External Financing, Access to Debt Markets, and Stock Returns*

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Abstract

This paper offers a novel understanding of the cause of the external financing anomaly, a well established observation that net overall external financing activities and future stock returns are negatively related. Recent studies argue that the external financing anomaly is driven by earnings management and/or investment growth. However, we find that about half of the anomaly remains unexplained by these interpretations. The remaining predictability is not due to exposures to conventional risks and firm characteristics, the accruals factor, the asset growth factor, the wealth transfer hypothesis, or the issuer risk hypothesis, and is not driven by performance delistings or delistings associated with negative returns or unknown risks. Instead, it is attributed to the overvalued young and small unprofitable firms that lack internal funds and have limited access to public debt markets rely heavily on equity and modestly on private debt external financing to pursue their ambitious growth strategies through heavily investing in research and development.

JEL Classification: G14, G31, G32, M41, M42

Keywords: Accruals; Asset growth; Capital investment growth; Corporate external financing; Cross section of stock returns; Financing source; Mispricing

A large body of studies documents that future stock returns are negatively related not only to a wide range of *individual* corporate financing activities (see, for example, Ritter (2003)) but also to *net* equity financing (see, for example, Daniel and Titman (2006), Pontiff and Woodgate (2008) and Fama and French (2008)) and even to *net overall* external financing activities (Bradshaw, Richardson, and Sloan (2006)). The latter phenomenon is often referred to as the "external financing anomaly." Loughran and Ritter (1995, 2000), Ritter (2003), and Bradshaw et al. (2006), among others, attribute the phenomenon to managers of initially overvalued firms systematically exploiting market mispricing by successfully raising capital through external financing activities.

On the other hand, recent studies by Cohen and Lys (2006) and Dechow, Richardson, and Sloan (2008) and Papanastasopoulos, Thomakos and Wang (2008), among others, argue that the anomaly is driven by (1) firms that undergo external financing activities opportunistically managing earnings to alter financing proceeds in their favor and/or (2) corporate managers that invest net cash inflow from external financing in negative net present value (NPV) projects. Furthermore, Butler, Cornaggia, Grullon, and Weston (2009) show that the level of net external financing predicts future stock returns but the composition of net external financing does not. They, therefore, argue that the anomaly is due to corporate financing activities that respond to changes in real investment policies which are negatively affected by expected returns rather than managerial market timing.

In this paper, we show that, beyond earnings management and investment growth, a substantial portion of the external financing anomaly is attributable to overvalued young and small unprofitable firms that lack internal funding and have limited access to public debt markets rely heavily on equity and moderately on private debt to pursue their ambitious growth strategies through heavily investing in research and development. Using U.S. data from 1972 to 2007, our results are summarized as follows.

First, after filtering out the predictability related to the accrual anomaly and the asset growth anomaly from net overall external financing activities, we still find that there is a significantly negative relation between the residual net external financing and future stock returns. The raw return spread between the low and the high residual net external financing deciles is 0.66% per month, which is about half of the spread from the original net external financing measure. The results suggest that a substantial portion of the external financing anomaly remains unexplained by a combination of the accrual anomaly and the asset growth anomaly.

Second, we document that the predictability in the residual net external financing is mostly driven by the subsequent underperformance of high residual external financing firms. The findings are not explained by exposures to conventional risks and firm characteristics, the accruals risk factor, the asset growth risk factor, the wealth transfer hypothesis, or the issuer risk hypothesis, and is not driven by performance delistings or delistings associated with negative returns (i.e., default or bankruptcy) or unknown risks.

Finally, we find that the predictability only holds among firms that are unrated by credit analysts. Unrated high external financing firms are also young and small unprofitable firms. Although these firms lack internal funding, they rely heavily on external financing to pursue high growth strategies by investing heavily in research and development. Since these firms have limited access to public debt markets, they rely heavily on equity in additional to on private debt. In fact they issue the highest amount of residual net equity (the net equity unrelated to accruals and asset growth) together with a modest amount of residual net debt. At the same time, the assets of these firms receive the highest market valuation relative to their book value. We also observe that stock returns of unrated high financing firms are lower around earnings announcement days than other non-event days and these firms underperform their counterpart unrated low financing firms much more severely around earnings announcement days than other non-event days. Hence, it seems that investors are initially overly optimistic about the future prospects of these young and small unprofitable firms that chase growth opportunities.

This paper contributes to the literature by providing a novel understanding of the cause of the external financing anomaly. Our interpretation is clearly distinguishable from but it also works together with recent explanations. First, contrary to the conclusions in recent studies, we document that earnings management and investment growth do not completely explain away the external financing anomaly. About half of the anomaly remains unexplained by these explanations. We show that the remaining half of the anomaly is driven by equity overvaluation.

Secondly, we find that it may be *the forced need for net external financing to sustain unprofitable but growth-pursuing businesses* that motivates a high level of residual net external financing. In addition, it is *the equities of smallest and youngest firms with the highest research and development expenses that are relatively difficult to value* that may translate the expectational errors and overvaluation into the return predictability in the residual net external financing.

In contrast to the timing hypothesis, our explanation provides a reason why the equity overvaluation happens in the first place. Our mechanism also naturally generates the findings that the residual net debt financing predicts lower equity returns, which is difficult to be reconciled with the misvaluation timing hypothesis in the traditional behavioral finance.[1] Indeed, our mechanism naturally generates the findings that the residual net equity financing, the residual net debt financing, and the residual net overall external financing predict lower equity returns.

[1] Suppose lower future equity return proxies for current equity overvaluation. The timing hypothesis predicts that these firms raise net equity financing but is silent about the change in debt financing.

Finally, our evidence motivates a rethinking of constructing a new market wide common risk factor based on misevaluation as suggested by Hirshleifer and Jiang (2009). Once the well-known accruals and investment growth effects are controlled for, using security repurchase/issuance to proxy for cross sectional undervaluation/overvaluation relies on the timing hypothesis but our findings suggest that it may not be the only possibility. We also find that low residual net external financing firms do not earn positive risk-adjusted stock returns, which suggests that they do not seem to be undervalued. Furthermore, we find that unrated high residual net external financing firms (which are overvalued firms associated with lower future stock returns) seem to be more risky instead of less risky than other firms.

The remainder of this paper is as follows. The next section reviews the relevant literature and motivates the paper. Section II describes our measurements of variables, data selection, and preliminary results. Section III documents the relation between stock returns and external financing after explicitly removing the return predictability related to the accrual anomaly and the asset growth anomaly. Section IV documents the effect of coverage by credit analysts on the relationship between stock returns and the residual net external financing. Section V examines whether the relationship is caused by equity overvaluation and how the overvaluation might be translated into to the return predictability in the residual net external financing. Finally, Section VI concludes the paper.

I. Literature Review and Motivation

Extensive studies document a negative relation between external financing activities and future stock returns and the relation holds across a wide range of *individual* corporate external financing activities (Ritter, 2003). Typically, transactions raising (distributing) capital are associated with lower (higher) future stock returns. Stock returns are lower following initial public offerings of stock issues or secondary equity offerings (Ritter (1991) and Loughran and Ritter (1995, 1997)), debt offerings (Spiess and Affleck-Graves (1999)), and bank borrowings (Billett, Flannery and Garfinkel (2005)). On the other hand, stock returns are higher following stock repurchases (Ikenberry, Lakonishok, and Vermaelen (1995)), dividend initiations (Michaely, Thaler and Womack (1995)), and debt repayments (Affleck-Graves and Miller (2006)).

The negative relation also holds for *overall* external financing activities. Daniel and Titman (2006), Pontiff and Woodgate (2008), and Fama and French (2008) find that net stock issues and future stock returns are negatively related. Furthermore, McLean, Pontiff and Watanabe (2008) document that equity issuance predicts cross-sectional stock returns in 41 countries outside the United States. Bradshaw et al. (2006) measure net external financing activities as the net amount of cash a firm raises (distributes) from (to) equity and debt markets. They find that not only is net external financing negatively related to future stock returns, the stock return predictability of this measure is also stronger than those of the *individual* categories of corporate financing activities documented in the previous literature.

Bradshaw et al. (2006) find that net external financing is also negatively related to future earnings performance. This negative relation also holds separately for either net cash flow from equity financing or net cash flow from debt financing. Furthermore, they show that errors in one- and two-year-ahead earnings forecasts, errors in long-term earnings growth forecasts, and errors in twelve-month target price forecasts are more negative but stock recommendations are better for high than for low net external financing firms. These suggest that analysts and hence investors may be relatively overoptimistic in forming their earnings expectations for high net external financing firms.

The evidence in Bradshaw et al. (2006) is clearly inconsistent with either the wealth transfer hypothesis suggested by Eberhart and Siddique (2002) or the issuer risk hypothesis suggested by Eckbo, Masulis and Norli (2000), Brav, Geczy and Gompers (2000), and Eckbo and Norli (2005).[2] In explaining the external financing anomaly, Bradshaw et al. (2006) interpret their results as supportive for the misvaluation timing hypothesis put forward by Loughran and Ritter (1995, 2000) and others.[3] This traditional behavioral finance literature argues that overvalued firms tend to successfully issue new securities to exploit market overpricing. As the initial overvaluations are subsequently corrected, a negative empirical relation between net external financing and subsequent average stock returns is observed.

On the other hand, the results from analysts' earnings forecasts, target prices, and recommendations in Bradshaw et al. (2006) are consistent with at least two other arguments.[4] First, the aggressive earnings management hypothesis argues that the external financing anomaly coincides with the accrual anomaly. When firms have decided to increase (reduce) net external financing, managers opportunistically manage their earnings upwards (downwards) through

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[2] The wealth transfer hypothesis argues that financing transactions that reduce (increase) leverage decrease (increase) the risk of financial distress causing wealth to transfer from (to) equity holders to (from) debt holders. Furthermore, the market value of equity responds to these changes with a lag. Therefore, transactions that decrease (increase) leverage are negatively (positively) related to future stock returns. The implied positive relation between debt financing and future stock return is rejected by the evidence in Bradshaw et al. (2006). The issuer risk hypothesis argues that investors perceive firms issuing securities to be less risky in terms of default and price these stocks to yield lower expected returns. However, the results of analysts' earnings or target price forecasts in Bradshaw et al. (2006) suggest that investors are likely to be too optimistic about those high external financing firms and do not fully anticipate the negative relation between external financing and earnings performance.

[3] See also Spiess and Affleck-Graves (1999), Jegadeesh (2000), Pontiff and Schill (2001), and Ritter (2003) for further discussions and variations.

[4] There exists an empirical link between book-to-market equity and corporate financing activities. For example, Hovakimian, Opler and Titman (2001) document that firms with higher (lower) book-to-market equity are more (less) likely to issue (retire) equity vis-à-vis debt. Moreover, Brav et al. (2000) find that subsequent stock price underperformance of equity-issuing firms is similar to the underperformance of firms with low book-to-market equity not issuing equity. Bali, Demirtas and Hovakimian (2006) show that investors seem to extrapolate past growth in forming expectations about future earnings, overvaluing (undervaluing) growth firms issuing equity (value firms repurchasing equity). Hence it is susceptible that the external financing anomaly may have some overlapping with the value-versus-growth anomaly. However, Hardouvelis, Papanastasopoulos, Thomakos and Wang (2008) show that the external financing anomaly remains significant after controlling for the value-versus-growth effect on returns and argue that neither investors' extrapolation biases in forming expectations about future earnings nor the distress risk premium is likely to cause the external financing anomaly.

accounting accruals to increase (decrease) offering (distribution) proceeds.[5] In this case, investors' overoptimism in forming their earnings expectations on high net external financing firms is a manifestation of investors' misunderstanding of the persistence of earnings driven by accounting accruals.

Second, the investment growth hypothesis suggests that the external financing anomaly coincides with the capital investment or asset growth anomaly. On one hand, the agency related overinvestment version of the hypothesis suggests that managers overinvest the net cash proceeds from external financing in negative NPV projects to serve their personal interests but investors underreact to the fundamental value destruction.[6] In this case, investors' overoptimism in forming their earnings expectations on high net external financing firms is a manifestation of investors' limited attention to the principal-agent problem. On the other hand, the real investment-based version of the hypothesis suggests that corporate financing activities respond to changes in real investment policies which are affected by expected returns.

