Accruals, Investment, and Future Performance

Jenny Chu*
Judge Business School
University of Cambridge
Trumpington St, Cambridge CB2 1AG, UK
j.chu@jbs.cam.ac.uk
+44 1223 339700

31st July 2019

*I am grateful to Stewart Jones, Editor-in-Chief, Andrew Jackson, Associate Editor, and the anonymous reviewer for their helpful comments and suggestions. I also thank Patricia Dechow, Patricia Fairfield, Bjorn Jorgensen, Richard Sloan, Scott Richardson, Irem Tuna, and workshop participants at UC Berkeley, London Business School, HEC Paris, University of Cambridge, London School of Economics, and Columbia University for their helpful comments.

Accruals, Investment, and Future Performance

Abstract:

It is well documented that accounting measures of investment, such as working capital and capital expenditures, negatively predict future stock returns. The earnings fixation hypothesis suggests that investors overestimate and overvalue the persistence of the accrual component of earnings. Another stream of the literature argues that since accruals capture growth, the accruals anomaly can be explained by the investment anomaly which finds that firms that grow their assets tend to have lower future returns. As empirical proxies for accruals and investment are either positively correlated or interchangeably used, it is difficult to distinguish between the competing hypotheses in empirical tests. This study contributes to the debate by identifying two special economic settings in which the two explanations offer diverging predictions. First, investment in research and development (R&D) represents an investment expenditure that reduces earnings but is not subject to accrual accounting. Thus, the earnings fixation hypothesis predicts a positive relation between increases in R&D investments and future returns, whereas the investment anomaly predicts a negative relation. Second, firms operating with negative working capital have working capital accruals that are negatively correlated with other forms of investment and growth. Therefore, while the earnings fixation hypothesis still predicts a negative relation between accruals and future returns in this setting, the investment explanation predicts a positive relation. For both sets of tests, the empirical evidence supports the earnings fixation hypothesis for the accruals anomaly and is inconsistent with the notion that the investment anomaly subsumes earnings fixation in explaining future stock returns.

Keywords: accruals anomaly; earnings fixation; investment anomaly; negative working capital; research and development (R&D) accounting.

The implications of accrual accounting for earnings persistence and future stock returns constitute an important and heavily debated area in accounting research. Sloan (1996) proposes the earnings fixation hypothesis which argues that, while innovations in accruals are subject to accounting distortions and tend to reverse in the future, investors fail to fully anticipate the reversals, leading to lower future stock returns. Studies following Fairfield *et al.* (2003) maintain that the implications of accruals for future performance arise from a more general investment or growth anomaly, in which diminishing marginal returns to investment contribute to lower future stock returns. More recently, Fama and French (2015) have added an ‘investment’ factor which negatively predicts future returns to their widely used empirical pricing model.

It is important from a policy perspective to understand whether the poor future performance of extreme accruals firms is an accounting phenomenon or the result of an underlying economic process. Regulators such as the Securities and Exchange Commission (SEC) and the Financial Accounting Standards Board (FASB) can potentially address accounting rules that lead to distortions which are misunderstood by investors. However, if accruals merely reflect fundamental growth, then the low earnings persistence and stock price mispricing of extreme accruals firms do not necessarily entail policy implications for financial regulators and standard setters.

However, it is difficult to separate the earnings fixation hypothesis from the investment anomaly since the majority of empirical studies in both investment and accruals research use accruals-based proxies. Investment is measured using accrual accounting data, and empirical measures for accruals and investment are either interchangeable or highly correlated. In a future stock returns regression, it is therefore not surprising that including

a proxy for investment reduces the magnitude of the correlation coefficient on accruals. One can alternatively argue that including accruals reduces the magnitude of the investment anomaly. In order to disentangle the two competing explanations, this study identifies two empirical settings where the earnings fixation and investment hypotheses offer opposite predictions. In these settings, it is then possible to determine whether the empirical results support or dispute the investment or the earnings fixation predictions.

The first test involves R&D expenditures that represent investments from an economic perspective but are expensed immediately for accounting purposes.¹ Since increases in R&D expenses represent increases in investment, the investment anomaly predicts that they will be associated with *lower* future returns. On the other hand, the earnings fixation hypothesis makes no such prediction, because the increases in R&D expenditure do not result in higher accounting accruals. Instead, since the investments are expensed instead of capitalized and therefore reduce earnings, Penman and Zhang (2002) hypothesize that temporary increases in R&D lead to ‘hidden accounting reserves’ that bring about higher future earnings and stock returns. Building on existing evidence (Lev and Sougiannis, 1996; Penman and Zhang; 2002), this study documents that, consistent with the earnings fixation hypothesis but inconsistent with the investment anomaly, rising R&D investments predict higher future returns.

Second, some firms have business models that operate with negative working capital. For example, firms that outsource production, hold minimal inventory, and make primarily cash sales but pay suppliers with a significant lag, can have negative working

¹ Statement of Financial Accounting Standard No. 2 (SFAS 2) issued by the FASB requires that R&D costs be charged to expense when incurred.

capital (e.g., Amazon.com, Inc., NASDAQ: AMZN). For these firms, working capital accruals (WC accruals) fall even as they experience growth in other measures of economic activity such as increasing property, plant and equipment (PP&E), sales and employees. In this setting, when firms with negative working capital grow the scale of their business and accruals become more negative, the investment anomaly predicts a positive relation between accruals and future stock returns. Under the earnings fixation hypothesis, accruals simply reflect accounting distortions for firms operating with negative working capital, just as they do for those with positive working capital. Therefore, the earnings fixation hypothesis still predicts a negative relation between accruals and future stock returns. Consistent with the earnings fixation hypothesis and contrary to the investment prediction, the empirical results indicate that for firms with negative working capital, accruals are still negatively related to future earnings persistence and stock returns.

This study advances the understanding of the accrual anomaly by disentangling the earnings fixation hypothesis from the investment anomaly in explaining the negative relation between accruals and future performance. While a large body of accounting literature extends and develops the earnings fixation explanation of the accrual anomaly (e.g., Xie 2001; Dechow and Dichev, 2002; Richardson *et al.*, 2005, 2006; Allen *et al.*, 2013; Hirshleifer *et al.*, 2012; Shi and Zhang, 2012), other studies explore alternative theories. One alternative stream of literature suggests that the accrual anomaly is simply a manifestation of a broader investment/glamour/growth/anomaly (Fairfield *et al.*, 2003; Fama and French, 2006; Zhang, 2007). In addition, recent finance literature has developed and tested the investment anomaly in various contexts, for example: firms adjusting investments to discount rate changes (e.g., Liu *et al.* 2009 and Wu *et al.* 2010), the levels

of systematic risk during high investment or disinvestment periods (Cooper and Priestley, 2011), international evidence on the negative effect of asset growth on future returns (Watanabe *et al.*, 2013), and the five-factor asset pricing model (Fama and French, 2015). This study does not take issue with the basic investment anomaly prediction that there are diminishing returns to investment or firms adjust investments in response to discount rate changes. Instead, by providing empirical evidence that supports the earnings fixation hypothesis in settings in which the investment anomaly offers diverging predictions, the study contributes to the debate in the literature and contradicts the conclusion that the investment anomaly *subsumes* the earnings fixation explanation for the accruals anomaly.

Another area of the literature debates whether information contained in cash flows subsume the accruals anomaly (e.g., Desai *et al.*, 2004; Cheng and Thomas, 2006; Ball *et al.*, 2016). Other explanations relate the accruals anomaly to risk (e.g., Khan, 2008) and limits-to-arbitrage (e.g., Lev and Nissim, 2006; Lam and Wei, 2011).² It is difficult to reconcile the evidence presented in this study to explanations based on cash-flow news, limits-to-arbitrage and risk.

HYPOTHESES DEVELOPMENT

The investment anomaly suggests that growing firms suffer from diminishing returns to investment and therefore experience lower future returns (e.g., Fairfield *et al.*, 2003). In addition, firms may increase investments when discount rates fall exogenously

² In related research, Green *et al.* (2011) suggests that the recent decline in the accruals anomaly can be in part attributed to the increase in the amount of capital from hedge funds exploiting the strategy, thus trading the anomaly away. Since the empirical proxies for both the accruals and the invest anomalies are highly correlated or interchangeable, it is difficult to conclusively determine whether the investors are trading on the accruals anomaly or the investment anomaly, or perhaps on both.

