
Are Cash Flows Managed?

—Empirical Evidence from Quarterly Financial Statements of Listed Chinese Firms¹

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Abstract: Many studies have investigated earnings management, but there are few on cash flow management. We take quarterly accounting data of Chinese A-share stocks as our sample to study cash flow management. We find that when companies' cash flows from operations (CFO) are lower than earnings by the end of the 3rd quarter, their managers will manipulate CFO in the 4th quarter upward to make the annual CFO match up to annual earnings. The government's policy on SEO is another potential factor which leads to CFO manipulation behavior. A negative CFO is usually regarded as a signal of a higher financial risk. When their CFO are negative by the end of 3rd quarter, the potential SEO applicants, especially those threshold applicants (with a ROE slightly over 6%) tend to manipulate earnings upwards in the 4th quarter.

Key Words: cash flow from operations (CFO), CFO manipulation, quarterly financial statements

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Under the accrual basis of accounting, earnings are mainly composed of accruals and cash flows from operations (CFO). In the literature, especially those studies of earnings management, discretionary accruals are always used to detect the degree of earnings management. The implicit assumption is that earnings quality is affected by discretionary accruals resulting from accounting choices. But accounting choice is not the only way to manipulate earnings. According to an investigation in 1999 implemented by *Securities Times* (which is a major Chinese news paper) and United Securities Co., Ltd., out of the firms which manipulated earnings, 55.55% of them increased earnings by transaction arrangements and 44.44% by managing accounting choices. The consequences of the two means are different because transactions affect not only accruals, but also the amount and distribution of CFO. This will decrease the usefulness of CFO in evaluating and forecasting firms' performance. In the extreme cases such as Lantian Co. Ltd, Guangxia (Yinchuan) Industry Co. and Prairie Xingfa Co. Ltd.², the managers made up some fabricate transactions. In order to make the transactions believable, they manipulated CFO severely. Obviously, to evaluate the firm's earnings quality, we should not only take the accruals into consideration, but also cash flows, especially cash flows from operations. However, academic researchers and financial analysts tend to consider CFO as reliable and not manipulable. Is this the reality or just an untested perception? We try to answer this question in this empirical research on the

basis of quarterly financial statements of listed Chinese A-share firms.

In China, the listed firms are required to present earnings per share (EPS) and CFO per share under the title "*Important Accounting Data and Ratios*" which tops the financial report. CFO is regarded as an important benchmark by which to evaluate earnings quality. If CFO is not matchable to earnings, especially when earnings (or operating income) are much higher than CFO, the users of financial statements will suspect the reliability and persistence of earnings. Under this pressure, managers have an incentive to manage CFO. We expected that the larger the difference between earnings and CFO by the 3rd quarter, the higher the probability and magnitude of CFO manipulation in the 4th quarter in that year. Our empirical results support this conjecture when earnings are higher than CFO. The SEO policy of China Securities Regulatory Commission (CSRC) also has a significant influence on CFO manipulation behavior. To get approval from CSRC, SEO candidates will manipulate CFO upwards in the 4th quarter when their CFO is lower than earnings or negative by the end of the 3rd quarter.

Although there is a large body of literature on the earnings management, little study has been undertaken of cash flow management. Our study represents an initial attempt to fill this gap by making the following distinctive contributions. Firstly, it extends our knowledge from earnings management to cash flow manipulation.. Secondly, our study will renew the common perceptions on cash flows by showing that cash flow manipulation is not uncommon. This will help the users of financial statement to understand and unscramble the accounting information. Finally, as the manipulated cash flows may reverse, it is imperative to take this into consideration when predicting future cash flows on the basis of current or past cash flows.

The paper proceeds as follows. Section I introduces the institutional background and analyze the incentives to manage cash flows. Section II describes our sample and research designs. Section III presents the empirical results. Sections IV concludes.

1 Institutional Background and Motivations to Manage Cash Flows

Both earnings management and cash flow manipulation are accounting manipulation. Since there is little study of cash flow manipulation, it may be helpful to draw analogies from the motivations for earnings management that are identified in the literature. The extant literature identifies three types of motivations for earnings management: (i) capital market motivation; (ii) contractual motivations, such as compensation or debt contracts; and (iii) meeting regulatory requirements or regulation avoidance. The first type of motivation involves a desire to influence stock price or to meet the prediction of analysts or managers. The second one aims to maximize earnings-based bonuses or to avoid contract violation. The third one is to avoid anti-trust, industry supervision or any other kind of government monitoring. According the literature on Chinese market, this kind of motivation is widespread since there are many regulations from government on the securities market, especially regulations on IPO and SEO (Cai, Zhang and LI, 2003).

A number of reasons can be suggested why the research on accounting manipulation mainly focuses on earnings management. Firstly, earnings are the core in the traditional performance evaluation and supervision system. Ball and Brown (1968) finds that compared with CFO, earnings are a more important factor which affects the stock price. Earnings also play an important role in managers' compensation contracts (Healy, 1985). Secondly, earnings come from the accrual principle which needs much estimation of

accountants. This gives accountants opportunities to manage earnings through accounting policy choice and other accounting arrangements. In contrast, cash flows are the outcome of the cash basis of accounting which is considered to be difficult, if not impossible, to manipulate. Lastly, the income statement has often been regarded as the core financial statement from the emergence of accounting. Contrastively, it has been just a few decades that the importance of cash flow information has drawn the attention of accounting information users.

Nowadays, cash flows have been attracting increasing notice from investors, analysts and supervisor. In practice, analysts usually take a large deviation of cash flows from earnings as a 'red flag' of earnings quality. CFO has become the most important benchmark by which to evaluate earnings quality. In china, listed firms have been required to disclose cash flow statements since 1998. At the very beginning of each periodical financial report, CFO per share (CFOPS) is required to be listed next to earnings per share (EPS). CFO (or CFOPS) is regarded as a key input to make a investing decision.

Do the cash flows add incremental power to explain stock price? Though there are some negative evidence (e.g., Bernard and Stober, 1989), most studies support that cash flows have incremental information content (Wilson 1987, Cheng, Liu and Schaefer 1996). In China, Sun and Li (2001) find that cash flows have additional explanatory power of stock price in Shenzhen Stock Exchange. But Lu, Meng and Liao (2002) finds cash flows have no information content in pricing. The inconsistent results may be due to the different samples in different years. Before 1998, there were no cash flow statements at all. Additionally, investors in Chinese market are not sophisticated enough to understand CFO, especially when CFO information is incomplete. On the other hand, given a certain level of accrual, manipulating CFO will change earnings equally and thus the information content of CFO has already been covered by earnings. Unlike their explanatory power in pricing, the forecasting ability of cash flows in financial distress has attained consistent empirical support from different sources (Charitou, Neophytou and Charalambous 2004, Zhang 2004). The above literature implies firms can influence stock prices by manipulating CFO since CFO manipulation has an obvious effect on earnings. Burgstahler and Dechev (1997) offers some direct support of CFO management. They find that compared with the marginal-loss firms, marginal-profit firms have a much higher CFO.

The CFO manipulation affects both earnings quality and earning level. In this sense, we can regard it as an extension of earnings management. Is there any additional motivation to manipulate CFO? At least under the Chinese institutional background, we can find some special motivations to manage CFO other than earnings management.

Before 2000, ROE was the only explicit requirement by CSRC when listed firms sought an SEO. Since most firms would manipulate their earnings to satisfy this ROE benchmark, the CSRC made net cash flows and net cash flows from operations as an additional requirements in 2001. For example, both *Regulations on Equity Issuing by Public Firms*³ and *The Directive Suggestion on Review Procedure of Issuing and Approving Commission to Equity Issuing by Public Firms* promulgated by CSRC in 2001 attached prominent importance to CFO. The underwriters of equity issuers were required to pay sufficient attention to cash flows and state whether the issuers' "change in cash flows is negative and cash flow from operations is negative which will probably result in inability to repay their debts". This was the first time that the CSRC included cash flows in

their issuing regulations. Although cash flow is still not treated as important as ROE which is required to reach a pre-setting specific benchmark, it has gained increasing importance in evaluating earnings quality and financial strength ever since.

To sum up, firms can manage CFO to influence stock price or to meet regulatory requirements (Chen and Wang, 2004). Our question is whether firms can put this motivation into practice. As is widely known, both accounting choice and transactions arrangement (such as related-party transactions and assets restructuring) are commonly used by Chinese firms to manage earnings. Though it is difficult to manage CFO by accounting choice (of course, firms can also take advantage of accounting choice given by accounting standard on cash flow statement to manipulate CFO, such as misclassifying cash flow from investment or financing into cash flow from operation.) , firms have almost the same opportunities to manage CFO as managing earnings through transaction arrangements. Both Li and Yu (2003) and Wu (2004) list the ways by which cash flows can be managed such as to arrange related-party transactions to increase “cash receipts from the sale of goods and the rendering of services (CRGS)”; cut payment to creditors to decrease “ cash payment for goods acquired and services received(CPGS)”, or even fake the transaction.

In practice, CFO management is only found in individual cases. It is not known whether it is a pervasive phenomenon or just a few exceptions. What are its exact incentives? As we mentioned above, there is only one or two direct studies of it. Burgstahler and Dechow (1997) have an implicit assumption that some firms manage earnings by manipulating CFO, but give no direct evidence as to whether CFO management is targeted at earnings or CFO. Dechow, Ge, Larson and Solan (2007) find that change in cash sales for misstating firms is about twice as large as for non-misstating firms in the misstating year. They argue that this is because misstating firms are front-loading sales. For these firms, the change in cash margins (=cash sales minus cost of goods sold) and the change in earnings are both significantly lower. They do not mention if it is CFO management in their paper, but obviously it is. Chen and Wang (2004) and Chen (2006) find that firms manage CFO in the year before SEO. Our study differs from both papers in two principal regards. First, their samples are SEO firms and their results cannot be generalized to other firms. In addition, they use yearly data and do not consider quarterly characteristics.

Givoly (1981) finds the manifestations of end-of-year actions by managers are consistent with the possible attempt to alter fourth quarter reported results so as to offset extreme deviations of the first three quarters' reported numbers from a 'normal' trend. Das and Shroff (2002) show that reversal of earnings changes in the fourth quarter is a common phenomenon and its occurrence is greater than would be expected by chance. That is, the firms with higher performance in the first three quarters tend to make a cookie jar in the 4th quarter. In contrast, the firms with bad performance in the first three quarter will be aggressive in recognizing earnings in the 4th quarter. Comprich and Schmidt (2005) reveal that when firms offer a large percent of share options in the compensation contracts, the managers tend to increase earnings in the fourth quarter. We expect there is a similar trend in CFO manipulation.

