Financial Reporting and Future Corporate Investment

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Abstract: Financial reporting quality plays limited, if no, role in traditional investment theories. However, we find that investment in firms with high discretionary accruals is less responsive to internal cash flows compared with other firms. The conventional interpretation is that a lower sensitivity of investment to cash flows implies less investment distortions. In contrast, we find that the negative association between future return on assets and current investment is more pronounced in firms with high discretionary accruals, which suggests a less efficient investment decision for high discretionary accruals. The efficiency implication is also consistent with the analytical prediction from Liang and Wen (2007). Our results provide empirical evidence on the real cost of low quality financial reporting.

Keywords: capital investment, market fixation, accruals, discretionary accrual, financial reporting quality, investment efficiency

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I. Introduction

A substantial body of empirical literature has examined the capital market consequences of financial reporting, such as market valuations and capital market financing decisions (e.g., Teoh et al., 1998a, 1998b; Francis et al., 2005). Yet little research exists that documents the effect of firm-specific financial reporting on firm-specific investment with the notable exception of Biddle and Hilary (2006).

The lack of empirical studies is partly due to the assumption in traditional investment theory that the capital market is efficient to the extent that prices of debt or equity incorporate all available information, including financial information. Under the premise that the capital market sees through earnings quality, lower earnings quality exacerbates the information asymmetry between managers and investors and increases the wedge between internal capital and external capital. Biddle and Hilary (2006) find that firms with a lower earnings quality have a *higher* sensitivity of investment to cash flows.

However, a growing body of prior studies suggest that the capital market may fixate on reported earnings due to either information processing bias or uncertainty about managers' reporting incentives in the equilibrium (e.g., Sloan, 1996; Xie, 2001; Stein, 1989; Fischer and Verrecchia, 2000; Hirshleifer and Teoh, 2003). Under the premise that the capital market may fixate on reported earnings, the cost of external capital (market valuation) decreases with the magnitude of noise or manipulation in accounting earnings. Thus, future investment is likely to be associated with current financial

reporting because managers should invest until the marginal cost of investment is equal to cost of capital (e.g., Fisher and Merton, 1984).

We focus on firms with high discretionary accruals in our analysis because the two perspectives yield opposite predictions on the sensitivity of investment to cash flows for those firms.[1] Firms with high discretionary accruals are, by definition, lower earnings quality firms because reported earnings fails to reflect the true underlying economic performance. Under the premise that the market sees through earnings quality, investment in firms with high discretionary accruals is expected to be *more* responsive to internal cash flows than an average firm. In contrast, if investors fixate on reported earnings, future investment in firms with high discretionary accruals is expected to be *less* responsive to internal cash flows because of a potentially lower cost of capital. Using data from 1988 to 2005, we find that investment in firms with high discretionary accruals *is less* responsive to internal cash flows than other firms.

A lower investment-cash flow sensitivity is traditionally interpreted as a less financially constrained investment policy, which implies less investment distortions (e.g., Fazzari, Hubburd, and Peterson, 1988; Hoshi et al., 1991; Biddle and Hilary, 2006). [2] However, the traditional interpretation is based on the premise that the capital market incorporates all relevant information. Liang and Wen (2007) use analytical model and predicts that the noise/manipulation in accounting measures leads to less efficient

[1] If we examine firms with most negative discretionary accruals, the two perspectives actually yield similar prediction on the investment-cash sensitivity. Under the premise that the market sees through earnings quality, investment in those firms is expected to be more sensitive to internal cash flows because they have a lower earnings quality than an average firm. Under the market fixation premise, investment in firms with most negative discretionary accruals is expected to more responsive to internal cash flows because of a higher cost of capital associated with negative discretionary accruals.

[2] However, some recent papers, such as Kaplan and Zingales (1997) and Cleary (1999), question the usefulness of investment-cash flow sensitivity in assessing the effects of financial constraints.

investment under the premise of market mis-pricing. We find that the negative association between future operating performance and current investment level is *more pronounced* for firms with high discretionary accruals. The evidence suggests that, despite a lower sensitivity of investment to cash flows, firms with high discretionary accruals are less efficient than other firms. Our findings indicate that the interpretation of investment-to-cash flow sensitivity also depends critically on the extent of market efficiency with respect to financial reporting.

The lower investment-cash flow sensitivity is also consistent with prior findings that firms with high discretionary accruals raise more external equity in the next period (e.g., Teoh et al., 1998a and 1998b). However, retained earnings rather than equity issuance is the biggest source of funds for corporate investment (e.g., Froot, Scharfstein and Stein, 1994; Rajan and Zingales, 1995; Mayer and Sussman, 2003).[4] To empirically assess to what extent our findings are distinct from prior findings on the association between discretionary accruals and future financing patterns, we perform further analysis on the sub-sample of firms without external financing. We find that investment in firms with high discretionary accruals is also *less* responsive to internal cash flows for the sub-sample of firms without external financing. We also find that the negative association between future operating performance and current investment level is more pronounced in firms with high discretionary accruals for the sub-sample of firms without external financing. The sub-sample results indicate that the association between financial

[4] In particular, Froot et al. (1994) claim that "Indeed, on average, less than 2 percent of all corporate financing comes from external equity market".

reporting and future investment works beyond the association between financial reporting and future external financing.

This paper has some important implications. First, our findings suggest that current financial reporting is not only associated with future equity financing decision (e.g., Teoh et al., 1998a; Rangan, 1998) but also related to future investing decisions. The finding is important because retained earnings rather than equity issuance is the biggest source of funds for capital investment. Second, while most of the literature interprets the a lower investment-cash flow sensitivity as evidence of higher investment efficiency, our findings indicate that the efficiency interpretation of investment to cash flow sensitivity also depends critically on the extent of market fixation on reported earnings. Finally, this paper provides empirical evidence that financial reporting through accounting manipulation induces *over*investment in the future. The efficiency implication is in sharp contrast to the conclusion from Biddle and Hilary (2006) that lower earnings quality exacerbates *under*investment problem. Thus, this paper provides complementary evidence to Biddle and Hilary (2006) on the real costs of low quality financial reporting.

The paper is organized as the following. Section 2 discusses the background and related literature. Section 3 develops the hypothesis. Section 4 describes variable measurement and research design. Section 5 presents the main empirical results of investment-cash flow sensitivity and the investment efficiency implications. Section 6 presents the robustness checks. Section 7 concludes the paper.

II. Background and related literature

Neoclassical model of investment predicts that a firm will invest up to a level where the marginal cost of investing is equal to the marginal profitability of capital (e.g., Lucas and Prescott, 1971; Mussa, 1977). Thus investment should only increase with underlying investment opportunities as measured by Tobin's Q (e.g., Tobin, 1969). However, the misalignment of managerial and shareholders incentives (e.g., Jensen and Meckling, 1976; Jensen, 1986) and asymmetric information between corporate insiders and the capital market (e.g., Myers and Majluf, 1984) could cause investment to vary with internal cash flows. Under the agency view, managers over-invest to reap private benefits such as "perks", large empire, and entrenchment. Because external capital market disciplines managers from pursuing self-interested investment, an influx of cash flows enables managers to invest more. Under asymmetric information, managers in the interest of existing shareholders restrict themselves from external capital market due to costly external capital, and thus investment is expected to increase with internal cash flows. A substantial body of studies provide empirical evidence that corporate investment increases with internal cash flows (e.g., Fazzari, Hubbard, and Peterson, 1988; Blanchard, Lopez-de-Silanes and Shleifer, 1994). Furthermore, most of literature interprets a lower sensitivity of investment to cash flow as evidence of lower agency or information friction, thus lower investment distortions.

