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Accounting accruals, heterogeneous investor beliefs, and stock returns☆

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ABSTRACT

We study how a firm's accounting accruals affect the heterogeneity of investor beliefs on the firm's value and further affect the firm's future stock returns. We document three findings. First, we find that the level of the heterogeneity in investor beliefs on a firm's value is higher when the firm experiences a larger increase in its accounting accruals. Second, we find that future stock returns following the earnings announcement are lower when the firm's accounting accruals increases the heterogeneity of investor beliefs to a larger degree. Finally, we also find that the effect of the accruals-induced heterogeneous investor beliefs on future stock returns is more pronounced when short-sale constraints are more binding. Overall, our empirical findings suggest that accounting accruals are a key determinant of the heterogeneity of investor beliefs. They also suggest a channel of investor beliefs whereby accruals affect future stock returns by affecting the heterogeneity of investor beliefs.

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1. Introduction

Investors have heterogeneous prior beliefs on a firm's value. How the heterogeneity of investor beliefs affects the valuation of the firm's securities has been studied in depth in the finance literature. This research dates back to Miller (1977) (and subsequently, Harrison and Kreps, 1978; Mayshar, 1983; Morris, 1996). Miller (1977) argues that, when investors with heterogeneous beliefs are subject to short-sale constraints, stocks would sell at a premium over their fundamental values. This is because short-sale constraints prevent pessimistic investors from trading in the stock market so that stock prices only reflect the beliefs of optimistic investors. Recently, Chen et al. (2002) and Diether et al. (2002) find empirical evidence supporting Miller's predictions. However, it is still not well understood what causes heterogeneous investor beliefs.

In this paper, we study one factor that could cause heterogeneity of investor beliefs: different interpretations of a firm's accounting information in the presence of potential earnings management. Specifically, we focus on accounting accruals. We study how the possible management of accounting accruals affects the heterogeneity of investor beliefs. We also study how the effect of accruals on investor beliefs could affect future stock returns. To the best of our knowledge, our paper is the first to identify the impact of accounting accruals on the heterogeneity of investor beliefs. It is also the first to study how this impact affects future stock returns.

We first propose that high accounting accruals increase the heterogeneity of investor beliefs on the firm value. The accrual process requires managers' subjective estimates about future events and these estimates cannot be objectively verified, thereby leaving managers discretion to manipulate earnings through accruals.[1] Trustful investors would take the reported accruals at face value while skeptical investors, concerned with the possibilities of earning manipulation, would place a lower weight on the accrual component of earnings when valuing the firm. In other words, investors' different interpretations of the value implication of accruals would cause heterogeneous beliefs on the firm's value. When the firm reports a higher level of accruals, investors would

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[1] Bernstein (1993) points out that the accrual system relies on "deferrals, allocations, and valuations, all of which involve higher degree of subjectivity." Francis and Krishnan (1999) suggest that accruals cannot be objectively verified by auditors.

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become more heterogeneous in their beliefs on the firm's value. This is the first hypothesis we test in the paper.[2]

Next, we examine how the impact of accounting accruals on heterogeneous investor beliefs could affect future stock returns. Following Miller (1977), we argue that the heterogeneity of investor beliefs generated by the different interpretations of accounting accruals would boost a firm's contemporaneous stock price. Over time, as the uncertainty about the firm's future cash flows induced by accruals gradually resolves, the heterogeneity in investor beliefs on the value implication of accruals will be reduced. The reduced heterogeneity will consequently cause the firm's equity value to converge to its fundamental value, resulting in a lower long-run stock return. In other words, we propose an investor belief channel through which accounting accruals could affect future stock returns. An increase in the level of accruals could increase the heterogeneity of investor beliefs, which subsequently leads to a lower future stock return. The higher the level of the accrual-induced heterogeneity is, the lower the future stock return is. This is the second hypothesis we test in the paper.

Finally, we study how short-sale constraints play a role in the investor belief channel proposed in hypothesis H2. In Miller's (1977) framework, a key condition for heterogeneous investor beliefs to affect stock pricing is that investors are subject to short-sale constraints. Short-sale constraints prevent pessimistic investors from trading in the market and regulating the stock price (Sobaci et al., 2014). The effect of heterogeneous investor beliefs on stock pricing is greater when short-sale constraints are more binding.[3] Following Miller's framework, we hypothesize that the effect of the accrual-induced heterogeneous investor beliefs on future stock returns is more pronounced when short-sale constraints are more binding. This is the third hypothesis we test in the paper.