To evaluate earnings quality, one of the commonly used ratios is CFO divided by earnings. An accepted principle is that the more comparable of CFO with earnings, the

higher the earnings quality. Though both investors and regulators use it as an indicator of the earnings quality of quarterly financial statements, they attach much more importance to the annual accounting data.

In this paper we use quarterly data and analyze the reversal of cash flow from operations in the fourth quarter to detect CFO management and its incentives. In order to mitigate the doubt of investor and make CFO matchable up to earnings, managers will manipulate CFO when CFO deviates from earnings too much. Firstly, we expect that when CFO is higher than earnings by the end of the third quarter, managers tend to lower CFO to make a reserve of CFO for future. When CFO is less than earnings, managers will increase CFO to make it more comparable to earnings⁴. Secondly, if firms have an urgent demand of financing, the CFO manipulation motivation would be stronger. So we expect that compared with other firms, the potential SEO applicants, especially those threshold applicants (with an average ROE being just over 6%) have a stronger incentive to manage CFO when CFO is lower than earnings or CFO is negative by the end of the 3rd quarter. The above reasoning leads us to formulate the following hypotheses;

H1: (Matching hypothesis): The larger the deviation of the firms' CFO from earnings (or operating income) by the end of the 3rd quarter in a fiscal year, the greater the extent of CFO manipulation in the 4th quarter to make CFO match up to earnings better.

H2: (Policy-driven hypothesis): Compared with other firms, potential applicants of SEO, especially the threshold ones, have stronger incentives to manipulate CFO if their CFO is lower than earnings (operating income) or CFO is negative by the end of the 3rd quarter.

2 Research Designs and Sample Selection

2.1 Research Designs

How to measure cash flow management?

Before investigating the incentives of CFO management, we have to compute the components of discretionary and non-discretionary parts in CFO. Controlling the industry factor, a firm's CFO should have two characteristics: (a) under normal circumstances, net CFO should distribute almost equally across the four quarters. If not, it may be caused by seasonal transactions or by CFO management; and (b) even if a firm's volatility of economic transactions is larger than industry level, the firm's quarterly cash inflows and cash outflows should match with each other. That is, the ratio of cash inflow from operation in a certain quarter to cash inflow from operation in the whole fiscal year is similar with the ratio of cash outflow from operation in the same quarter to cash outflow from operation in the whole fiscal year. If inflow ratio is significantly different from outflow ratio, it should be the result of CFO management.

From characteristic (a), it is difficult to measure relative CFO distribution on a net cash flow basis because the net CFO may be positive or negative. The CFO ratio in a certain quarter can not be compared when the denominators sign are different⁵. It is obviously not a good idea to delete the firms whose net CFO is negative.

From characteristic (b), we know that for a normal firm,, its cash inflows should match with its cash outflows. That is, cash inflows and outflows should move in the same direction and the similar proportion with revenue. As a whole, the ratio of quarterly cash inflows to yearly cash inflows should close to the ratio of quarterly cash outflows to yearly cash outflows. When we discompose CFO into cash inflows and cash outflows, the

measurement problem relating to characteristic (a) above is avoided.

To measure the cash flows distribution, we use the following equation:

$$\begin{aligned}
 DIF_i &= \text{inf low ratio}_i - \text{outflow ratio}_i \\
 &= \left(\frac{InCFO_i}{InCFO} - \text{industrial median of } \frac{InCFO_i}{InCFO} \right) - \\
 &\quad \left(\frac{OutCFO_i}{OutCFO} - \text{industrial median of } \frac{OutCFO_i}{OutCFO} \right) \tag{1}
 \end{aligned}$$

In above equation, i (1, 2, 3 or 4) is the subscript of quarter. The variables without subscript stand for annual data. $InCFO$ is cash inflows from operations and $OutCFO$ is cash outflows from operations. $\text{Industrial Median of } \frac{InCFO_i}{InCFO}$ and $\text{Industrial Median of } \frac{OutCFO_i}{OutCFO}$ are the industrial median of cash inflows ratio and cash outflows ratio in quarter i respectively. So inflow ratio and outflow ratio are industrial adjusted quarterly cash inflows and outflows ratios. This measure avoids the situation of negative denominator which will cause the aforementioned confusion. DIF is discretionary net CFO to capture the degree of manipulation. When there is no seasonal firm-specific volatility, both the inflow ratio and outflow ratio should approach zero, resulting in DIF approaching zero. When there is a firm-specific cycle, neither inflow ratio nor outflow ratio is zero, but inflow ratio should match with outflow ratio and so the DIF should still be close to zero.

When CFO are managed, DIF will deviate from zero. A positive DIF_i indicates that there is a positive abnormal contribution of cash inflow or a negative abnormal contribution of cash outflow in quarter i . It may be the result of increasing cash inflows and reducing cash outflows in that quarter. A negative DIF_i means an opposite manipulation direction. The amount of DIF_i measures the degree or magnitude of manipulation.

The CFO deviation from earnings

The second problem is how to measure the deviation between CFO and earnings. To estimate the deviation of CFO from earnings we use the following equation:

$$DEV(i) = (CFO_i - NI_i) / SALES_i \tag{2a}$$

i is the subscript of quarter. CFO_i represents net CFO by the end of the i^{th} quarter. NI_i and $SALE_i$ indicate earnings and sales by the end of the i^{th} quarter respectively. $SALES_i$ is used to control size effect. $DEV(i)$ is the deviation of net CFO from earnings in the i^{th} quarter.

When we use $DEV(i)$ as the proxy of deviation, an implicit assumption is that users of accounting data care about the difference between net income and CFO. But the scope covered by net income and CFO usually differs. To a certain extent this assumption is reasonable due to the prominence of net income in accounting. Accurately, the concept of CFO should be matched with 'operating income'. Compared with 'net income' or earnings, operating income does not include non-operating items or below-the-line items such as

gains from investment. If the managers manipulate *CFO* to match up to operating income but not net income, *DEV(i)* may be biased. Since we do not know which one is the target of *CFO* management, we design another variable, *DEV_O(i)*⁶ as the proxy for *CFO* management. It is computed from the following equation:

$$DEV_O(i) = (CFO_i - OI_i - INTEREST_i + TAX_i) / SALES_i \quad (2b)^{\mu}$$

OI_i is the operating income by the end of the i^{th} quarter. $INTEREST_i$ and TAX_i are interest expenses and income taxes by the end of the i^{th} quarter respectively. They are used to adjust for the transactions covered by *CFO* so that it is comparable to operating income.

The model to test the matching hypotheses of CFO management

We design two basic models to investigate the matching hypothesis of *CFO* management:

$$DIF(4) = \beta_0 + \beta_1 DEV(3) + \beta_2 D + \beta_3 D * DEV(3) + \beta_4 SIZE + \varepsilon \quad (3a)^{\mu}$$

$$DIF(4) = \beta_0 + \beta_1 DEV_O(3) + \beta_2 D + \beta_3 D * DEV_O(3) + \beta_4 SIZE + \varepsilon \quad (3b)^{\mu}$$

In the above models, *DIF(4)* is used to measure the discretionary *CFO* in the 4th quarter. *DEV(3)* and *DEV_O(3)* are the proxies for the deviation of *CFO* from net income or operating income by the end of the 3rd quarter respectively. To test hypothesis 1, the sign and significance of coefficient of *DEV(3)* are concerned. The lower the *CFO* than net income or operating income in the first 3 quarters, the larger the probability and magnitude to increase *CFO* in the 4th quarter (the bigger the *DIF(4)*) to make *CFO* comparable with earnings. Vice versa, if *CFO* is larger than net income or operating income, managers have an incentive to decrease *CFO* to make a reserve of *CFO* for future use. Therefore the expected sign of β_1 is negative.

D is a dummy variable; it is 1 if *DEV(3)* or *DEV_O(3)* is negative, 0 otherwise. The interaction term ($D * DEV(3)$ or $D * DEV_O(3)$) is used to capture the asymmetrical effect of *CFO* management. A lower *CFO* than net income or operating income usually is regarded as a signal of lower earnings quality. To avoid a lower evaluation from investors or supervisor, managers have a stronger incentive to manage *CFO* in this situation. So the coefficient of *D* (β_2) is expected to be positive. The interaction term shows whether there is some difference between β_3 when *DEV(3)* or *DEV_O(3)* is positive and negative. For firm whose *CFO* is greater than earnings ($D * DEV(3)$ or $D * DEV_O(3)$ is positive), *CFO* is ample and it is easy to delay some cash flows to next year. In this sense, the expected sign of β_3 is negative. For firm whose *CFO* is lower than earnings, the story is more complicated. On the one hand, a lower *CFO* can be regarded a lower earnings quality. So the lower the *CFO* than net income or operating income, the higher the probability and magnitude of *CFO* manipulation. The expected sign of β_3 is negative. But the precondition of this expectation is that the firm has enough ability to manipulate *CFO*. A negative

$DEV(3)$ or $DEV_O(3)$ means positive accruals which maybe the result of earnings management. If earnings management is the first target of the firms, managers may not have sufficient capability to manage CFO simultaneously. In this situation, only those firms with a small negative $DEV(3)$ or $DEV_O(3)$ have the ability to manipulate CFO. When earnings management dominates, we expected a positive sign of β_3 ⁷. Otherwise, when CFO management dominates, β_3 should be negative.

To sum up, in model (3a) and (3b), when $DEV(3)$ is positive, its influence on $DIF(4)$ is β_1 . When $DEV(3)$ is negative, its influence on $DIF(4)$ is $\beta_1 + \beta_3$.

$SIZE$ is the logarithm of sales and used to control size effect.

2.2 Sample selection

Chinese listed firms have been required to disclose quarterly financial statements from 2002. But the cash flow statement has been required in the quarterly financial statements from 2003. So we use the data of A-share firms during 2003 to 2004 to test our hypothesis. All the data are from CSMAR.

To get the sample needed, we delete (a) firms in financial industry (b) firms whose quarterly financial statements are missing; and (c) firms with only 1 firm in the industry. We take the 3 digit code (one character adds two numerals) industry standard according the *Guide of Industry Classification for Listed Firms* set by the CSRC. After deleting the outliers of the highest and lowest 1% of $DIF(4)$, we finally get 1938 samples, with 889 firms in 2003 and 1049 firms in 2004.