Traditional theories of corporate investments share the common assumption that capital market is efficient with respect to either disciplining misbehaved managers or incorporating all available information. However, a growing body of studies in accounting and behavioral finance suggests that the market efficiency premise should be viewed with some skepticism (surveyed in Shleifer, 2000). For example, starting with

Sloan(1996), voluminous prior research has documented that using information in current level of accruals can predict subsequent returns and that such predicative power is concentrated in the discretionary component of accruals (e.g., Xie, 2001; Thomas and Zhang, 2002 and Defond and Park, 2001). Their findings motivate us to examine the implication of financial reporting on future corporate investment.[5]

While prior studies document a higher propensity of upward earnings management prior to equity issuance (e.g., Teoh et al. 1998a, 1998b; Rangan, 1998), it is, however, ex-ante uncertain whether it automatically affects future investment for three reasons. First, retained earnings rather than equity issuance is the biggest source of funds for corporate investment (e.g., Froot, Scharfstein and Stein, 1994; Rajan and Zingales, 1995; Mayer and Sussman, 2003). Second, if the capital market sees through upward earnings management prior to equity issuance, upward earnings management is unlikely to result in a lower cost of capital. Third, if the capital market fixates on reported earnings, managers can always put the proceeds into cash and securities rather than investing them. As a matter of fact, according to Blanchard, Rhee and Summers (1993), when stock price is high, the best strategy is to issue new shares, but to use the proceeds not for investment, but for lending at risk-free rate. This is because investing in capital drives down marginal product, but leading at risk-free rate is equivalent to investing in a constant technology. Furthermore, in the empirical analysis, we also examine the relation

[5] Some prior studies adopt a time-series approach to address the association between aggregate investment and aggregate stock market assessment. The evidence, however, is rather mixed (e.g., Barro, 1990; Morck, Shleifer and Vishny, 1990; Blanchard, Rhee and Summers, 1993; Chrinko and Schaller, 2001). On one hand, Blanchard et al. (1993) uses the time-series economy-wide data in the U.S. and concludes that stock market valuation appears to play a *limited* role, given fundamentals, in the determination of investment decisions. On the other hand, Chirinko and Schaller (2001) uses economy-wide data in Japan and concludes that, given structural assumption about the fundamental and non-fundamental components of stock valuation, the market bubble has a *significant* effect on investment in fixed assets.

between discretionary accruals and future investment for firms *without* external financing and find that the association between high discretionary accruals and future investment works *beyond* the external financing channel.

This paper is also closely related to Polk and Sapienza (2006) and Kothari, Louskina and Nikolaev (2006). Both papers suggest that when firms are overvalued due to some factors *exogenous* to financial reporting, there will be a positive *contemporaneous* relation between (discretionary) accruals and the *level* of investment because managers have a tendency towards upward earnings management and overinvestment to prolong the overvaluation. Our paper differs in two fundamental aspects. First, based on the assumption that the stock market valuation is *endogenous* to financial reporting, our paper is interested in the *non-contemporaneous* association between current financial reporting and future investment. Second, our prediction is on the *investment-cash flow sensitivity* rather than the level of investment[6], thus shedding light on the controversial debate on the efficiency interpretation of the sensitivity of investment to cash flows. We acknowledge the possibility of overvalued equity due to factors exogenous to financial reporting and that the results from those two papers are not mutually exclusive from our findings. In the empirical analysis, we also explicitly control for overvaluation due to factors exogenous to financial reporting and the contemporaneous association between discretionary accruals and investment.

In addition, this paper is also related to "real" earnings management literature. Earnings management can be broadly categorized into "real" earnings management and earnings management through accounting manipulations. Prior studies have provided

[6] Zhang (2007) also documents that firms with higher accruals have a higher level of investment. Again his result is limited to investment level and is not related to the sensitivity of investment to cash flows.

evidence that managers engage in "real" earnings management, i.e., managers intentionally alter investment decisions to influence *contemporaneous* reported earnings. For example, Stein (1989) develops a model in which, faced with short-term market pressure, managers may forsake good investments, such as cut R&D and advertising spending, to boost current earnings. Bushee (1998) and Roychowdhury (2006) provide empirical evidence consistent with such conjecture. Our paper, however, differs fundamentally in that we are interested in whether *accounting manipulations* has an impact on *future* investment.

Finally, this paper has some important implications on some other strands of accounting literature. First, the link between the quality of financial reporting and asset pricing is traditionally interpreted as evidence that high quality financial reporting reduces the information asymmetry component of the cost of capital (e.g., Botosan, 1997; Francis, LaFond, Olsson and Schipper, 2004). Our findings, however, suggest that low quality financial reporting could impact future investment if the capital market fixates on reported earnings, which, in turn, have implications for future cash flows (e.g., Lambert, Leuz and Verrecchia, 2006). Finally, our paper contributes to the strand of literature that documents the real consequences of financial reporting choices (e.g., Kanodia et al., 2000; Fairfield, Pinkowitz and Tang, 2007).

III. Hypothesis development

If the capital market sees through earnings quality, lower earnings quality exacerbates the information asymmetry between managers and investors and, thus, increases the wedge between cost of external capital and internal cash flows (e.g., Myers

and Majluf, 1984; Biddle and Hilary, 2006). The magnitude of discretionary accruals is a widely-used measure of earnings quality in accounting literature. By definition, firms with high discretionary accruals are firms with low earnings quality. Under such a premise, in a cross-section, investment in firms with high discretionary accruals is expected to be more responsive to internal cash flows because of a potentially higher cost of external capital.

However, an extensive body of evidence suggests that the capital market may not be able to see through the extent of discretionary accruals due to either information processing bias or due to uncertainty about managers' reporting incentives (e.g., Sloan, 1996; Xie, 2001; Fisher and Verrecchia, 2000; Hirshleifer and Teoh, 2003). Thus, in a cross-section, given the level of reported profitability, firms with high discretionary accruals enjoy a smaller wedge between the cost of external capital and the cost of internal cash flows. Investment in those firms is expected to be less responsive to internal cash flows because of a potentially lower cost of external capital. This leads to our first hypothesis:

H1: Investment in firms with high discretionary accruals is less responsive to internal cash flows.

Under the premise that the capital market incorporates all relevant information, a lower sensitivity of investment to cash flows is traditionally interpreted as evidence of less investment distortion. Applying the conventional interpretation, high accrual firms are less subject to the underinvestment problem. However, Liang and Wen (2007) use

analytical model and predict that more noise/manipulation in accounting earnings will lead to more inefficient investment choices when the accounting measurement bias affects the market pricing.

More specifically, an efficient investment policy boosts future performance, while an inefficient investment policy undermines future performance in general. It is essential to point out that a lower return on assets for firms with high discretionary accruals is not indicative of less efficient investment policy itself because of the following two reasons. First, a high level of discretionary accruals, however, is not sustainable because the accounting system works in such a way that discretionary accruals will reverse in the future (e.g., Sloan, 1996; Xie, 2001). Second, future return on assets decreases in the level of current investment (e.g., Titman 2004). As firms with high discretionary accruals may over-invest as a result of a lower hurdle rate for investment, we expect that the negative association between future return on assets and current investment is more pronounced for firms with high discretionary accruals after controlling for the current level of discretionary accruals. This leads to the second hypothesis:

H2: The negative association between future return on assets and current investment is more pronounced for firms with high discretionary accruals.

As managers have incentives to manage earnings upward prior to equity issuance (e.g., Teoh et al. 1998a, 1998b; Rangan, 1998), it is possible that firms with high

discretionary accruals tend to be firms with external financing. Some may suggest that our results may be limited to firms with external financing only. However, Fisher and Merton (1984) suggest that managers should invest until the marginal adjustment and purchase cost of investing is equal to the market required rate of return. We share the same spirit and argue that it is not the status of external financing but rather the implied lower cost of capital as a result of market fixation on earnings that drives the association between high discretionary accruals and future investment patterns. Thus, we expect a lower sensitivity of investment to cash flow and a pronounced negative association between future return on assets and current investment hold for a sub-sample of firms without external financing as well.

H3: For the sub-sample of firms without external financing, investment is less responsive to internal cash flows and the negative association between future return on assets and current investment is more pronounced for firms with high discretionary accruals.

IV. Sample, Measurement and Research Design

4.1. Measure of discretionary accruals

In this paper, it is essential to explicitly control for the reported performance in the measure of discretionary accruals. One off-the-shelf measure which explicitly controls for reported profitability is the performance-adjusted discretionary accruals based on Kothari, Leone, and Wasley (2005).