Several accounting studies have provided some evidence supporting these competing explanations. Richardson and Sloan (2003) find that the external financing anomaly is strongest when cash proceeds are invested in net operating assets but is weaker when cash proceeds are used for refinancing, retained as financial assets, or immediately expensed.[7] They interpret the conditional net external financing and return effect as evidence for supporting the overinvestment hypothesis. Cohen and Lys (2006) observe that net external financing and

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[5] See, for example, Rangan (1998), Teoh, Welch, and Wong (1998), and Shivakumar (2000).

[6] This is an extension of the agency cost argument of Jensen (1986). See also Titman, Wei and Xie (2004).

[7] They do not rule out the misvaluation hypothesis. They argue that the misvaluation hypothesis can only be a minor second-order effect because they find that the negative relation between external financing, conditional on the cash proceeds being used to fund net operating assets, and future stock returns is weaker than the negative relationship between internal financing (i.e., retained earnings are used to fund net operating assets) and future stock returns.

accounting accruals are positive correlated.[8] In addition, in the cross section, firms with high accounting accruals are associated with high external financing. More importantly, they find that the net external financing and return effect becomes statistically insignificant when accounting accruals are controlled for in a multivariate regression. They interpret their results as supportive for both the earnings management and overinvestment hypotheses but as evidence against the misvaluation timing hypothesis.

More recently, Dechow et al. (2008) argue that the external financing anomaly and the accrual anomaly are two sides of the same coin by showing that, after controlling for reinvested earnings in net external financing-sorted portfolios, high net external financing firms no longer have significantly lower future stock returns than do low net external financing firms.[9] Papanastasopoulos et al. (2008) show that the link between the external financing anomaly and accounting accruals is more likely to be driven by investing in capital accruals.[10] On the other hand, the working capital component of accruals still provides an important link, but only for short-term debt financing. They also interpret their findings in favor of both the earnings management and overinvestment hypotheses. Finally, Butler et al. (2009) show that the level of net financing is but the composition of net financing is not important in predicting future stock returns. They interpret their evidence in favor of the real investment growth hypothesis.

The motivation of this paper is as follows. First, although the accounting literature and other recent papers conclude that earnings management and investment growth provide reasonable

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[8] As we will discuss later, Sloan (1996) documents that firms with high accounting accruals have lower risk-adjusted stock returns than firms with low accounting accruals.

[9] Reinvested earnings are defined as the sum of accounting accruals and changes in cash. The idea is that investors misunderstand the diminishing earnings to reinvested earnings. Dechow et al. (2008) argue that reinvested earnings are the main reason behind the accruals anomaly. They suggest that external financing predicts stock returns because external financing is correlated with reinvested earnings.

[10] Total accounting accruals can be decomposed into two parts: working capital accruals and investing capital accruals. The former is related to operating activities, discretions on sales, and expense recognition over general accounting principles. The latter is related to investment activities and may be associated with overinvestment or managerial empire building tendencies.

explanations for the external financing anomaly, these explanations do not seem to provide a clear cut and exhaustive account of the anomaly.[11] If earnings management and investment growth do explain away the anomaly, then after filtering out the return predictability related to the accrual anomaly and the asset growth anomaly, the residual net external financing should not predict future stock returns. However, in the next two sections, we find evidence that supports the otherwise. It follows that there must be other reasons behind the external financing anomaly.

Second, the results from analysts' forecasts in Bradshaw et al. (2006) are consistent with errors in earnings expectation, but they do not necessarily point only to the traditional misvaluation timing hypothesis as the only explanation for the findings that the residual net external financing predicts future stock returns. Indeed we lack evidence on the motives behind the extreme residual net external financing and the mechanism linking expectational errors and the predictability is still unclear. It is also not clear why high residual net external financing firms are overvalued in the first place. It is also difficult to reconcile the findings that the residual net debt financing predicts lower equity return with the timing hypothesis.

We document that the reason behind the return predictability in the residual net external financing is equity overvaluation and the predictability is due to errors in expectations beyond those associated with the accrual anomaly and the investment growth effect. Moreover, we pin down a motive behind a high level of the residual net external financing and provide a mechanism to link the equity overvaluation and the predictability in the residual net external financing. We also examine why high residual net external financing firms are likely to be overvalued in the first place. Our mechanism also naturally accounts for the stock return predictability in the residual net debt financing.

[11] E.g. the research designs in Cohen and Lys (2006) and Dechow et al. (2008) might be contaminated by multicollinearity problems as net external financing is highly correlated with accruals and reinvested earnings. On the other hand, findings in Butler et al. (2009) do not control for the accruals effect.

II. Measurements and Data Description

A. Net External Financing, Total Accruals, and Total Asset Growth

Following Bradshaw et al. (2006), we use the net amount of cash flow from external financing activities ($\Delta XFIN$) as a composite measure of net corporate external financing transactions. That is, it is the extent to which a firm raises (distributes) capital from (to) capital markets. $\Delta XFIN$ is the sum of net cash flow from equity financing and net cash flow from debt financing between fiscal yearend $t-2$ to fiscal yearend $t-1$, scaled by average total assets over the period. This measure automatically accounts for refinancing transactions, such as cash proceeds of equity issuance are used to repurchase debt. Net cash flow from equity financing is the cash proceeds from sales of common and preferred stocks (COMPUSTAT annual data item 108) less cash payments for purchases of common and preferred stocks (item 115) less cash payments for dividends (item 127). Net cash flow from debt financing is the cash proceeds from the issuance of long-term debt (item 111) less cash payments for long-term debt reductions (item 114) plus the net changes in current debt (item 301, set to zero if it is missing).[12]

Next, we use total accruals (*TAC*) as our proxy for earnings management and total asset growth (*TAG*) as our measure for investment growth. Sloan (1996) documents that firms with high accounting accruals have lower risk-adjusted stock returns than do firms with low accounting accruals. He argues that investors make errors in expectations about future earnings performance as they overweight accruals and underweight cash flows despite data suggesting that cash flows are more persistent than accruals. The empirical return regularity is widely known as the accrual anomaly. Xie (2001) further documents that the accrual anomaly is due to investors mispricing discretionary accruals (i.e., the part of accounting accruals that is under

[12] Setting missing item 301 to zero provides us with a much larger sample. Bradshaw et al (2006) find that the relation between $\Delta XFIN$ and future stock return is qualitatively similar among firms with non-missing item 301.

managerial discretion).[13] Dechow and Dichev (2002), Chan, Chan, Jegadeesh, and Lakonishok (2005), and Richardson, Sloan, Soliman, and Tuna (2005, 2006) provide further evidence to support aggressive earnings management as the major explanation for the accrual anomaly.[14]

Following Cohen and Lys (2006), we use total accruals (*TAC*) to measure annual accounting accruals.[15] Our results remain similar when total accruals are replaced by discretionary accruals. *TAC* is the change in non-cash assets (the change in item 6 less the change in item 11) less the change in non-debt liabilities (the change in item 181 less the change in item 9 less the change in item 34) between fiscal yearend $t-2$ to fiscal yearend $t-1$, scaled by average total assets over the period.

Recent studies have documented that companies that invest more or grow their total assets more earn lower subsequent adjusted returns. Fairfield, Whisenant and Yohn (2003) find that future stock returns are negatively related to changes in long-term net operating assets. Hirshleifer, Hou, Teoh and Zhang (2004) and Richardson, Sloan, and Tuna (2006) document that stocks of firms with higher levels of net operating assets earn lower future stock returns. Titman, Wei and Xie (2004) find that abnormal levels of capital expenditures are negatively associated with subsequent stock returns. Fama and French (2006, 2008) and Cooper, Gulen and Schill

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[13] Discretionary accruals are measured by the residual values of firm-level cross sectional regressions based on the Jones (1991) model. In other words, discretionary accruals are the part of accounting accruals that are not predictable by the model.

[14] Another strand of literature (Fairfield, Whisenant and Yohn, 2003; Richardson, Sloan, Soliman, and Tuna, 2006; Zhang, 2007; Dechow et al. 2008) argues that the accruals anomaly is due to overinvestment. One of our main tasks in this paper is to remove earnings management and overinvestment driven stock return predictability from the information contained in external financing. Controlling for accruals serves our purpose whether or not the accruals anomaly is due to earnings management or overinvestment or both.

[15] Although Xie (2001) uses discretionary accruals to proxy for managerial discretion, we use total accruals to stay in line with previous papers that examine the interaction between the external financing anomaly and the accruals anomaly. It also allows us to control for the information about future stock returns contained in accruals that are related to overinvestment, if there is any. Moreover, according to Dechow et al. (2008) and Richardson et al. (2005, 2006), in contrast to other definitions of accounting accruals, this extended and comprehensive measure is less likely to omit accruals related to non-current operating assets, non-current operating liabilities, non-cash financial assets, and non-cash financial liabilities. Cohen and Lys (2006) suggest that this measure of accruals is more suitable and relevant in linking the external financing anomaly and the accruals anomaly.

(2008) use total asset growth to measure a firm's overall capital investment growth and asset expansions and find that higher asset growth predicts lower expected returns. In addition, Cooper et al. (2008) show that the composite growth measure has a stronger predictive power for stock returns than do the individual measures. This phenomenon is often referred to as the capital investment anomaly or the asset growth anomaly.

Some studies suggest that the asset growth anomaly is attributable to investors mis-reacting to the reasons behind capital investment growth and asset expansions, which causes mispricing. Titman et al. (2004) and Chan, Karceski, Lakonishok and Sougiannis (2008) provide evidence that the anomaly is due to investors' initial underreactions to overinvestments pursued by managers who are empire building. Titman, Wei, and Xie (2009) further document that it is the abnormal or unexpected component of asset growth that drives the anomaly.[16] In contrast, Cooper et al. (2008) attribute the asset growth anomaly to investors' initial overreactions to changes in future business prospects implied by asset expansions. In supporting the mispricing argument, Lam and Wei (2009) document that the anomaly is more pronounced and more persistent when there are more severe limits to arbitrage but vanishes when arbitrage is easy.

On the other hand, the explanation based on neoclassical *q*-theory of investment (i.e., Chen and Zhang (2009), Li, Livdan, and Zhang (2007) and Liu, Whited, and Zhang (2008)) argues that investment or asset growth and average stock returns are negatively correlated because firm raises real investment in response to a lower cost of capital or ex-ante expected return. That is, when future business prospects become less risky, it implies a higher net present value on available projects and hence a rising level of current investment. Li and Zhang (2009) further

[16] Abnormal asset growth is defined as the residual value of the firm-level cross-sectional regression of total asset growth on a financial-constraint proxy and an investment opportunity proxy. Abnormal asset growth is the unexpected component of asset growth.

show that the asset growth anomaly, among others, is weaker when financial constraints are tighter.

Following Fama and French (2006, 2008) and Cooper et al. (2008), we use total asset growth (*TAG*) as a composite measure of overall capital investment growth and asset expansions. Our results remain unchanged when total asset growth is replaced by capital investment growth. TAG_t is calculated as the percentage of growth of total assets (item 6) from fiscal yearend $t-1$ to fiscal yearend t.

B. Sample Selection

We start with all domestic firms listed on NYSE, AMEX, and Nasdaq. Financial statement figures are from annual COMPUSTAT. Stock market data are from CRSP. As in Fama and French (1992, 1993), we exclude certificates, ADRs, SBIs, unit trusts, closed-end funds, REITs, and financial firms. We also require that a firm must have appeared in COMPUSTAT for two years in order to mitigate the potential survivorship or selection bias inherent in the way that COMPUSTAT adds firms to its database. We delete firms that do not have the data necessary to compute variables of interest. The sample consists of firm-level data from 1971 to 2006 and monthly stock returns from May of 1972 to December of 2007.[17] The sample consists of 111,845 firm-year observations over the whole sample period with an average of 3,107 firms per year.

C. Net External Financing, Total Accruals, Total Asset Growth, and Stock Returns: Portfolios Analysis

We first use portfolio analysis to confirm that our results are consistent with the previous literature. To ensure that investors have access to necessary accounting information, at the end of

[17] Relevant cash flow data for calculating $\Delta XFIN$ have become widely available on COMPUSTAT since 1971.