(e.g., Liu *et al.* 2009 and Wu *et al.* 2010). Hence, there is a widely documented negative relation between asset growth and future performance. Under Generally Accepted Accounting Principles (GAAP), firms capitalize tangible investments such as PP&E and inventories, thereby avoiding an immediate reduction in earnings if these investments were to be expensed. Therefore, investments mechanically increase the difference between earnings and cash flows and generate accruals on the balance sheet. In the literature, empirical proxies for investment capture changes in total assets (e.g., Fama and French, 2015) or changes in PP&E and inventories (e.g., Fairfield *et al.*, 2003; Wu *et al.*, 2010). Since outlays into tangible assets are reflected on the balance sheet, these empirical proxies are generally reasonable in capturing the year over year changes in investment levels. However, as these asset changes can be alternatively interpreted as accruals (Richardson *et al.*, 2005), the well documented negative relation between the investment proxies and future performance can also be used to support the earnings fixation hypothesis in explaining the accruals anomaly.

The Implications of Expensing R&D Investments

Most R&D expenditures are expensed immediately for accounting purposes in accordance with GAAP.³ This means that R&D expenses represent a rare form of investment that is not accruals-based and that reduces earnings in the immediate term. The earnings fixation hypothesis suggests that investors fixate on the shortfall of earnings due

³ FASB has permitted R&D to be capitalized only for certain kinds of software. SFAS 86, Accounting for the Costs of Computer Software to be Sold, Leased, or Otherwise Marketed, divides the life of a software product into three segments: 1) costs incurred before technological feasibility for the product is established are expensed as incurred under SFAS 2; 2) when software production begins, the company capitalizes all relevant costs; 3) once a software product is available for general release to customers, amortization begins for capitalized costs, and subsequent outlays are again expensed as incurred.

to the mandatory expensing of R&D expenses and underestimate the longer-term benefits from R&D-generated innovation. For example, Penman and Zhang (2002) hypothesize that temporary increases in R&D will lead to ‘hidden accounting reserves’ that will lead to higher future earnings and stock returns. Therefore, the earnings fixation hypothesis predicts that increases in R&D investments are positively related to future stock returns. The prediction by the investment anomaly for R&D investments is the opposite. It is important to note that the investment anomaly does not necessarily predict that R&D investments *per se* cause negative future returns. Rather, it predicts that diminishing returns to marginal investment suggest that incremental *increases* in R&D investments should be associated with *lower* future returns. Alternatively, if the increases in R&D investments are due to an exogenous reduction in discount rates, then future returns should be lower as well. In summary, the predictions are formally stated as follows:

Prediction 1a: according to the earnings fixation hypothesis, increases in R&D investments are positively related to future stock returns.

Prediction 1b: according to the investment anomaly, increases in R&D investments are negatively related to future stock returns.

The Existence of the Accruals anomaly in the Negative Working Capital Sample

As discussed earlier, the fact that investments tend to mechanically capture accruals is one of the main impediments to disentangling the investment explanation of the accruals anomaly from the earnings fixation hypothesis. The study examines a second natural economic setting where accruals do not capture investment growth. In particular, for growing firms with negative working capital balances, the investment and earnings fixation

explanations offer different testable hypotheses. In this setting, growing firms have negative working capital balances because their business models result in larger increases in current liabilities than in current assets. For instance, some retailers have business models that enable them to make cash sales while carrying low inventory and incurring large payables to suppliers. Thus, as these firms grow cash sales and invest more in non-current assets and employees, they tend to have declining working capital accruals. Exhibit 1 provides an example on the online retailer Amazon.com Inc. (NASDAQ: AMZN). Firms with subscription-based business models where their customers pay upfront for future services can incur significant deferred revenue liabilities while growing sales. Therefore, these firms also tend to have declining working capital accruals while experiencing positive economic growth in non-current assets, cash sales, and employees. Exhibit 2 provides an example on Netflix, Inc. (NASDAQ: NFLX), a subscription-based video-on-demand and production company.

If negative working capital firms grow the scale of their business in response to declining discount rates, then a positive relation between WC accruals and future stock returns should be observed. This is because lower discount rates lead to growth in the scale of the business but also more negative working capital accruals. When higher customer demand causes firms to invest more, it is not clear whether discount rate news is positive or negative. However, diminishing returns to marginal investment also predicts that the positive overall growth should lead to lower future returns, even as working capital accruals are declining. Therefore, the investment anomaly predicts a positive relation between working capital accruals and expected future returns for these firms.

The earnings fixation hypothesis, however, offers a different prediction in this setting: when customer demand drives sales growth, WC accruals at firms with negative working capital tend to get smaller and thereby understate current earnings. Investors fixate on current accounting earnings and underestimate future profitability for these firms. Future realized earnings will then be higher than expected, causing *higher* future returns. Therefore, WC accruals are still negatively related to future returns and the accruals anomaly exists in the sample despite accruals being negatively correlated with overall investment growth. In summary, the predictions are formally stated as follows:

Prediction 2a: according to the earnings fixation hypothesis, WC accruals are negatively related to future earnings and stock returns for negative working capital firms.

Prediction 2b: according to the investment anomaly, WC accruals are positively related to future stock returns for negative working capital firms.

SAMPLE SELECTION AND VARIABLE DEFINITIONS

Sample Selection

Table 1 summarizes the sample selection procedure. The sample starts with U.S. firms included in the Compustat North America Annual files from years 1970 to 2017. For both the R&D investment and the negative working capital tests, the sample begins with 258,491 firm-year observations from Compustat. Next, 50,236 observations for which returns (or delisting returns) are missing for either the current, lead, or lag year from the Center for Research in Security Prices (CRSP) are deleted. In addition, following previous accruals literature (e.g., Sloan 1996), 31,595 observations in the financial industry (SIC code 6000-6999) except insurance firms (SIC code 6300-6411) are excluded. There are

two reason why insurance firms are kept in the sample. First, insurance firms, unlike banks and other traditional financial institutions, typically do not take deposits. Therefore, their balance sheets are more similar to other operating businesses in the sample. Second, insurance firms tend to have subscription-based business models. Therefore, they form a part of the negative working capital sample.⁴

For the R&D investment test the sample is further reduced by 38,100 observations after requiring availability of all financial variables used in the empirical tests. In addition, upon inspection, due to the requirement of availability of lead and lagged variables, there are much fewer observations left in the sample for 1971 (compared to 1972) and the years after 2014 (compared to 2014). Therefore, observations before 1972 and after 2014 are deleted. The final sample for the R&D investment test consists of 129,583 observations.

For the negative working capital test, the same sample selection procedure as the R&D investment test has been applied up to excluding firms in the financial industry except insurance firms. This produces 176,660 firm-year observations. The sample is further reduced by 59,866 observations after requiring availability of all financial variables used in the empirical tests. After deleting observations before 1972 and after 2014, the final sample consists of 116,286 firm-year observations. Of this final sample, 96,932 observations have positive beginning working capital, and 19,354 observations have negative beginning working capital.

⁴ Note that Figure 2, panel B reports that insurance firms only make up 1.7% of firm-year observations in the negative working capital sample. Empirical results are qualitatively similar if they are excluded from the sample.

For both the R&D investment test and the negative working capital test samples, all financial variables except stock returns are winsorized at 1% and 99% levels to alleviate the effect of outliers. Market and risk-free returns are obtained from the Fama-French Factors (monthly frequency) dataset from Wharton Research Data Services. Definitions for Fama-French 12 industries are obtained from Ken French's website.

Variable Definitions

Following Richardson *et al.* (2015), accruals are defined as the change in *Net Working Capital* (NWC), the sum of current assets and short-term debt minus the sum of current liabilities and cash and equivalents. In other words, NWC represents net current non-cash operating assets (termed 'Working Capital' from Richardson *et al.*, 2005). *WC Accruals* is then the year-to-year difference in NWC divided by average total assets. Note that for ease of exposition, the terms 'net working capital (NWC)' and 'working capital (WC)' are used interchangeably in this study.

