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Is the accrual anomaly robust to firm-level analysis?

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ABSTRACT

This study investigates whether firm-level accrual mispricing exists and if such mispricing is persistent. Our results show both under and overpricing of accruals that persevere. Specifically, we show that a trading strategy going a dollar long (short) in underpriced (overpriced) accrual firms yields significant abnormal returns in most years investigated. We examine whether firm characteristics such as size, analyst following and real activities management can explain why some firms are mispriced and others not. Our findings show that firm-level mispricing differs from that documented at the country-level. Whilst the country-level anomaly seems to have diminished; the firm-level accrual anomaly remains.

1. Introduction and motivation

This study examines the firm-level mispricing of accruals. The accrual anomaly suggests that investors overestimate the persistence of the accrual component of earnings and subsequently misprice it (Sloan, 1996). Abnormal returns are available to a strategy of buying (selling) low (high) accrual firms, and so the existence of the anomaly is seemingly evidence against market efficiency. The anomaly is limited to certain subsets of firms (profit-making firms, Dopuch, Seethamraju, & Xu, 2010; low disclosure quality firms, Drake, Myers, & Myers, 2009; and smaller firms in high sentiment periods, Ali & Gurun, 2009). Dopuch et al. (2010) document mispricing of profit-making firms' positive accruals but conclude that loss firms are accurately priced. When low disclosure quality firms are excluded from consideration, mispricing is substantially reduced (Drake et al., 2009). Ali and Gurun (2009) show that investors misprice small firms particularly during high sentiment periods. These studies therefore suggest that specific firm characteristics such as being a profit firm, having low disclosure quality or being small are associated with mispriced accruals. The accrual anomaly therefore appears to be driven by firm-level characteristics and whilst Ali and Gurun (2009), Drake et al. (2009) and Dopuch et al. (2010) examine subsets of accrual anomaly firms, they do not investigate individual firm-level accrual mispricing and its persistence.

Fama (1998) conjectures that efficient markets create events which suggest that prices overreact to information. However, he concludes that in an efficient market, overreactions to information should be about as frequent as underreactions. Therefore if we find at the firm-level that investors overestimate the persistence of accruals about as often as they underestimate it, the existence of such mispricing is not necessarily inconsistent with efficient market theory. We are therefore motivated to examine firm-level over and underpricing of accruals to determine its prevalence and persistence and shed some light on the true market efficiency implications of the accrual anomaly. We are the first study to examine the firm-level accrual anomaly.

This paper therefore has two main objectives. The first is to determine whether firm-level mispricing exists and is persistent. We estimate firm-level accrual mispricing variables and examine whether these firms remain mispriced over time. We are particularly interested to determine whether firms have over or underpriced accruals, and how long these remain so. The second objective is to examine the characteristics of mispriced firms. That is, we estimate whether firms with mispriced accruals have common characteristics.

Several studies are directly related to ours. Ali and Gurun (2009) show that the country-level anomaly is most common in subsets of small firms during high sentiment periods. Drake et al. (2009) document that the anomaly is present for low disclosure quality firms only whilst Dopuch et al. (2010) confirm that it exists solely for profit-making firms. Whilst these studies show that the country-level accrual anomaly exists only for certain subsets of firms, our study instead investigates the pricing of accruals at the firm-level and documents the

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existence of under and overpriced firms. Green, Hand, and Soliman (2011) document that returns to accrual anomaly based hedge fund trading have decreased post-SOX. This study goes further by showing that whilst firm-level mispricing persistence similarly decreased post-SOX it has since increased again and remains fairly consistent long-term. We conclude by examining whether firms identified as mispriced have common characteristics.

Our results indicate that some 13% of firms have mispriced accruals in any given year. This mispricing appears pervasive with 83% of significantly over- and underpriced firms remaining so for at least one-year, 70% for at least two years, and 51% for more than four years. Furthermore, a trading strategy of buying underpriced firms and shorting overpriced firms over the 12-year sample period would have almost doubled one's investment (return of 93%). Additional analysis also reveals that firm-level mispricing has remained fairly constant over time. The percentage of firms with underpriced accruals, however, seems to have increased over the sample period whilst those with overpriced accruals have decreased. Mispricing persistence has increased in the latter part of the 2000s after decreasing in earlier years. This suggests that the decrease in the country-level accrual anomaly documented (Cohen & Zarowin, 2010; Green et al., 2011) may have been temporary. Studies document post-SOX improvements in earnings quality resulting in decreased discretionary accruals (Iliev, 2010; Singer & You, 2011) thus suggesting that the anomaly may have been attenuated. We show instead that mispriced firms have significantly higher real activity based earnings management post-SOX and that firm-level accrual mispricing persists. Mispriced firms are found to have larger total asset values and increases in analysts' coverage of these firms appear to be associated with a reduction in the pervasiveness of mispricing.

