

A Review on the Post-Earnings Announcement Drifts: A Holistic Approach Is Warranted

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Abstract: This paper examines key hypotheses on the post-earnings announcement drift and highlights the multifariousness of the underlying drivers for the phenomenon. Key theories discussed in the paper include the risk premium hypothesis, delayed information processing theory, market sentiment, and behavioral analysis of market participants. This paper presents a literature review on the topic, which suggests that the post-earnings announcement drifts, while still present and relevant, seem to decrease negatively in absolute magnitude, as well as when the firm is more liquid. This observation is concurrent with technological development, which continues to improve information efficiency and mitigate market friction from a transaction cost perspective. The analysis provides a qualitative narration of the evolvement of previous research, which suggests the possibility that multiple reasons contribute to its persistence. For future research, a multi-factor model incorporating earnings surprises, guidance upsides, sentiment indices, and observed biases, should present a holistic approach to the contributing factors to the post-earnings announcement drifts.

Keywords: post-earning announcement drifts, multi-factorial methodology, behavioral finance, bias, arbitrage.

1. Introduction

Public-traded companies disclose their past performance each quarter, providing information on earnings, key business metrics, and forward-looking guidance. Earnings announcements are one of the key catalysts that investors tune in and trade on. According to the efficient market hypothesis, the market is efficient by promptly reflecting new information in stock prices. The efficient market hypothesis suggests that one cannot earn abnormal returns after the market adjusts for the earnings surprises.

On the other hand, various studies have documented that stocks continue to generate abnormal returns for an extended time post-earnings announcement, lasting up to months. This phenomenon is known as the post-earnings announcement drifts, or “PEAD,” which was first recorded by Ball and Brown in 1968 and observed in stock markets globally. Specifically, Ball and Brown suggested that stocks trade up on “good news” and down on “bad news,” generating abnormal returns up to a year post-fact [1]. Since the initial discussion, the phenomenon has gained tremendous attention from both researchers and investors. The existence and prevalence of PEAD are well-documented in research and executed as portfolio strategies, posing a contradiction to the EMH and prompting the search for an explanation for the post-earnings announcement drifts. The proliferation of hypotheses suggests that the answer may be more than one.

2. Research question

This paper revisits the well-studied post-earnings announcement drifts in the current context. Initially researched by Ball and Brown in 1968, the phenomenon has since been observed in the global stock market. Despite the ample evidence of the existence of the post-earnings announcement drifts, researchers have yet to reach a consensus on the explanation for the drift. Key hypotheses include 1) delayed information processing, 2) risk premium for arbitrage, 3) market sentiment, and 4) various behavioral biases investors exhibit. Nonetheless, studies suggest portfolio strategies can be designed to capitalize on the PEAD to generate abnormal returns.

This paper explores the existing post-earnings announcement drifts in a more technologically advanced and incrementally transparent market, which may explain the decrease in their magnitude compared to decades ago. While the analysis anchors in a literature review over the past years, this paper provides a qualitative perspective on the content of earnings reports, and behavioral and organizational factors on companies, analysts, and investors as a supplement. Research results suggest that the PEAD, while still present and relevant, seems to decrease negatively in absolute magnitude and when the firm is more liquid. Specifically, while technology and information efficiency have improved and contributed to better informational processing, behavioral finance theory remains persuasive in accounting for the persistence of the PEAD. The paper aims to facilitate the discussion of an appropriate model that incorporates the myriad underlying drivers for future research. Specifically, a possible multi-factor model that includes earnings surprises, guidance upsides, sentiment indices, and observed biases, may be suitable for presenting a holistic.

3. Research method

This paper provides a review of the extensive body of research on post-earnings announcement drifts, focusing primarily on the various hypotheses proposed to explain this phenomenon. The reviewed literature encompasses theories of the risk premium hypothesis and the delayed information processing hypothesis, which attempts to account for the persistent abnormal returns observed for an extended time after earnings announcement. Also included are studies exploring market frictions and trading strategies to examine how these factors influence the magnitude and duration of PEAD.

Importantly, market sentiment and behavioral factors are gaining increasing attention as potential explanations for the persistence of PEAD, particularly in the current context of improving efficiency in information processing and trading frictions. The impact of psychological biases and irrational behavior on market outcomes supplements the existing hypotheses. Nonetheless, unlike the consensus on the existence of PEAD, researchers continue to debate the underlying reasons for the phenomenon.

Given the proliferation of research on this topic, this paper selectively examines widely reviewed research pieces since the initial discussion by Ball and Brown in 1968. The organization of this paper is structured to cover key hypotheses while also delineating the development of the discussion as the market evolves to improve the efficiency of both information processing and transaction frictions. Specifically, the dynamics of market participants for arbitrage further influenced the character of PEAD after the phenomenon became well-known and widely discussed.

The selective and qualitative nature of this discussion presents inherent bias, which the paper aims to mitigate by narrowing down the literature to frequently reviewed and cited research. By critically accessing influential work, this review aims to offer a balanced synthesis of the literature, as well as offer insights into the ongoing debate surrounding the drivers for the PEAD in an ever-evolving market. With a focus on the qualitative character of the PEAD and research work, this paper further explores the current gap in the literature and encourages the discussion of topics for future research.