Investment is defined as the year-over-year change in total assets divided by lagged total assets following Fama and French (2015). *Operating Profitability* is also measured using Fama and French's (2015) definition: revenues minus cost of goods sold, minus selling, general, and administrative expenses, minus interest expense, all divided by book equity. Following previous literature such as Penman and Zhang (2002), *R&D Expenses* are capitalized, and *Capitalized R&D* is then amortized over five years in the following fashion:

$$\text{Capitalized R\&D}_{(t)} = \text{R\&D Expense}_{(t)} + 4/5 * \text{R\&D Expense}_{(t-1)} + 3/5 * \text{R\&D Expense}_{(t-2)} + 2/5 * \text{R\&D Expense}_{(t-3)} + 1/5 * \text{R\&D Expense}_{(t-4)}$$

Adjusted Total Assets is the sum of *Capitalized R&D* and reported (i.e., pre-R&D adjusted) total assets. *Capitalized R&D*, *Pre-R&D Total Assets*, and *Adjusted Total Assets* are then deflated by lagged *Adjusted Total Assets*. For the negative working capital test, two additional non-accruals proxies of growth are included. The first is $\Delta \text{Cash Sales}$ is the change in cash sales (sales minus change in net receivables) deflated by previous year's cash sales. The growth in cash sales thus measures sales growth excluding the accruals portion of sales. $\Delta \text{Employees}$ is the change in number of employees deflated by previous year's number of employees. Zhang (2007) identifies employee growth as a measure of non-accruals investment. These non-accruals proxies of investment are used to illustrate the negative correlation between WC accruals and investment proxies in the negative working capital sample and are used as additional control variables in the regressions.

Further control variables follow the known factors that are associated with abnormal future returns identified in Fama and French (2015) but are based on firm characteristics rather than forming portfolios. Firm characteristics are used in this study because in addition to future returns, the earnings fixation hypothesis also predicts a negative relation between accruals and future profitability, which is more easily tested in cross-sectional regressions. Moreover, recent studies such as Ang *et al.* (2018) suggest that using firm characteristics in cross-sectional regressions does not result in less precise estimates of coefficients. *BTM* is the book-to-market ratio and is book equity divided by market capitalization at the end of the fiscal year. *Size* is the natural logarithm of market capitalization. *RET* is the annualized buy-and-hold returns (including delisting returns) from CRSP for the fiscal year and is used as a control variable to represent past stock returns performance, or momentum, in the future returns tests. *MKTMRF* is the annualized

returns of the MKTRF Fama-French factor which measures excess returns on the market. *RETMRF* is the annualized buy-and-hold returns (including delisting returns) minus risk-free returns from Fama and French starting the fourth month after the fiscal yearend.

EMPIRICAL DESIGN AND FINDINGS

R&D Investment and Future Returns

Table 2 provides descriptive statistics for the sample used in the capitalized R&D growth test. The average change in *Capitalized R&D* for the sample is 0.009 of lagged adjusted total assets. This relatively small ratio is due to the large denominator (sum of total assets and capitalized R&D) used. Some firms report zero R&D expenses and they bring down the sample average. As a comparison, the change in all total assets prior to the capitalized R&D adjustment (Δ *Pre-R&D Total Assets*) is 0.091 when deflated by the same denominator. The sum of these two changes (Δ *Adjusted Total Assets*) is 0.10. The sample mean for the Fama and French (2015) definition of *Investment*, which is simply the percentage change in total assets, is 0.148. Since R&D expenses are serially correlated and mechanically reduce operating profitability, Table 3 reports a univariate negative correlation of -0.016 (p-value < 0.0001) between Δ *Capitalized R&D* and future profitability (*Operating Profitability*_(t+1)). Table 3 also reports a negative univariate Spearman correlation between Δ *Capitalized R&D* and lead stock returns (*RETMRF*) of -0.012 (p-value < 0.0001).

To empirically test Predictions 1a and 1b outlined in the hypotheses development section, the following Fama-Macbeth (1973) time-series regressions are specified:

$$(1) RETMRF_{it+1} = \alpha + \gamma_1 * \Delta Capitalized R\&D_{it} + \gamma_2 * \Delta Pre - R\&D Total Assets_{it} \\ + \gamma_3 * Operating Profitability_{it} + \gamma_4 * WC Accruals_{it} + \gamma_5 * BTM_{it} + \gamma_6 \\ * Size_{it} + \gamma_7 * RET_{it} + \beta * MKTMRF_{t+1} + \varepsilon.$$

$$(2) RETMRF_{it+1} = \alpha + \gamma_1 * \Delta Adjusted Total Assets_{it} + \gamma_2 * Operating Profitability_{it} \\ + \gamma_3 * WC Accruals_{it} + \gamma_4 * BTM_{it} + \gamma_5 * Size_{it} + \gamma_6 * RET_{it} + \beta \\ * MKTMRF_{t+1} + \varepsilon.$$

This empirical design follows Richardson *et al.* (2005) and adds firm characteristics as well as market returns variables to control for Fama and French (2015) factors that are associated with cross-sectional differences in average returns: market returns as well as firm profitability, size, book-to-market ratio, firm momentum (contemporaneous returns). Firm investment (growth in total assets) has been adjusted with R&D capitalization to become $\Delta Adjusted Total Assets$ in regression (2). The adjusted investment variable is decomposed into two parts in regression (1): $\Delta Capitalized R\&D$ and $\Delta Pre-R\&D Total Assets$. Since Polk and Sapienza (2008) finds that the negative investment-return relation is more pronounced for high R&D firms, which also tend to have high accruals, *WC Accruals* is added as an additional control variable.

Table 4 summarizes the time-series statistics from annual cross-sectional regressions of next year's risk-free adjusted returns on this year's capitalized R&D growth. The results in regression (1) indicate that after controlling for $\Delta Pre-R\&D Total Assets$ as well as other known factors that are associated with future returns, $\Delta Capitalized R\&D$ positively and significantly predict future returns (time-series mean coefficient of 0.61 and t-statistic of 2.33). This evidence supports the earnings fixation hypothesis (Prediction 1a) but is inconsistent with the investment anomaly (Prediction 1b).

As a sensitivity check, regression (2) of Table 4 reports that the change in R&D-adjusted total assets (Δ *Adjusted Total Assets*) negatively predicts future returns (*RETMRF*). The time-series mean coefficient is -0.13 and the mean t-statistic is -5.55. This indicates that while overall investment in total assets is *negatively* associated with future returns, it is the R&D portion that is expensed and not capitalized by financial accounting that *positively* predicts future returns.

Taken together, the empirical results indicate that, consistent with the earnings fixation explanation for the accruals anomaly, investors seem to not fully understand the implications of R&D investments because they are expensed instead of capitalized. This is inconsistent with the investment interpretation of the accruals anomaly, which predicts that increases in investments should lead to lower future returns.⁵

The Accruals Anomaly in the Negative Working Capital Sample

The negative working capital sample presents a second natural economic setting in which accruals do not capture investment growth. In this setting, growing firms have negative working capital balances because their business models result in bigger increases in current liabilities than in current assets. Therefore, as the firms scale up, their working capital accruals are naturally negatively related to growth in long term assets. Table 5 describes the positive and negative working capital samples. Panel A of Table 5 indicates that positive working capital firms have an average beginning *Net Working Capital* balance of \$117.4 million. The average *WC Accruals* is 0.013. These firms earn on average 0.18 in

⁵ One alternative explanation for the higher future returns might be that higher R&D firms have higher risk profiles. In untabulated analyses, I do not find change in capitalized R&D to be correlated with historical earnings volatility (standard deviation of past 5-year return on assets) and future earnings beta (the correlation coefficient of a firm's earnings to market-wide earnings).