The first step is to calculate discretionary accruals from the following model, following Teoh et al. (1998a and 1998b):

$$CA_{it} = \alpha + \beta\,(\Delta Sales_{it} - \Delta AR_{it}) + \varepsilon_{it}$$

where CA is the current accrual of firm i in year t, ΔSales (Compustat item Δ12) is the annual change in sales for firm i in year t, and ΔAR (Compustat item Δ151) is the annual change in accounts receivable for firm i in year t. The current accrual is the change in non-cash current assets minus the change in current operating liabilities (Compustat item Δ(4-1) - Δ(5-34-71)). All the variables are scaled by total assets (Compustat item 6) as of year t-1. The regression residual captures the discretionary accrual in year t, or the change in working capital in excess of what is expected given the change in cash sales.

The second step is to assign each firm to a portfolio based on year, industry membership and return on assets.[8] The portfolios are constructed by matching firms into ROA quartiles and industry classifications, where ROA_{it} is measured as net income (Compustat item 172) deflated by beginning-of-year book value of assets (Compustat item 6). The performance-adjusted discretionary accrual (DA_{it}) is calculated by deducting the average regression residual for all firms, excluding the sample firm itself, in the portfolio from the firm-specific regression residual in the first step.

The final step is to partition all firms into deciles based on the magnitude of performance-adjusted discretionary accruals for a specific year. Firms in the top decile of performance-adjusted discretionary accruals are identified by the indicator variable *MAX_DA = 1*, whereas firms in other deciles are identified by *MAX_DA = 0*.

4.2. Research design on future investment patterns

[8]We use Fama-French 48 industry classification to ensure that there are reasonably enough observations in each portfolio.

In order to assess whether investment in firms with high discretionary accruals is less responsive to internal cash flows, we explicitly model the investment decision:

$$INVESTMENT_{it} = \alpha + \beta_1 * Q_{it-1} + \beta_2 * CASH_{it-1} + \beta_3 * MAX\_DA_{it-1} + \beta_4 * Q_{it-1} * MAX\_DA_{it-1} + \beta_5 * CASH_{it-1} * MAX\_DA_{it-1} + INDUSTRY\ DUMMIES + YEAR\ DUMMIES + \varepsilon_{it}$$

Following existing literature on investment decisions, investment level is modeled as a function of last period marginal product of capital (Q_{it-1}) and internal cash flows ($CASH_{it-1}$). Indicator variable of high discretionary accruals (MAX_DA_{it-1}) and its interaction terms with Q_{it-1} and $CASH_{it-1}$ are added to the baseline model to test the association between discretionary accruals on future investment. The interaction term between MAX_DA_{it-1} and $CASH_{it-1}$ is the variable of interest to test Hypothesis 1. A negative coefficient on the interaction term is consistent with Hypothesis 1 that investment in firms with high discretionary accruals is less responsive to internal cash flows. $INVESTMENT_{it}$ is measured as capital expenditure (Compustat item 128) scaled by beginning-of-year book value of assets (Compustat item 6). Q_{it-1} is measured as the ratio of the market value of the company to the replacement cost of assets. The market value of the company is the sum of the market value of the equity (Compustat item 25*199), the value of short-term debt (Compustat item 9) and the value of long-term debt (Compustat item 34). The replacement cost of assets is the book value of assets (Compustat item 6). $CASH_{it-1}$ is measured as the income before extraordinary items (Compustat item 18) plus depreciation and amortization expenses (Compustat item 14) scaled by beginning-of-year book value of assets (Compustat item 6).[10] Finally, we include Fama-French industry membership indicators and year indicators because

investment patterns may vary across different industries and are influenced by fluctuation in macro-economic conditions.

If Tobin's Q performs worse for certain classes of firms, in this case, firms with high discretionary accruals, higher sensitivity of investment to cash flows may obtain because cash flow reflects information about investment opportunities (e.g., Porteba, 1988). Erickson and Whited (2000) suggest that unbiased results will obtain if using measurement error-consistent generalized method of moments (GMM) estimation method. Thus, to control for possible differential extent of measurement error in Tobin's Q as a proxy for investment opportunities, we also use GMM to estimate the regression.

In additional to the cross-sectional approach, we use firm-fixed effect model to isolate the impact of discretionary accruals in future investment from a time series perspective. To compliment the firm-fixed effect model, we use the change specification of the investment model to examine whether the change in investment is less sensitive to the change in internal cash flows for firms with high discretionary accruals.

4.3. Research design on future investment efficiency

In order to access the investment efficiency implications, we examine whether the association between future accounting performance and investment differ between firms with high discretionary accruals and other firms. More specifically, we construct the following test:

$$ROA_{it+1} = \alpha + \beta_1 * ROA_{it} + \beta_2 * ACCRUALS_{it} + \beta_3 * ROA_{it} * ACCRUALS_{it} + \beta_4 * INVESTMENT_{it} + \beta_5 * Max\_DA_{it-1} + \beta_6 * INVESTMENT_{it} * Max\_DA_{it-1} + \varepsilon_{it+1}$$

We model return on assets in period t + 1 as a function of return on assets in period t, level of accruals in period t, the interaction between return on assets and level of

accruals in period t, investment level in period t, indicator variable of high discretionary accruals in period t-1 and its interaction with investment level in period t. $ACCRUALS_{it}$ is measured as the difference between earnings (Compustat item 172) and cash flows from operating activities (Compustat item 308). We include the current level of return on assets, accruals and their interaction term because prior literature has demonstrated that return on assets mean reverts and firms with high level of accruals experience a decline in future performance (e.g., Freeman, Ohlson and Penman, 1982; Sloan, 1996). Current level of investment is added to the model because prior literature (e.g. Titman 2004) has demonstrated that future return on assets declines in current investment level.

The variable of interest is the interaction term between the current investment level in period t and the indictor variable for high discretionary accruals in period t-1. A negative coefficient on the interaction term is consistent with Hypothesis 2 that the negative association between future return on assets and current investment is more pronounced for firms with high discretionary accruals.

Finally, to test Hypothesis 3, we split the sample based on the sign of external finance. External finance includes both the debt issued and equity raised for a particular year. Following Bradshaw, Richardson and Sloan (2006), we use information provided in the statement of cash flows to derive a measure of external finance. More specifically, $XFIN_{it}$ is measured as the sum of net cash inflows from the equity issuances (Compustat item 108-115-127), net cash inflows from the long-term debt issuances (Compustat item 111-114) and cash flows from the change in current debt (Compustat item 301), scaled by the beginning-of-year book value of assets (Compustat item 6). To test Hypothesis 3, we repeat the two main tests in the sub-sample of firms that have negative external finance.

Specifically, we examine whether the impacts of financing reporting on investment patterns and on investment efficiency implications work beyond the external finance channel.

V. Empirical results on investment-cash flow sensitivity and investment efficiency

5.1. Descriptive statistics

The final sample consists of 67,174 firm-year observations from 1988 to 2005 where information on all variables is available on the COMPUSTAT annual file. The data starts from 1988 because statements of cash flows are widely available after 1988. All variables, both dependent and independent variables, are winsorized at both the top and the bottom one percentile. Firms in the financial and utility industries are excluded from the sample. Table 1 reports descriptive statistics on the full sample. Most of variables are in line with prior studies. For example, the median of return on assets is around 3.5% and the mean Tobin's Q is 1.58. On average, annual capital expenditures amount to 7.7% of assets and external financing activities provide 6.9% of assets on an annual basis.

Table 2 reports the correlation table for the sample. Consistent with prior literature, investment is increasing in investment opportunities and internally generated cash flows, as evident in the positive correlation between *INVESTMENT* and *Lag(Q)* and a positive correlation between *INVESTMENT* and *Lag(CASH)* respectively. As shown by the positive Spearman correlation between *Lag (DA)* and *XFIN*, external finance is increasing in discretionary accruals, which is consistent with the finding of prior

literature that firms manage earnings upward prior to equity issuance (e.g., Teoh et al. 1998a, 1998b; Rangan, 1998).