April of each year, all stocks with available data are sorted into decile portfolios based on their values of the sorting variable. [18] In other words, we match monthly stock returns between May of year t and April of year t+1 with financial statement figures of the fiscal year that ends in calendar year t–1. These portfolios are equally weighted and are not rebalanced over the twelve-month holding period. Delisting returns are used to mitigate the survivorship bias.[19]

We use three approaches to compute the risk-adjusted returns. Firstly, to control for firm size (*SZ*) characteristic, called the size-adjusted returns (Ret_{SZ}), we subtract the returns on the ten matching size benchmark portfolios from the raw stock returns (*Ret*). The size benchmark portfolios are formed at the end of April every year using market capitalization at the end of April. Secondly, to control for firm size (*SZ*) and book-to-market equity (*BM*) characteristics, called the size-and-book-to-market-adjusted returns ($Ret_{SZ,BM}$), we subtract the returns on the 25 matching Fama and French (1992) size-and-book-to-market benchmark portfolios from the raw stock returns.[20] The size-and-book-to-market benchmark portfolios are formed at the end of April every year using market capitalization at the end of April and book-to-market equity at end of the previous December. Thirdly, to control for factor risks, we estimate the intercept (α, called the risk-adjusted return) from the following regression with the Fama and French (1993) three factors and the Carhart (1997) momentum factor as the explanatory variables:

$$R_{p,t} - R_{f,t} = \alpha_p + b_{p,Mkt} R_{Mkt,t} + s_{p,SMB} R_{SMB,t} + h_{p,HML} R_{HML,t} + m_{p,MOM} R_{MOM,t} + \varepsilon_{p,t}\,, \qquad (1)$$

[18] We form portfolios at the end of April instead of June in order to make our results comparable to the accounting literature. The results remain when portfolios are formed at the end of June.

[19] Shumway (1997) suggest that stocks delisted due to poor performance (delisting codes 500 and 500 to 584) usually have missing delisting returns. We use delisting returns of –100% for these firms. Studies in the accounting literature also follow this adjustment. Nevertheless, we will perform a robustness check regarding this adjustment.

[20] These characteristics adjustments are made to accommodate the possibilities that firm size and/or book-to-market equity are priced into stock returns as characteristics rather than the systematic factor risks they proxy. See Daniel and Titman (1997) and Daniel, Titman, and Wei (2001) for more details.

where R_p is the raw return on portfolio p and R_f is the risk-free rate. R_{Mkt}, R_{SMB}, and R_{HML} are returns on the market, size, and book-to-market factors, respectively, as constructed by Fama and French (1993). R_{MOM} is the return on the momentum factor in Carhart (1997). Factor returns and the risk-free rates are obtained from Professor Kenneth French's website.

Panel A of Table I presents returns on decile portfolios based on external financing. High net external financing firms (Decile 10) and low net external financing firms (Decile 1) have more than 62% difference in external financing activities relative to their existing asset bases. Consistent with Bradshaw et al (2006), we find that subsequent size-adjusted returns are significantly lower among high net external financing firms than among low net external financing firms by 1.22% per month. This return spread pattern is robust to alternative return measures.[21] Panels B and C of Table I present returns on decile portfolios based on total accruals and total asset growth, respectively. Consistent with the accrual anomaly literature, we find that subsequent returns are significantly lower among high total accrual firms than are among low total accruals firms. Similar to the asset growth anomaly literature, we find that subsequent returns are significantly lower among high total asset growth firms than are among low total asset growth firms.

[Insert Table I here]

We find that net external financing, total accruals and asset growth are highly correlated across our interested portfolios. For example, we observe that high net external financing firms have significantly higher total accruals and total asset growth than do low net external financing firms. Similar patterns are found for accruals-sorted portfolios and asset growth-sorted portfolios. These results seem to suggest that the external financing anomaly might be a manifestation of the

[21] The distribution of four-factor alphas across $\Delta XFIN$ deciles is quite similar to the distribution of the CAPM alphas or the three factor alphas in Bradshaw et al (2006).

accrual anomaly and the investment growth effect, as suggested by Richardson and Sloan (2003), Cohen and Lys (2006), Dechow et al. (2008), Papanastasopoulos et al. (2008), and Butler et al. (2009).

However, we note that the spreads in total accruals (31%, relative to the existing asset base) and in total asset growth (88%) between high and low net external financing firms are much narrower than the spreads in total accruals (70%) and in total asset growth (159%) with respect to their own decile rankings. Total accruals of high and low net external financing firms are 26.98% and -4.43%, respectively. This total accruals spread represents a return of 0.68% per month measured by $Ret_{Sz,BM}$ based on the total accruals-return relationship, which is approximately 72% of the return spread between the two extreme net external financing deciles. The total asset growth rates of high and low net external financing firms are 87.64% and -0.34%, respectively. This total asset growth spread represents a return of 0.45% per month measured by $Ret_{Sz,BM}$ based on the total asset growth-return relationship, which is only about 47% of the return spread between the two extreme net external financing deciles.

The results in Table I suggests that external financing, total accruals and total asset growth seem to share some common information about future stock returns. However, the results also indicate that cross sectional variation in external financing may contain some extra information beyond total accruals and total asset growth in predicting future returns. In this case, the external financing anomaly might be distinct from the accrual anomaly and the asset growth anomaly. In the next subsection, we present preliminary tests that examine this intuition.

D. Is the External Financing Anomaly Driven only by Earnings Management and Investment Growth? Portfolio Analysis Based on Triple Sorts

To explore whether the external financing anomaly might be distinct from the accrual anomaly and the asset growth anomaly, we use portfolio analysis to examine the external financing anomaly across different total accruals and total asset growth groups using triple sorts. All stocks are sorted into tercile portfolios based on net external financing ranking and independently into tercile portfolios based on total accruals ranking and tercile portfolios based total asset growth ranking. The intersections of these triple sorts result in twenty seven ($3 \times 3 \times 3$) portfolios. We then study the subsequent return spreads between high and low net external financing tercile across nine different combinations of accruals and total asset growth portfolios.

Table II reports the results. We find that the return spreads between high and low net external financing tercile are all positive except among high accruals/low asset growth firms. However, the negative return spreads among high accruals/low asset growth firms are insignificant. In addition, the return spreads are significantly positive at the 5% level based on all return measures among low accruals/mid asset growth firms, mid accruals/mid asset growth firms, high accruals/mid asset growth firms, and high accruals/high asset growth firms.

[Insert Table II here]

More importantly, the last column of Table II shows that the return spreads averaged over the nine different combinations of accruals and asset growth rankings are positive and significant at the 5% level while the spreads in accruals and asset growth are very low (1.13% and 5.77%, respectively). The preliminary results in Table II based on simple portfolio analysis provide evidence that appears to support our intuition that the external financing anomaly is distinct from the accrual anomaly and the asset growth anomaly. In the next section, we will provide further evidence based on a more formal test.

III. Empirical Results on the Relationship between the Residual Net External Financing and Stock Returns

A. The Residual Net External Financing and Stock Returns: Portfolio Analysis

To formally test whether the information revealed from the cross sectional variation in net external financing activities contain additional stock return predictability beyond earnings management and investment growth, we examine the relation between future stock returns and the residual net external financing. To proxy for residual variation in net external financing, each year, net external financing ($\Delta XFIN$) is orthogonalized to total accruals (TAC) and total asset growth (TAG) using the following contemporaneous firm-level cross-sectional regression:

$$\Delta XFIN_{k,t-1} = \alpha_0 + a_1 TAC_{k,t-1} + a_2 TAG_{k,t-1} + \varepsilon_{k,t-1}. \tag{2}$$

By construction the residual value ($\Delta XFIN_r$) of the regression is the part of $\Delta XFIN$ that is cross-sectionally uncorrelated with TAC and TAG. By doing this, we attempt to filter out the future cross-sectional stock return predictability of net external financing that is associated with the accruals anomaly and the asset growth anomaly in whatever reasons.

We begin the tests by examining the returns on decile portfolios sorted by $\Delta XFIN_r$. Panels A and B of Table III report the results. First of all, the filter seems to be highly effective. $\Delta XFIN$ is increasing but TAC and TAG are not increasing in $\Delta XFIN_r$ deciles. More importantly, the decile ranking by $\Delta XFIN_r$ retains the same ordering of the decile ranking by $\Delta XFIN$, but the relation between TAC or TAG and $\Delta XFIN_r$ is U-shaped. Furthermore, we find that portfolio returns as measured by Ret, Ret_{SZ}, $Ret_{SZ,BM}$, or α are significantly lower among high $\Delta XFIN_r$ firms (Decile 10) than are among low $\Delta XFIN_r$ firms (Decile 1) by between 0.48% and 0.66% per month. In addition, the return spreads between low and high $\Delta XFIN_r$ firms are mainly attributable to the underperformance of high $\Delta XFIN_r$ firms. These results confirm our test results reported in Table II and provide further solid evidence that supports our intuition.

[Insert Table III here]

Although the spread in total accruals between high and low $\Delta XFIN_r$ decile portfolios is statistically significant at the 5% level, the magnitude of 1.5% of the existing asset base is economically insignificant compared to the total accruals spread of 70% between total accruals Deciles 1 and 10 (see Table I, Panel B). If we match the total accruals of low and high $\Delta XFIN_r$ deciles with the corresponding total accruals deciles, the return differential between low and high $\Delta XFIN_r$ deciles derived from the total accruals-return relation is about 0.10% per month based on the risk-adjusted return. This translates into only about 18% of the return spread between high and low $\Delta XFIN_r$ deciles. In addition, the spread in total asset growth between high and low $\Delta XFIN_r$ deciles is statistically and economically insignificant.[22] These suggest that, in contrast to the relation between $\Delta XFIN$ and stock returns in the previous literature, the relation between $\Delta XFIN_r$ and stock returns that we document in this paper is unlikely to be driven by the accruals anomaly and the asset growth anomaly.

The monthly risk-adjusted return spread (α) between high and low residual net equity financing deciles is 0.43% (t = 2.09) and that between high and low residual net debt financing deciles is 0.30% (t = 3.34).[23] High residual debt financing firms raise 35.57% more residual net debt but only 7.6% more net residual equity than low financing firms. Clearly, high residual debt

[22] One might argue that $\Delta XFIN_r$ Decile 1 could be an outlier given that it is associated with higher *TAC* and *TAG* than Deciles 2 to 9. Even if we ignore Decile 1, $\Delta XFIN$ remains monotonically increasing but *TAC* and *TAG* remains non-increasing with the ranks of $\Delta XFIN_r$ deciles. Moreover, the average monthly raw return spread between $\Delta XFIN_r$ Deciles 2 and 10 is 0.89%, which is higher than the spread between Deciles 1 and 10. Although the spreads in *TAC* and *TAG* are larger between $\Delta XFIN_r$ Deciles 2 and 10 than between $\Delta XFIN_r$ Deciles 1 and 10, the spreads in *TAC* and *TAG* still cannot account for the magnitude of the return spread.

[23] Residual net equity financing or residual net debt financing is constructed analogous to residual net external financing with the dependent variable in equation (2) replaced by net equity financing or net debt financing. Residual net equity (debt) financing is the part of net equity (debt) financing that is uncorrelated with asset growth and accruals.

financing firms become more levered hence it is inconsistent with the wealth transfer hypothesis of Eberhart and Siddique (2002), which predicts transactions that increase leverage are positively related to future stock returns.[24] Again, it is also difficult to reconcile our findings that the residual net debt financing predicts stock return with the market timing hypothesis.

Portfolios sorted by $\Delta XFIN_r$ are also different from those sorted by $\Delta XFIN$ in other perspectives as well. The return spread between high and low $\Delta XFIN_r$ deciles is approximately half of the spread between high and low $\Delta XFIN$ deciles (see Table I, Panel A). That is, about half of the net external financing anomaly can be explained by the accruals anomaly and the asset growth anomaly. In addition, the return spread is mainly attributable to the severe underperformance of the high $\Delta XFIN_r$ decile portfolio. In addition, the $\Delta XFIN_r$ spread is also narrower than the $\Delta XFIN$ spread. More specifically, the $\Delta XFIN_r$ spread between $\Delta XFIN_r$ Deciles 1 and 10 is 54.12%, while the $\Delta XFIN$ spread between $\Delta XFIN$ Deciles 1 and 10 is 62.33%. It seems that the filtering procedure also reduces the cross-sectional variation in net external financing by shrinking the two tails.

