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News-driven return reversals: Liquidity provision ahead of earnings announcements ☆

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ABSTRACT

This study documents a six-fold increase in short-term return reversals during earnings announcements relative to non-announcement periods. Following prior research, we use reversals as a proxy for expected returns market makers demand for providing liquidity. Our findings highlight significant time-series variation in the magnitude of short-term return reversals and suggest that market makers demand higher expected returns prior to earnings announcements because of increased inventory risks that stem from holding net positions through the release of anticipated earnings news. Collectively, our findings suggest that uncertainty regarding anticipated information events elicits predictable increases in the compensation demanded for providing liquidity and that these increases significantly affect the dynamics and information content of market prices.

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1. Introduction

Several market frictions have the potential to significantly impact the efficiency and information content of market prices. This study focuses on the friction that arises from the need to locate a counterparty in order to complete a trade. Market makers typically mitigate this friction by matching would-be sellers with would-be buyers. When there is an imbalance between the quantities sought by buyers and sellers at a given price, market makers may absorb the order imbalance into their own account by serving as the trade counterparty.[1] This practice is commonly known as liquidity provision.

This article's contribution is to study how the expected returns to liquidity provision change prior to anticipated information events. The theoretical motivation for this

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[1] Following Hendershott, Jones, and Menkveld (2011), we use the term market makers to refer to the broad category of liquidity providers that includes, but is not limited to, officially designated market makers, quantitative funds, and algorithmic and institutional traders. Related research underscores that the traditional role of market makers has shifted toward high frequency and algorithmic traders (e.g., Brogaard, 2010; Menkveld, 2013).

paper stems from a setting that includes both informed and uninformed traders, as in Kyle (1985), and where risk-averse market makers demand compensation for providing liquidity, as in Grossman and Miller (1988). A common result in models of liquidity provision is that market makers are compensated via price concessions by setting prices below (above) fundamental value in response to sell (buy) order imbalances. As market makers unwind their net positions, the excess of price concessions when entering versus exiting the positions results in a positive expected return, which manifests as a negative autocorrelation in returns.

In this paper, we use the extent of negative return autocorrelation (i.e., return reversals) as a proxy for the expected returns that market makers demand for providing liquidity and earnings announcements as an example of anticipated information events. Our goal is to examine whether these events elicit predictable changes in return reversals. ex ante, it is unclear whether reversals should increase or decrease during anticipated information events. On one hand, models of liquidity provision such as Nagel (2012) indicate that market makers demand compensation for incurring inventory risks (i.e., risks of adverse changes in the prices of their net positions) and adverse selection. These models suggest that greater anticipated volatility and/or adverse selection risks associated with information events should lead to increased reversals. On the other hand, models such as those in Campbell, Grossman, and Wang (1993) and Llorente, Michaely, Saar, and Wang (2002) indicate that the arrival of fundamental news, via public announcements or privately informed trade, increases the martingale component of returns and thus should lead to decreased reversals during information events (see Appendix A for more details). This paper assesses the balance of these competing forces and establishes several robust patterns in the dynamics of reversals surrounding earnings announcements. Our central empirical result is that return reversals increase enormously during earnings announcements relative to non-announcement periods, indicating that market makers demand greater compensation for providing liquidity ahead of anticipated information events.

We quantify the impact of anticipated information events on liquidity provision by contrasting reversal magnitudes during earnings announcements and non-announcement periods. Specifically, we show that a long (short) position in firms whose returns strongly underperform (outperform) the market in the three days prior to earnings announcements yields an average return of 145 basis points (bps) during the announcement window. By comparison, the average return to a comparable portfolio during non-announcement periods is 22 bps, indicating that return reversals increase more than six-fold during earnings announcements. We also plot reversal magnitudes in event-time and show that they gradually rise ahead of announcements and fall sharply immediately afterwards. These findings are consistent with a sizable decrease in liquidity as defined by Pastor and Stambaugh (2003) in the sense that order flow induces increasingly large price fluctuations prior to earnings announcements. Additional tests confirm that the concentration of reversals during earnings announcements is robust to the use of midpoint and open-to-close returns, and skipping a day between return windows, which mitigate the influence of bid–ask bounce.

Several decades of research document robust empirical evidence of return reversals in daily, weekly, and monthly calendar-time portfolios [see Madhavan (2000) for a review of this literature]. Our study differs from these prior studies by examining changes in liquidity provision ahead of anticipated information events and is thus closely related to Tetlock (2010). Tetlock (2010) models how risk-averse market makers accommodate liquidity demands but differs from standard models of liquidity provision in its explicit assumptions regarding the role and timing of public news. In Tetlock (2010), traders receive a private signal and incur a persistent liquidity shock prior to a public announcement. Consistent with our central empirical prediction, market makers in his model are particularly averse to providing liquidity prior to the announcement. However, the announcement reduces asymmetric information, which makes market makers less reluctant to accommodate the persistent liquidity shock and contributes to positive return momentum following the announcement. Empirically, Tetlock (2010) provides evidence that public information can attenuate return reversals. Thus, whereas Tetlock (2010) focuses on changes in return dynamics after announcements, our contribution is to examine how liquidity provision changes prior to announcements.

We also explore adverse selection and inventory risks as non-mutually exclusive explanations for increased return reversals during earnings announcements. Greater adverse selection can increase reversals by eliciting larger net order imbalances but can also decrease reversals by raising the martingale component of returns driven by the arrival of fundamental news. Our empirical tests show that return reversal magnitudes do not vary significantly with proxies for asymmetric information, which suggests that increased reversals during earnings announcements are less likely to be driven by adverse selection because asymmetric information is a necessary condition for, and contributing factor to, informed trade. Our inferences are also unchanged when implementing reversal strategies using portfolio weights designed to mitigate the influence of price impact due to adverse selection. These findings corroborate predictions common to models of liquidity provision with bid–ask spreads that adverse selection results in wider spreads but does not induce negative autocorrelation in returns (Glosten and Milgrom, 1985).[2]

To explore the role of inventory risks, we predict that market makers demand higher expected returns for providing liquidity ahead of announcements with greater anticipated return volatility.[3] The intuition for this

[2] The model in Nagel (2012) does not include a bid–ask spread. The addition of a spread allows market makers to widen spreads as compensation for exposure to adverse selection risks.

[3] Prior research shows that market makers manage small baskets of securities, rather than diversified portfolios, which makes them averse to idiosyncratic risks, and also have limited risk-bearing capacity because losses on positions may trigger margin requirements and/or internal risk

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