5.2. Discretionary accruals and future investment

Table 4 Panel A reports the main empirical results on discretionary accruals and future investment-cash flow sensitivity. In the base model where there is no role for discretionary accruals, investment is increasing in both investment opportunities and internally generated cash flows and these two variables are able to explain 23.97% of the cross-sectional variation in new investments. Per Table 4 Panel A Column 2, the interaction term between *Lag (MAX_DA)* and *Lag (CASH)* is -0.019 and is statistically significant (p-value = 0.018), which suggests that investments in firms with the highest discretionary accruals are significantly less sensitive to internal cash flows than other firms. It is worth noting that the coefficient on indicator variable *Lag (MAX_DA)* is -0.006 and is statistically significant (p-value < 0.001), which is opposite to the positive association between investment and contemporaneous discretionary accruals (e.g., Polk and Sapienza, 2006). Table 4 Panel A Column 3 reports the results using measurement-error consistent GMM estimation. The results on the interaction term between discretionary accruals and cash flows is -0.019 (p-value = 0.078), which is virtually identical to the results from the OLS estimation. To capture the time-series variation, Table 4 Panel A Column 4 adds firm-fixed effect and obtain similar results. The empirical evidence in Table 4 Panel A is consistent with Hypothesis 1 that investment in firms with high discretionary accruals is less responsive to internal cash flows.

As an additional test to control for firm specific time-invariant factors, Table 4 Panel B replicates the tests in Panel A using change instead of level of each variable. The results are very similar to those in Panel A, except that the interaction term between *Lag(MAX_DA)* and *Lag(*Δ*Q)* is now statistically significant. The interaction term between *Lag(MAX_DA)* and *Lag(*Δ*CASH)* is -0.028 (p-value = 0.001), which suggests that the change of investment in firms with high discretionary accruals is less sensitive to the change of internal cash flows.

Table 5 reports the empirical results on tests of investment efficiency. To gain a better idea about the characteristics of firms with the highest discretionary accruals, we compare them with other firms in the sample on different dimensions. Table 5 Panel A reports the descriptive statistics for the two groups of firms. The accounting system is designed in such a way that accruals are likely to reverse in the following period. Consistent with such a reversal, firms with the highest discretionary accruals in period t-1 (*Lag(MAX_DA)*= 1) experience a sharp decline of return on assets from 0.002 in period t-1 to -0.034 in period t. Other firms experience a much less severe decline of return on assets from 0.007 in period t-1 to 0.004 in period t. Return on assets in period t-1 of firms with the highest discretionary accruals is slightly lower than that of other firms. The difference is -0.005 with a p-value of 0.077. This suggests that, even though the control for reported performance in the measure of discretionary accruals is not perfect, it does a fairly good job. Finally, return on assets for firms with highest discretionary accruals is stable at around -0.033 in both period t and t+1, while return on assets for the other group increases from 0.004 to 0.009 during the same period of time. This suggests

that firms with the highest discretionary accruals in period t-1 underperform other firms in the next two periods, and that the difference is increasingly widened.

Table 5 Panel B reports the main empirical results of investment efficiency for firms with high discretionary accruals. The dependent variable is return on assets in period t+1. The baseline model includes return on assets, accruals and their interaction term in period t. Consistent with prior literature, return on assets mean reverts and firms with high level of accruals experience a decline in the future performance. The coefficient of ROA_t is 0.799 (p-value < 0.0001), and the coefficient of $ACCRUALS_t$ is -0.269 (p-value < 0.0001). Panel B Column 2 adds investment in period t as additional explanatory variable. Consistent with prior literature, future return on assets declines in current investment level (e.g., Titman 2004), which is evident in the negative and statistically significant coefficient of $INVESTMENT_t$ (coefficient = -0.102 and p-value < 0.001). Panel B Column 3 is our main model to test investment efficiency of firms with high discretionary accruals. Indicator variable *Lag (MAX_DA)* and its interaction term with $INVESTMENT_t$ are added to the model. We find that the coefficient on the indicator variable *Lag (MAX_DA)* is statistically significant (coefficient = -0.014 and p-value < 0.001), which is consistent with the reversal of discretionary accruals. The interaction term between *LAG (MAX_DA)* and $INVESTMENT_t$ is significantly negative (coefficient = -0.047 and p-value = 0.045), suggesting that the negative association between future return on assets and current investment is more pronounced for firms with high discretionary accruals.

The evidence in Table 4 and Table 5 combined suggest that investment in firms with the highest discretionary accruals is less sensitive to internal cash flows as a result of lower cost of capital and those firms tend to over-invest.

5.3. Investment in the subgroup of firms without external financing

Prior literature have documented that managers have incentives to manage earnings upward prior to equity issuance (e.g., Teoh et al. 1998a, 1998b; Rangan, 1998). Therefore, it is possible that firms with high discretionary accruals tend to be firms with external financing. The tests in this section are trying to alleviate the concerns that our results may be limited to firms with external financing only. We argue that it is not the status of external financing but rather the implied lower cost of capital as a result of market fixation on earnings that drives the association between high discretionary accruals and future investment patterns. Table 6 replicates the main results in Table 4 and Table 5 for a group of firms with negative external financing, i.e. with net cash outflow for financing activities. The results are similar with those in full sample. Table 6 Panel A shows that investment is less responsive to internal cash flows for firms with high discretionary accruals. Table 6 Panel B shows that the negative association between future return on assets and current investment is more pronounced for firms with high discretionary accruals. The empirical evidence in Table 6 is consistent with the interpretation that the association between financial reporting and future investment is beyond the external financing channel.

VI. Robustness Checks

6.1. Overvaluation

Prior literature have documented that when firms are overvalued due to some factors *exogenous* to financial reporting, there will be a positive *contemporaneous* relation between (discretionary) accruals and the *level* of investment because managers have a tendency towards upward earnings management and overinvestment to prolong the overvaluation (e.g. Polk and Sapienza (2006) and Kothari et. al (2006)). In order to alleviate the concern that our results are driven by the contemporaneous relation between accruals and investment as a result of overvaluation, we include buy-and-hold size adjusted return in period t-1 ($BHAR_{t-1}$) as an additional explanatory variable in our test of investment-cash flow sensitivity. Buy-and-hold size adjusted return is measured as raw return for each fiscal year subtracts matching decile return from CRSP database. Table 7 Panel A reports the results of investment-cash flow sensitivity test after controlling for $BHAR_{t-1}$. Consistent with prior research, investment is increasing in past abnormal return (full sample: coefficient = 0.006 and p-value < 0.0001). The interaction between *Lag(MAX_DA)* and *Lag(CASH)* is negative and statistically significant (full sample: coefficient = -0.015 and p-value = 0.075). The results are similar in both positive external financing sub-sample and negative external financing sub-sample. The evidence in Panel A shows that our results are not driven by the overvaluation explanation.

6.2. CEO optimism

Prior research has documented that overoptimistic managers tend to report optimistically and tend to over-invest (e.g., Malmendier and Tate, 2005). To alleviate the concern that our results are driven by CEO optimism, we include CEO's net purchase of the company's stock in period t-1 ($CEOBUY_{t-1}$) and its interaction terms with investment

opportunity (Q_{t-1}) and internal cash flow ($CASH_{t-1}$) in our test of investment-cash flow sensitivity. Following McVay, Nagar and Tang (2006), we scale CEO net transactions by CEO's holdings:

$$CEOBUY_{it} = \left[\sum SP_h/SH_h - \sum SS_h/SH_h\right]$$

where SP_h, SS_h, and SH_h are shares purchased in open market, sold in open market and held by CEO *before* each transaction h for firm i in year t. CEO trading data are obtained from Thomson Financial. Table 7 Panel B reports the results of investment-cash flow sensitivity test after controlling for $CEOBUY_{t-1}$. In the column of full sample results, the interaction term between *Lag(MAX_DA)* and *Lag(CASH)* has a coefficient of -0.018 (p-value = 0.023), suggesting that our results are robust after controlling for CEO optimism. The results are similar in both positive and negative external financing sub-samples.