B. Returns Adjusted for the Accruals and Asset Growth Risk Factors

To account for the possibility that the accruals anomaly and the asset growth anomaly might proxy for missing priced risk factors (e.g. Lyandres, Sun and Zhang (2008)), we augment regression equation (1) with two additional factors: the accruals factor and the asset growth factor. Analogous to Fama and French (1993), at the end of June each year, all stocks are sorted independently into size (*SZ*) terciles, book-to-market equity (*BM*) terciles, and *TAC* (or *TAG*) terciles. The accruals (or asset growth) factor is constructed as the equally weighted average of the returns on the nine low *TAC* (or *TAG*) equally weighted portfolios minus the equally

[24] See footnote 1 for further discussion on the hypothesis.

weighted average of the returns on the nine high *TAC* (or *TAG*) equally weighted portfolios. Averaging over *SZ* terciles and *BM* terciles to construct the extreme *TAC* (or *TAG*) portfolios is to control for the size and book-to-market effects. During our sample period, the average monthly return on the accruals factor is 0.54% (*t*-statistic = 8.44) and the average monthly return on the asset growth factor is 0.47% (*t*-statistic = 6.28). Both are highly significant.

The augmented time series regression results are reported in Columns 6 to 8 of Panel B in Table III. The monthly risk-adjusted return spreads between high and low $\Delta XFIN_r$ decile portfolios (i.e, $\alpha_{FF,TAC}$, $\alpha_{FF,TAG}$, and $\alpha_{FF,TAC,TAG}$) based on regression equation (1) augmented with the accruals factor, the asset growth factor, and both factors, respectively, remain highly significant at the 1% level. Similar to the results reported in Columns 3 to 5, the return spreads between low and high $\Delta XFIN_r$ firms based these new risk-adjusted returns are mainly driven by the underperformance of high $\Delta XFIN_r$ firms. Results (unreported) are very similar when the accruals and asset growth factors are formed with value-weighted portfolios. When the additional factors are value-weighted, the estimated intercepts are around 0.70%, which is slightly lower than those reported in Table III.

C. Returns Excluding Performance Delistings or Delistings Associated with Negative Returns

To examine whether the underperformance of high $\Delta XFIN_r$ firms might be driven by subsequent performance delistings or delistings associated with negative returns (i.e., default or bankruptcy), we exclude firms that are associated with these events from the portfolios and repeat the analysis. Panel C of Table III reports our findings. Although the returns on high $\Delta XFIN_r$ decile become slightly higher, they are still significantly negative and the return spreads between high and low $\Delta XFIN_r$ decile portfolios remain significantly positive. It seems that the relationship between future stock return and $\Delta XFIN_r$ is not driven by performance delistings or delistings associated with negative returns.

D. Year-by-year Returns on Hedged Portfolio Based on the Residual Net External Financing

To examine the riskiness of the return spread between high and low $\Delta XFIN_r$ decile portfolios and the persistence of the negative relation between $\Delta XFIN_r$ and stock returns, we study the year-by-year returns on a $\Delta XFIN_r$ hedged portfolio. The hedged portfolio is formed by longing low $\Delta XFIN_r$ stocks and shorting high $\Delta XFIN_r$ stocks at end of April and is rebalanced every year. Panel C of Table III presents the annual returns from May 1972 to April 2007 and from April 2007 to December 2007.[25] The average compounded annual return on the $\Delta XFIN_r$ hedged portfolio is statistically significant with a mean of 8.31%. In addition, the low $\Delta XFIN_r$ decile portfolio outperforms the high $\Delta XFIN_r$ decile portfolio in about 78% of the years under consideration. It seems that the relationship between $\Delta XFIN_r$ and stock returns that we document is not due to pure chances.

E. Multivariate Analysis: Fama-MacBeth Regression

Finally, to test the $\Delta XFIN_r$ and return pattern in an alternative setting while controlling for total accruals and total asset growth, we test the relation between $\Delta XFIN_r$ and future stock returns based on the following Fama-MacBeth (1973) type regressions:

$$R_{k,SZ,BM,t} = b_0 + b_1 \Delta XFIN_{k,t-1} + b_2 \Delta XFIN_{r,k,t-1} + b_3 TAC_{k,t-1} + b_4 TAC_{r,k,t-1} + b_5 TAG_{k,t-1} + \varepsilon_{k,t}, \quad (3)$$

where all variables are defined previously except TAC_r. The regression is estimated cross sectionally every year between 1972 and 2007. $R_{k,SZ,BM,t}$ is the annualized size-and-book-to-

[25] Data are available up to December 2007. To make the return comparable across years, the annual returns for 2007 are annualized. That is, the returns from May to December are multiplied by a factor of 1.5.

market-adjusted return on stock k between May of year t and April of year t+1 (between May and December for year 2007).[26] Results are qualitatively similar when the size-and-book-to-market-adjusted stock return is replaced by raw stock returns or size-adjusted stock returns. TAC_r is the residual value from the following contemporaneous cross-sectional regression:

$$TAC_{k,t-1} = c_0 + c_1 TAG_{r,k,t-1} + \varepsilon_{k,t-1}. \quad (4)$$

Cross-sectional variation in TAC_r represents the variation in *TAC* that is uncorrelated with variation in *TAG*. As the previous literature suggests that accruals and asset growth are correlated, we use TAC_r instead of *TAC* in our multivariate regression setting to avoid multicollinearity problems in our statistical inference.[27]

Table IV reports the times series averages of the annual coefficient estimates and the individual *t*-statistics for testing the null hypothesis that the true coefficient is zero. We adjust the standard errors of the coefficient estimates for autocorrelations according to Newey and West (1987). We find that our previous results from portfolio analysis are robust. In univariate regressions (Models 1, 2, 3, and 5 in Table IV), the slope coefficients of $\Delta XFIN$, $\Delta XFIN_r$, *TAC*, and *TAG* are all significantly negative.[28] The slope coefficient of TAC_r is also significantly negative.[29] Our previous conclusion that the relation between $\Delta XFIN_r$ and stock returns is not exclusively driven by earnings management and investment growth is further confirmed by our multivariate regression results in the last row. The slope coefficient of $\Delta XFIN_r$ remains highly

[26] Again, to make the return comparable across years, the annual returns for 2007 are annualized. That is, the returns from May to December are multiplied by a factor of 1.5.
[27] By construction, $\Delta XFIN_r$ is uncorrelated with *TAC* (and hence TAC_r) and *TAG* in the contemporaneous cross section.
[28] Untabulated results show that the slope coefficient estimate of $\Delta XFIN$ matches very closely to the estimate based on annualized size-adjusted returns between May of 1972 and April of 2001 in Bradshaw et al. (2006) shown in their Panel A of Table 5.
[29] The slope estimate of TAC_r is only slightly smaller than that of *TAC* in magnitude and it is fair to believe that it captures a significant portion of the accruals anomaly.

significantly negative when TAC_r and TAG are simultaneously controlled.[30] The results in Table IV further confirm that a combination of the accrual anomaly and the asset growth anomaly fails to explain away the external financing anomaly.

[Insert Table IV here]

IV. Coverage by Credit Analysts and the Relationship between the Residual Net External Financing and Stock Returns

Faulkender and Petersen (2006) argue that the capital structure is related to firm's source of capital and they find that firms with access to public debt markets, as proxied by the availability of credit rating, have more debt financing. An implication of this argument is that firms with better access to public debt markets prefer issuing net debt to raise external capital. Due to differential preference for the net financing mix arising from differential availability of capital sources, stock returns on high and low financing firms between covered and not covered by credit analysts might behave differently.

In this section we examine the predictability in the residual net external financing across firms rated and unrated by credit analysts. We use whether or not a firm has a long-term S&P credit rating, as indicated in the annual COMPUSTAT, to proxy for whether a firm is rated or unrated by credit analysts. All firms are sorted into $\Delta XFIN_r$ deciles and are also independently sorted into two groups based on whether or they are covered by credit analysts.[31] We examine

[30] The result is the same when we replace TAC_r with TAC. However, the significance level of the slope coefficient estimate of TAG is smaller. When we run the regression with $\Delta XFIN$, TAC, and TAG on the right hand side, we find that the slope coefficient estimates of $\Delta XFIN$ and TAC remain negative and significant but become much smaller while the slope coefficient estimate of TAG becomes very small and insignificant. Given this result, it is not clear whether the accruals anomaly and the asset growth anomaly subsume the external financing anomaly or vice versa.

[31] On average, there are 576 rated firms and 2,533 unrated firms per year in our sample. Among rated firms, 55 of them belong to the low $\Delta XFIN_r$ decile and 26 of them belong to the high $\Delta XFIN_r$ decile. At the beginning of the year when we measure external financing, the former group has a market capitalization of about $402.66 million and the latter group has a market capitalization of about $23.74 million. Among unrated firms, 256 of them belong to the

the subsequent return spreads between high and low $\Delta XFIN_r$ deciles in each of the two groups. Table V reports the results. In Panel A, we find that among firms rated by credit analysts, high $\Delta XFIN_r$ stocks no longer underperform low $\Delta XFIN_r$ stocks. The insignificant return spread between low and high $\Delta XFIN_r$ deciles is robust across alternative return measures. On the other hand, in Panel B, we find that among unrated firms, high $\Delta XFIN_r$ stocks again significantly underperform low $\Delta XFIN_r$ stocks.

[Insert Table V here]

V. Is the Relationship between the Residual Net External Financing and Stock Returns Due to Equity Mispricing and How?

A. Daily Returns around Earnings Announcements-event and Other Non-event Periods

Although our results are not driven by conventionally known risks, our findings are still vulnerable to other unknown forms of risk. To test whether the predictability in the residual external financing reflects the correction of mispricing or previous expectational errors made by investors against unknown forms of risk premium, we follow La Porta, Lakonishok, Shleifer, Vishny (1997) and examine stock returns around earnings announcements and other non-event periods after portfolio formation.

If the predictability in the residual external financing is a manifestation of risk compensation, the mean daily return around earnings announcement events should be similar to the mean return during non-event periods. On the other hand, if the correction of previous equity overvaluation is the driving force, then for unrated high residual external financing firms the return around

low $\Delta XFIN_r$ decile and 285 of them belong to the high $\Delta XFIN_r$ decile. At the beginning of the year when we measure external financing, the former group has a market capitalization of about $151.81 million and the latter group has a market capitalization of about $47.03 million.

earnings announcement events should be lower than during other non-event periods as investors are negatively surprised by the subsequent disappointing news.

The earnings announcement dates (item rdqe) are from the quarterly COMPUSTAT. For the one year holding period after portfolio formation, we compute the mean daily return for the three days window centered on each of the four quarterly earnings announcement events ($DRet_{EAD}$). We include a firm only if it has at least one daily return available in the window surrounding each of the announcement dates. We then compute the mean daily return for the rest of year ($DRet_{other}$).

Panel A of Table VI reports the two types of returns for unrated high and low residual net external financing firms as well as their differences. For unrated low residual net external financing firms, the mean daily return around earnings announcements (0.11%) is not different from the return during non-event periods (0.09%). More importantly, for unrated high residual net external financing firms, the mean daily return around earnings announcements (-0.04%) is significantly lower than the returns during the non-event periods (0.07%). The findings suggest that subsequent earnings announcements for unrated high residual external financing firms are associated with disappointing surprises.

[Place Table VI here]

Although $DRet_{other}$ for unrated high residual external financing firms is lower than that for unrated low residual net external financing firms, the difference (0.02%) is small and rather insignificant. However, $DRet_{EAD}$ is much lower for unrated high residual external financing firms than for unrated low residual net external financing firms and the difference (0.15%) is statistically significant. In addition, the underperformance of unrated high residual external financing firms relative to unrated low residual external financing firms is significantly more severe around earnings announcements than during other non-event periods.

As a comparison, Panel B of Table VI reports the results for rated firms. The return pattern of rated low residual net external financing firms is similar to that of unrated low financing firms. More importantly, the return pattern of rated high residual net external financing firms does not resemble that of unrated high financing firms. This suggests that the clustering of underperformance of unrated high residual external financing firms relative to unrated low financing firms around earnings announcements is specific to unrated firms.