Operating Profitability and 0.19 in contemporaneous stock returns. In addition, average Δ *Cash Sales* is 0.137. Panel B of Table 5 indicates that the negative working capital firms are profitable, growing firms even as the average beginning *Net Working Capital* balance is -\$65.2 million: mean current *Operating Profitability* is 0.09 and average Δ *Cash Sales* is 0.172. The average contemporaneous stock returns are 0.222. While mean *WC Accruals* is slightly positive at 0.011, the cross-sectional variation of accruals is the factor of interest in this sample. Comparing the two samples, the negative working capital firms appear to have lower profitability and book-to-market ratios and are larger in size.

For most firms in the Compustat population of publicly-listed companies, their working capital balance is positive (96,932 out of 116,286 or 83% of firm-year observations). However, Figure 1 illustrates that there has been an overall increasing trend in the number of negative working capital firms in the economy. Figure 2 compares the Fama-French 12-industry distribution across the positive and negative working capital samples. The results suggest that negative working capital firms are less likely to be from consumer, chemicals and manufacturing industries but are more likely to be from energy, business equipment, telecom, and other industries (e.g., business services).

Table 6 summarizes the correlations of *WC Accruals* with growth and investment for both positive and negative working capital firms. Consistent with previous literature, Panel A of Table 6 demonstrates that for positive working capital firms, *WC Accruals* is positively and significantly correlated with Δ *Cash Sales* (coefficient of 0.295), Δ *Employees* (coefficient of 0.379) and *Investment* (coefficient of 0.482). These correlations are highly significant statistically and have associated p-values of less than 0.0001. Thus,

for firms with a positive working capital balance it is difficult to disentangle the earnings fixation hypothesis from investment explanation of the accruals anomaly.

Table 6, Panel B indicates that the correlations of *WC Accruals* with Δ *Cash Sales Growth* (coefficient of -0.115), Δ *Employees* (coefficient of -0.092) and *Investment* (coefficient of -0.130) are negative and statistically significant at 0.0001 levels. Therefore, the negative working capital sample presents another natural economic setting that introduces diverging predictions from the earnings fixation and the investment hypotheses (Predictions 2a and 2b in the hypotheses development section).

To empirically test Predictions 1a and 1b discussed in the hypotheses development section, the following Fama-Macbeth (1973) regressions are specified:

$$\begin{aligned}
 (1) \text{ } OP_{it+1} &= \alpha + \gamma_1 * WC \text{ Accruals}_{it} + \gamma_2 * Operating \text{ Profitability}_{it} + \gamma_3 \\
 &\quad * \Delta \text{ Cash Sales}_{it} + \gamma_4 * \Delta \text{ Employees}_{it} + \gamma_5 * Investment_{it} + \gamma_6 * BTM_{it} \\
 &\quad + \gamma_7 * Size_{it} + \varepsilon \\
 (2) \text{ } RETMRF_{it+1} &= \alpha + \gamma_1 * WC \text{ Accruals}_{it} + \gamma_2 * Operating \text{ Profitability}_{it} + \gamma_3 \\
 &\quad * \Delta \text{ Cash Sales}_{it} + \gamma_4 * \Delta \text{ Employees}_{it} + \gamma_5 * Investment_{it} + \gamma_6 * BTM_{it} \\
 &\quad + \gamma_7 * Size_{it} + \gamma_8 * RET_{it} + \beta * MKTMRF_{t+1} + \varepsilon
 \end{aligned}$$

Following Richardson *et al.* (2005), earnings persistence and future returns are regressed on WC accruals using Fama-Macbeth (1973) time-series regressions. Firm characteristics as well as market returns variables are used to control for Fama and French (2015) factors that are associated with cross-sectional differences in average returns. In addition, two non-accruals-based growth proxies, Δ *Cash Sales Growth* and Δ *Employees*, are added as further control variables. Table 7 presents the results from the empirical analysis. Regression (1) of Table 7, Panel A indicates that, consistent with previous

literature, WC accruals are negatively associated with future profitability (time-series mean coefficient of -0.10 and t-statistic of -3.92) for positive working capital firms. Regression (2) reports that WC accruals are negatively and significantly associated with future stock returns (time-series mean coefficient of -0.33 and t-statistic of -5.07). Regression (1) of Table 7, Panel B indicates that, consistent with Prediction 2a, WC accruals are negatively associated with future profitability (time-series mean coefficient of -0.16 and t-statistic of -1.72) for negative working capital firms. Regression (2) of Table 7, Panel B reports that WC accruals are negatively and significantly associated with future stock returns (time-series mean coefficient of -0.31 and t-statistic of -2.50). The results reported in Table 7, Panel B support the earnings fixation hypothesis (Prediction 2a) and are inconsistent with the investment anomaly (Prediction 2b).

In summary, this study identifies two natural economic situations where the earnings fixation hypothesis and the investment anomaly offer diverging testable predictions. In both R&D investment and negative working capital tests, the results are contrary to the investment explanation of the accruals anomaly and are consistent with the earnings fixation explanation of the accruals anomaly. Taken together, these results suggest that earnings fixation helps explain the accruals anomaly and is not subsumed by the investment anomaly.

CONCLUSION

This study investigates whether the investment anomaly subsumes the earnings fixation hypothesis in explaining the accruals anomaly. The earnings fixation hypothesis

suggests that investors overestimate and overvalue the persistence of the accrual component of earnings. The investment anomaly documents a general negative relation between investment and future stock returns and suggests that the negative investment-return relation could be due to diminishing returns to investment, or that firms increase investments in response to declines in discount rates. If WC accruals are interpreted as a proxy of working capital investment, then the accruals pricing anomaly may be viewed as another manifestation of the investment anomaly.

In order to disentangle the two competing hypotheses, the study identifies two natural economic situations where the investment view and the earnings fixation view of the accruals anomaly offer different predictions. Specifically, the study finds evidence that supports the earnings fixation hypothesis but is inconsistent with the investment explanation of the accruals anomaly. First, increases in R&D investments positively, rather than negatively, predict future stock returns. Second, in a subsample of firms for which economic drivers enable them to grow sales and total assets with declining working capital accruals, accruals still negatively predict future earnings and stock returns.

Taken together, the empirical evidence suggests that earnings fixation better explains future returns in these identified situations in which the two theories' predictions diverge. Therefore, while the investment view explains the negative relation between investment and future stock returns in many situations, the empirical evidence presented in this study suggests that the investment anomaly does not subsume the earnings fixation interpretation of the accruals anomaly.

References

Allen, E., C. Larson, and R. Sloan (2013), 'Accrual Reversals, Earnings and Stock Returns', *Journal of Accounting and Economics*, Vol. 56, No. 1, pp. 113–29.

Ang, A., J. Liu, and K. Schwarz (2018), *Using Stocks Or Portfolios In Tests Of Factor Models*, Working Paper, Columbia University, University of California San Diego, and University of Pennsylvania.

Ball, R., J. Gerakos, J. T. Linnainmaa, and V. Nikolaev (2016), 'Accruals, Cash Flows, and Operating Profitability in The Cross Section of Stock Returns', *Journal of Financial Economics*, Vol. 121, No. 1, pp. 28–45.

Cheng, C.S.A. and W.B. Thomas (2006), 'Evidence of The Abnormal Accrual Anomaly Incremental to Operating Cash Flows', *The Accounting Review*, Vol. 81, No. 5, pp. 1,151–1,167.

Cooper, I. and R. Priestley (2011), 'Real Investment and Risk Dynamics,' *Journal of Financial Economics*, Vol. 101, No. 1, pp. 182–205.

Dechow, P.M. and I. Dichev (2002), 'The Quality of Accruals and Earnings: The Role Of Accrual Estimation Errors', *The Accounting Review* Vol. 77, Supplement, pp. 35–59.

Desai, H. M., S. Rajgopal, and M. Venkatachalam (2004), 'Value-Glamour and Accruals Mispricing: One Anomaly or Two?', *The Accounting Review*, Vol. 79, No. 2, pp. 355–385.

Fairfield, P. M., J. S. Whisenant, and T. L. Yohn (2003), 'Accrued Earnings and Growth: Implications for Future Profitability and Market Mispricing', *The Accounting Review*, Vol. 78, No. 1, pp. 353–271.

Fama, E. F. and K. R. French (2006), 'Profitability, Investment and Average Returns', *Journal of Financial Economics*, Vol. 82, No. 3, pp. 491–518.