3 Empirical Results

3.1 Descriptive analysis

We divide the sample into 6 groups equally according $DEV(3)$ to compare the discretionary CFO among these groups. Group 1 includes the firms with the smallest of $DEV(3)$ and group 6 with the largest $DEV(3)$. In the first three groups, the CFO is lower than earnings and in the last three groups, CFO is higher than earnings by the end of the 3rd quarter. If the managers tend to match CFO up to earnings, then we expect a positive $DIF(4)$ for the first three groups and a negative $DIF(4)$ for the last three groups.

table 1

figure 1

The discretionary CFO in the 4th quarter for each group is shown in table 1. From either mean or median of $DIF(4)$ we can see that groups with negative $DEV(3)$ will increase CFO in the 4th quarter and the groups with positive $DEV(3)$ will decrease CFO. This trend is consistent with our expectation. The results of table 1 also show that the smaller (larger) the $DEV(3)$, the larger (smaller) the $DIF(4)$. Both the differences between group 1 and 6 and among all 6 groups are statistically significant. So our first hypothesis is

supported roughly.

In table 1, we can see that group 3 and 4 are two groups whose CFO are much matchable with their earnings. The absolute value of either mean or median of discretionary CFO in the 4th quarter is the smallest in these 2 groups. In other 4 groups whose CFO are not match up to their earnings very much, the absolute value of deviation in the first 3 quarters is positively correlated with the magnitude of CFO manipulation in the 4th quarter. Figure 1 shows the *DIF(4)* distribution among 6 groups according to *DEV_O(3)*. The result is very similar with groups of *DEV(3)* shown in table 1.

3.2 Regression analysis of matching motivation

The regression results of model (3a) and (3b) are listed in table 2. β_1 presents the influence of *DEV(3)* (or *DEV_O(3)*) on *DIF(4)* when *DEV* is positive. The sign of β_1 is negative in model (1) and positive in model (2), both of them are insignificant. So there is no systemic evidence that the firms with a higher CFO than earnings by the end of the 3rd quarter will significantly manage CFO downwards in the 4th quarter. Coefficient of dummy *D* shows the difference in *DIF* between positive *DEV* group and negative *DEV* group. It is positive as we expected which means the firms with a lower CFO at the end of 3rd quarter will increase the CFO more significantly in the 4th quarter. The coefficient of the interaction term is significantly negative at least at 2% level both in the total sample and sub-samples. That implies that the firms with a lower CFO than earnings by the 3rd quarter have a stronger incentive and more aggressive behavior to increase CFO amount in the 4th quarter to show a higher earnings quality. For the firms whose CFO is lower than earnings, the total effect of *DEV* is $\beta_1 + \beta_3$, that is, -0.0629.

Compared the results in the two panels in table 2, both the significance of coefficients and adjusted R-square in model (3a) is better than those in model (3b). Obviously, the deviation of CFO from earnings or net income is more concerned by managers. That is, the target of CFO management tends to be to reduce the gap between CFO and net income, not the gap between CFO and operating income.

The results in table 2 show no significance for *SIZE*. We also try to control other firm-specific characteristics such as growth and capital structure. To show its good performance and healthy financial status, growth firms (may adopt the aggressive sales policy) and high financial risk firms might tend to manipulate cash flow. We take the sales growth rate $(= (\text{sales in time } t+1 - \text{sales in time } t) / \text{sales in time } t)$ and debt ratio $(= \text{total liability} / \text{total assets})$ as additional control variables in model (3a) and (3b). But none of them is statistically significant. So we fail to find any fundamental characteristic which has an important influence on CFO management.

Table 2

3.3 Improvement in the method to measure discretionary CFO

It may be argued that *DEV* is not only the deviation of CFO from earnings, but also accruals. If a firm has a higher accrual in time *t-1* such as a higher receivable, then CFO would be expected to increase when the receivable reverse in time *t*. Vice versa, if the firm

has a large amount of payables in time $t-1$ and it will reverse in time t and CFO will be affected downwards in time t . So our results in table 2 may just be a consequence of accrual accounting. In order to control this accrual accounting effect, we improve the measure of discretionary CFO.

Firstly, we use model (4) to control the effect of reversal of accruals on $DIF(4)$.

$$DIF(4) = \gamma_0 + \gamma_1 CUASSET(3) + \gamma_2 CULLIABILITY(3) + \varepsilon \quad (4)$$

In model (4), $CUASSET(3)$ and $CULLIABILITY(3)$ are the current assets (=total current assets-cash and cash equivalents-short term investment- short term assets to be disposed) and current liabilities (=total current liabilities-short term debt) at the end of 3rd quarter divided by total assets at the beginning of the year respectively. On the basis of accrual accounting, we can expect γ_1 to be positive and γ_2 to be negative. We estimate model (4) by industry. We delete the samples with less than 15 firms in that industry. The final sample includes 1516 firm-years, 678 of which are in 2003, and 838 in 2004. The regression results (not present here) show that among the groups in different year and different industry, more than 75% groups have a positive γ_1 and the mean of γ_1 is 0.0929. For γ_2 in more than 85% groups is negative and the mean of γ_2 is -0.1336. Both these coefficients are significant at 1% level.

After regressing model (4), we get the coefficients by industry. Then we use the estimated model to compute a residual for each firm-year. These residuals are the improved discretionary CFO after controlling reversal of accruals. We name this improved discretionary CFO as $R(4)$. The improved models to test matching motivation are :

$$R(4) = \beta_0 + \beta_1 DEV(3) + \beta_2 D + \beta_3 D * DEV(3) + \beta_4 SIZE + \varepsilon \quad (5a)$$

$$R(4) = \beta_0 + \beta_1 DEV_O(3) + \beta_2 D + \beta_3 D * DEV_O(3) + \beta_4 SIZE + \varepsilon \quad (5b)$$

The regression results of model (5a) and (5b) are listed in table 3. Compared with table 2, the results are similar except that the significant level and explanatory power are a little lower in table 3. If CFO is lower than earnings during the first three quarters, managers will increase CFO in the 4th quarter. The larger the deviation, the greater the magnitude of manipulation. We notice that as the results in table 2, the explanatory power of model (5b) is lower than model (5a). This is an additional piece of evidence that it is the net income, not the operating income that managers try to match CFO up to. In the following text, we will just list the results on the basis of $DEV(3)$.

Table 3

3.4 Is it an earnings quality manipulation or a seasonal reversal

A direct doubt about the above result is: does it exist only in the 4th quarter? If they exist in the other 3 quarters with similar significance, we cannot say they are out of CFO

management since the manipulation motivation is much weaker in other quarters. So we need to prove that the change of CFO in the 4th quarter is not only a seasonal reversal.

Responding to this argument, we develop the following models:

$$\begin{aligned}
 DIF(i) = & \beta_0 + \beta_1 DEV(i-1) + \beta_2 D(i-1) + \beta_3 D(i-1) * DEV(i-1) \\
 & + \beta_4 D1 + \beta_5 D1 * DEV(i-1) + \beta_6 D1 * D(i-1) \\
 & + \beta_7 D1 * D(i-1) * DEV(i-1) + \varepsilon
 \end{aligned} \tag{6}$$

$$\begin{aligned}
 R(i) = & \beta_0 + \beta_1 DEV(i-1) + \beta_2 D(i-1) + \beta_3 D(i-1) * DEV(i-1) \\
 & + \beta_4 D1 + \beta_5 D1 * DEV(i-1) + \beta_6 D1 * D(i-1) \\
 & + \beta_7 D1 * D(i-1) * DEV(i-1) + \varepsilon
 \end{aligned} \tag{7}$$

where i (=2,3 or 4) is the subscript of quarter and $i-1$ is the quarter before quarter i . $D(i-1)$ is a dummy, equals 1 if $DEV(i-1)$ is negative, 0 otherwise. $D1$ is also a dummy, it is 1 when it is the 4th quarter, 0 otherwise. DIF , DEV and R are defined as before. If the results in table 2 and 3 are just a seasonal reversal, β_5 , β_6 and β_7 should not be significant. Since we take firm-quarter as sample, the number of observation is different from table 2 and 3. We have 5814 firm-quarter observations when regressing model (6). To regress model (7), we further delete the firms with less than 15 firms in the industry and get 4548 observations finally.

 Table 4

The results of model (6) and (7) are shown in table 4. The coefficient of $D(i-1)$ is positive, that is, when the CFO is lower than earnings in the last quarter, the CFO will increase in the current quarter. The coefficient of $D1 * D(i-1)$ is positive too which implies the increase of CFO in the 4th quarter is significantly higher than other quarters. The coefficient of $D(i-1) * DEV(i-1)$ is significantly negative in the whole sample and 2004 sample which means the magnitude of CFO is positively correlated with the degree of CFO deviation for firms with negative DEV . So it shows a seasonal reversal effect. But it can not deny the matching motivation in the 4th quarter. We have two reasons. Firstly, the coefficients of $DEV(i-1)$ and $D1 * DEV(i-1)$ are not significant which means the reversal exists only in the firms with a lower CFO than earnings. Secondly, the coefficients of $D1 * D(i-1) * DEV(i-1)$ are significantly negative at 1% level in all regressions. That is, the reversal effect is much stronger in the 4th quarter. Comparing β_3 and β_6 we can find that the reversal effect in the other quarters is only 5% of that in the 4th quarter. Therefore, we conclude that the results in table 4 cannot be explained only by common seasonal reversal.

3.5 Regression analysis of policy-driven hypothesis

As we discussed in the section II, the firms intending to issue equity in capital market must obtain approval from the CSRC. The CSRC uses CFO to evaluate the quality of

applicants' earnings. Compared with other firms, the potential SEO candidates have a stronger incentive to make their earnings look like high quality.