Overall, the results are consistent with our argument that the predictability in residual external financing reflects the correction of previous equity overvaluation of unrated high residual external financing firms. Our findings also suggest that the results from analysts in Bradshaw et al. (2006) reflect expectational errors beyond those associated with the accrual anomaly and the asset growth anomaly.

B. Which are the Unrated High Residual Net External Financing Firms?

So far we have shown that the stock return predictability in the residual net external financing is driven by the correction of previous equity overvaluation of unrated high residual net external financing firms. Yet a mechanism linking the equity overvaluation and the predictability in the residual net external financing is still missing. In this section we examine the characteristics of unrated high residual net external financing firms and provide further insight into the predictability. Table VI reports the median portfolio characteristics on all firms sorted by the credit rating dummy and the residual net external financing.

[Place Table VI here]

The level of the residual net external financing is higher for unrated high financing firms than for rated high financing firms. More interestingly, there is a major difference in the choice of net external financing mix between rated and unrated high financing firms: rated high financing firms increase the residual net debt financing ($\Delta DEBT_r$) only, while unrated high financing firms increase the residual net equity financing ($\Delta EQUITY_r$) in addition to the residual net debt financing.[32] Furthermore, while unrated high financing firms have a modest amount of the residual net debt financing, they are the only firms that have a positive level of the residual net equity financing (11.54% of the existing asset base); that is, they issue equity that is not associated with accruals and asset growth. This is consistent with the implication from Faulkender and Petersen (2006) that high financing firms with better access to public debt markets prefer issuing net debt to raise external capital. On the other hand, high financing firms with limited access to public debt markets have to rely on issuing equity in addition to issuing debt.

Regardless of whether firms are rated or unrated, high financing firms tend to be younger (firm age is proxied by the number of years a stock appeared in CRSP at the end of December of year *t*-1), smaller (firm sizes are proxied by market values of equity at the end of Decembers of year *t*-2 ($SIZE_{t-2}$) and year *t*–1 (*SIZE*)), and less profitable (accounting profitability is measured by the operating income after depreciation (COMPUSTAT item 178) scaled by the average of total assets at the beginning and the end of the corresponding year for fiscal year *t*-2 (ROA_{t-2}) and fiscal year *t*-1 (*ROA*)). It seems that smaller, younger, and less profitable firms rely more on external sources of funding.

More importantly, unrated high financing firms are the youngest and the smallest, even after the highest net external financing activities. These firms also have the highest research and

[32] See footnote 25 for definitions of residual net equity financing and residual net debt financing.

development expenses (item 46 scaled by the average of total assets at the beginning and the end of the corresponding year for fiscal year *t*-2 (RD_{t-2}) and fiscal year *t*-1 (*RD*)). Not only they have the lowest profitability, their profitability is zero or negative. It seems that the pursuing of growth opportunities but the lack of internal funding drives these youngest and smallest firms to rely heavily on the net external financing.

Furthermore, unrated high financing firms have the highest market-to-book valuation of assets[33] before the high net financing activities and the market-to-book valuation of assets still remain high even after the financing activities. This is in line with the findings in the previous section that the equities of unrated high financing firms are overvalued.[34]

To summarize, we find that unrated high financing firms (i.e., the firms that drive the stock return predictability in the residual net external financing) are the youngest and smallest firms that are unprofitable. In pursuing growth strategies by spending the highest research and development expenses and without internal funding, these firms have to sustain their operations with net external financing. Without proper access to public debt markets, these firms have to rely heavily on net equity issuance in additional to a modest amount of debt issuance. At the same time, the assets of these firms receive the highest market valuation relative to their book value, which might be due to investors being overly optimistic about the future prospect of these small, young, unprofitable but growth-seeking firms that are relatively difficult to value. Our results that stock returns on unrated high financing firms are lower around earnings announcements than during non-event periods and that unrated high financing firms

[33] It is defined as the ratio of the market value to the book value of assets at the end of Decembers of year *t*–2 (Q_{t-2}) and year *t*-1 (*Q*). The market value of assets is the book value of assets (item 6) plus the market value of common equity minus the sum of the book value of common equity (item 60) and balance sheet deferred taxes (item 74)).
[34] This is also consistent with Lakonishok, Shleifer, and Vishny (1994) that stocks with high valuation multiples tend to be overvalued. These stocks are also generally recommended by sell-side analysts (Jegadeesh, Kim, Krische, and Lee (2004)).

underperform unrated low financing firms much more severely around announcements than during other non-event periods strongly agree with the interpretation.

The predictability in the residual net external financing that we document is inconsistent with the issuer risk story suggested by Eckbo, Masulis and Norli (2000), Brav, Geczy and Gompers (2000), and Eckbo and Norli (2005) since unrated high financing firms are likely to be riskier and should be priced to generate higher expected returns. Instead, these firms underperform low financing ones. Moreover, our mechanism naturally generates the findings that the residual net debt financing predicts lower equity return. Indeed, our mechanism naturally generates the findings that the residual net equity financing, the residual net debt financing, and the residual net external financing predict lower equity returns.

VI. Conclusions

The negative relation between net overall external financing activities and future stock returns is a well established empirical observation. A traditional argument in the finance literature is that managers systematically time and exploit the market successfully. That is, firms increase net external financing when they are overvalued. On the other hand, the recent accounting literature and other studies argue that, instead of misvaluation timing, the anomaly is driven by earnings management and/or investment growth.

In this paper, we first find that after filtering out the predictability related to the accrual anomaly and the asset growth anomaly from net overall external financing activities, we still find that there is a significantly negative relation between the residual net external financing and future stock returns. The raw return spread between low and high residual net external financing deciles is 0.66% per month, which is about half of the spread from the original net external financing deciles, suggesting that a substantial portion of the external financing anomaly remains unexplained by a combination of the accrual anomaly and the asset growth anomaly.

Second, we document that the predictability in the residual net external financing (which is the net external financing unrelated to accruals and asset growth) is mostly driven by the subsequent underperformance of high external financing firms. The findings are not explained by exposures to conventional risks and firm characteristics, the accruals risk factor, or the asset growth risk factor, the wealth transfer hypothesis, or the issuer risk hypothesis, and is not driven by performance delistings or delistings associated with negative returns (i.e., default or bankruptcy) or unknown risks.

Finally, we find that the predictability of the residual external financing anomaly only holds among firms that are unrated by credit analysts. In particular, the residual external financing anomaly is mainly caused by overvalued young and small unprofitable firms pursuing ambitious growth strategies through investing heavily in highest research and development. However, these firms also lack internal funds and have limited access to public debt markets. As a result, these firms have to rely heavily on issuing their overvalued equity and moderately on raising private debt to support their ambitious growth strategies. Therefore, external financing may coincide with equity overvaluation, growth, and limited access to public debt markets, which results in subsequent stock underperformance.

Although several studies such have offered some explanations for the external financing anomaly, we find that these existing explanations are not complete and we provide an explanation for the predictability of residual external financing. Our results do not rule out the marketing timing argument by Bradshaw et al. (2006), and Loughran and Ritter (1995, 2000), but suggest that the phenomenon may be exclusive to unrated firms with extreme residual external financing activities and may be related to firm age, and firm size, profitability, growth, and funding source. It will be interesting to study the interactions between market timing decision and these firm characteristics in the future.

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Table I
Returns on Decile Portfolios Sorted by Net External Financing, Total Accruals, and Total Asset-Growth

At the end of April of each year, stocks are sorted into deciles based on net external financing activities ($\Delta XFIN$) or total accruals (TAC) or total asset growth (TAG). $\Delta XFIN$ is the sum of net cash flow from equity financing and net cash flow from debt financing between fiscal yearend t–2 to fiscal yearend t–1, scaled by average total assets over the period. Net cash flow from equity financing is the cash proceeds from sales of common and preferred stocks less cash payments for the purchase of common and preferred stocks less cash payments for dividends. Net cash flow from debt financing is the cash proceeds from the issuance of long-term debt less cash payments for long-term debt reductions plus the net changes in current debt. $\Delta XFIN$ is a measure of the extent to which a firm raises (distributes) capital from (to) capital market participants. TAC is the change in non-cash assets less the change in non-debt liabilities between fiscal yearend t–2 to fiscal yearend t–1, scaled by average total assets over the period. TAC measures annual accounting accruals. TAG is the percentage change in total assets from fiscal yearend t–2 to fiscal yearend t–1. TAG measures overall capital investment growth and asset expansions. Stocks are held for one year from May of year t to April of year t+1. Panels A, B, and C report the time-series averages of $\Delta XFIN$, TAC, TAG and monthly returns on equally weighted portfolios based on the $\Delta XFIN$, TAC, and TAG ranking, respectively. The differences (1 – 10) in the attributes and returns between the bottom and top portfolios. The raw portfolio returns (Ret) are the time-series averages of equally weighted stock returns. The size-adjusted returns (Ret_{SZ}) are the time-series averages of equally weighted stock returns in excess of the returns on the ten matching size benchmark portfolios. The size-and-book-to-market-adjusted portfolio returns ($Ret_{SZ,BM}$) are the time-series averages of equally weighted stock returns in excess of the returns on the 25 matching Fama and French (1992) size-and-book-to-market benchmark portfolios. The risk-adjusted returns (α) are the estimated intercepts from the following regression:

$$R_{p,t} - R_{f,t} = \alpha_p + b_{p,Mkt}R_{Mkt,t} + s_{p,SMB}R_{SMB,t} + h_{p,HML}R_{HML,t} + m_{p,MOM}R_{MOM,t} + \varepsilon_{p,t},$$

where R_p is the return on portfolio p and R_f is the risk-free rate; R_{MKT}, R_{SMB}, and R_{HML} are returns on the market, size, and book-to-market factors, respectively, in Fama and French (1993); R_{MOM} is the return on the momentum factor in Carhart (1997). The sample period is from 1972 to 2007. Each decile portfolio contains 311 firms per year on average. The t-statistics are reported in parentheses. * and ** denote statistical significance at the 5% and 1% levels, respectively.

	$\Delta XFIN$	TAC	TAG	Ret	Ret_{SZ}	$Ret_{SZ,BM}$	α
			Panel A: Net external financing ($\Delta XFIN$) decile portfolios				
1 (low)	-15.98**	-4.43**	-0.34	1.60**	0.36**	0.27**	0.44**
2	-6.52**	0.61**	4.51**	1.57**	0.36**	0.22**	0.43**
3	-3.99**	1.54**	7.77**	1.56**	0.36**	0.19**	0.41**
4	-2.32**	2.37**	6.68**	1.52**	0.31**	0.15**	0.36**
5	-0.93**	3.16**	6.51**	1.60**	0.37**	0.21**	0.44**
6	0.36**	3.87**	8.24**	1.63**	0.38**	0.26**	0.47**
7	2.37**	6.52**	13.25**	1.38**	0.21**	0.09*	0.32**
8	6.15**	9.63**	18.36**	1.14**	-0.02	-0.13*	0.06
9	13.82**	16.30**	35.44**	0.93**	-0.23**	-0.28**	-0.18
10 (high)	46.35**	26.98**	87.64**	0.29	-0.86**	-0.68**	-0.64**
1 – 10	-62.33**	-31.41**	-87.99**	1.31**	1.22**	0.95**	1.08**
	(-18.96)	(-27.07)	(-14.42)	(7.33)	(7.31)	(7.54)	(7.14)