Fama, E. F. and K. R. French (2015), 'A Five-Factor Asset Pricing Model', *Journal of Financial Economics*, Vol.116, No.1, pp. 1–22.

Fama, E. F. and J. D. MacBeth (1973). 'Risk, Return, and Equilibrium: Empirical Tests', *Journal of Political Economy*, Vol. 81, No. 3, pp. 607–636.

Green, J., J. R. M. Hand, and M. T. Soliman (2011), 'Going, Going, Gone? The Apparent Demise Of The Accruals Anomaly', *Management Science*, Vol. 57, No. 5, pp. 797–816.

Hirshleifer, D., K. Hou, and S. H. Teoh (2012), 'The Accrual Anomaly: Risk or Mispricing?', *Management Science* Vol. 58, No. 2, pp. 320–335.

- Khan, M. (2008), 'Are Accruals Mispriced? Evidence from Tests of an Intertemporal Capital Asset Pricing Model', *Journal of Accounting & Economics*, Vol. 45, No. 1, pp. 55–77.
- Lam, F. Y. E. C. and K. C. J. Wei (2011), 'Limits-To-Arbitrage, Investment Frictions, and the Asset Growth Anomaly', *Journal of Financial Economics*, Vol. 102, No.1, pp. 127–149.
- Lev, B. and D. Nissim (2006), 'The persistence of the accruals anomaly', *Contemporary Accounting Research*, Vol. 23, No.1, pp. 1–34.
- Lev, B. and T. Sougiannis (1996), 'The Capitalization, Amortization and Value-Relevance of R&D', *Journal of Accounting and Economics*, Vol. 21, No. 1, pp. 107–138.
- Liu, L.X., T.M. Whited, and L. Zhang (2009), 'Investment-Based Expected Stock Returns', *Journal of Political Economy*, Vol. 117, No. 6, pp. 1,105–1,139.
- Penman, S. H. and X.J. Zhang (2002), 'Accounting Conservatism, the Quality of Earnings, and Stock Returns', *The Accounting Review*, Vol. 77, No. 2, pp 237–264.
- Polk, C., and P. Sapienza (2008), 'The Stock Market and Corporate Investment: A Test of Catering Theory', *The Review of Financial Studies*, Vol. 22, No. 1, pp. 187–217.
- Richardson, S., R. Sloan, M. Soliman, and I. Tuna (2005), 'Accrual Reliability, Earnings Persistence and Stock Prices', *Journal of Accounting & Economics*, Vol. 39, No. 3, pp. 437–485.
- Richardson, S., R. Sloan, M. Soliman, and I. Tuna (2006), 'The Implications of Firm Growth and Accounting Distortions for Accruals and Profitability', *The Accounting Review*, Vol. 81, No. 3, pp. 713–743.
- Shi, L. and H. Zhang (2012), 'Can the Earnings Fixation Hypothesis Explain the Accrual Anomaly?', *Review of Accounting Studies* Vol. 17, No.1, pp. 1–21.
- Sloan, R. (1996), 'Do Stock Prices Fully Reflect Information in Accruals and Cash Flows about Future Earnings?', *The Accounting Review*, Vol. 71, No. 3, pp. 289–315.
- Watanabe, A., Y. Xu, T. Yao and T. Yu. (2013), 'The Asset Growth Effect: Insights from International Equity Markets', *Journal of Financial Economics*, Vol.108, No. 3, pp. 529–563.
- Wu, J., L. Zhang, and X.F. Zhang (2010), 'The Q-Theory Approach to Understanding the Accrual Anomaly', *Journal of Accounting Research*, Vol. 48, No. 1, pp. 177–223.
- Xie, H. (2001), 'The Mispricing of Abnormal Accruals', *The Accounting Review*, Vol. 76, No. 1, pp. 357–373.

Zhang, F. (2007), 'Accruals, Investment, and the Accrual Anomaly', *The Accounting Review*, Vol. 82, No. 5, pp. 1,333–1,363.

Appendix 1. Amazon.com, Inc. (NASDAQ: AMZN) Selected Financial Information.

Fiscal Year		2012	2013	2014
(a)	Cash and Equivalents	11,448	12,447	17,416
	Non-Cash Current Assets	9,848	12,178	13,911
	Total Current Assets	21,296	24,625	31,327
	Non-Current Assets	11,259	15,534	23,178
	Total Assets	32,555	40,159	54,505
(b)	Debt in Current Liabilities	1,134	1,736	3,600
	Deferred Revenues - Current	1,892	2,559	3,523
	Accounts Payable	13,318	15,133	16,459
	Other Current Liabilities	2,658	3,552	4,507
	Non-Cash Current Liabilities	17,868	21,244	24,489
	Total Current Liabilities	19,002	22,980	28,089
	Non-Current Liabilities	5,361	7,433	15,675
	Shareholder's Equity	8,192	9,746	10,741
	Total Liabilities and Stockholder's Equity	32,555	40,159	54,505
	(a) - (b) Net Working Capital	-8,020	-9,066	-10,578
	WC Accruals	-0.054	-0.029	-0.032
	Δ Cash Sales	28%	22%	20%
	Δ Employees	57%	33%	31%
	Δ Operating Profitability _(t+1)	3%	1%	17%
	Stock Return _(t+1)	26%	11%	60%

This table presents selected financial information for Amazon.com, Inc. Balance sheet information is in US\$ millions. *Net Working Capital* is the sum of current assets and short-term debt minus the sum of current liabilities and cash and equivalents. *WC Accruals* is the year-to-year difference in net current operating assets (WC from Richardson *et al.*, 2005), or *net working capital*, divided by average total assets. Δ *Cash Sales* is the change in cash sales (sales minus change in net receivables) deflated by previous year's cash sales. Δ *Employees* is the change in number of employees deflated by previous year's number of employees. Δ *Operating Profitability* is the year over year change in operating profitability. *Operating Profitability* is revenues minus cost of goods sold, minus selling, general, and administrative expenses, minus interest expense, all divided by book equity. *Stock Return* is the annualized buy-and-hold returns (including delisting returns) from CRSP starting the fourth month after the fiscal yearend.

Exhibit 2. Netflix, Inc. (NASDAQ: NFLX) Selected Financial Information.

Fiscal Year		2012	2013	2014
(a)	Cash and Equivalents	748	1,200	1,608
	Non-Cash Current Assets	1,493	1,858	2,332
	Total Current Assets	2,241	3,059	3,940
	Non-Current Assets	1,727	2,354	3,116
	Total Assets	3,968	5,413	7,057
(b)	Debt in Current Liabilities	3	1	1
	Deferred Revenues - Current	169	216	275
	Accounts Payable	1,453	1,884	2,319
	Other Current Liabilities	50	53	69
	Non-Cash Current Liabilities	1,673	2,153	2,662
	Total Current Liabilities	1,676	2,154	2,663
	Non-Current Liabilities	1,547	1,925	2,536
	Shareholder's Equity	745	1,334	1,858
	Total Liabilities and Stockholder's Equity	3,968	5,413	7,057
	(a) - (b) Non-Cash Net Working Capital	-180	-295	-330
	WC Accruals	0.00	-0.02	-0.01
	Δ Cash Sales	13%	21%	26%
	Δ Employees	-17%	-4%	5%
	Δ Operating Profitability _(t+1)	8%	3%	-11%
	Stock Return _(t+1)	86%	18%	72%

This table presents selected financial information for Netflix, Inc. Balance sheet information is in US\$ millions. *Net Working Capital* is the sum of current assets and short-term debt minus the sum of current liabilities and cash and equivalents. *WC Accruals* is the year-to-year difference in net current operating assets (WC from Richardson *et al.*, 2005), or *net working capital*, divided by average total assets. Δ *Cash Sales* is the change in cash sales (sales minus change in net receivables) deflated by previous year's cash sales. Δ *Employees* is the change in number of employees deflated by previous year's number of employees. Δ *Operating Profitability* is the year over year change in operating profitability. *Operating Profitability* is revenues minus cost of goods sold, minus selling, general, and administrative expenses, minus interest expense, all divided by book equity. *Stock Return* is the annualized buy-and-hold returns (including delisting returns) from CRSP starting the fourth month after the fiscal yearend.