To test this equity-issuing or policy-driven motivation of CFO management, we divide the sample into 4 groups according to ROE and to analyze whether the potential SEO candidates have a stronger motivation to manipulate CFO on the basis of model (5a) and (5b). The CSRC issued '*Regulations on the equity issuing by listed firms in China*' in March, 2001 which requires that the mean of ROEs of SEO applicants should not be lower than 6% in the past 3 years. We put the sample into four groups according ROE range: $(-\infty, 0]$, $(0, 6\%]$, $(6\%, 8\%]$, $(8\%, +\infty]$. Obviously, the firms in $(6\%, 8\%]$ are the 'suspicious' or 'threshold' group since they just reach the threshold of the CSRC requirement. They are marginally eligible for equity issuing and CSRC may take special carefulness when deciding to give them issuing passport or not. The quality of earnings is certainly one of important consideration by the CSRC. If the CFO of the firms in this range is lower than earnings the probability of being approved will sharply decrease. In this situation, it would be urgent for them to manage CFO to match up to earnings. The empirical results for these 4 groups are presented in table 5A. Our expectation is supported by the results from total sample. The coefficient of D is 0.0512 in the group of $(6\%, 8\%]$, the biggest one in all 4 groups. The coefficient of $D * DEV(3)$ is negative. That is, the lower the CFO than earnings by the end of the 3rd quarter, the larger the magnitude of CFO management in the 4th quarter. Another interesting result in table 5A is that for the group of ROE greater than 8%, the coefficient of $DEV(3)$ is negatively significant. It means that in this group, the CFO management mainly happens in the firms with more CFO than earnings. This may reflect the cost of CFO management. To the firms with both high earnings and high CFO, it is easy to defer some CFO with a lower cost. Comparatively, there is no evidence of any CFO manipulation in loss firms. It is reasonable since for the loss firms, the benefit of CFO management is low. Besides that, they also do not have much ability to manage CFO.

We obtain similar results in the sub-sample of 2003 as in the full sample. But the results from 2004 sample is weak.

 Table 5

The results of table 5A show that the firms with ROE in the range of $(6\%, 8\%]$ have a higher CFO manipulation magnitude. In table 5B, we add a ROE dummy variable ($DROE$, 1 if ROE in range of $(6\%, 8\%]$, 0 otherwise) and two interactive items $DROE * D$ and $DROE * D * DEV(3)$ to test the significance of difference between threshold group and other ones. The results shows that the CFO management of threshold firms in the 4th quarter is significantly stronger than other firms if their CFO is lower than earnings by the end of the 3rd quarter (the coefficient of $DROE * D$ is significantly positive). But there is no consistent evidence on the relationship between the degree of deviation and the magnitude of CFO manipulation (coefficient of $DROE * D * DEV(3)$ is insignificant) .

 Table 5

Table 5 just offers a partial support for hypothesis 2 which expects that the SEO

candidates, especially threshold candidates, will manage CFO more strongly in the 4th quarter when their CFO are lower than earnings by the end of 3rd quarter⁸.

The regulation of CSRC focuses on ‘whether the change of cash flow (CF) or CFO is negative’. A negative change of CF or negative CFO is regarded as a signal of financial risks. So CSRC concerns not only on earnings quality, but also on financial risks. In order to test its effect on CFO management, we establish the following models:

$$DIF(i) = \beta_0 + \beta_1 NETCASH(i-1) + \beta_2 NETCFO(i-1) + \beta_3 D + \beta_4 D * NETCASH(i-1) + \beta_5 D * NETCFO(i-1) + \varepsilon \quad (8)$$

$$R(i) = \beta_0 + \beta_1 NETCASH(i-1) + \beta_2 NETCFO(i-1) + \beta_3 D + \beta_4 D * NETCASH(i-1) + \beta_5 D * NETCFO(i-1) + \varepsilon \quad (9)$$

Where i (=2,3 or 4) is the subscript of quarter and $i-1$ is the quarter before quarter i . Both $NETCASH(i-1)$ and $NETCFO(i-1)$ are dummies. If the change of net CF is negative by the end of the i^{th} quarter, $NETCASH(i-1)$ is 1, otherwise, 0. If CFO is negative by the end of the i^{th} quarter, $NETCFO(i-1)$ is 1, otherwise, 0. D is also a dummy but with different definition from model (3), here, it equals to 1 when it is the 4th quarter, 0 otherwise. The definitions of DIF and R are the same as before. Obviously, if the firms concern about the regulations of CSRC on SEO and CFO management occurs in the 4th quarter, then β_4 and β_5 should be positive.

Table 6 shows the results for the two models are similar. β_1 , β_2 is positive means for the 2nd and 3rd quarters, if the change of net CF is negative or CFO is negative by the end of the last quarter, CFO will increase in the current quarter. If the manipulation only occurs in the 4th quarter, this result should be a seasonal reversal. For the 4th quarter, the coefficients of $NETCASH(i-1)$ and $NETCFO(i-1)$ are $(\beta_1 + \beta_4)$ and $(\beta_2 + \beta_5)$ respectively. β_4 and β_5 reveals that if the change of net CFO is negative by the end of the 3rd quarter, the CFO in the 4th quarter will be managed upwards sharply. There is no significant effect for the change of net cash flow.

Table 6

If combined with the requirement on ROE by CSRC, a reasonable expectation is that CFO management should be stronger in the threshold candidates of SEO. We further add a dummy $DROE$ (1 if ROE in the range of 6% to 8%, 0 otherwise) and its 2 interactive terms to test this expectation. The results are list in table 7.

Table 7

In table 7, the coefficient of $DROE * D * NETCASH(i-1)$ is positive both in the total sample and 2004 sample. That is, if the change of net cash flow is negative by the end of the 3rd quarter the magnitude of CFO manipulation of threshold firms is significantly higher than that of other firms. The coefficient of $DROE * NETCASH(i-1)$ is negative and marginally significant implies that there is no this 'negative-change-of-net-cash-flow' effect in the 2nd and 3rd quarter. We fail to find the negative-CFO-effect for the threshold firms in table 7.

The results in table 6 and 7 reveal that under the institutional background of SEO policy, besides matching motivation, firms may manipulate CFO to show a lower financial risk to the market. When the change of net cash flow is negative or CFO is negative by the end of 3rd quarter, they will increase CFO in the 4th quarter. The degree of CFO manipulation is higher for threshold firms than other firms.

To sum up, our matching hypothesis is supported partly. That is, we have no strong evidence to prove that when CFO is higher than earnings in the first 3 quarters, the firms will manage CFO downwards in the 4th quarter to make a reserve. But we do find that when CFO is lower than earnings, the firms will manage CFO upwards to make CFO match up to earnings better. These results show that one of the purposes of CFO management is to dress up earnings quality. In this sense, we can say that the CFO management is an extension of earnings management. Our policy-driven hypothesis is also supported by the results. For SEO candidates, they manage CFO not only to make earnings quality look better, but also avoid negative change of net cash flow or negative CFO which are regarded as a signal of financial risks. To meet the requirement of CSRC, the firms, especially those threshold firms, have a stronger incentive to manipulate CFO. When the CFO by the end of the 3rd quarter is negative, the threshold firms will manipulate CFO significantly higher than other firms.

3.6 CFO management and its persistence

If the CFO in the 4th quarter are managed, then there will be a reversal in the 1st quarter in the next year. The persistence of CFO of the 4th quarter must be lower than that of other quarters. As Sloan (1996), we design a similar model to investigate difference of CFO persistence between the 2nd or 3rd quarter and the 4th quarter⁹.

$$CFO(i) = \beta_0 + \beta_1 CFO(i-1) + \beta_2 D + \beta_3 D * CFO(i-1) + \varepsilon \quad (10)$$

In model (10), i stands for the 3rd or 4th quarter in year t or the 1st quarter in year $t+1$. $i-1$ is the quarter before quarter i . CFO is industry-adjusted cash flow from operations deflated by total assets in the beginning of the year. The potential industry effect is controlled by subtracting the median of industrial CFO from firm-specific CFO. D is a dummy, equals to 1 when i is the 1st quarter of year $t+1$, 0 otherwise. β_1 is expected to be positive and β_3 to be negative since the CFO management in the 4th quarter will reduce its persistence.

Table 8-A is the results of model (10) for all firms. The results for the total sample and sub-sample of 2004 are perfectly consistent with our expectation. It shows a significant persistence for CFO of the 2nd and 3rd quarter, the persistence is 0.0532 in the total

sample. There is a large reversal for the CFO of the 4th quarter in the 1st quarter of next year and its persistence coefficient is 0.0441(-0.0973+0.0531). In panel B, only the threshold sample with ROE in (6%,8%] is selected. β_3 is more negative than that in panel A. From the results in panel B, we can conclude that the stronger the CFO management in the 4th quarter, the larger the reversal in the 1st quarter of the next year. The results in table 8 offer an additional support for the former findings.

Table 8

4 Conclusions

Accounting information, especially earnings, is one of the most important information resources to price stocks. But numerous studies have shown that earnings are managed by managers to affect stock prices, to avoid breaching contracts or to avoid interference by government. The prevailing earnings management has led users of financial statements to pay increasing attention to earnings quality besides the amount of earnings. When all the players (investors, analysts or supervisors) in the capital market begin to put emphasis on earnings quality, will the managers manipulate earnings quality just as they manage earnings amount?

Compared with earnings, CFO is less affected by accounting estimation and accounting policy choices. So the users of financial statements always take CFO as a ruler to measure earnings. When earnings are matched by sufficient CFO, they tend to believe earnings are not just the 'fortune in the books' and its quality is guaranteed. People seldom doubt the reliability of CFO. But even CFO can be manipulated. Firms can increase CFO by postponing to pay accounts payable, front-loading sales and even misstating cash flow from investing to operations. So to make earnings quality look high, managers do have an incentive to manipulate CFO.

We use the quarterly data of Chinese listed firms during 2003-2004 to investigate the incentives of CFO manipulation. If CFO is lower than earnings by the end of the 3rd quarter, managers will manage CFO upwards to match up to earnings in the 4th quarter. The regulations of CSRC on SEO is another trigger of CFO management. Compared with other firms, the magnitude of CFO manipulation in the 4th quarter is much higher for the threshold potential applicants of SEO when their change of net cash flow is negative or CFO is negative or CFO is lower than earnings by the end of 3rd quarter. This effect is obviously driven by the concerning policy set by the CRSC. It is another piece of evidence that the government policies can influence accounting. No matter what the incentive is, matching motivation or policy-driven motivation, the managed CFO in the 4th quarter will reverse in the 1st quarter of next year. The persistence of CFO in the 4th quarter is lower than that of other quarters.

Our research offers a new angle to understand and use financial reports. That cash flows cannot be manipulated is a common sense to the users of accounting information. The empirical results here show that CFO management is common when CFO are lower than earnings. Therefore, when investors make forecast for the future CFO on the basis of current CFO or when the market supervisors monitor firms on the basis of CFO, the

abnormal change of CFO should be considered.

Our paper is just a first attempt to investigate CFO management and we hope it can open up a new field in research of accounting manipulation. In this paper we study the motivations of CFO management only. There are many questions unanswered. Is there any other motivation for the managers to manipulate CFO? How are CFO managed? How does it affect stock prices? Can investors see through that? We will try to answer these questions in our future research.