Table I – Continued

	$\Delta XFIN$	TAC	TAG	Ret	Ret_{SZ}	$Ret_{SZ,BM}$	α
			Panel B: Total asset growth (*TAC*) decile portfolios				
1 (low)	-2.08**	-24.07**	-12.98**	1.79**	0.42**	0.35**	0.59**
2	-1.41**	-6.85**	-0.70**	1.80**	0.51**	0.35**	0.61**
3	-0.94**	-2.21**	3.08**	1.54**	0.32**	0.16*	0.37**
4	-0.52**	0.76**	8.27**	1.51**	0.32**	0.16**	0.40**
5	0.11	3.34**	8.49**	1.47**	0.30**	0.14**	0.34**
6	1.14**	6.00**	10.39**	1.38**	0.22**	0.09	0.29**
7	3.06**	9.17**	14.16**	1.28**	0.14*	0.04	0.19
8	5.56**	13.57**	20.03**	1.09**	-0.06	-0.14**	0.02
9	10.24**	20.91**	31.05**	0.96**	-0.19**	-0.18**	-0.08
10 (high)	24.14**	45.94**	106.22**	0.40	-0.75**	-0.68**	-0.61**
1 – 10	-26.22**	-70.01**	-119.20**	1.39**	1.17**	1.03**	1.19**
	(-21.68)	(-28.94)	(-12.96)	(9.28)	(9.52)	(9.00)	(7.95)
			Panel C: Total accruals (*TAG*) decile portfolios				
1 (low)	-2.59**	-15.69**	-25.64**	1.79**	0.37**	0.35**	0.54*
2	-2.44**	-3.70**	-7.51**	1.81**	0.49**	0.30**	0.67**
3	-2.54**	-0.42**	-1.32**	1.55**	0.32**	0.12*	0.39**
4	-1.90**	1.77**	2.70**	1.46**	0.27**	0.07	0.35**
5	-1.02**	3.76**	6.15**	1.39**	0.24**	0.06	0.27**
6	0.12*	5.97**	9.80**	1.39**	0.24**	0.08	0.25**
7	1.83**	8.11**	14.31**	0.27**	0.13	0.02	0.15
8	4.61**	11.91**	21.17**	1.22**	0.08	0.03	0.14
9	10.66**	17.83**	34.87**	0.99**	-0.12	-0.07	-0.03
10 (high)	32.58**	37.00**	133.48**	0.36	-0.77**	-0.63**	-0.58**
1 – 10	-35.17**	-52.69**	-159.13**	1.43**	1.14**	0.97**	1.12**
	(-16.53)	(-29.44)	(-14.19)	(7.32)	(7.99)	(7.33)	(5.82)

Table II
Returns on Net External Financing Portfolios: Triple Sorts

At the end of April of each year between 1972 and 2007, stocks are sorted into terciles based on net external financing activities ($\Delta XFIN$) and independently into terciles based on total accruals (*TAC*) and also independently into terciles based on total asset growth (*TAG*). The intersections of these $3 \times 3 \times 3$ portfolios result in 27 portfolios. $\Delta XFIN$ is the sum of net cash flow from equity financing and net cash flow from debt financing between fiscal yearend t–2 to fiscal yearend t–1, scaled by average total assets over the period. Net cash flow from equity financing is the cash proceeds from sales of common and preferred stocks less cash payments for the purchase of common and preferred stocks less cash payments for dividends. Net cash flow from debt financing is the cash proceeds from the issuance of long-term debt less cash payments for long-term debt reductions less the net changes in current debt. $\Delta XFIN$ is a measure of the extent to which a firm raises (distributes) capital from (to) capital market participants. *TAC* is the change in non-cash assets less the change in non-debt liabilities between fiscal yearend t–2 to fiscal yearend t–1, scaled by average total assets over the period. *TAC* measures annual accounting accruals. *TAG* is the percentage change in total assets from fiscal yearend t–2 to fiscal yearend t–1. *TAG* measures overall capital investment growth and asset expansions. Stocks are held for one year from May of year t to April of year t+1. This table reports the monthly returns, $\Delta XFIN$, *TAC*, and *TAG* of the top $\Delta XFIN$ portfolios in excess of the bottom $\Delta XFIN$ portfolios and the t statistics of the spreads across the nine *TAC*/*TAG* portfolios. Average is the equally-weighted average of the nine *TAC*/*TAG* portfolios. The raw portfolio returns (*Ret*) are the time-series averages of equally weighted stock returns. The size-adjusted portfolio returns (Ret_{SZ}) are the time-series averages of equally weighted stock returns in excess of the returns on the ten matching size benchmark portfolios. The size-and-book-to-market-adjusted portfolio returns ($Ret_{SZ,BM}$) are the time-series averages of equally weighted stock returns in excess of the returns on the 25 matching Fama and French (1992) size-and-book-to-market benchmark portfolios. The risk-adjusted portfolio returns (α) are the estimated intercepts from the following regression:

$$R_{p,t} - R_{f,t} = \alpha_p + b_{p,Mkt} R_{Mkt,t} + s_{p,SMB} R_{SMB,t} + h_{p,HML} R_{HML,t} + m_{p,MOM} R_{MOM,t} + \varepsilon_{p,t},$$

where R_p is the return on portfolio p and R_f is the risk-free rate; R_{MKT}, R_{SMB}, and R_{HML} are returns on the market, size, and book-to-market factors, respectively, in Fama and French (1993); R_{MOM} is the return on the momentum factor in Carhart (1997). The t-statistics are reported in parentheses. *, ** and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table II - Continued

	TAC									
	Low			Mid			High			
	TAG			*TAG*			*TAG*			
	Low	Mid	High	Low	Mid	High	Low	Mid	High	Average
					Low Δ*XFIN* minus high Δ*XFIN*					
Ret	0.54*	0.58*	0.55*	0.23	0.35**	0.26	-0.26	0.37*	0.47**	0.34*
	(2.17)	(2.08)	(2.01)	(0.89)	(2.80)	(1.59)	(-0.69)	(2.48)	(4.30)	(2.50)
Ret_{SZ}	0.59**	0.64*	0.50	0.29	0.34**	0.29	-0.22	0.37*	0.47**	0.36**
	(2.61)	(2.45)	(1.92)	(1.20)	(3.24)	(1.87)	(-0.61)	(2.57)	(4.50)	(3.07)
$Ret_{SZ,BM}$	0.30	0.49*	0.37	0.12	0.40**	0.27	-0.38	0.41**	0.48**	0.27**
	(1.61)	(2.10)	(1.48)	(0.54)	(3.77)	(1.70)	(-1.10)	(2.79)	(4.50)	(2.81)
α	0.33	0.65*	0.44	0.19	0.39	0.30	-0.29	0.47**	0.39**	0.32*
	(1.40)	(2.28)	(1.53)	(0.71)	(3.12)	(1.76)	(-0.75)	(3.10)	(3.64)	(2.44)
Δ*XFIN*	-25.36**	-21.84**	-47.53**	-20.09**	-14.36**	-31.28**	-28.69**	-17.48**	-31.66**	-26.48**
	(-20.14)	(-15.29)	(-12.79)	(-19.81)	(-29.27)	(-12.94)	(-17.62)	(-24.44)	(-21.19)	(-18.70)
TAC	3.39**	1.15**	-1.27*	-0.56**	-1.50**	-0.48**	-4.28**	-0.57**	-6.07**	-1.13**
	(6.10)	(3.15)	(-2.27)	(-4.80)	(-12.31)	(-5.05)	(-4.21)	(-2.93)	(-11.11)	(-6.17)
TAG	4.62**	-1.02**	-9.87	3.37**	-1.48**	-24.25**	1.63*	-1.36**	-23.61**	-5.77*
	(8.34)	(-6.50)	(-0.41)	(6.17)	(-11.68)	(-6.79)	(2.24)	(-7.75)	(-5.18)	(-2.12)

Table III
Returns on Portfolios Sorted by the Residual Net External Financing

At the end of April of each year, stocks are sorted into deciles based on the residual value ($\Delta XFIN_r$) from the following contemporaneous cross-sectional regression:

$$\Delta XFIN_{k,t-1} = a_0 + a_1 TAC_{k,t-1} + a_2 TAG_{k,t-1} + \varepsilon_{k,t-1},$$

where $\Delta XFIN$ is the sum of net cash flow from equity financing and net cash flow from debt financing between fiscal yearend t–2 to fiscal yearend t–1, scaled by average total assets over the period. Net cash flow from equity financing is the cash proceeds from sales of common and preferred stocks less cash payments for the purchase of common and preferred stocks less cash payments for dividends. Net cash flow from debt financing is the cash proceeds from the issuance of long-term debt less cash payments for long-term debt reductions less the net changes in current debt. $\Delta XFIN$ is a measure of the extent to which a firm raises (distributes) capital from (to) capital market participants. *TAC* is the change in non-cash assets less the change in non-debt liabilities between fiscal yearend t–2 to fiscal yearend t–1, scaled by average total assets over the period. *TAC* measures annual accounting accruals. *TAG* is the percentage change in total assets from fiscal yearend t–2 to fiscal yearend t–1. *TAG* measures overall capital investment growth and asset expansions. $\Delta XFIN_r$ represents the residual component of $\Delta XFIN$ that is uncorrelated to *TAC* and *TAG*. Stocks are held for one year from May of year t to April of year t+1. Panel A reports the time-series averages of $\Delta XFIN_r$, $\Delta XFIN$, *TAC* and *TAG* of equally weighted portfolios based on the $\Delta XFIN_r$ ranking, the differences in the attributes between the bottom and top $\Delta XFIN_r$-sorted portfolios, and the t statistics of the differences. Panel B reports the time-series averages of monthly returns on equally weighted portfolios based on the $\Delta XFIN_r$ ranking, the differences in the returns between the bottom and top portfolios, and the t statistics of the differences. The raw portfolio returns (*Ret*) are the time-series averages of equally weighted stock returns. The size-adjusted portfolio returns (Ret_{SZ}) are the time-series averages of equally weighted stock returns in excess of the returns on the ten matching size benchmark portfolios. The size-and-book-to-market-adjusted portfolio returns ($Ret_{SZ,BM}$) are the time-series averages of equally weighted stock returns in excess of the returns on the 25 matching Fama and French (1992) size-and-book-to-market benchmark portfolios. The risk-adjusted portfolio returns (α) are the estimated intercepts from the following regression:

$$R_{p,t} - R_{f,t} = \alpha_p + b_{p,Mkt} R_{Mkt,t} + s_{p,SMB} R_{SMB,t} + h_{p,HML} R_{HML,t} + m_{p,MOM} R_{MOM,t} + \varepsilon_{p,t},$$

where R_p is the return on portfolio p and R_f is the risk-free rate; R_{MKT}, R_{SMB}, and R_{HML} are returns on the market, size, and book-to-market factors, respectively, in Fama and French (1993); R_{MOM} is the return on the momentum factor in Carhart (1997). α_{TAC} is the estimated intercept from the above regression augmented with the accruals factor. α_{TAG} is the estimated intercept from the above regression augmented with the asset growth factor. $\alpha_{TAC,TAG}$ is the estimated intercept from the above regression augmented with the accruals factor and the asset growth factor. Analogous to Fama and French (1993), at the end of June each year, stocks are sorted independently into size terciles, book-to-market equity terciles, and *TAC* (or *TAG*) terciles. The accruals (asset growth) factor is the equally weighted average of the returns on the nine low *TAC* (*TAG*) equally weighted portfolios minus the equally weighted average of the returns on the nine high *TAC* (*TAG*) equally weighted portfolios. Results are similar when the factors are formed with value-weighted portfolios. The sample period is from 1972 to 2007. Each decile portfolio contains 311 firms per year on average. Panel C reports the monthly average returns on the high (Decile 10), low (Decile 1), and hedged (Decile 1 minus Decile 10) portfolios based on $\Delta XFIN_r$, excluding stocks that experience delistings related to poor performance or delistings associated with negative delisting returns during the one year holding period after portfolio formation. Panel D reports the year-by-year returns (eight months returns for formation year 2007) on the hedged portfolio based on $\Delta XFIN_r$. The t-statistics are reported in parentheses. * and ** denote statistical significance at the 5%, and 1% levels, respectively.