6.3. Measurement issue in the proxy for internal cash flows

Following prior literature, firm-specific internal cash flow (CASHFLOW) is measured as net income before extraordinary items plus depreciation. However, Bushman, Smith and Zhang (2005) notice that the cash flow measure frequently used in investment literature can be disaggregated into cash flows from operations (CFOs) and non-cash accounting components. In their words, using net income plus depreciation as the measure of cash flows, studies in prior literature basically regress investment in fixed assets on investment in working capitals. To alleviate this possibility, we also use cash flow from operations (CFOs) as our measure of cash flows. The empirical results are presented in Table 7 Panel C and largely consistent with the main results. For example, the coefficient on the interaction term between *Lag (MAX_DA)* and *Lag (CFOs)* is -0.071

with a p-value of 0.001 for the full sample and is -0.107 with a p-value f 0.001 for the sub-sample of firms without external financing.

VII. Conclusions

This paper investigates the impacts of financial reporting on investment sensitivity to internal cash flows and investment efficiency implication in the future, under the premise that the capital market fixates on reported earnings. We find that investment in firms with high discretionary accruals is less responsive to internal cash flows compared with other firms. Furthermore, we find that the negative association between future return on assets and current investment is more pronounced in firms with high discretionary accruals, which suggests a less efficient investment decision for those firms. The efficiency implication is in sharp contrast to the conventional interpretation that a lower sensitivity of investment to cash flows always implies less investment distortion.

Our findings suggest that current financial reporting is not only associated with future equity financing decision but also related to future investing decisions. Furthermore, this paper provides empirical evidence that financial reporting through accounting manipulation induces overinvestment in the future, thus shedding light on the real cost of earnings manipulation.

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Table 1
Descriptive Statistics

Variables	N	Mean	Std	Median	Min	Max
INVESTMENT	67,174	0.077	0.090	0.049	0.000	0.753
DA	67,174	0.000	0.077	0.001	-0.364	0.304
MAX_DA	67,174	0.100	0.299	0.000	0.000	1.000
Q	67,174	1.582	1.476	1.113	0.136	17.400
CASH	67,174	0.053	0.182	0.085	-1.260	0.504
XFIN	67,174	0.069	0.276	0.000	-0.331	2.904
ROA	67,174	-0.006	0.190	0.035	-1.759	0.410

New investment *(INVESTMENT)* is capital expenditure (Compustat item 128) deflated by beginning-of-year book value of assets (Compustat item 6). Discretionary accruals is the residual from the regression $CA_{it} = \alpha + \beta\ (\Delta Sales_{it} - \Delta AR_{it}) + \varepsilon_{it}$, where CA is the current accrual of firm i in year t (Compustat item Δ (4-1) - Δ (5-34-71)) , Δ Sales is the annual change in sales for firm i in year t, ΔAR is the annual change in accounts receivable for firm i in year t, where all variables are scaled by beginning-of-year book value of total assets. The performance-adjusted discretionary accrual (*DA*) is the difference between the firm-specific discretionary accruals and the average discretionary accrual of a portfolio of firms (excluding the sample firm itself) matched on Fama-French 48 industry classifications and current return on assets quartiles. *MAX_DA* is an indicator variable, which takes the value of 1 if a firm is in the highest quartile of performance-adjusted discretionary accruals and 0 otherwise. Investment opportunities (*Q*) is measured as the ratio of the market value to the replacement cost of the assets, where the market value is measured as the sum of the market value of the equity (Compustat item 25*199) and the value of debt (Compustat item 9 + 34) and the replacement cost of the assets is measured as the end-of-year book value of assets (Compustat item 6). Internally generated cash flows (*CASH)* is measured as the income before extraordinary items (Compustat item 18) plus depreciation and amortization expenses (Compustat item 14) scaled by beginning-of-year book value of assets (Compustat item 6). External finance (*XFIN)* is the sum of net cash inflows from the equity issuances (Compustat item 108-115-127), net cash inflows from the long-term debt issuances (Compustat item 111-114) and cash flows from the change in current debt (Compustat item 301), deflated by the beginning-of-year book value of assets (Compustat item 6). *ROA* is measured as net income (Compustat item 172) deflated by beginning-of-year book value of assets (Compustat item 6).

Table 2
Correlation Table
(Pearson above diagonal and Spearman below diagonal)

	INVESTMENT	Lag(DA)	Lag(MAX_DA)	Lag(Q)	Lag(CASH)	XFIN	Lag(ROA)
INVESTMENT	1	-0.040	-0.044	0.133	0.227	0.300	0.132
		<.0001	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*
Lag(DA)	-0.036	1	0.614	-0.018	0.046	-0.005	0.059
	<.0001		*<.0001*	*<.0001*	*<.0001*	*(0.250)*	*<.0001*
Lag(MAX_DA)	-0.068	0.515	1	0.034	-0.010	0.047	-0.006
	<.0001	*<.0001*		*<.0001*	*(0.015)*	*<.0001*	*(0.150)*
Lag(Q)	0.229	0.004	0.026	1	0.005	0.322	-0.006
	<.0001	*(0.372)*	*<.0001*		*(0.230)*	*<.0001*	*(0.137)*
Lag(CASH)	0.423	-0.017	-0.014	0.328	1	-0.219	0.945
	<.0001	*<.0001*	*(0.001)*	*<.0001*		*<.0001*	*<.0001*
XFIN	0.230	0.009	0.057	0.191	-0.093	1	-0.228
	<.0001	*(0.029)*	*<.0001*	*<.0001*	*<.0001*		*<.0001*
Lag(ROA)	0.290	-0.017	0.001	0.326	0.911	-0.104	1
	<.0001	*<.0001*	*(0.881)*	*<.0001*	*<.0001*	*<.0001*	

New investment *(INVESTMENT)* is capital expenditure (Compustat item 128) deflated by beginning-of-year book value of assets (Compustat item 6). Discretionary accruals is the residual from the regression $CA_{it} = \alpha + \beta (\Delta Sales_{it} - \Delta AR_{it}) + \varepsilon_{it}$, where CA is the current accrual of firm i in year t (Compustat item Δ (4-1) - Δ (5-34-71)) , Δ Sales is the annual change in sales for firm i in year t, ΔAR is the annual change in accounts receivable for firm i in year t, where all variables are scaled by beginning-of-year book value of total assets. The performance-adjusted discretionary accrual (*DA*) is the difference between the firm-specific discretionary accruals and the average discretionary accrual of a portfolio of firms (excluding the sample firm itself) matched on Fama-French 48 industry classifications and current return on assets quartiles. *MAX_DA* is an indicator variable, which takes the value of 1 if a firm is in the highest quartile of performance-adjusted discretionary accruals and 0 otherwise Investment opportunities (*Q*) is measured as the ratio of the market value to the replacement cost of the assets, where the market value is measured as the sum of the market value of the equity (Compustat item 25*199) and the value of debt (Compustat item 9 + 34) and the replacement cost of the assets is measured as the end-of-year book value of assets (Compustat item 6). Internally generated cash flows (*CASH)* is measured as the income before extraordinary items (Compustat item 18) plus depreciation and amortization expenses (Compustat item 14) scaled by beginning-of-year book value of assets (Compustat item 6). External finance (*XFIN)* is the sum of net cash inflows from the equity issuances (Compustat item 108-115-127), net cash inflows from the long-term debt issuances (Compustat item 111-114) and cash flows from the change in current debt (Compustat item 301), deflated by the beginning-of-year book value of assets (Compustat item 6). *ROA* is measured as net income (Compustat item 172) deflated by beginning-of-year book value of assets (Compustat item 6).