As one of the very first attempts in CFO management, this paper has some limitation. CFO management is more difficult to be detected than earnings management. Also the method of manipulation is different from earnings management. We innovate a new model to test CFO management in this paper. Its effectiveness depends on the assumption that we can control seasonal effect by industry-adjusted CFO. If the seasonal effect is different among the firms in the same industry, the results in this paper may still be influenced by seasonal factor. A potential solution is to use time-series data to estimate firm-specific seasonal factor. But it needs a long time-series data. We cannot do that now since we only have 2 years data. To make up this potential limitation, we present a case study on CFO management. Hope it can offer an additional direct evidence.

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Appendix

A Case Study on Cash flows from Operations (CFO) of ZTE Corporation (Code: 000063)

ZTE is one of the largest providers of telecommunications equipment and network solutions. It is the only listed telecom manufacturer in China whose shares are publicly traded on both the Hong Kong and Shenzhen Stock Exchanges. We have chosen ZTE for a case analysis out of two major considerations: 1) since the firm went public, its financial performance has been above the average level in the overall capital market in terms of both earnings per share (EPS) and returns on equity (ROA). It is of greater practical significance for investors to focus on companies with high earnings; 2) Financial analysts and investors have been a little alarmed by its CFO situation which is regarded as a main financial risk source. When the company is in a bad cash flow situation in the first three quarters, the managers are inclined to increase the cash flows in the fourth quarter to dispel the suspicion in the market. In the following, we are going to take a closer look at

the possible manipulation of CFO in ZTE on the basis of our theoretical analysis in the text.

Figure A1 represents firm's EPS and CFO per share by the end of each quarter from 2003 to 2006. It clearly indicates a deteriorating CFO in the recent two years. The quarterly changes of the company's CFO in 2003 and 2004 revealed that its main cash inflows took place in the second and fourth quarters. Viewed on a yearly basis, its CFO was not only positive but also higher than earnings, which was an indication of high quality of the firm's earnings. However, beginning from 2005, Its CFO has been deteriorating badly. The cash inflows began to take place mostly in the fourth quarter. Though the CFO remained positive in 2005, it was far below the earnings. The situation got worse in 2006. As a result, the company incurred huge net outflows even though earnings was still positive. For simplicity, we will concentrate on its CFO in the fourth quarter of 2005. As a matter of fact, it is also possible that firm manipulated CFO in the year 2004 and 2006 (see the column labeled 'excess contribution ratio' in table A1). In this analysis, we have raised the threshold of comparison by taking the CFO of 2004 and 2006 as the benchmark. If there was no CFO manipulation in the fourth quarter of 2004 and 2006, the result would be more significant.

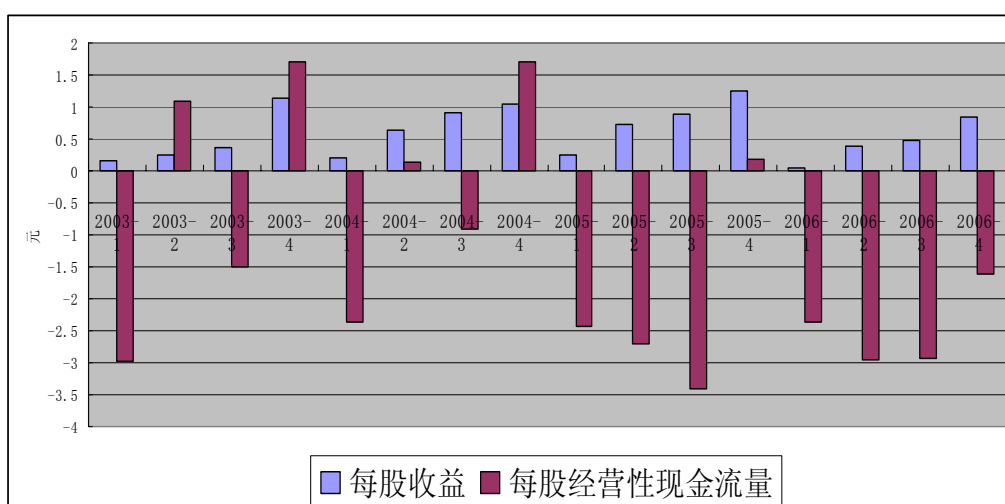


Figure A1 EPS and CFO per share of ZTE by each end of quarter during 2003-2006

Since ZTE had a good performance in CFO during the past years, it would strive to maintain this high earnings quality image even with a bad market situation in 2005. This gave rise to the potential incentive to increase its CFO through manipulation.

We take the quarterly distribution of CFO in 2004 as being normal and compare it with that of 2005. The cash flows of 2006 can also be used as a relative reliable benchmark for comparison. But the problem is that it would be affected by the reversal of manipulative cash flows in 2005. Table A1 displays the quarterly distribution of the operating cash inflows and outflows of the company in 2004 and 2006. Applying the method used in the text, we compute quarterly cash inflow (outflow) ratios [=cash inflow

(outflow)in quarter t /total cash inflow (outflow) in that year] and the difference between inflow ratio and outflow ratio which we named excess contribution of CFO in quarter t (similar with the variable DIF in the text). We list them in the last three columns of table A1. It can be seen from these three columns that the excess contribution ratios (ECR) of the 4th quarter in 2004 and 2006 are relatively close. They are only one half of the ECR of the 4th quarter in 2005, which stood at 15.5%. A comparison among the inflow ratio and outflow ratio in the 4th quarters of the three years clearly demonstrates that both the increased inflow ratio and decreased outflow ratio have contributed a higher ECR in the 4th quarter of 2005.

Quarters	CFO inflows (in million)	CFO outflows (in million)	Quarterly inflows/ yearly inflows (%)	Quarterly outflows/yearly outflows (%)	Excess contribution ratio (%)
2004-1	3789	5364	16.0	24.3	-8.3
2004-2	7635	5947	32.1	26.9	5.2
2004-3	4238	5081	17.8	23.0	-5.1
2004-4	8092	5718	34.1	25.9	8.2
2005-1	2765	5101	12.6	23.5	-10.9
2005-2	6063	6314	27.7	29.1	-1.4
2005-3	4414	5092	20.2	23.5	-3.3
2005-4	8651	5208	39.5	24.0	15.5
2006-1	3897	6169	16.8	25.0	-8.1
2006-2	5607	6171	24.2	25.0	-0.8
2006-3	4989	4967	21.6	20.1	1.4
2006-4	8643	7385	37.4	29.9	7.4

*Excess contribution ratio=Quarterly inflows/ yearly inflows-Quarterly outflows/yearly outflows.

Table A1: quarterly distribution of cash inflow and outflow from operatio

Is this higher ECR in the 4th quarter of 2005 a normal reflection of the company's operation? To answer this question, we need to analyze the specific components of its cash flows and the changes in the accrual items of its balance sheet. Table A2 sets out the major components of the quarterly CFOs and their ratio to net sales from 2004 to 2006. In comparison with those of 2004 and 2006, the cash inflow from sales of the 4th quarter in 2005 is much higher while cash outflow items (cash paid for purchase, cash paid for employees and cash paid for other operating activities) are much lower. Of the cash outflow items, cash paid for employees requires special attention because it it can be manipulated easily by managers.

Sales (in million) (a)	Cash received from sales of goods or rendering of services (in million) (b)	(c) =(b)/(a) (%)	Cash paid for goods and services (in million) (d)	(e) =(d)/(a) (%)	Cash paid to and for the employees (in million) (f)	(g) =(f)/(a) (%)	Other cash paid for operating activities (in million) (h)
3789	3721	98.2	3962	104.6	415	11.0	795
7986	7511	94.1	3764	47.1	895	11.2	828
4559	4042	88.7	4108	90.1	445	9.8	248
6365	7926	124.5	3726	58.5	524	8.2	909
4291	2582	60.2	3594	83.8	603	14.1	613
6012	5963	99.2	3551	59.1	1186	19.7	1137
4728	4322	91.4	3263	69.0	612	12.9	983
6545	8448	129.1	3508	53.6	392	6.0	593
4590	3815	83.1	4339	94.5%	724	15.8	933
5901	5140	87.1	3896	66.0%	1357	23.0	527
5431	4552	83.8	3920	72.2%	670	12.3	61
7110	8094	113.8	5530	77.8%	763	10.7	704

Table A2 Major components of quarterly operating cash flows and their proportions in relation to the Sales

Quarters	Change in inventory (1)	Change in operating receivable (2)	Change in operating payable (3)	Overall effect (1)+(2)-(3)	CFO
2004-1	974	809	-210	1992	-1575
2004-2	-644	-48	-846	155	1689
2004-3	1689	1871	2209	1352	-844
2004-4	-1599	-3321	-2636	-2285	2375
2005-1	795	1530	-794	3119	-2336
2005-2	-774	1126	-444	796	-252
2005-3	9	-110	-1078	977	-678
2005-4	837	-531	2878	-2573	3444
2006-1	195	1489	-670	2353	-2271
2006-2	-78	856	-444	1222	-564
2006-3	-503	1688	713	471	22

2006-4	767	-420	1080	-732	1258
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Table A3: changes in the accrual items and CFO (in million)

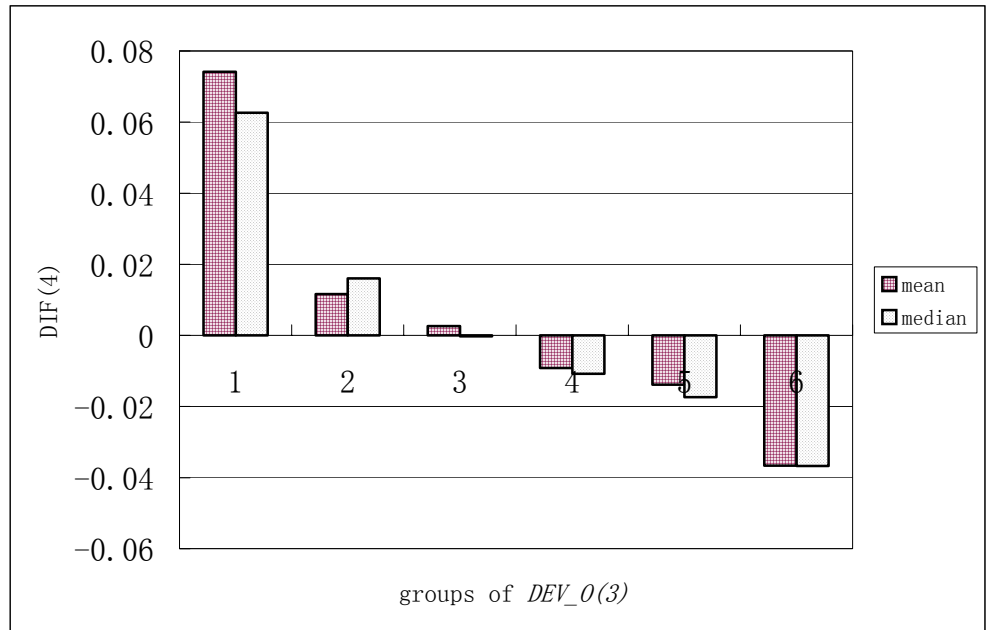
Moreover, due to rigidity of wages, its manipulation is likely to produce the most significant reversal effect. This has been mirrored sharply in Table A2. The cash paid for employees in the 4th quarter of 2005, both in absolute or relative value, was considerably lower than that of 2004 and 2006. If the cash paid for employees in the 4th quarter of 2005 had been kept the same level as 2005, its CFO in 2005 would be reduced by 80%. Moreover, the cash paid for employees in the 1st and 2nd quarters of 2006 were obviously higher than those of the corresponding quarters of the year 2004 and 2005, which represented the reversal effect of delaying cash payment to the employees in the 4th quarter of 2005.