Table III – Continued

	$\Delta XFIN_r$	$\Delta XFIN$	TAC	TAG
Panel A: Characteristics of decile portfolios based on the residual net external financing ($\Delta XFIN_r$)				
1 (low)	-19.85**	-12.24**	12.59**	48.94**
2	-9.36**	-5.66**	6.78**	11.75**
3	-6.72**	-3.47**	5.70**	10.70**
4	-4.95**	-2.11**	4.75**	9.28**
5	-3.42**	-0.11**	3.81**	8.41**
6	-1.86**	0.48**	3.59**	7.43**
7	0.04	2.44**	3.64**	7.92**
8	2.81**	5.49**	4.36**	9.44**
9	8.22**	12.26**	7.27**	17.80**
10 (high)	34.27**	43.02**	14.08**	56.37**
1 – 10	-54.12**	-55.25**	-1.50*	-7.43
	(-17.75)	(-17.29)	(-2.58)	(-1.69)

	Ret	Ret_{SZ}	$Ret_{SZ,BM}$	α	α_{TAC}	α_{TAG}	$\alpha_{TAC,TAG}$
Panel B: Returns of decile portfolios based on $\Delta XFIN_r$							
1 (low)	1.23**	0.04	0.02	0.15	0.09	0.04	0.12
2	1.45**	0.27**	0.19**	0.35**	0.25**	0.26**	0.28**
3	1.46**	0.28**	0.16**	0.35**	0.29**	0.29**	0.31**
4	1.47**	0.30**	0.14**	0.36**	0.25**	0.26*	0.26**
5	1.53**	0.35**	0.17**	0.36**	0.22*	0.23*	0.26**
6	1.57**	0.37**	0.17**	0.39**	0.19	0.20	0.23*
7	1.46**	0.25**	0.08	0.34*	0.14	0.05	0.04
8	1.40**	0.16**	0.02	0.27	-0.02	-0.03	0.04
9	1.10**	-0.13*	-0.18**	-0.03	-0.35*	-0.37*	-0.27
10 (high)	0.56	-0.63**	-0.46**	-0.41**	-0.78**	-0.79**	-0.69**
1 – 10	0.66**	0.66**	0.48**	0.55**	0.87**	0.83**	0.82**
	(3.82)	(4.44)	(4.06)	(3.43)	(5.24)	(5.28)	(5.02)
Panel C: Returns on $\Delta XFIN_r$ decile portfolios excluding performance delistings or delistings with negative returns							
1 (low)	1.26**	0.07	0.06	0.18	0.18	0.15	0.20
10(high)	0.68	-0.52**	-0.35**	-0.28	-0.46*	-0.48*	-0.43
1 – 10	0.58**	0.59**	0.41**	0.47**	0.65**	0.62**	0.63**
	(3.39)	(3.93)	(3.44)	(2.93)	(3.88)	(3.86)	(3.78)

Table III – Continued

Portfolio formation year	*Ret*	Ret_{SZ}	$Ret_{SZ,BM}$
	Panel D: Year-by-year returns on the $\Delta XFIN_r$ hedged portfolio		
1972	15.14	13.22	14.65
1973	2.02	-1.32	1.83
1974	-4.97	-3.75	-5.69
1975	-7.31	-2.84	0.15
1976	-6.36	-3.91	-0.76
1977	3.95	5.18	4.75
1978	-5.84	-2.67	-2.72
1979	2.15	-2.53	-1.75
1980	1.69	3.37	3.03
1981	10.15	10.46	8.21
1982	11.15	9.11	6.50
1983	12.53	12.33	6.52
1984	22.74	18.09	14.73
1985	3.02	0.13	-1.51
1986	2.97	2.78	-0.61
1987	5.02	4.89	-1.10
1988	19.19	15.61	11.43
1989	15.21	13.69	12.72
1990	0.66	-1.60	-2.06
1991	-5.42	-2.77	-3.40
1992	10.13	7.20	1.64
1993	10.47	7.99	4.69
1994	29.75	26.28	20.39
1995	-10.20	-5.80	-6.11
1996	35.95	33.46	27.83
1997	26.21	17.14	12.14
1998	9.07	1.65	4.44
1999	-22.85	-12.21	-9.62
2000	48.83	44.06	29.88
2001	29.00	27.13	20.12
2002	16.59	15.21	12.73
2003	-23.78	-6.78	-6.82
2004	24.81	20.71	16.26
2005	4.12	5.55	4.28
2006	10.57	6.34	5.22
2007	10.80	1.14	0.99
Average	8.53**	7.68**	5.64**
	(3.37)	(3.80)	(3.56)
% positive	77.78	69.44	66.67

Table IV
Fama-MacBeth Regressions: Stock Return Predictability of External Financing Activities beyond Asset Growth and Accruals

This table reports the estimated coefficients in the Fama-MacBeth regression:

$$R_{k,SZ,BM,t} = b_0 + b_1 \Delta XFIN_{k,t-1} + b_2 \Delta XFIN_{r,k,t-1} + b_3 TAC_{k,t-1} + b_4 TAC_{r,k,t-1} + b_5 TAG_{k,t-1} + \varepsilon_{k,t},$$

where $R_{k,SZ,BM}$ is the annual size-and-book-to-market-adjusted stock return between May of year t and April of year t+1 (or between return May and December for year 2007 annualized by multiplying by a factor of 1.5). The regression is estimated cross-sectionally every year between 1972 and 2007. Results are qualitatively similar when size-and-book-to-market-adjusted stock returns are replaced by raw stock returns or size-adjusted stock returns. $\Delta XFIN$ is the sum of net cash flow from equity financing and net cash flow from debt financing between fiscal yearend t–2 to fiscal yearend t–1, scaled by average total assets over the period. Net cash flow from equity financing is the cash proceeds from sales of common and preferred stocks less cash payments for the purchase of common and preferred stocks less cash payments for dividends. Net cash flow from debt financing is the cash proceeds from the issuance of long-term debt less cash payments for long-term debt reductions less the net changes in current debt. $\Delta XFIN$ is a measure of the extent to which a firm raises (distributes) capital from (to) capital market participants. *TAC* is the change in non-cash assets less the change in non-debt liabilities between fiscal yearend t–2 to fiscal yearend t–1, scaled by average total assets over the period. *TAC* measures annual accounting accruals. *TAG* is the percentage change in total assets from fiscal yearend t–2 to fiscal yearend t–1. *TAG* measures overall capital investment growth and asset expansions. $\Delta XFIN_r$ is the residual value from the following contemporaneous cross-sectional regression:

$$\Delta XFIN_{k,t-1} = a_0 + a_1 TAC_{k,t-1} + a_2 TAG_{k,t-1} + \varepsilon_{1,k,t-1}.$$

$\Delta XFIN_r$ represents the residual component of $\Delta XFIN$ that is uncorrelated to *TAC* and *TAG*. TAC_r is the residual value from the following contemporaneous cross-sectional regression:

$$TAC_{k,t-1} = c_0 + c_1 TAG_{k,t-1} + \varepsilon_{2,k,t-1}.$$

TAC_r represents the residual component of *TAC* that is uncorrelated to *TAG*. The estimated regression coefficients are the time-series averages of the cross-sectional estimates. The t statistics based on the Newey-West (1987) standard errors are reported in parentheses.

Model	Intercept	$\Delta XFIN$	$\Delta XFIN_r$	*TAC*	TAC_r	*TAG*
1	0.003	-0.165				
	(0.80)	(-6.00)				
2	-0.003		-0.114			
	(-0.83)		(-6.81)			
3	0.006			-0.125		
	(1.37)			(-4.06)		
4	-0.003				-0.096	
	(-0.84)				(-3.00)	
5	0.003					-0.040
	(0.80)					(-3.14)
6	0.004		-0.114		-0.096	-0.040
	(0.80)		(-6.78)		(-3.00)	(-3.12)

Table V
Portfolio Returns by Credit Analyst Coverage and the Residual Net External Financing

At the end of April of each year, stocks are sorted into deciles based on $\Delta XFIN_r$ and independently into two categories by a credit rating dummy. $\Delta XFIN_r$ is the residual value from the following contemporaneous cross-sectional regression:

$$\Delta XFIN_{k,t-1} = c_0 + c_1 TAC_{k,t-1} + c_2 TAG_{k,t-1} + \varepsilon_{k,t-1},$$

where $\Delta XFIN$ is the sum of net cash flow from equity financing and net cash flow from debt financing between fiscal yearend t–2 to fiscal yearend t–1, scaled by average total assets over the period. Net cash flow from equity financing is the cash proceeds from sales of common and preferred stocks less cash payments for the purchase of common and preferred stocks less cash payments for dividends. Net cash flow from debt financing is the cash proceeds from the issuance of long-term debt less cash payments for long-term debt reductions less the net changes in current debt. $\Delta XFIN$ is a measure of the extent to which a firm is raises (distributes) capital from (to) capital market participants. TAC is the change in non-cash assets less the change in non-debt liabilities between fiscal yearend t–2 to fiscal yearend t–1, scaled by average total assets over the period. TAC measures annual accounting accruals. TAG is the percentage change in total assets from fiscal yearend t–2 to fiscal yearend t–1. TAG measures overall capital investment growth and asset expansions. $\Delta XFIN_r$ represents the residual component of $\Delta XFIN$ that is uncorrelated to TAC and TAG. Availability of credit analyst rating is proxied by a non-missing S&P long-term credit rating at the end of fiscal year t–1. Lack of credit analyst rating is proxied by missing the S&P long-term credit rating at the end of fiscal year t–1. Stocks are held for one year from May of year t to April of year t+1. The raw portfolio returns (Ret) are the time-series averages of equally weighted stock returns. The size-adjusted portfolio returns (Ret_{SZ}) are the time-series averages of equally weighted stock returns in excess of the returns on the ten matching size benchmark portfolios. The size-and-book-to-market-adjusted portfolio returns ($Ret_{SZ,BM}$) are the time-series averages of equally weighted stock returns in excess of the returns on the 25 matching Fama and French (1992) size-and-book-to-market benchmark portfolios. The risk-adjusted portfolio returns (α) are the estimated intercepts from the following regression:

$$R_{p,t} - R_{f,t} = \alpha_p + b_{p,Mkt} R_{Mkt,t} + s_{p,SMB} R_{SMB,t} + h_{p,HML} R_{HML,t} + m_{p,MOM} R_{MOM,t} + \varepsilon_{p,t},$$

where R_p is the return on portfolio p and R_f is the risk-free rate; R_{MKT}, R_{SMB}, and R_{HML} are returns on the market, size, and book-to-market factors, respectively, in Fama and French (1993); R_{MOM} is the return on the momentum factor in Carhart (1997). Panels A and B report stock returns on equally weighted portfolios based on the $\Delta XFIN_r$ ranking for stocks covered by informed investors and for stocks not covered by informed investors, respectively. Panel C reports the differences in stock returns between firms not covered and firms covered by informed investors. The sample period is from 1972 to 2007. The t-statistics are reported in parentheses. * and ** denote statistical significance at the 5%, and 1% levels, respectively.

Table V – Continued

	ΔXFIN$_r$ Ranking											
	1 (low)	2	3	4	5	6	7	8	9	10 (high)	1 – 10	
	Panel A: Stocks rated by credit analyst											
Ret	1.33**	1.45**	1.43**	1.44**	1.36**	1.48**	1.47**	1.30**	1.44**	1.25**	0.08	(0.41)
Ret_{SZ}	0.23*	0.37**	0.32**	0.34**	0.28*	0.38**	0.41**	0.22	0.41**	0.18	0.05	(0.28)
$Ret_{SZ,BM}$	0.25*	0.34**	0.24**	0.22**	0.17*	0.25**	0.28**	0.07	0.25*	0.18	0.07	(0.37)
α	0.39**	0.45**	0.42**	0.38**	0.25**	0.40**	0.38**	0.27**	0.34*	0.34*	0.05	(0.28)
	Panel B: Stocks unrated by credit analyst											
Ret	1.21**	1.45**	1.48**	1.48**	1.58**	1.59**	1.46**	1.42**	1.08**	0.53	0.68**	(3.94)
Ret_{SZ}	-0.00	0.25*	0.28**	0.29**	0.37**	0.36**	0.21**	0.15*	-0.20**	-0.69**	0.69**	(4.36)
$Ret_{SZ,BM}$	-0.02	0.16*	0.14*	0.13*	0.17**	0.16**	0.04	0.01	-0.24**	-0.51**	0.49**	(3.94)
α	0.10	0.34**	0.35**	0.37**	0.40**	0.40**	0.34*	0.29	-0.06	-0.45**	0.55**	(3.39)
	Panel C: Differences between stocks unrated and stocks rated by credit analyst											
Ret	-0.12	-0.00	0.04	0.04	0.21	0.11	-0.00	0.12	-0.36	-0.72**	0.60**	
	(-0.79)	(-0.02)	(0.29)	(0.30)	(1.36)	(0.62)	(-0.01)	(0.59)	(-1.69)	(-2.94)	(3.00)	
Ret_{SZ}	-0.23*	-0.12	-0.05	-0.05	0.09	-0.02	-0.20	-0.07	-0.61**	-0.87**	0.64**	
	(-2.28)	(-1.45)	(-0.49)	(-0.55)	(0.92)	(-0.18)	(-1.47)	(-0.49)	(-4.23)	(-4.31)	(3.08)	
$Ret_{SZ,BM}$	-0.26**	-0.18*	-0.10	-0.09	-0.00	-0.09	-0.24*	-0.06	-0.48**	-0.68**	0.42*	
	(-2.75)	(-2.26)	(-1.17)	(-1.18)	(-0.01)	(-1.04)	(-2.17)	(-0.50)	(-3.96)	(-4.09)	(2.25)	
Alpha	-0.29	-0.11	-0.07	-0.00	0.15	-0.00	-0.04	0.02	-0.40	-0.78**	0.50*	
	(-1.92)	(-0.86)	(-0.48)	(-0.04)	(1.00)	(-0.02)	(-0.21)	(0.10)	(-1.87)	(-3.07)	(2.35)	