Table 3
Descriptive Statistics by the Level of Discretionary Accruals

Level of Discretionary Accruals	*N*		*INVESTMENT$_t$*	*XFIN$_t$*	*DA$_{t-1}$*	*BLOATED$_{t-1}$*	*ROA$_{t-1}$*	*GR_SALES$_{t-1}$*	*Q$_{t-1}$*	*CASH$_{t-1}$*	*ROA$_t$*
Max_DA	6,686	Mean	0.073	0.187	-0.006	0.213	-0.030	0.006	1.956	0.028	-0.016
		Median	0.045	0.065	-0.003	0.186	0.033	0.001	1.252	0.074	0.030
Others	60,488	Mean	0.078	0.056	0.001	0.184	0.009	0.003	1.683	0.068	-0.005
		Median	0.050	-0.001	0.001	0.156	0.039	0.000	1.142	0.090	0.036
Max versus Others		Difference in mean	-0.005 *(<.0001)*	0.131 *(<.0001)*	-0.007 *(<.0001)*	0.029 *(<.0001)*	-0.039 *(<.0001)*	0.003 *(<.0001)*	0.273 *(<.0001)*	-0.040 *(<.0001)*	-0.011 *(<.0001)*
		Difference in median	-0.005 *(<.0001)*	0.066 *(<.0001)*	-0.004 *(<.0001)*	0.030 *(<.0001)*	-0.006 *(<.0001)*	0.001 *(<.0001)*	0.110 *(<.0001)*	-0.016 *(<.0001)*	-0.006 *(0.001)*

New investment *(INVESTMENT)* is capital expenditure (Compustat item 128) deflated by beginning-of-year book value of assets (Compustat item 6). Discretionary accruals is the residual from the regression $CA_{it} = \alpha + \beta\ (\Delta Sales_{it} - \Delta AR_{it}) + \varepsilon_{it}$, where CA is the current accrual of firm i in year t (Compustat item Δ (4-1) - Δ (5-34-71)) , , ΔAR is the annual change in accounts receivable for firm i in year t, where all variables are scaled by beginning-of-year book value of total assets. The performance-adjusted discretionary accrual (*DA*) is the difference between the firm-specific discretionary accruals and the average discretionary accrual of a portfolio of firms (excluding the sample firm itself) matched on Fama-French 48 industry classifications and current return on assets quartiles. *MAX_DA* is an indicator variable, which takes the value of 1 if a firm is in the highest quartile of performance-adjusted discretionary accruals and 0 otherwise Investment opportunities (*Q*) is measured as the ratio of the market value to the replacement cost of the assets, where the market value is measured as the sum of the market value of the equity (Compustat item 25*199) and the value of debt (Compustat item 9 + 34) and the replacement cost of the assets is measured as the end-of-year book value of assets (Compustat item 6). Internally generated cash flows (*CASH)* is measured as the income before extraordinary items (Compustat item 18) plus depreciation and amortization expenses (Compustat item 14) scaled by beginning-of-year book value of assets (Compustat item 6). External finance (*XFIN)* is the sum of net cash inflows from the equity issuances (Compustat item 108-115-127), net cash inflows from the long-term debt issuances (Compustat item 111-114) and cash flows from the change in current debt (Compustat item 301), deflated by the beginning-of-year book value of assets (Compustat item 6). *ROA* is measured as net income (Compustat item 172) deflated by beginning-of-year book value of assets (Compustat item 6). BLOATED is the level of working capital on the balance sheet in the prior period (Compustat item (4 -1) – (5-34-71)). GR_SALES is the growth rate in sales for the current period, which is equal to the change in SALES deflated by the prior period sales (Compustat item 12). Numbers in the parenthesis are p-value of t-statistics for mean test and z-statistics for median test.

Table 4
Earnings Management and Future Corporate Investment

Panel A**:** Investment at time t and discretionary accruals at time t-1

Model: $INVESTMENT_{it}=\alpha + \beta_1*Q_{it-1} + \beta_2*CASH_{it-1} + \beta_3*MAX\_DA_{it-1} + \beta_4* Q_{it-1} *MAX\_DA_{it-1} + \beta_5* CASH_{it-1} *MAX\_DA_{it-1} + INDUSTRY\ DUMMIES + YEAR\ DUMMIES + \varepsilon_{it}$

	Predicted Sign	Coefficients *(p-value)*			
		OLS	OLS	GMM	OLS
Intercept		0.103 *(<.0001)*	0.104 *(<.0001)*	0.104 *(<.0001)*	0.104 *(<.0001)*
Lag(Q)	(+)	0.009 *(<.0001)*	0.008 *(<.0001)*	0.008 *(<.0001)*	0.008 *(<.0001)*
Lag(CASH)	(+)	0.086 *(<.0001)*	0.087 *(<.0001)*	0.087 *(<.0001)*	0.087 *(<.0001)*
Lag (MAX_DA)	?		-0.006 *(0.001)*	-0.006 *(0.001)*	-0.006 *(0.001)*
*Lag (MAX_DA)*Lag(Q)*	?		0.001 *(0.504)*	0.001 *(0.567)*	0.001 *(0.504)*
Lag (MAX_DA)*Lag(CASH)	**(-)**		**-0.019** ***(0.018)***	**-0.019** ***(0.070)***	**-0.019** ***(0.018)***
Industry dummies		Included	Included	Included	Included
Year dummies		Included	Included	Included	Included
Fixed firm effect					Included
*Adjusted R**2*		23.97%	24.00%	24.00%	24.07%
N		60,360	59,057	59,057	59,057

Table 4
(Continued)

Panel B**:** Change of Investment at time t and discretionary accruals at time t-1

Model: $\Delta INVESTMENT_{it}=\alpha + \beta_1*\Delta Q_{it-1} + \beta_2*\Delta CASH_{it-1} + \beta_3* MAX\_DA_{it-1} + \beta_4*\Delta Q_{it-1} *MAX\_DA_{it-1} + \beta_5* \Delta CASH_{it-1} *MAX\_DA_{it-1} + INDUSTRY\ DUMMIES + YEAR\ DUMMIES + \varepsilon_{it}$

	Predicted Sign	Coefficients *(p-value)*			
		OLS	OLS	GMM	OLS
Intercept		-0.008 *(0.014)*	-0.007 *(0.024)*	-0.007 *(0.008)*	-0.007 *(0.024)*
Lag(ΔQ)	(+)	0.008 *(<.0001)*	0.009 *(<.0001)*	0.009 *(<.0001)*	0.009 *(<.0001)*
Lag(ΔCASH)	(+)	0.014 *(<.0001)*	0.021 *(<.0001)*	0.021 *(<.0001)*	0.021 *(<.0001)*
Lag (MAX_DA)	?		-0.012 *(<.0001)*	-0.012 *(<.0001)*	-0.012 *(<.0001)*
*Lag (MAX_DA)*Lag(ΔQ)*	?		-0.003 *(0.001)*	-0.003 *(0.005)*	-0.003 *(0.001)*
Lag (MAX_DA)*Lag(ΔCASH)	**(-)**		**-0.028** ***(0.001)***	**-0.028** ***(0.265)***	**-0.028** ***(0.001)***
Industry dummies		Included	Included	Included	Included
Year dummies		Included	Included	Included	Included
Fixed firm effect					Included
*Adjusted R**2*		2.00%	2.18%	2.18%	2.29%
N		50,498	50,498	50,498	50,498

New investment *(INVESTMENT)* is capital expenditure (Compustat item 128) deflated by beginning-of-year book value of assets (Compustat item 6). Discretionary accruals is the residual from the regression $CA_{it} = \alpha + \beta (\Delta Sales_{it} - \Delta AR_{it}) + \varepsilon_{it}$, where CA is the current accrual of firm i in year t (Compustat item Δ (4-1) - Δ (5-34-71)) , Δ Sales is the annual change in sales for firm i in year t, ΔAR is the annual change in accounts receivable for firm i in year t, where all variables are scaled by beginning-of-year book value of total assets. The performance-adjusted discretionary accrual (*DA*) is the difference between the firm-specific discretionary accruals and the average discretionary accrual of a portfolio of firms (excluding the sample firm itself) matched on Fama-French 48 industry classifications and current return on assets quartiles. *MAX_DA* is an indicator variable, which takes the value of 1 if a firm is in the highest quartile of performance-adjusted discretionary accruals and 0 otherwise. Investment opportunities (*Q*) is measured as the ratio of the market value to the replacement cost of the assets, where the market value is measured as the sum of the market value of the equity (Compustat item 25*199) and the value of debt (Compustat item 9 + 34) and the replacement cost of the assets is measured as the end-of-year book value of assets (Compustat item 6). Internally generated cash flows (*CASH)* is measured as the income before extraordinary items (Compustat item 18) plus depreciation and amortization expenses (Compustat item 14) scaled by beginning-of-year book value of assets (Compustat item 6). *ΔINVESTMENT, ΔQ* and *ΔCASH* are the annual change in INVESTMENT, Q and CASH for firm i in year t.