In Table A3, we analyze the potential reasons for quarterly CFO changes by looking at some major accrual items. Column 2-4 list the changes in inventory, change in operating receivable and payable respectively. The overall effects of these 3 accrual items (inventory change + accounts receivable change - accounts payable change) in the 4th quarters of three years are negative. It means that the increase in the company's operating cash flows in the 4th quarters reflect, to some extent, the effect of the accruals reversal. Nevertheless, the company is not cleared of the suspicion of cash flow manipulation in the 4th quarter of 2005. Firstly, the reversal of 2005 is the biggest one, which signifies that part of the reversal is the result of manipulation. Secondly, as regard the specific items, the reversal of 2005 is mainly attributed to the increase in the operating - payable (while the reversal of 2004 comes from the reduction in inventory and in operating receivable). Compared with postponing purchases and collecting receivables in advance, deferring payment is undoubtedly easier to handle.

Is the reversal of accruals in the 4th quarter the result of earnings management? Existing empirical studies have found that earnings management occurred mostly in the fourth quarter (see literature review in the text). In the current case, if there was any motivation for the company to manage earnings in the 4th quarter, it should have increased rather than decreased earnings. That is, there should have been positive changes in the accrual items in the 4th quarter. However, table A3 demonstrated that the accrual items of the 4th quarter in 2005 are negative and huge in sum. No evidence was available to prove that the company has managed earnings in that period. Is there the possibility that the company managed earnings in the first 3 quarters through accrual items resulting in negative accruals in the fourth quarter? This argument is untenable either. On the one hand, there is a lack of theoretical and empirical support for earnings management in the first 3 quarters. Our analysis of the company's investing and financing activities We has not found any apparent motivation for the company to manage earnings after analyzing company's investing and financing activities. On the other hand, even if 100% of reversal in the 4th quarter comes from earnings management in the first 3 quarters, the company's CFO coming from non-accrual items in the 4th quarter of 2005 is still much higher than that of the quarter of 2004 and 2006.

The above analysis shows that ZTE may manipulate its CFO in all probability. The unfavorable comments on company's CFO from analysts as we mentioned at the beginning of this case might be one of motivations for ZTE's managers to manage its

CFO.



$$DEV_O(3) = (CFO_3 - OI_3 - INTEREST_3 + TAX_3) / SALES_3 \quad \leftarrow$$

CFO_3 is CFO by the end of the 3rd quarter; OI_3 is the operating income by the end of the 3rd quarter. $INTEREST_3$, TAX_3 and $SALES_3$ are interest expenses, income taxes and sales by the end of the 3rd quarter respectively. \leftarrow

$$DIF(4) = \text{inf low ratio}_4 - \text{outflow ratio}_4 = \left(\frac{InCFO_4}{InCFO} - \text{industrial median of } \frac{InCFO_4}{InCFO} \right) - \left(\frac{OutCFO_4}{OutCFO} - \text{industrial median of } \frac{OutCFO_4}{OutCFO} \right) \quad \leftarrow$$

$InCFO$ is yearly cash inflows from operations and $OutCFO$ is yearly cash outflows from operations.

Industrial Median of $\frac{InCFO_4}{InCFO}$ and *Industrial Median of $\frac{OutCFO_4}{OutCFO}$* are the industrial median of

cash inflows ratio and cash outflows ratio in the 4th quarter respectively. \leftarrow

Figure 1 $DIF(4)$ in different $DEV_O(3)$ groups

$DEV(3)$		$DIF(4)$	
group	mean	mean	median
1	-0.5196	0.0712	0.0607
2	-0.0988	0.0149	0.0132
3	-0.0280	-0.0002	0.0000
4	0.0191	-0.0053	-0.0088
5	0.0808	-0.0206	-0.0254
6	0.3495	-0.0312	-0.0301
Difference between group 1 and 6		0.0000*	0.0000#
Difference among all 6 groups		0.0000**	0.0000###

$$DEV(3) = (CFO_3 - NI_3) / SALES_3 \quad \leftarrow$$

CFO_3 is CFO by the end of the 3rd quarter; NI_3 is earnings by the end of the 3rd quarter. $SALES_3$ is net sales by the end of the 3rd quarter. \leftarrow

$$DIF(4) = \text{inf low ratio}_4 - \text{outflow ratio}_4 = \left(\frac{InCFO_4}{InCFO} - \text{industrial median of } \frac{InCFO_4}{InCFO} \right) - \left(\frac{OutCFO_4}{OutCFO} - \text{industrial median of } \frac{OutCFO_4}{OutCFO} \right) \quad \leftarrow$$

$InCFO$ is yearly cash inflows from operations and $OutCFO$ is yearly cash outflows from operations.

Industrial Median of $\frac{InCFO_4}{InCFO}$ and *Industrial Median of $\frac{OutCFO_4}{OutCFO}$* are the industrial median of

cash inflows ratio and cash outflows ratio in the 4th quarter respectively. \leftarrow

there are 323 firms in each group. To test the difference of means between 2 samples, two-tailed t test is used. For multi-sample test, F-test is used. To test the difference of medians between 2 samples, Wilcoxon test is used and among samples, Kruskal-Wallis test is used. All test is significant at 1% level. \leftarrow

Table 1 $DIF(4)$ in different $DEV(3)$ groups

sample	No. of sample	β_0	β_1 (-)	β_2 (+)	β_3 (?)	β_4	Adj. R ²	Pr > F
model (3a): $DIF(4) = \beta_0 + \beta_1 DEV(3) + \beta_2 D + \beta_3 D * DEV(3) + \beta_4 SIZE + \varepsilon$								
total	1938	-0.0037 (0.9372)	0.0025 (0.6949)	0.0360 (0.0000)	-0.0654 (0.0000)	-0.0007 (0.7513)	0.1028	0.0000
2003	889	0.0380 (0.5977)	0.0013 (0.8876)	0.0404 (0.0000)	-0.0729 (0.0000)	-0.0029 (0.3953)	0.1349	0.0000
2004	1049	-0.0317 (0.6173)	0.0034 (0.7029)	0.0321 (0.0000)	-0.0586 (0.0000)	0.0008 (0.7932)	0.0762	0.0000
Model (3b): $DIF(4) = \beta_0 + \beta_1 DEV_O(3) + \beta_2 D + \beta_3 D * DEV_O(3) + \beta_4 SIZE + \varepsilon$								
total	1938	0.0015 (0.9743)	-0.0096 (0.3143)	0.0346 (0.0000)	-0.0471 (0.0000)	-0.0009 (0.6724)	0.0948	0.0000
2003	889	0.0451 (0.5318)	-0.0145 (0.2903)	0.0381 (0.0000)	-0.0553 (0.0012)	-0.0032 (0.3465)	0.1344	0.0000
2004	1049	-0.0274 (0.6686)	-0.0054 (0.6890)	0.0316 (0.0000)	-0.0394 (0.0185)	0.0006 (0.8481)	0.0639	0.0000

$$DIF(4) = \text{inflow ratio}_4 - \text{outflow ratio}_4 = \left(\frac{InCFO_4}{InCFO} - \text{industrial median of } \frac{InCFO_4}{InCFO} \right) - \left(\frac{OutCFO_4}{OutCFO} - \text{industrial median of } \frac{OutCFO_4}{OutCFO} \right)$$

InCFO is yearly cash inflows from operations and *OutCFO* is yearly cash outflows from operations.

Industrial Median of $\frac{InCFO_4}{InCFO}$ and *Industrial Median of $\frac{OutCFO_4}{OutCFO}$* are the industrial median of

cash inflows ratio and cash outflows ratio in the 4th quarter respectively.[↵]

$$DEV(3) = (CFO_3 - NI_3) / SALES_3 \quad \uparrow$$

CFO_3 is CFO by the end of the 3rd quarter; NI_3 is earnings by the end of the 3rd quarter. $SALES_3$ is net sales by the end of the 3rd quarter. [↵]

$$DEV_O(3) = (CFO_3 - OI_3 - INTEREST_3 + TAX_3) / SALES_3 \quad \uparrow$$

CFO_3 is CFO by the end of the 3rd quarter; OI_3 is the operating income by the end of the 3rd quarter. $INTEREST_3$, TAX_3 and $SALES_3$ are interest expenses, income taxes and sales by the end of the 3rd quarter respectively. [↵]

D is a dummy variable, 1 if $DEV(3)$ or $DEV_O(3)$ is negative, 0 otherwise; $SIZE$ is the logarithm of sales. The significant level of two-tailed t-test is placed in brackets. [↵]