Table VI
Daily Returns around and not around Earnings Announcements on Unrated or Rated Portfolios Sorted by the Residual Net External Financing

At the end of April of each year, stocks unrated (Panel A) or rated (Panel B) by credit analyst, as proxied by missing or having the S&P long-term credit rating at the end of fiscal year t–1, are sorted into deciles based on $\Delta XFIN_r$. $\Delta XFIN_r$ is the residual value from the following contemporaneous cross-sectional regression:

$$\Delta XFIN_{k,t-1} = c_0 + c_1 TAC_{k,t-1} + c_2 TAG_{k,t-1} + \varepsilon_{k,t-1},$$

where $\Delta XFIN$ is the sum of net cash flow from equity financing and net cash flow from debt financing between fiscal yearend t–2 to fiscal yearend t–1, scaled by average total assets over the period. Net cash flow from equity financing is the cash proceeds from sales of common and preferred stocks less cash payments for the purchase of common and preferred stocks less cash payments for dividends. Net cash flow from debt financing is the cash proceeds from the issuance of long-term debt less cash payments for long-term debt reductions less the net changes in current debt. $\Delta XFIN$ is a measure of the extent to which a firm is raises (distributes) capital from (to) capital market participants. *TAC* is the change in non-cash assets less the change in non-debt liabilities between fiscal yearend t–2 to fiscal yearend t–1, scaled by average total assets over the period. *TAC* measures annual accounting accruals. *TAG* is the percentage change in total assets from fiscal yearend t–2 to fiscal yearend t–1. *TAG* measures overall capital investment growth and asset expansions. $\Delta XFIN_r$ represents the residual component of $\Delta XFIN$ that is uncorrelated to *TAC* and *TAG*. Stocks are held for one year from May of year t to April of year t+1. The daily portfolio return around earnings announcements ($DRet_{EAD}$) is the time-series average of the average of equally weighted daily stock returns over the three day windows centered at earnings announcement dates during the one year holding period after portfolio formation. The daily portfolio return *not* around earnings announcements ($DRet_{other}$) is the time-series average of the average of equally weighted daily stock returns outside the three day windows centered at earnings announcement dates during the one year holding period after portfolio formation. The sample period is from 1972 to 2007. The t-statistics are reported in parentheses. * and ** denote statistical significance at the 5%, and 1% levels, respectively.

	$DRet_{EAD}$	$DRet_{other}$	$DRet_{EAD} - DRet_{other}$	
	Panel A: Stocks unrated by credit analyst			
1 (low)	0.11**	0.09**	0.02	(0.82)
10 (high)	-0.04	0.07**	-0.11*	(-2.62)
1 – 10	0.15**	0.02	0.14**	
t-statistic	(2.85)	(1.49)	(2.79)	
	Panel B: Stocks rated by credit analyst			
1 (low)	0.08**	0.06**	0.02	(0.74)
10 (high)	0.23**	0.06**	0.17**	(3.08)
1 – 10	-0.15*	0.00	-0.15*	
t-statistic	(-2.63)	(0.09)	(-2.69)	

Table VII
Portfolio Characteristics by Credit Analyst Coverage and the Residual Net External Financing

At the end of April of each year, stocks are sorted into deciles based on $\Delta XFIN_r$ and independently into two categories by a credit rating dummy. $\Delta XFIN_r$ is the residual value from the following contemporaneous cross-sectional regression:

$$\Delta XFIN_{k,t-1} = c_0 + c_1 TAC_{k,t-1} + c_2 TAG_{k,t-1} + \varepsilon_{k,t-1},$$

where $\Delta XFIN$ is the sum of net cash flow from equity financing and net cash flow from debt financing between fiscal yearend t–2 to fiscal yearend t–1, scaled by average total assets over the period. Net cash flow from equity financing is the cash proceeds from sales of common and preferred stocks less cash payments for the purchase of common and preferred stocks less cash payments for dividends. Net cash flow from debt financing is the cash proceeds from the issuance of long-term debt less cash payments for long-term debt reductions less the net changes in current debt. $\Delta XFIN$ is a measure of the extent to which a firm is raises (distributes) capital from (to) capital market participants. *TAC* is the change in non-cash assets less the change in non-debt liabilities between fiscal yearend t–2 to fiscal yearend t–1, scaled by average total assets over the period. *TAC* measures annual accounting accruals. *TAG* is the percentage change in total assets from fiscal yearend t–2 to fiscal yearend t–1. *TAG* measures overall capital investment growth and asset expansions. $\Delta XFIN_r$ represents the residual component of $\Delta XFIN$ that is uncorrelated to *TAC* and *TAG*. Availability of credit analyst rating is proxied by a non-missing S&P long-term credit rating at the end of fiscal year t–1. Lack of credit analyst rating is proxied by missing the S&P long-term credit rating at the end of fiscal year t–1. Stocks are held for one year from May of year t to April of year t+1. $\Delta EQUITY_r$ and $\Delta DEBT_r$ are the residual values from the above contemporaneous cross-sectional regression with $\Delta XFIN$ being replaced by its components, i.e. the net cash flow from equity financing and the net cash flow from debt financing, respectively. $\Delta EQUITY_r$ ($\Delta DEBT_r$) represents the residual component of the net cash flow from equity (debt) financing that are uncorrelated to *TAC* and *TAG*. *AGE* is the number of years a stock appeared in CRSP at the end of December of year t-1 and it is a proxy of firm age. $SIZE_{t\text{-}2}$ and *SIZE* are the market values of equity at the end of Decembers of year t-2 and year t–1, respectively. $RD_{t\text{-}2}$ and *RD* are the research and development expenses for fiscal year t-2 and fiscal year t-1, respectively, scaled by the average of total assets at the beginning and the end of the corresponding year. $ROA_{t\text{-}2}$ and *ROA* are the operating income after depreciation scaled by the average of total assets at the beginning and the end of the corresponding year for fiscal year t-2 and fiscal year t-1, respectively, and they measure accounting profitability. $Q_{t\text{-}2}$ and *Q* are the ratios of the market value to the book value of assets at the end of Decembers of year t–2 and year t-1, respectively. Panels A and B report the time series averages of median attributes of portfolios based on the $\Delta XFIN_r$ ranking for rated and unrated stocks, respectively. Panel C reports the time series averages of the differences in median attributes between rated high $\Delta XFIN_r$ portfolios and unrated high $\Delta XFIN_r$ .portfolios. The sample period is from 1972 to 2007. The t-statistics are reported in parentheses. * and ** denote statistical significance at the 5%, and 1% levels, respectively.

Table VII – Continued

	$\Delta XFIN_r$	$\Delta EQUITY_r$	$\Delta DEBT_r$	AGE	$SIZE_{t-2}$	$SIZE$	ROA_{t-2}	ROA	RD_{t-2}	RD	Q_{t-2}	Q
Panel A: Characteristics of rated portfolios by the residual external financing ($\Delta XFIN_r$)												
1 (low)	-13.87**	-7.89**	-6.29**	20.64**	16.73**	19.16**	17.33**	18.08**	0.30**	0.38**	1.81**	1.81**
2	-8.39**	-4.37**	-3.88**	22.88**	14.83**	17.04**	14.04**	14.38**	0.25*	0.30*	1.42**	1.45**
3	-5.95**	-3.47**	-2.49**	27.43**	13.37**	15.04**	11.82**	12.19**	0.14*	0.15**	1.22**	1.25**
4	-4.29**	-2.72**	-1.54**	27.38**	13.05**	14.49**	10.41**	10.51**	0.11*	0.11*	1.14**	1.15**
5	-2.85**	-2.39**	-0.48**	24.08**	9.60**	10.62**	9.67**	9.67**	0.06	0.06*	1.09**	1.10**
6	-1.37**	-1.90**	0.56**	25.83**	8.91**	9.81**	8.88**	8.72**	0.03	0.04	1.08**	1.08**
7	0.40*	-1.58**	1.95**	24.00**	8.36**	9.09**	8.60**	8.31**	0.05	0.08	1.08**	1.08**
8	2.93**	-1.25**	4.24**	21.40**	7.22**	8.12**	8.81**	8.26**	0.01	0.00	1.11**	1.10**
9	7.29**	-0.87**	7.92**	17.29**	5.24**	5.84**	9.22**	8.55**	0.00	0.00	1.18**	1.16**
10 (high)	17.78**	0.92	16.32**	9.85**	3.04**	3.90**	9.74**	8.79**	0.04	0.02	1.42**	1.34**
1 – 10	-31.64**	-8.81**	-22.61**	10.79**	13.69**	15.26**	7.59**	9.29**	0.27**	0.35**	0.38**	0.47**
	(-22.39)	(-9.94)	(-19.55)	(6.85)	(6.11)	(6.19)	(11.04)	(15.49)	(2.99)	(3.32)	(5.82)	(7.55)
Panel B: Characteristics of unrated portfolios by $\Delta XFIN_r$												
1 (low)	-14.72**	-5.26**	-9.40**	9.06**	0.81**	0.97**	12.33**	13.51**	0.06*	0.05	1.47**	1.48**
2	-8.39**	-3.23**	-5.09**	10.38**	0.90**	1.02**	12.54**	13.13**	0.01	0.02	1.32**	1.32**
3	-5.97**	-2.49**	-3.42**	10.78**	0.89**	1.02**	11.48**	11.80**	0.02	0.00	1.23**	1.23**
4	-4.28**	-1.93**	-2.36**	10.94**	0.83**	0.92**	10.05**	10.12**	0.05	0.05	1.17**	1.16**
5	-2.84**	-1.37**	-1.44**	10.56**	0.74**	0.78**	8.70**	8.64**	0.08	0.09*	1.11**	1.11**
6	-1.37**	-0.92**	-0.44**	9.78**	0.60**	0.64**	7.29**	6.90**	0.16*	0.17*	1.09**	1.08**
7	0.42**	-0.47*	0.89**	9.33**	0.54**	0.53**	6.41**	5.48**	0.40*	0.43*	1.10**	1.08**
8	2.93**	-0.15	3.01**	8.83**	0.48**	0.46**	5.70**	4.26**	0.60*	0.60*	1.13**	1.11**
9	7.44**	0.37	6.79**	7.65**	0.44**	0.41**	4.98**	2.94**	0.57*	0.57*	1.21**	1.17**
10 (high)	22.61**	11.54**	9.55**	6.14**	0.44**	0.48**	-2.66	-4.99*	2.62**	2.44**	1.87**	1.73**
1 – 10	-37.32**	-16.80**	-18.95**	2.92**	0.37*	0.49*	14.99**	18.50**	-2.55**	-2.39**	-0.40**	-0.24**
	(-18.99)	(-7.15)	(-13.74)	(7.34)	(2.17)	(2.46)	(9.24)	(10.75)	(-3.78)	(-3.76)	(-3.61)	(-2.93)
Panel C: Differences in characteristics between rated and unrated portfolios with high $\Delta XFIN_r$												
	-4.83**	-10.61**	6.77**	3.71**	2.60**	3.42**	12.40**	13.78**	-2.59**	-2.42**	-0.45**	-0.38**
	(-6.49)	(-5.27)	(5.03)	(4.34)	(6.64)	(6.46)	(7.21)	(7.92)	(-3.79)	(-3.70)	(-4.13)	(-4.27)