Our study contributes to the accrual anomaly literature in several ways. First, we show that some firms have overpriced accruals, others have underpriced accruals whilst yet others still are accurately priced. We therefore illustrate the importance of investigating accrual mispricing at the firm-level. Our second contribution is documenting the persistence of firm-level accrual mispricing and illustrating that a strategy of buying underpriced accrual firms and selling overpriced accrual firms yields significant trading profits. The final contribution of this study is confirming that the absolute level of firm accruals has decreased post-SOX. However, whilst prior studies suggest that this is due to decreased earnings management we show instead that mispriced firms are significantly more likely to manage accruals through real activity based earnings management techniques post-SOX. Thus, SOX did not necessarily decrease earnings management; rather it just resulted in a change from accrual-based to real activity based earnings management. Investors, in turn, seem equally unable to accurately price the lower quality earnings stemming from real activity based earnings management than from accrual-based earnings management.

The rest of this study is structured as follows: The next section presents the relevant literature and develops testable hypotheses. Data and methodology are discussed in Section 3 and empirical findings in Section 4. Section 5 concludes.

2. Background and hypotheses development

The accrual anomaly literature documents abnormal returns to a strategy of selling high accrual firms and buying low accrual firms (Sloan, 1996) on the premise that investors overestimate (underestimate) the persistence of the accrual (cash flow) component of earnings. Subsequent studies confirm the anomaly and its persistence at the country-level (Hirshleifer, Teoh, & Yu, 2011; Lev & Nissim, 2006; Mashruwala, Rajgopal, & Shevlin, 2006; Shi & Zhang, 2012).[1] Others suggest that the anomaly is present only for certain subsets of firms (Ali & Gurun, 2009; Dopuch et al., 2010; Drake et al., 2009). The accruals of small firms, for instance, are potentially mispriced given that they are typically followed mainly by individual investors (as opposed to more sophisticated institutional investors or analysts) (Ali & Gurun, 2009). Drake et al. (2009) propose that investors faced with low quality financial disclosures are more likely to misprice accruals and document reduced accrual mispricing for higher disclosure quality firms. Dopuch et al. (2010), in turn, propose that earnings for loss firms are less value relevant and that they are therefore less likely to be mispriced in the accrual anomaly. Their results confirm this and they document that it is the positive accruals of profit firms that are mispriced and that loss firms do not have mispriced accruals.

Taken together, these studies suggest that Sloan's (1996) country-level accrual anomaly relates only to certain subsets of underlying firms and suggest that there are certain types of firms more likely to have mispriced accruals than others. They do not, however, investigate the mispricing of accruals at the firm-level. In fact, no study to date has done so. We expect, based on the extant literature and in particular Fama (1998) that some firms will be overpriced, others underpriced and still others have no accrual mispricing at all.[2] This discussion leads to our first hypothesis:

Hypothesis 1. Accruals are mispriced at the firm-level.

More recently, studies show a decrease in the profitability of the country-level accrual anomaly based trading strategy (Bhojraj & Swaminathan, 2009; Green et al., 2011; Keskek et al., 2013; Richardson, Tuna, & Wysocki, 2010). Whilst these studies credit stricter regulation and better disclosure quality for this reduction, we suggest that this might not be so. If more stringent regulation truly resulted in the country-level accrual anomaly's demise, the underlying firm-level mispricing of accruals should also be mitigated or significantly reduced (more accurate financial disclosures should allow better pricing decisions of individual firm accruals much like at the country-level). Alternatively, if firm-level mispricing remains, then the lower country-level mispricing documented in the late 2000s could simply be an "averaging" effect of underlying firm over and underpricing.

It is our expectation that whilst some firms may have overpriced accruals (as in the country-level accrual anomaly) others may be underpriced whilst yet others may be accurately priced. So, if there are equal numbers of under and overpriced accrual firms, a country-level accrual anomaly might not be documented at a particular point in time even when a large proportion of underlying firms are mispriced (as the over and underpricing might cancel each other out) consistent with Fama (1998). Whether underlying firm-level accrual mispricing therefore persists over time or rather corrects due to investors recognizing its implications remains unknown. That is, we examine whether (and how long) firm-level accrual mispricing persists. This discussion leads to our second hypothesis:

Hypothesis 2. Firm-level accrual mispricing persists over time.

3. Data and methodology

3.1. Data

The data required for calculating the accrual mispricing variables are obtained from the Compustat/Center for Research in Security Prices (CRSP) database. The variables for the mispricing tests include earnings (EAR_t) and its accrual (ACC_t) and cash flow (CFO_t) components, and size-adjusted (abnormal) returns (R_{t+1}). The calculation of each of these

[1] More recently though it appears the country-level anomaly is diminished or completely mitigated (Green et al., 2011).

[2] Fama (1998) suggests that if over and underreactions to information are about equal in their frequency, then this is consistent with market efficiency and so no anomaly really exists. We are therefore also interested in the investigating the frequency of over and underpricing of accruals.