Table 2 Regression results for the matching motivation

sample	No. of sample	β_0	β_1 (-)	β_2 (+)	β_3 (?)	β_4	Adj. R ²	Pr > F
model (5a): $R(4) = \beta_0 + \beta_1 DEV(3) + \beta_2 D + \beta_3 D * DEV(3) + \beta_4 SIZE + \varepsilon$								
total	1516	0.0542	-0.0078	0.0256	-0.0387	-0.0033	0.0699	0.0000
		(0.2917)	(0.3068)	(0.0000)	(0.0004)	(0.1693)		
2003	678	0.0756	-0.0166	0.0295	-0.0291	-0.0044	0.0914	0.0000
		(0.3309)	(0.1347)	(0.0000)	(0.0595)	(0.2285)		
2004	838	0.0385	-0.0008	0.0223	-0.0466	-0.0025	0.0522	0.0000
		(0.5769)	(0.9372)	(0.0009)	(0.0030)	(0.4358)		
model (5b): $R(4) = \beta_0 + \beta_1 DEV_O(3) + \beta_2 D + \beta_3 D * DEV_O(3) + \beta_4 SIZE + \varepsilon$								
sample	1516	0.0542	-0.0139	0.0272	-0.0246	-0.0034	0.0677	0.0000
		(0.2911)	(0.1705)	(0.0000)	(0.0492)	(0.1602)		
2003	678	0.0798	-0.0237	0.0291	-0.0224	-0.0046	0.0948	0.0000
		(0.3017)	(0.1031)	(0.0000)	(0.2104)	(0.1997)		
2004	838	0.0372	-0.0058	0.0257	-0.0264	-0.0025	0.0463	0.0000
		(0.5901)	(0.6834)	(0.0001)	(0.1304)	(0.4341)		

$R(4)$ is the residual of $DIF(4) = \gamma_0 + \gamma_1 CUASSET(3) + \gamma_2 CULIABILITY(3) + \varepsilon$

CUASSET(3) and CULIABILITY(3) are the current assets (=total current assets-cash and cash equivalents-short term investment- short term assets to be disposed) and current liabilities (=total current liabilities-short term debt) at the end of 3rd quarter divided by total assets at the beginning of the year respectively. The definition of other variables are the same as table 2. The significant level of two-tailed t-test is placed in brackets.

Table 3 Results of the improved model for testing the matching motivation

	model (6)			model (7)		
	total	2003	2004	Total	2003	2004
	(5814*)	(2667)	(3147)	(4548)	(2034)	(2514)
<i>Inter.</i>	-0.0125	-0.0103	-0.0141	-0.0101	-0.0106	-0.0113
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0004)	(0.0000)
<i>DEV (i-1)</i>	-0.0002	-0.0003	-0.0001	-0.0002	-0.0002	-0.0002
	(0.2460)	(0.3400)	(0.4360)	(0.2411)	(0.5149)	(0.3285)
<i>D (i-1)</i>	0.0221	0.0176	0.0257	0.0179	0.0178	0.0222
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
<i>D (i-1) *DEV(i-1)</i>	-0.0024	-0.0022	-0.0023	-0.0024	-0.0020	-0.0022
	(0.0067)	(0.2834)	(0.0132)	(0.0015)	(0.3094)	(0.0020)
<i>D1</i>	-0.0061	-0.0123	-0.0010	-0.0053	-0.0073	-0.0038
	(0.0612)	(0.0103)	(0.8253)	(0.1152)	(0.1515)	(0.3990)
<i>D1*DEV (i-1)</i>	0.0029	0.0024	0.0034	-0.0064	-0.0146	0.0001
	(0.6080)	(0.7696)	(0.6644)	(0.3282)	(0.1405)	(0.9887)
<i>D1*D (i-1)</i>	0.0140	0.0238	0.0058	0.0076	0.0135	0.0027
	(0.0030)	(0.0006)	(0.3656)	(0.1208)	(0.0675)	(0.6797)
<i>D1*D (i-1) *DEV(i-1)</i>	-0.0634	-0.0716	-0.0560	-0.0377	-0.0290	-0.0452

	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0379)	(0.0006)
Adj. R ²	0.0620	0.0703	0.0554	0.0463	0.0488	0.0429
Pr > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

$$DIF(i) = \beta_0 + \beta_1 DEV(i-1) + \beta_2 D(i-1) + \beta_3 D(i-1) * DEV(i-1) + \beta_4 D1 + \beta_5 D1 * DEV(i-1) + \beta_6 D1 * D(i-1) + \beta_7 D1 * D(i-1) * DEV(i-1) + \varepsilon \quad (6)$$

$$R(i) = \beta_0 + \beta_1 DEV(i-1) + \beta_2 D(i-1) + \beta_3 D(i-1) * DEV(i-1) + \beta_4 D1 + \beta_5 D1 * DEV(i-1) + \beta_6 D1 * D(i-1) + \beta_7 D1 * D(i-1) * DEV(i-1) + \varepsilon \quad (7)$$

↵

where i (=2,3 or 4) is the subscript of quarter and $i-1$ is the quarter before quarter i . $D(i-1)$ is a dummy, equals 1 if $DEV(i-1)$ is negative, 0 otherwise. $D1$ is a dummy, 1 when it is the 4th quarter, 0 otherwise. $DIF(i)$, $DEV(i-1)$ and $R(i)$ are defined as table 2 and 3. * is the No. of observations. The significant level of two-tailed t-test is placed in brackets.↵

Table 4 CFO management or seasonal reversal?

sample	ROE	No.of sample	inter	DEV (3)	D	D*DEV (3)	SIZE	Adj.R ²	Pr > F
total	(-∞, 0)	144	0.0581	0.0174	0.0313	-0.0265	-0.0041	0.0054	0.3166
			(0.7950)	(0.3659)	(0.1034)	(0.3835)	(0.7003)		
	[0, 6%)	645	0.0960	-0.0210	0.0189	-0.0601	-0.0053	0.0928	0.0000
			(0.2712)	(0.0468)	(0.0120)	(0.0018)	(0.2031)		
	[6%, 8%)	228	-0.0280	0.0174	0.0512	-0.0560	0.0001	0.1108	0.0000
			(0.8669)	(0.3750)	(0.0002)	(0.0205)	(0.9878)		
	[8%, +∞)	499	0.0764	-0.0696	0.0079	0.0158	-0.0037	0.0588	0.0000
			(0.2702)	(0.0200)	(0.3336)	(0.6453)	(0.2474)		
2003	(-∞, 0)	56	-0.1867	-0.0904	-0.0014	0.0600	0.0081	-0.0116	0.5051
			(0.5293)	(0.2471)	(0.9675)	(0.5349)	(0.5638)		
	[0, 6%)	289	0.2722	-0.0378	0.0070	-0.1391	-0.0136	0.2281	0.0000
			(0.0584)	(0.0193)	(0.5400)	(0.0000)	(0.0463)		
	[6%, 8%)	117	0.0027	0.0210	0.0719	-0.0289	-0.0018	0.1436	0.0003
			(0.9902)	(0.2444)	(0.0000)	(0.2075)	(0.8599)		
	[8%, +∞)	216	0.0470	-0.0907	0.0062	0.0685	-0.0022	0.0398	0.0135
			(0.6145)	(0.0319)	(0.5714)	(0.1630)	(0.6192)		
2004	(-∞, 0)	88	0.5033	0.0178	0.0368	-0.0178	-0.0248	0.0286	0.1718
			(0.1328)	(0.3947)	(0.1470)	(0.5992)	(0.1174)		
	[0, 6%)	356	-0.0238	-0.0091	0.0250	-0.0039	0.0004	0.0257	0.0106
			(0.8213)	(0.4981)	(0.0093)	(0.8724)	(0.9394)		
	[6%, 8%)	111	-0.0330	-0.0691	0.0067	-0.0833	0.0013	0.1964	0.0000
			(0.8883)	(0.6161)	(0.7763)	(0.5555)	(0.9094)		
	[8%, +∞)	283	0.0904	-0.0584	0.0098	-0.0097	-0.0045	0.0629	0.0002

			(0.3605)	(0.1585)	(0.4039)	(0.8376)	(0.3272)		
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A: regression on the basis of model (5a) : by group

	total	2003	2004
No. of sample	(1516)	(678)	(838)
<i>inter</i>	0.0557	0.0799	0.0436
	(0.2788)	(0.2963)	(0.5235)
<i>DEV</i> (3)	-0.0139	-0.0424	-0.0002
	(0.1018)	(0.0028)	(0.9834)
<i>D</i>	0.0204	0.0084	0.0251
	(0.0001)	(0.2903)	(0.0005)
<i>D*DEV</i> (3)	-0.0362	-0.0660	-0.0245
	(0.0070)	(0.0038)	(0.1381)
<i>DROE</i>	-0.0113	-0.0254	0.0091
	(0.1910)	(0.0278)	(0.5798)
<i>DROE*DEV</i> (3)	0.0305	0.0627	-0.0673
	(0.1137)	(0.0042)	(0.5768)
<i>DROE*D</i>	0.0296	0.0625	-0.0195
	(0.0214)	(0.0003)	(0.3664)
<i>DROE*D*DEV</i> (3)	-0.0192	0.0376	-0.0609
	(0.4443)	(0.2282)	(0.6244)
<i>SIZE</i>	-0.0033	-0.0043	-0.0028
	(0.1727)	(0.2329)	(0.3851)
Adj. R ²	0.0718	0.1273	0.0709
Pr > F	0.0000	0.0000	0.0000

In table 5A, all the variables are defined as table 3. The dependent variable is R(4). In table 5B, we add *DROE* and its 2 interactive items in model (5a). *DROE* is a dummy, 1 if *ROE* is in the range of (6%, 8%], 0 otherwise. The significant level of two-tailed t-test is placed in brackets.

B: result when adding interactive terms to model (5a)

Table 5 Test on policy-driven motivation

	model (8)			model (9)		
	total	2003	2004	total	2003	2004
	(5814)	(2667)	(3147)	(4548)	(2034)	(2514)
<i>inter</i>	-0.0142	-0.0148	-0.0138	-0.0118	-0.0134	-0.0106
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0003)
<i>NETCASH</i> (<i>i-1</i>)	0.0110	0.0131	0.0093	0.0095	0.0116	0.0078
	(0.0000)	(0.0010)	(0.0122)	(0.0006)	(0.0055)	(0.0364)
<i>NETCFO</i> (<i>i-1</i>)	0.0185	0.0151	0.0213	0.0146	0.0150	0.0142

	(0.0000)	(0.0010)	(0.0000)	(0.0000)	(0.0003)	(0.0001)
<i>D</i>	-0.0068	-0.0121	-0.0025	-0.0087	-0.0075	-0.0096
	(0.0533)	(0.0200)	(0.6088)	(0.0172)	(0.1711)	(0.0496)
<i>D*NETCASH (i-1)</i>	0.0041	0.0046	0.0039	0.0029	-0.0013	0.0061
	(0.3742)	(0.4952)	(0.5310)	(0.5462)	(0.8547)	(0.3345)
<i>D*NETCFO (i-1)</i>	0.0359	0.0506	0.0235	0.0273	0.0312	0.0241
	(0.0000)	(0.0000)	(0.0003)	(0.0000)	(0.0000)	(0.0003)
Adj.的 R ²	0.0539	0.0685	0.0431	0.0399	0.0449	0.0344
Pr > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Dependent variables are *DIF(i)* and *R(i)* in model (8) and (9) respectively. *DIF(i)* and *R(i)* are defined as table 2 and table3 respectively. If the change of net CF is negative by the end of the 3rd quarter, *NETCASH(i-1)* is 1, otherwise, 0. If CFO is negative by the end of the 3rd quarter, *NETCFO(i-1)* is 1, otherwise, 0. *D* is a dummy, equal to 1 when it is the 4th quarter, 0 otherwise. The significant level of two-tailed t-test is placed in brackets.