A central variable in our test of the above three hypotheses is the level of investors' heterogeneous beliefs. We follow the literature and use the dispersion in analysts' earnings forecasts to proxy for the degree of heterogeneous investor beliefs. A higher dispersion in analyst forecasts indicates a higher level of heterogeneity in investor beliefs (see, e.g., Diether et al., 2002; Verardo, 2009). Using analyst dispersion as the heterogeneity variable, we find evidence consistent with all three hypotheses. First, we find that financial analysts disagree more on their earnings forecasts when accruals experience a larger increase from the previous quarter.[4] This result is consistent with the notion that an increase in accruals induces concerns on potential earnings management and consequently causes heterogeneous beliefs on the firm's value.

Second, we find that the lower future stock return experienced by a firm with increased accruals is more pronounced if the firm faces a higher level of dispersion in analysts' earnings forecasts in the month following the announcement of increased accruals. We also show that this result is unlikely to be driven by the common return predictors, such as size, book-to-market, historical return, illiquidity, as well as the growth anomaly (Fairfield et al., 2003) and the post-announcement earnings drift. These results suggest that accounting accruals could affect future stock returns through the investor belief channel by affecting the heterogeneity of investor beliefs, as proposed in our second hypothesis.

To test the third hypothesis, we use stock holdings by institutional investors and Amihud's (2002) illiquidity measure to proxy for how tightly short-sales constraints bind. Prior studies show that the stocks with more institutional investor holdings and higher liquidity are easier to short (Nagel, 2005; Berkman et al., 2009; Sadka and Scherbina, 2007; Banerjee and Graveline, 2013). Using these two proxies, we find that the accrual-induced heterogeneous investor beliefs affect future stock returns to a larger degree for stocks with lower institutional investor holdings and for stocks with lower stock liquidity, presumably those stocks facing tighter short-sale constraints.

We also run several other robustness tests. In the paper, we use a proprietary sample consisting of firms that disclose net operating cash flows in their preliminary earnings announcements. By using this proprietary sample, we ensure that investors are able to infer the amount of accruals from earnings and operating cash flows at the earnings announcement date. However, this sample is only a subset of the universe of firms, since many firms do not announce operating cash flows at earnings announcements. To check whether or not our sample selectivity affects our empirical results, we run Heckman's (1979) selection model. Our results from the selection model are consistent with our earlier results. Moreover, we focus on total accruals instead of discretionary accruals in our main tests, since sample firms have all information needed to infer the amount of total accruals at the earnings announcement, but not necessarily information to infer the amount of discretionary accruals. When we use the discretionary accruals in our robustness checks, our inferences do not change. The results are also robust to different sample compositions, different model specifications, and various stock return windows.

Overall, our results suggest that accounting accruals are a key determinant of the heterogeneity of investor beliefs. They also suggest that accounting accruals could affect future stock returns by affecting the heterogeneity of investor beliefs. These results extend the literature on heterogeneous investor beliefs and stock pricing. As we discussed earlier, the literature was set forth originally by Miller (1977).[5] However, the literature has not provided any insight on whether and how potential manipulation of accounting accruals affects the heterogeneity of investor beliefs. Our paper fills the void.

By linking the impact of accruals on investors' heterogeneous beliefs to future stock returns, our paper also extends the literature on the accrual anomaly. The accrual anomaly is first documented by Sloan (1996), who shows that the stocks of high accrual firms earn negative abnormal returns in the future. Sloan (1996) argues that the accrual anomaly occurs since investors naïvely fixate on accounting earnings and overestimate the persistence of accruals.[6] Bradshaw et al. (2001) further show that sell-side analysts overestimate the persistence of accruals and fail to anticipate the subsequent earnings declines for firms reporting high accruals. Our paper identifies a different channel through which accruals could affect future stock returns. We propose that an increase in accruals could cause lower future stock returns because it increases the heterogeneity of investor beliefs regarding firm value contemporaneously in the period of the increased accruals. Thus, unlike the fixation explanation, which focuses on investors' average (naïve and biased) beliefs in response to the accruals information, our

[2] Here, we focus only on the income-inflating earnings management in our discussion. However, managers could also manage earnings downward. We will discuss this possibility and its implication on hypothesis H1 in later section.

[3] See Boehme et al. (2006), Sadka and Scherbina (2007), and Hirshleifer et al. (2011) for the empirical findings.

[4] The majority of our empirical tests are based on the change in accruals rather than the level of accruals. A firm's use of accruals could be an outcome of certain firm characteristics (Chan et al., 2006). We use change in accruals to purge firm fixed effects. We will discuss this in detail in Section 3.2.

[5] Several papers incorporate Miller's insight in more formal and refined models. For example, Scheinkman and Xiong (2003) and Hong et al. (2006) further develop dynamic models with heterogeneous beliefs and shorting constraints to study the joint behavior of volume and overpricing.

[6] In recent years, alternative explanations on the accrual anomaly emerge in the literature. For instance, researchers suggest that the accrual anomaly can be a special case of the growth anomaly (e.g., Fairfield et al., 2003). Other studies on the accrual anomaly include Hirshleifer et al. (2004) and Dechow et al. (2008).

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