Table 1: Sample Selection**Panel A: Capitalized R&D Growth Test**

Sample selection	Number of firm-years
Firm-year observations available from Compustat 1970-2017	258,491
Less:	
Observations with missing CRSP returns for t_{-1} , t , and delisting returns t_{+1}	(50,236)
Observations in the financial industry (SIC code 6000-6999) except insurance firms (SIC code 6300-6411)	(31,595)
Observations without availability for the required financial variables	(38,100)
Observations before 1972 or after 2014	(8,977)
Final sample	129,583

Panel B: Negative Working Capital Test

Sample selection	Number of firm-years
Firm-year observations available from Compustat 1970-2017	258,491
Less:	
Observations with missing CRSP returns for t_{-1} , t , and delisting returns t_{+1}	(50,236)
Observations in the financial industry (SIC code 6000-6999) except insurance firms (SIC code 6300-6411)	(31,595)
Observations without availability for the required financial variables	(59,866)
Observations before 1972 or after 2014	(508)
Full sample (a+b)	116,286
Observations with positive beginning working capital (a)	96,932
Observations with negative beginning working capital (b)	19,354

Table 2: Descriptive Statistics for the Capitalized R&D Growth Test

Variable	Mean	Std Dev	Median	Q1	Q3
Δ Capitalized R&D _(t)	0.009	0.027	0.000	0.000	0.008
Δ Pre-R&D Total Assets _(t)	0.091	0.236	0.067	-0.025	0.176
Δ Adjusted Total Assets _(t)	0.100	0.241	0.073	-0.020	0.188
Operating Profitability _(t)	0.148	0.471	0.208	0.064	0.330
Operating Profitability _(t+1)	0.143	0.548	0.206	0.060	0.330
WC Accruals _(t)	0.014	0.091	0.010	-0.025	0.053
Investment _(t)	0.148	0.378	0.074	-0.026	0.207
BTM _(t)	0.811	0.744	0.602	0.331	1.046
Size _(t)	4.722	2.249	4.574	3.018	6.304
RET _(t)	0.187	0.867	0.055	-0.236	0.391
MKTMRF _(t+1)	0.076	0.181	0.087	-0.013	0.192
RETMRF _(t+1)	0.127	0.874	-0.002	-0.290	0.334

This table presents sample descriptive statistics. Δ Capitalized R&D is the year-over-year change in Capitalized R&D, calculated as $R\&D\ Expense_{(t)} + 4/5 R\&D\ Expense_{(t-1)} + 3/5 R\&D\ Expense_{(t-2)} + 2/5 R\&D\ Expense_{(t-3)} + 1/5 R\&D\ Expense_{(t-4)}$, divided by lagged adjusted total assets. *Adjusted Total Assets* is the sum of total assets and Capitalized R&D. Δ Pre-R&D Total Assets is the year-over-year change total assets before R&D capitalization, divided by lagged adjusted total assets. Δ Adjusted Total Assets is year-over-year change in adjusted total assets, divided by lagged adjusted total assets. *Operating Profitability* is revenues minus cost of goods sold, minus selling, general, and administrative expenses, minus interest expense, all divided by book equity. *WC Accruals* is the year-to-year difference in net current operating assets (WC from Richardson *et al.*, 2005), or *net working capital*, divided by average total assets. *Net Working Capital* is the sum of current assets and short-term debt minus the sum of current liabilities and cash and equivalents. *Investment* is the year-over-year change in total assets, divided by lagged total assets. *BTM* is book-to-market, measured by book equity divided by market capitalization at the end of the fiscal year. *Size* is the natural logarithm of market capitalization. *RET* is the annualized buy-and-hold returns (including delisting returns) from CRSP for the fiscal year. *MKTMRF* is the annualized returns of the MKTRF Fama-French factor which measures excess returns on the market. *RETMRF* is the annualized buy-and-hold returns (including delisting returns) from CRSP minus risk-free returns (*rf* of Fama-French factors) starting the fourth month after the fiscal yearend.

Table 3: Sample Variable Correlations for the Capitalized R&D Growth Test

Variable	Δ Cap. R&D (t)	Δ Pre- RD TA (t)	Δ Adj. TA (t)	OP (t)	OP (t+1)	WC Acc (t)	Invest (t)	BTM (t)	Size (t)	RET (t+1)	MKT MRF (t+1)	RETMRF (t+1)
Δ Capitalized R&D (t)	1.000											
Δ Pre-R&D Total Assets (t)	<i>0.106</i>	1.000										
Δ Adjusted Total Assets (t)	<i>0.204</i>	<i>0.986</i>	1.000									
Operating Profitability (t)	0.001	<i>0.296</i>	<i>0.277</i>	1.000								
Operating Profitability (t+1)	<i>-0.016</i>	<i>0.193</i>	<i>0.176</i>	<i>0.699</i>	1.000							
WC Accruals (t)	<i>0.081</i>	<i>0.370</i>	<i>0.368</i>	<i>0.159</i>	<i>0.056</i>	1.000						
Investment (t)	<i>0.123</i>	<i>0.997</i>	<i>0.985</i>	<i>0.289</i>	<i>0.186</i>	<i>0.369</i>	1.000					
BTM (t)	<i>-0.148</i>	<i>-0.196</i>	<i>-0.215</i>	<i>-0.215</i>	<i>-0.189</i>	<i>-0.044</i>	<i>-0.205</i>	1.000				
Size (t)	<i>0.106</i>	<i>0.181</i>	<i>0.181</i>	<i>0.317</i>	<i>0.275</i>	<i>-0.004</i>	<i>0.183</i>	<i>-0.426</i>	1.000			
RET (t)	<i>-0.016</i>	<i>0.256</i>	<i>0.242</i>	<i>0.269</i>	<i>0.244</i>	<i>0.056</i>	<i>0.258</i>	<i>-0.286</i>	<i>0.217</i>	1.000		
MKTMRF (t+1)	0.000	<i>-0.010</i>	<i>-0.007</i>	<i>-0.001</i>	<i>-0.018</i>	<i>0.021</i>	<i>-0.010</i>	<i>0.018</i>	<i>-0.008</i>	<i>-0.112</i>	1.000	
RETMRF (t+1)	<i>-0.012</i>	<i>-0.053</i>	<i>-0.056</i>	<i>0.112</i>	<i>0.239</i>	<i>-0.043</i>	<i>-0.055</i>	<i>0.118</i>	<i>0.023</i>	<i>-0.022</i>	<i>0.365</i>	1.000

This table presents sample Spearman correlations. Correlations that are statistically significant at 0.01 confidence levels are in *italic*. Δ Capitalized R&D is the year-over-year change in Capitalized R&D, calculated as $R\&D\ Expense_{(t)} + 4/5 R\&D\ Expense_{(t-1)} + 3/5 R\&D\ Expense_{(t-2)} + 2/5 R\&D\ Expense_{(t-3)} + 1/5 R\&D\ Expense_{(t-4)}$, divided by lagged adjusted total assets. Δ Pre-R&D Total Assets is the year-over-year change total assets before R&D capitalization, divided by lagged adjusted total assets. Adjusted Total Assets is the sum of total assets and Capitalized R&D. Δ Adjusted Total Assets is year-over-year change in adjusted total assets, divided by lagged adjusted total assets. Operating Profitability is revenues minus cost of goods sold, minus selling, general, and administrative expenses, minus interest expense, all divided by book equity. WC Accruals is the year-to-year difference in net current operating assets (WC from Richardson *et al.*, 2005), or *net working capital*, divided by average total assets. Net Working Capital is the sum of current assets and short-term debt minus the sum of current liabilities and cash and equivalents. Investment is the year-over-year change in total assets, divided by lagged total assets. BTM is book-to-market, measured by book equity divided

by market capitalization at the end of the fiscal year. *Size* is the natural logarithm of market capitalization. *RET* is the annualized buy-and-hold returns (including delisting returns) from CRSP for the fiscal year. *MKTRF* is the annualized returns of the MKTRF Fama-French factor which measures excess returns on the market. *RETMRF* is the annualized buy-and-hold returns (including delisting returns) from CRSP minus risk-free returns (*rf* of Fama-French factors) starting the fourth month after the fiscal yearend.