Table 6 policy-driven motivation: test on the basis of change in net cash flow and CFO

	dependent: <i>DIF (i)</i>			dependent: <i>R (i)</i>		
	total	2003	2004	total	2003	2004
	(.5814)	(.2667)	(.3147)	(.4548)	(.2034)	(.2514)
<i>inter</i>	-0.0144	-0.0144	-0.0145	-0.0117	-0.0128	-0.0108
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0002)	(0.0003)
<i>NETCASH (i-1)</i>	0.0136	0.0145	0.0128	0.0116	0.0132	0.0104
	(0.0000)	(0.0007)	(0.0012)	(0.0000)	(0.0036)	(0.0089)
<i>NETCFO (i-1)</i>	0.0171	0.0142	0.0196	0.0128	0.0139	0.0120
	(0.0000)	(0.0009)	(0.0000)	(0.0000)	(0.0021)	(0.0026)
<i>D</i>	-0.0070	-0.0121	-0.0028	-0.0088	-0.0075	-0.0098
	(0.0492)	(0.00204)	(0.5563)	(0.0161)	(0.1728)	(0.04440)
<i>D*NETCASH (i-1)</i>	-0.0010	0.0018	-0.0029	-0.0006	-0.0036	0.0018
	(0.8427)	(0.8033)	(0.6628)	(0.9035)	(0.6322)	(0.7892)
<i>D*NETCFO (i-1)</i>	0.0348	0.0492	0.0233	0.0253	0.0282	0.0231
	(0.0000)	(0.0000)	(0.0008)	(0.0000)	(0.0004)	(0.0010)
<i>DROE</i>	0.0016	-0.0020	0.0063	-0.0002	-0.0031	0.0029
	(0.7307)	(0.7599)	(0.3544)	(0.9597)	(0.6580)	(0.6854)
<i>DROE*NETCASH (i-1)</i>	-0.0158	-0.0085	-0.0238	-0.0138	-0.0091	-0.0186
	(0.0208)	(0.3810)	(0.0138)	(0.0569)	(0.3801)	(0.0670)
<i>DROE*NETCFO (i-1)</i>	0.0079	0.0052	0.0107	0.0114	0.0063	0.0160
	(0.2701)	(0.6098)	(0.2945)	(0.1361)	(0.5647)	(0.1351)
<i>DROE*D* NETCASH</i>	0.0306	0.0163	0.0427	0.0223	0.0128	0.0307

$(i-1)$						
	(0.0012)	(0.2342)	(0.0011)	(0.0260)	(0.3886)	(0.0245)
$DROE * D * NETCFO$						
$(i-1)$	0.0119	0.0074	0.0171	0.0176	0.0179	0.0206
	(0.3521)	(0.6767)	(0.3540)	(0.1914)	(0.3484)	(0.2858)
Adj. R ²	0.0570	0.0681	0.0490	0.0430	0.0451	0.0392
Pr > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

$DIF(i)$ and $R(i)$ are defined as table 2 and table 3 respectively. $DROE$ is a dummy, 1 if ROE is in the range of (6%, 8%), 0 otherwise. If the change of net CF is negative by the end of the 3rd quarter, $NETCASH(i-1)$ is 1, otherwise, 0. If CFO is negative by the end of the 3rd quarter, $NETCFO(i-1)$ is 1, otherwise, 0. D is a dummy, equal to 1 when it is the 4th quarter, 0 otherwise. The significant level of two-tailed t-test is placed in brackets.

Table 7 policy-driven motivation: test on the basis of change in net cash flow and CFO: threshold firms

	No. of sample	Inter.	CFO $(i-1)$	D	$D * CFO(i-1)$	Adj.R ²	Pr > F
A、 based on the whole sample							
total	5814	-0.0168	0.0532	0.0142	-0.0973	0.0160	0.0000
		(0.0000)	(0.0039)	(0.0000)	(0.0001)		
2003	2667	-0.0169	-0.0582	0.0148	0.0366	0.0124	0.0000
		(0.0000)	(0.0319)	(0.0000)	(0.3259)		
2004	3147	-0.0163	0.1831	0.0132	-0.2530	0.0351	0.0000
		(0.0000)	(0.0000)	(0.0000)	(0.0000)		
B、 based on the threshold sample with ROE in [6%, 8%)							
total	1232	-0.0086	0.2060	-0.0004	-0.3143	0.0261	0.0000
		(0.0000)	(0.0000)	(0.9171)	(0.0000)		
2003	624	-0.0107	0.1606	0.0001	-0.3257	0.0212	0.0010
		(0.0002)	(0.0028)	(0.9829)	(0.0000)		
2004	608	-0.0064	0.2731	-0.0015	-0.3195	0.0356	0.0000
		(0.0000)	(0.0000)	(0.7617)	(0.0000)		

$$CFO(i) = \beta_0 + \beta_1 CFO(i-1) + \beta_2 D + \beta_3 D * CFO(i-1) + \varepsilon^{i,j}$$

i stands for the 3rd or 4th quarter in year t or the 1st quarter in year $t+1$. $i-1$ is the quarter before quarter i . CFO is industry-adjusted cash flow from operations deflated by total assets in the beginning of the year. The potential industry effect is controlled by subtracting the median of industrial CFO from firm-specific CFO. D is a dummy, equals to 1 when i is the 1st quarter of year $t+1$, 0 otherwise.⁴

Table 8 CFO management and its persistence

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上市公司在操纵经营性现金流吗？ ——基于季度报告的实证分析¹⁰

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摘要:在财务操纵方面, 目前尽管存在大量的盈余管理研究, 但鲜有文献涉及现金流量的操纵问题。本文利用中国 A 股上市公司 2003-2004 年的季度财务数据对后一问题进行了实证检验。我们的研究发现, 第三季度末经营活动现金流量净额低于净利润的公司, 在第四季度存在调增现金流量的行为。我国的融资监管政策对现金流量的操纵行为也产生了潜在影响, 这主要表现在当公司截止第三季度经营活动所产生的现金流量净额为负时, 希望进行再融资的公司为了避免传递关于公司财务风险的不利信号, 同样有动机在第四季度显著调增经营性现金流量水平。

关键词:经营性现金流量, 财务操纵, 季度报告

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2 In order to avoid the doubt of investors and analysts about the increased amount of receivable which can not be taken back for a long period, managers will manipulate CFO. The way by which these firms manipulate CFO is to make transformation between receivable and bank accounts, current assets other than cash or non-current assets. For example, they can fake a cash payment from a fictitious client to decrease the receivable. To offset this fake cash inflow, the firms must continue to trump up another transaction such as lending cash or make a payment to the third party. In this way, the account receivable from faked transaction is transformed to other account receivable on the balance sheet. For Lantian case and Prairie Xingfa case, they walked further than this by transforming the non-existed CFO to fix assets and intangible assets which were difficult to be evaluated.

3 The 2nd article of this Regulation give the explanation of 'equity issue'. It says that new equity issue refers to right offering and general public

offering. So according to the Regulation, equity issuing here means SEO, does not include IPO.

4 Though firms can also manage CFO in the first three quarters, we expect that CFO management should be stronger in the 4th quarter. Because firms have to consider the benefit and cost of CFO manipulation. The potential benefit is larger in the 4th quarter since both investors and supervisors pay more attention on annual data. The cost of management is lower since the managed CF can be reversed in the 1st quarter of next year.

5 For example, when the yearly net CFO is negative (e.g. -100) and a certain quarter CFO is positive (e.g. 20) then the ratio of quarterly CFO to yearly CFO is negative (-20%). However, the same number could result from a situation when yearly CFO is positive (e.g., 100) while a quarterly CFO is negative (e.g. -20). But the nature of the two ratios is totally different.

6 Thanks for the suggestion of anonymous referee. Operating income is before taxes and CFO is after taxes. Operating income is after interest expenses and CFO does not cover interest. So both income taxes and interest expenses should be adjusted to make CFO and operating income comparable.

7 Our argument is that the main motivation of CFO manipulation is to dress up earnings quality. As Burgstahler and Dechow (1997) implies, there is a possibility that firms manage earnings amount by manipulating CFO. For example, a firm have to increase CFO to increase earnings when it has used out all its accrual to manage earnings. This can also lead to a negative β_3 . But this explanation is unpractical. Such as in Dechow et al (2007), they find the misstating firms increase cash sales in the misstating year, but the sales margin is decreased. It is difficult to argue that firms' aim of increasing CFO is only to increase return ratio.

Also, it is because accrual has no CFO support that abnormal accrual is regarded to be the main way to manage earnings. For a firm depending heavily on accruals, its ability to increase earnings by increasing cash sales should be very limited.

Even with the above argument, we can not exclude the probability that some firms manage earnings by manipulating CFO. This will weaken the support of β_3 to our hypothesis to some extent.

8 This weak results may due to the bias when we use a certain ROE range to detect the motivation of CFO management. The basis of hypothesis 2 is that CSRC and underwriters will pay attention on CFO of SEO applicants. But some of firms with ROE in 6%-8% may not issue equity in year t. For example, if they plan to issue new stocks in year t+1, they will not manage CFO in year t since that will affect their CFO in year t+1 negatively. Anonymous referee suggests that a proper sample to test this hypothesis is the firms have real financing plans. According the suggestion, we compare the CFO manipulation between these firms (the SEO proposal is passed by the board or general meeting in the current or the next year, or implement SEO in the next year.) and other firms and did not find any significant results. One of the reasons maybe that a large part of these firms have a good performance and they need not to manipulate CFO at all. Only firms with marginal ROE need to manipulate CFO.

9 we focus on the effect of CFO management on its persistence. Since CFO management will affect CFO in the 1st quarter in year t+1, we delete the data in the 1st quarter.

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