Research* 46 (4): 809-851.
- Leuz, C., Nanda, D., and Wysocki, P. D. (2003), 'Earnings Management and Investor Protection: An International Comparison', *Journal of Financial Economics* 69 (3): 505-527.
- Myers, J. M., Myers, L. M., and Skinner, D. J. (2007), 'Earnings Momentum and Earnings Management', *Journal of Accounting, Auditing and Finance* 22 (2): 249-284.
- Ronen, J. and Sadan, S. (1981), *Smoothing Income Numbers: Objectives, Means, and Implications*, Reading, Mass: Addison-Wesley Publishing Co. Inc.
- Sankar, M. R. and Subramanyam, K. R. (2001), 'Reporting Discretion and Private Information Communication Through Earnings', *Journal of Accounting Research* 39 (2): 365-386.
- Tucker, J. W. and Zarowin, P. A. (2006), 'Does Income Smoothing Improve Earnings Informativeness?', *The Accounting Review* 81 (1): 251-270.