Table 4: Fama-Macbeth (1973) Regressions of Returns on Capitalized R&D Growth.

$$(1) RETMRF_{it+1} = \alpha + \gamma_1 * \Delta Capitalized\ R\&D_{it} + \gamma_2 * \Delta Pre - R\&D\ Total\ Assets_{it} + \gamma_3 * Operating\ Profitability_{it} + \gamma_4 * WC\ Accruals_{it} + \gamma_5 * BTM_{it} + \gamma_6 * Size_{it} + \gamma_7 * RET_{it} + \beta * MKTMRF_{t+1} + \varepsilon.$$

$$(2) RETMRF_{it+1} = \alpha + \gamma_1 * \Delta Adjusted\ Total\ Assets_{it} + \gamma_2 * Operating\ Profitability_{it} + \gamma_3 * WC\ Accruals_{it} + \gamma_4 * BTM_{it} + \gamma_5 * Size_{it} + \gamma_6 * RET_{it} + \beta * MKTMRF_{t+1} + \varepsilon.$$

		Predicted Sign			
		Investment	Earnings	(1)	(2)
		Anomaly	Fixation	RETMRF _(t+1)	RETMRF _(t+1)
A)	Δ Capitalized R&D _(t)	—	+	0.61 ** (2.33)	
B)	Δ Pre-R&D Total Assets _(t)	—	—	-0.15 *** (-5.79)	
A) + B)	Δ Adjusted Total Assets _(t)	—	—		-0.13 *** (-5.55)
	Operating Profitability _(t)			0.06 *** (3.96)	0.06 *** (3.05)
	WC Accruals _(t)			-0.23 *** (-4.74)	-0.24 *** (-4.44)
	BTM _(t)			0.04 *** (3.53)	0.04 *** (2.87)
	Size _(t)			-0.02 ** (-2.66)	-0.02 ** (-2.68)
	RET _(t)			-0.02 (-0.77)	-0.02 (-0.86)
	MKTMRF _(t+1)			1.37 *** (10.50)	1.37 *** (10.26)
Adjusted R-Squared				0.081	0.079

This table presents time-series means and t-statistics for coefficients from annual cross-sectional regressions of next year's risk-free adjusted returns on this year's capitalized R&D growth. ***, **, * represent statistical significance at the 1, 5, 10% levels respectively based on one-tailed p-values from t-tests. Δ Capitalized R&D is the year-over-year change in Capitalized R&D, calculated as $R\&D\ Expense_{(t)} + 4/5\ R\&D\ Expense_{(t-1)} + 3/5\ R\&D\ Expense_{(t-2)} + 2/5\ R\&D\ Expense_{(t-3)} + 1/5\ R\&D\ Expense_{(t-4)}$, divided by lagged adjusted total assets. Δ Pre-R&D Total Assets is the year-over-year change total assets before R&D capitalization, divided by lagged adjusted total assets. Adjusted Total Assets is the sum of total assets and Capitalized R&D. Δ Adjusted Total Assets is year-over-year change in adjusted total assets, divided by lagged adjusted total assets. Operating Profitability is revenues minus cost of goods sold, minus selling, general, and administrative expenses, minus interest expense, all divided by book equity. WC Accruals is the year-to-year difference in net current operating assets (WC from Richardson *et al.*, 2005), or net working capital, divided by average total assets. Net Working Capital is the sum of current assets and short-term debt minus the sum of current liabilities and cash and equivalents. Investment is the year-over-year change in total assets, divided by lagged total assets. BTM is book-to-market, measured by book equity divided by market capitalization at the end of the fiscal year. Size is the natural logarithm of market capitalization. RET is the annualized buy-and-hold returns (including delisting returns) from CRSP for the fiscal year. MKTMRF is the annualized returns of the MKTRF Fama-French factor which measures excess returns on the market. RETMRF is the annualized buy-and-hold returns (including delisting returns) from CRSP minus risk-free returns (*rf* of Fama-French factors) starting the fourth month after the fiscal yearend.

Table 5. Descriptive Statistics for the Negative Working Capital Test.**Panel A. The Positive Working Capital Sample.**

Variable	Mean	Std Dev	Median	Q1	Q3
Net Working Capital _(t-1) (\$M)	117.4	267.1	23.6	6.5	91.8
WC Accruals _(t)	0.013	0.089	0.011	-0.026	0.054
Operating Profitability _(t)	0.180	0.369	0.218	0.093	0.329
Operating Profitability _(t+1)	0.173	0.436	0.216	0.088	0.329
Δ Cash Sales _(t)	0.137	0.340	0.091	-0.015	0.217
Δ Employees _(t)	0.067	0.280	0.024	-0.054	0.129
Investment _(t)	0.127	0.316	0.072	-0.021	0.188
BTM _(t)	0.866	0.746	0.656	0.377	1.110
Size _(t)	4.693	2.216	4.541	3.007	6.265
RET _(t)	0.190	0.809	0.069	-0.209	0.390
MKTMRF _(t+1)	0.074	0.178	0.085	-0.025	0.190
RETMRF _(t+1)	0.131	0.809	0.011	-0.263	0.334

Panel B. The Negative Working Capital Sample.

Variable	Mean	Std Dev	Median	Q1	Q3
Net Working Capital _(t-1) (\$M)	-65.2	131.0	-8.3	-46.7	-1.7
WC Accruals _(t)	0.011	0.080	0.002	-0.021	0.031
Operating Profitability _(t)	0.090	0.638	0.185	-0.036	0.371
Operating Profitability _(t+1)	0.091	0.731	0.186	-0.035	0.370
Δ Cash Sales _(t)	0.172	0.519	0.083	-0.044	0.250
Δ Employees _(t)	0.104	0.358	0.036	-0.045	0.158
Investment _(t)	0.156	0.430	0.061	-0.051	0.216
BTM _(t)	0.587	0.662	0.414	0.206	0.785
Size _(t)	5.342	2.375	5.258	3.714	7.019
RET _(t)	0.222	1.066	0.042	-0.246	0.400
MKTMRF _(t+1)	0.081	0.191	0.090	-0.005	0.177
RETMRF _(t+1)	0.139	0.990	-0.007	-0.307	0.332

This table presents sample descriptive statistics. *Net Working Capital* is the sum of current assets and short-term debt minus the sum of current liabilities and cash and equivalents. *WC Accruals* is the year-to-year difference in net current operating assets (WC from Richardson *et al.*, 2005), or *net working capital*, divided by average total assets. *Operating Profitability* is revenues minus cost of goods sold, minus selling, general,

and administrative expenses, minus interest expense, all divided by book equity. Δ *Cash Sales* is the change in cash sales (sales minus change in net receivables) deflated by previous year's cash sales. Δ *Employees* is the change in number of employees deflated by previous year's number of employees. *Investment* is the year-over-year change in total assets, divided by lagged total assets. *BTM* is book-to-market, measured by book equity divided by market capitalization at the end of the fiscal year. *Size* is the natural logarithm of market capitalization. *RET* is the annualized buy-and-hold returns (including delisting returns) from CRSP for the fiscal year. *MKTMRF* is the annualized returns of the MKTRF Fama-French factor which measures excess returns on the market. *RETMRF* is the annualized buy-and-hold returns (including delisting returns) from CRSP minus risk-free returns (*rf* of Fama-French factors) starting the fourth month after the fiscal yearend.

Table 6. Sample Variable Correlations for the Negative Working Capital Test.

Panel A. The Positive Working Capital Sample.