Table 5
Discretionary Accruals, Investment and Future Performance

Panel A: Descriptive statistics by the level of discretionary accruals at time t-1

Level of Discretionary Accruals	N	ROA_{t-1}	DA_{t-1}	ROA_t	$INVESTMENT_t$	ROA_{t+1}
Lag(Max_DA)	5,668	0.002	0.143	-0.034	0.062	-0.033
Others	53,395	0.007	-0.015	0.004	0.075	0.009
Lag(Max_DA) vs Others		**-0.005**	**0.158**	**-0.039**	**-0.013**	**-0.043**
P-value		*(0.077)*	*(<.0001)*	*(<.0001)*	*(<.0001)*	*(<.0001)*

Panel B: Future performance at time t +1 and discretionary accruals at time t-1
Model: $ROA_{it+1}=\alpha+\beta_1*ROA_{it}+\beta_2*ACCRUALS_{it}+\beta_3*ROA_{it}*ACCRUALS_{it}+\beta_4*INVESTMENT_{it} + \beta_5*Max\_DA_{it-1}+\beta_6*INVESTMENT_{it}*Max\_DA_{it-1}+ \varepsilon_{it}$

	Predicted Sign	Coefficients *(p-value)*		
Intercept		-0.024 *(<.0001)*	-0.017 *(<.0001)*	-0.015 *(<.0001)*
ROA	(+)	0.799 *(<.0001)*	0.811 *(<.0001)*	0.805 *(<.0001)*
ACCRUALS	(-)	-0.269 *(<.0001)*	-0.287 *(<.0001)*	-0.292 *(<.0001)*
ROA*ACCRUALS	?	0.253 *(<.0001)*	0.257 *(<.0001)*	0.276 *(<.0001)*
INVESTMENT	(-)		-0.102 *(<.0001)*	-0.097 *(<.0001)*
Lag(Max_DA)	(-)			-0.014 *(<.0001)*
INVESTMENT*Lag(Max_DA)	**(-)**			**-0.047** ***(0.045)***
Adjusted R**2		45.34%	45.61%	44.20%
N		57,825	57,825	50,988

New investment *(INVESTMENT)* is capital expenditure (Compustat item 128) deflated by beginning-of-year book value of assets (Compustat item 6). Discretionary accruals is the residual from the regression $CA_{it} = \alpha + \beta (\Delta Sales_{it} - \Delta AR_{it}) + \varepsilon_{it}$, where CA is the current accrual of firm i in year t (Compustat item Δ (4-1) - Δ (5-34-71)) , Δ Sales is the annual change in sales for firm i in year t, ΔAR is the annual change in accounts receivable for firm i in year t, where all variables are scaled by beginning-of-year book value of total assets. The performance-adjusted discretionary accrual (*DA*) is the difference between the firm-specific discretionary accruals and the average discretionary accrual of a portfolio of firms (excluding the sample firm itself) matched on Fama-French 48 industry classifications and current return on assets quartiles. *MAX_DA* is an indicator variable, which takes the value of 1 if a firm is in the highest quartile of performance-adjusted discretionary accruals and 0 otherwise. *ROA* is measured as net income (Compustat item 172) deflated by beginning-of-year book value of assets (Compustat item 6) in year t. *ACCRUALS* is measured as the difference between earnings (Compustat item 172) and cash flows from operating activities (Compustat item 308).

Table 6
Investment and Future Performance
for Firms with Negative External Financing

Panel A: Investment at time t and discretionary accruals at time t-1

Model: $INVESTMENT_{it}=\alpha + \beta_1*Q_{it-1} + \beta_2*CASH_{it-1} + \beta_3*MAX\_DA_{it-1} + \beta_4* Q_{it-1} *MAX\_DA_{it-1} + \beta_5* CASH_{it-1} *MAX\_DA_{it-1} + INDUSTRY\ DUMMIES + YEAR\ DUMMIES + \varepsilon_{it}$

	Predicted Sign	Coefficients *(p-value)*	Coefficients *(p-value)*
		OLS	GMM
Intercept		0.066 *(<.0001)*	0.066 *(<.0001)*
Lag(Q)	(+)	0.004 *(<.0001)*	0.004 *(<.0001)*
Lag(CASH)	(+)	0.121 *(<.0001)*	0.121 *(<.0001)*
Lag (MAX_DA)	?	-0.008 *(<.0001)*	-0.008 *(<.0001)*
*Lag (MAX_DA)*Lag(Q)*	?	0.004 *(0.003)*	0.004 *(0.015)*
Lag (MAX_DA)*Lag(CASH)	**(-)**	**-0.054** ***(<.0001)***	**-0.054** ***(<.0001)***
Industry dummies		Included	Included
Year dummies		Included	Included
*Adjusted R**2*		26.16%	26.16%
N		30,419	30,419

Table 6
(Continued)

Panel B: Future performance at time t +1 and discretionary accruals at time t-1

Model: $ROA_{it+1}=\alpha+\beta_1*ROA_{it}+\beta_2*ACCRUALS_{it}+\beta_3*ROA_{it}*ACCRUALS_{it}+\beta_4*INVESTMENT_{it} + \beta_5*Max\_DA_{it-1}+\beta_6*INVESTMENT_{it}*Max\_DA_{it-1}+ \varepsilon_{it}$

	Predicted Sign	Coefficients *(p-value)*
Intercept		-0.013 *(<.0001)*
ROA	(+)	0.833 *(<.0001)*
ACCRUALS	(-)	-0.330 *(<.0001)*
ROA*ACCRUALS	?	0.426 *(<.0001)*
INVESTMENT	(-)	-0.093 *(<.0001)*
Lag(Max_DA)	(-)	-0.018 *(<.0001)*
INVESTMENT*Lag(Max_DA)	**(-)**	**-0.079** ***(0.070)***
Adjusted R**2		35.84%
N		26,400

External finance (*XFIN)* is the sum of net cash inflows from the equity issuances (Compustat item 108-115-127), net cash inflows from the long-term debt issuances (Compustat item 111-114) and cash flows from the change in current debt (Compustat item 301), deflated by the beginning-of-year book value of assets (Compustat item 6). New investment *(INVESTMENT)* is capital expenditure (Compustat item 128) deflated by beginning-of-year book value of assets (Compustat item 6). Discretionary accruals is the residual from the regression $CA_{it} = \alpha + \beta (\Delta Sales_{it} - \Delta AR_{it}) + \varepsilon_{it}$, where CA is the current accrual of firm i in year t (Compustat item Δ (4-1) - Δ (5-34-71)) , ΔSales is the annual change in sales for firm i in year t, ΔAR is the annual change in accounts receivable for firm i in year t, where all variables are scaled by beginning-of-year book value of total assets. The performance-adjusted discretionary accrual (*DA*) is the difference between the firm-specific discretionary accruals and the average discretionary accrual of a portfolio of firms (excluding the sample firm itself) matched on Fama-French 48 industry classifications and current return on assets quartiles. *MAX_DA* is an indicator variable, which takes the value of 1 if a firm is in the highest quartile of performance-adjusted discretionary accruals and 0 otherwise. Investment opportunities (*Q*) is measured as the ratio of the market value to the replacement cost of the assets, where the market value is measured as the sum of the market value of the equity (Compustat item 25*199) and the value of debt (Compustat item 9 + 34) and the replacement cost of the assets is measured as the end-of-year book value of assets (Compustat item 6). Internally generated cash flows (*CASH)* is measured as the income before extraordinary items (Compustat item 18) plus depreciation and amortization expenses (Compustat item 14) scaled by beginning-of-year book value of assets (Compustat item 6). *ROA* is measured as net income (Compustat item 172) deflated by beginning-of-year book value of assets (Compustat item 6) in year t. *ACCRUALS* is measured as the difference between earnings (Compustat item 172) and cash flows from operating activities (Compustat item 308).