		Growth Proxies			Accruals	Profitability and Stock Returns		
		Δ Cash			Δ WC			
		Sales _(t) Δ Emp _(t) Invest _(t)			Accruals _(t)	OP _(t)	OP _(t+1)	RETMRF _(t+1)
Variable								
Growth Proxies	Δ Cash Sales _(t)	1.000						
	Δ Employees _(t)	<i>0.500</i>	1.000					
	Investment _(t)	<i>0.508</i>	<i>0.584</i>	1.000				
	WC Accruals _(t)	<i>0.295</i>	<i>0.379</i>	<i>0.482</i>	1.000			
Profitability and Stock Returns	Operating Profitability _(t)	<i>0.283</i>	<i>0.216</i>	<i>0.327</i>	<i>0.207</i>	1.000		
	Operating Profitability _(t+1)	<i>0.185</i>	<i>0.152</i>	<i>0.210</i>	<i>0.086</i>	<i>0.708</i>	1.000	
	RETMRF _(t+1)	<i>-0.037</i>	<i>-0.048</i>	<i>-0.054</i>	<i>-0.048</i>	<i>0.091</i>	<i>0.240</i>	1.000

Panel B. The Negative Working Capital Sample.

		Growth Proxies			Accruals	Profitability and Stock Returns		
		Δ Cash			Δ WC			
		Sales _(t) Δ Emp _(t) Invest _(t)			Accruals _(t)	OP _(t)	OP _(t+1)	RETMRF _(t+1)
Variable								
Growth Proxies	Δ Cash Sales _(t)	1.000						
	Δ Employees _(t)	<i>0.422</i>	1.000					
	Investment _(t)	<i>0.395</i>	<i>0.531</i>	1.000				
	WC Accruals _(t)	<i>-0.115</i>	<i>-0.092</i>	<i>-0.130</i>	1.000			
Profitability and Stock Returns	Operating Profitability _(t)	<i>0.150</i>	<i>0.089</i>	<i>0.198</i>	<i>-0.060</i>	1.000		
	Operating Profitability _(t+1)	<i>0.117</i>	<i>0.073</i>	<i>0.147</i>	<i>-0.089</i>	<i>0.671</i>	1.000	
	RETMRF _(t+1)	<i>-0.030</i>	<i>-0.037</i>	<i>-0.050</i>	<i>-0.035</i>	<i>0.136</i>	<i>0.204</i>	1.000

This table presents sample Spearman correlations. All correlations are statistically significant at 0.01 confidence levels and are in *italic*. *WC Accruals* is the year-to-year difference in net current operating assets (WC from Richardson *et al.*, 2005), or *net working capital*, divided by average total assets. *Net Working Capital* is the sum of current assets and short-term debt minus the sum of current liabilities and cash and equivalents. *Δ Cash Sales* is the change in cash sales (sales minus change in net receivables) deflated by previous year's cash sales. *Δ Employees* is the change in number of employees deflated by previous year's number of employees. *Investment* is the year-over-year change in total assets, divided by lagged total assets. *Operating Profitability* is revenues minus cost of goods sold, minus selling, general, and administrative expenses, minus interest expense, all divided by book equity. *RETMRF* is the annualized buy-and-hold returns (including delisting returns) from CRSP minus risk-free returns (*rf* of Fama-French factors) starting the fourth month after the fiscal yearend.

Table 7. Fama-Macbeth (1973) Regressions of Working Capital Accruals for the Negative Working Capital Test.

$$(1) OP_{it+1} = \alpha + \gamma_1 * WC\ Accruals_{it} + \gamma_2 * Operating\ Profitability_{it} + \gamma_3 * \Delta\ Cash\ Sales_{it} + \gamma_4 * \Delta\ Employees_{it} + \gamma_5 * Investment_{it} + \gamma_6 * BTM_{it} + \gamma_7 * Size_{it} + \varepsilon$$

$$(2) RETMRF_{it+1} = \alpha + \gamma_1 * WC\ Accruals_{it} + \gamma_2 * Operating\ Profitability_{it} + \gamma_3 * \Delta\ Cash\ Sales_{it} + \gamma_4 * \Delta\ Employees_{it} + \gamma_5 * Investment_{it} + \gamma_6 * BTM_{it} + \gamma_7 * Size_{it} + \gamma_8 * RET_{it} + \beta * MKTMRF_{t+1} + \varepsilon$$

Panel A. The Positive Working Capital Sample.

	Predicted Sign			Predicted Sign		
	Investment Anomaly	Earnings Fixation	(1) OP _(t+1)	Investment Anomaly	Earnings Fixation	(2) RETMRF _(t+1)
WC Accruals _(t)	?	—	-0.10 *** (-3.92)	—	—	-0.33 *** (-5.07)
Operating Profitability _(t)			0.41 *** (25.39)			0.08 *** (3.02)
Investment _(t)			-0.02 ** (-2.28)			-0.11 *** (-5.87)
Δ Cash Sales _(t)			0.01 (1.50)			-0.01 (-0.47)
Δ Employees _(t)			0.03 *** (3.34)			0.05 ** (2.86)
BTM _(t)			-0.03 *** (-5.67)			0.05 *** (3.37)
Size _(t)			0.03 *** (14.11)			-0.02 *** (-3.29)
MKTMRF _(t+1)						1.40 *** (11.43)
Adjusted R-Squared			0.197			0.086

Table 7. Fama-Macbeth (1973) Regressions of Working Capital Accruals for the Negative Working Capital Test (Continued).

Panel B. The Negative Working Capital Sample.

	Predicted Sign			Predicted Sign		
	Investment Anomaly	Earnings Fixation	(1) OP _(t+1)	Investment Anomaly	Earnings Fixation	(2) RETMRF _(t+1)
WC Accruals _(t)	?	–	-0.16 * (-1.72)	+	–	-0.31 ** (-2.50)
Operating Profitability _(t)			0.40 *** (14.21)			0.02 (0.91)
Investment _(t)			-0.02 (-0.53)			-0.11 *** (-3.91)
Δ Cash Sales _(t)			0.02 (1.04)			-0.01 (-0.45)
Δ Employees _(t)			-0.02 (-0.68)			-0.03 (-1.24)
BTM _(t)			0.01 (0.44)			0.03 (1.41)
Size _(t)			0.03 *** (7.81)			-0.02 ** (-2.18)
MKTMRF _(t+1)						1.07 *** (6.75)
Adjusted R-Squared			0.204			0.074

This table presents time-series means and t-statistics for coefficients from annual cross-sectional regressions of next year's operating profitability on this year's working capital accruals. ***, **, * represent statistical significance at the 1, 5, 10% levels respectively based on one-tailed p-values from t-tests for variables with predicted signs and two-tailed p-values from t-tests for variables without predicted signs. *WC Accruals* is the year-to-year difference in net current operating assets (WC from Richardson *et al.*, 2005), or *net working capital*, divided by average total assets. *Net Working Capital* is the sum of current assets and short-term debt minus the sum of current liabilities and cash and equivalents. *Operating Profitability* is revenues minus cost of goods sold, minus selling, general, and administrative expenses, minus interest expense, all divided by book equity. *Δ Cash Sales* is the change in cash sales (sales minus change in net receivables) deflated by previous year's cash sales. *Δ Employees* is the change in number of employees deflated by previous year's number of employees. *Investment* is the year-over-year change in total assets, divided by lagged total assets. *BTM* is book-to-market, measured by book equity divided by market capitalization at the end of the fiscal year. *Size* is the natural logarithm of market capitalization. *RET* is the annualized buy-and-hold returns (including delisting returns) from CRSP for the fiscal year. *MKTMRF* is the annualized returns of the MKTRF Fama-French factor which measures excess returns on the market. *RETMRF* is the annualized buy-and-hold returns (including delisting returns) from CRSP minus risk-free returns (*rf* of Fama-French factors) starting the fourth month after the fiscal yearend.

Figure 1. Distribution of Positive and Negative Net Working Capital firms by Year.

This figure presents the distribution of positive and negative working capital firms by year. The sample is from 1972 - 2014. The line with square-shaped data points represents the positive working capital sample. The line with diamond-shaped data points represents the negative working capital sample.

Figure 2. Distribution of Positive and Negative Working Capital Firm-Year Observations by Industry.

Panel A. Positive Working Capital Sample.

This panel presents the distribution of positive working capital firm-year observations by industry. The sample is from 1972 - 2014. Industries are defined according to Fama and French 12-industries classifications.

Panel B. Negative Working Capital Sample.

This panel presents the distribution of the negative working capital firm-year observations by industry. The sample is from 1972 - 2014. Industries are defined according to Fama and French 12-industries classifications.