Table 7
Robustness Checks

Panel A**:** Investment at time t and discretionary accruals at time t-1, controlling for abnormal return in period t-1

Model: $INVESTMENT_{it}=\alpha + \beta_1*Q_{it-1} + \beta_2*CASH_{it-1} + \beta_3*MAX\_DA_{it-1} + \beta_4* Q_{it-1} *MAX\_DA_{it-1} + \beta_5* CASH_{it-1} *MAX\_DA_{it-1} + \beta_5*BHAR_{it-1} + INDUSTRY\ DUMMIES + YEAR\ DUMMIES + \varepsilon_{it}$

	Predicted Sign	Coefficients *(p-value)*		
		Full Sample	Positive XFIN Group	Negative XFIN Group
Intercept		0.111 *(<.0001)*	0.165 *(<.0001)*	0.070 *(<.0001)*
Lag(Q)	(+)	0.007 *(<.0001)*	0.007 *(<.0001)*	0.004 *(<.0001)*
Lag(CASH)	(+)	0.079 *(<.0001)*	0.079 *(<.0001)*	0.113 *(<.0001)*
Lag (MAX_DA)	?	-0.005 *(0.008)*	-0.004 *(0.001)*	-0.007 *(0.001)*
*Lag (MAX_DA)*Lag(Q)*	?	0.000 *(0.975)*	-0.001 *(0.314)*	0.002 *(0.123)*
Lag (MAX_DA)*Lag(CASH)	**(-)**	**-0.015** ***(0.075)***	**-0.022** ***(0.075)***	**-0.039** ***(<.0001)***
Lag(BHAR)	(+)	*(0.006)* *(<.0001)*	*(0.005)* *(<.0001)*	*(0.003)* *(<.0001)*
Industry dummies		Included	Included	Included
Year dummies		Included	Included	Included
*Adjusted R**2*		25.27%	30.34%	26.02%
N		51,871	25,688	26,183

Table 7
(Continued)

Panel B**:** Investment at time t and discretionary accruals at time t-1, controlling for CEO trading in period t-1.

Model: $INVESTMENT_{it}=\alpha + \beta_1*Q_{it-1} + \beta_2*CASH_{it-1} + \beta_3*MAX\_DA_{it-1} + \beta_4* Q_{it-1} *MAX\_DA_{it-1} + \beta_5* CASH_{it-1} *MAX\_DA_{it-1} + \beta_5*CEOBUY_{it-1} + \beta_6*CEOBUY_{it-1}*Q_{it-1} + \beta_5*CEOBUY_{it-1}*CASH_{it-1} + INDUSTRY\ DUMMIES + YEAR\ DUMMIES + \varepsilon_{it}$

	Predicted Sign	Coefficients *(p-value)*		
		Full Sample	Positive XFIN Group	Negative XFIN Group
Intercept		0.105 *(<.0001)*	0.160 *(<.0001)*	0.067 *(<.0001)*
Lag(Q)	(+)	0.009 *(<.0001)*	0.009 *(<.0001)*	0.005 *(<.0001)*
Lag(CASH)	(+)	0.086 *(<.0001)*	0.086 *(<.0001)*	0.120 *(<.0001)*
Lag (MAX_DA)	?	-0.006 *(0.003)*	-0.004 *(0.236)*	-0.008 *(<.0001)*
*Lag (MAX_DA)*Lag(Q)*	?	0.000 *(0.712)*	-0.002 *(0.229)*	0.004 *(0.004)*
Lag (MAX_DA)*Lag(CASH)	**(-)**	**-0.018** ***(0.023)***	**-0.021** ***(0.072)***	**-0.054** ***(<.0001)***
Lag(CEOBUY)	?	-0.008 *(<.0001)*	-0.010 *(<.0001)*	-0.004 *(0.010)*
*Lag(Q)*Lag(CEOBUY)*	?	0.005 *(<.0001)*	0.005 *(<.0001)*	0.004 *(<.0001)*
*Lag(CASH)*Lag(CEOBUY)*	?	-0.016 *(0.001)*	-0.014 *(0.041)*	-0.025 *(0.000)*
Industry dummies		Included	Included	Included
Year dummies		Included	Included	Included
*Adjusted R**2*		24.76%	30.02%	26.41%
N		56,045	27,275	28,770

Table 7
(Continued)

Panel C: Investment at time t and discretionary accruals at time t-1, replacing CASH with CFO

Model: $INVESTMENT_{it}=\alpha + \beta_1*Q_{it-1} + \beta_2*CFO_{it-1} + \beta_3*MAX\_DA_{it-1} + \beta_4*Q_{it-1}*MAX\_DA_{it-1} + \beta_5*CFO_{it-1}*MAX\_DA_{it-1} + INDUSTRY\ DUMMIES + YEAR\ DUMMIES + \varepsilon_{it}$

	Predicted Sign	Coefficients *(p-value)*		
		Full Sample	Positive XFIN Group	Negative XFIN Group
Intercept		0.099 *(<.0001)*	0.152 *(<.0001)*	0.061 *(<.0001)*
Lag(Q)	(+)	0.008 *(<.0001)*	0.008 *(<.0001)*	0.004 *(<.0001)*
Lag(CFO)	(+)	0.113 *(<.0001)*	0.120 *(<.0001)*	0.146 *(<.0001)*
Lag (MAX_DA)	?	0.000 *(0.963)*	0.002 *(0.434)*	-0.003 *(0.073)*
*Lag (MAX_DA)*Lag(Q)*	?	0.002 *(0.018)*	0.000 *(0.946)*	0.007 *(<.0001)*
Lag (MAX_DA)*Lag(CFO)	**(-)**	**-0.071** ***(<.0001)***	**-0.061** ***(<.0001)***	**-0.107** ***(<.0001)***
Industry dummies		Included	Included	Included
Year dummies		Included	Included	Included
*Adjusted R**2*		24.91%	30.45%	26.96%
N		56,342	27,395	28,947

Table 7
(Continued)

External finance (*XFIN)* is the sum of net cash inflows from the equity issuances (Compustat item 108-115-127), net cash inflows from the long-term debt issuances (Compustat item 111-114) and cash flows from the change in current debt (Compustat item 301), deflated by the beginning-of-year book value of assets (Compustat item 6). New investment *(INVESTMENT)* is capital expenditure (Compustat item 128) deflated by beginning-of-year book value of assets (Compustat item 6). Discretionary accruals is the residual from the regression $CA_{it} = \alpha + \beta\ (\Delta Sales_{it} - \Delta AR_{it}) + \varepsilon_{it}$, where CA is the current accrual of firm i in year t (Compustat item Δ (4-1) - Δ (5-34-71)) , ΔSales is the annual change in sales for firm i in year t, ΔAR is the annual change in accounts receivable for firm i in year t, where all variables are scaled by beginning-of-year book value of total assets. The performance-adjusted discretionary accrual (*DA*) is the difference between the firm-specific discretionary accruals and the average discretionary accrual of a portfolio of firms (excluding the sample firm itself) matched on Fama-French 48 industry classifications and current return on assets quartiles. *MAX_DA* is an indicator variable, which takes the value of 1 if a firm is in the highest quartile of performance-adjusted discretionary accruals and 0 otherwise. Investment opportunities (*Q*) is measured as the ratio of the market value to the replacement cost of the assets, where the market value is measured as the sum of the market value of the equity (Compustat item 25*199) and the value of debt (Compustat item 9 + 34) and the replacement cost of the assets is measured as the end-of-year book value of assets (Compustat item 6). Internally generated cash flows (*CASH)* is measured as the income before extraordinary items (Compustat item 18) plus depreciation and amortization expenses (Compustat item 14) scaled by beginning-of-year book value of assets (Compustat item 6). *ROA* is measured as net income (Compustat item 172) deflated by beginning-of-year book value of assets (Compustat item 6) in year t. *ACCRUALS* is measured as the difference between earnings (Compustat item 172) and cash flows from operating activities (Compustat item 308). *BHAR* is the buy-and-hold size adjusted stock return of firm i in fiscal year t. *CEOBUY* is CEO's net transaction (purchase – sales) size on firm's stock in year t, where the size of each transaction is measured as the number of shares traded, deflated by the number of shares held by CEO before transaction. CFO is cash flows from operating activities (Compustat item 308).