In conclusion, the paper aims to contribute to the ongoing discussion through a lens of the contemporary explanation for post-earnings announcement drifts. It underscores the complex interplay between information processing, market efficiency, and behavioral factors. Ultimately, the paper aims to facilitate continuing inquiry into PEAD and discussion of its relevance within the context of the evolving financial markets with advanced technology.

4. Main text

The post-earnings announcement drifts were first identified and discussed by Ball and Brown. The authors found that stocks continue to generate a positive cumulative abnormal return on a positive earnings announcement, and vice versa, while they also concluded that 85% to 90% of the earnings content occurs during the month before the announcement date [2]. The implication is that earnings announcement offers incremental information, resulting in the drifts for months before eventually plateauing. Since then, various scholars have replicated the experiment and corroborated the existence of post-earnings announcement drifts globally and presented a myriad of explanations for the phenomenon which this paper discusses below.

Many researchers attribute the post-earnings announcement drifts to a form of mispricing due to market frictions, or transaction costs. This school of thought approaches the abnormal return as a risk premium on trading on the information, viewing the abnormal return as compensation for unexpected systematic variation [3]. Bhushan noted a positive correlation between the magnitude of the PEAD and the transaction costs and a negative correlation of the firm size [4]. A supporting evidence for this explanation lies in that illiquid stocks with higher transaction costs has larger drifts post-earnings [5]. Despite empirical evidence of the effectiveness of the trading strategy, the hypothesis has been subject to debate. One counterargument in Barnard and Thomas suggests that the surprise earnings upside has an upper bound regardless of the magnitude of the surprise upside, which implies that the drifts can only be partially correlated to the mispricing [6].

Another widely discussed explanation characterize the PEAD as an initial underreaction, or delayed in price response, which suggests the market does not fully absorb and reflect earnings information in price immediately. Bernard and Thomas further pointed out that a large component of the abnormal returns from current quarters' report takes place in the few days prior to next quarter's earnings announcement [7]. A present application is that Berkshire Hathaway reports earnings on Saturday, providing investors more time to digest the results before the market opens on the next Monday, although most companies report during weekdays.

The technological development that has improved information processing and transaction efficiency warrants revisiting the studies and hypotheses presented decades ago. The prevalence of Bloomberg terminals and other financial data and software platforms makes real-time announcements possible. Investor Relations companies' websites made public access to earnings information easier for retail investors. The availability of real-time recording transcription and the application of AI in synthesizing key takeaways is another step further into real-time information processing. The efficiency in technology mitigates the risks of delay in information processing, whereas the reduction of commissions and overall transaction costs further improves market liquidity. The adoption of technology leads to a different market context for understanding the post-earnings announcement drift.

In fact, recent studies point to trends of the PEAD reducing in magnitude and retreating to stocks with smaller market capitalizations. For example, Bernard and Thomas estimated an abnormal return of 4.2% over 60 days post earnings, or an annualized abnormal return of 18%, for the period of 1974-86, with a more prominent effect in small-cap stocks. Recent research by Martineau examined U.S. stock during the period of 1984 to 2019, which found that the price drifts were becoming less consistent since 1991. Specifically, the PEAD was only observed in the top quintile since 2006,

eventually disappearing post 2011. The author further noted that the remaining effect of the PEAD is limited to microcap stocks, or small NYSE/AMEX firms, likely due to the information barrier from limited analyst coverage or low stock prices, which is where the PEAD still persists [8, 9].

The changing landscape prompts a re-examination of the post-earnings announcement drift. In addition to the empirical studies discussed prior, which took a systematic approach in quantifying the PEAD, much research discusses the underlying nuance from a behavioral perspective. For example, the content of the earnings reports also has implication on the market's information processing. In addition to past quarter's results, management often provides forward-looking guidance on the full year, and sometimes on the upcoming quarter as well. After the initiation of guidance, which generally supplements the release of the fourth-quarter and full-year results of the prior year, management may maintain, raise, or trim guidance as the year unwraps. Company guidance serves as a key signal for management expectations, provides visibility into future performance, and anchors analyst forecasts. In a way, the track record of the accuracy of guidance impacts how investors interpret the earnings announcement. Therefore, the "post-guidance drift" may technically be a component of the post-earnings-announcement drift. Researchers have found that the inclusion of guidance reduces the PEAD [10]. Further, the degree to which the drifts occur is negatively related to the accuracy of the historical guidance of the company [11].

Moving from Ball and Brown's time-series model, which approximates the market expectation from prior observations, much research now approximate market expectations through securities analysts' forecast. Several studies pointed out the impact of the upward bias in analysts' forecasts. This behavior is likely a result of the delicate relationship among all stakeholders, including the analyst, the brokerage firm, clients, and the company [12, 13], with the introduction of the Chinese wall to mitigate any conflict of interest. Apart from organizational factors, analysts may exhibit herding behavior in their forecasts due to the hesitancy in deviating too much from consensus. Ackert and Athanassakos further pointed out that analysts tend to exhibit greater optimism in their forecasting when estimates exhibit greater dispersion, with less concerns over their reputation. The authors hypothesize that over-optimism causes market overvaluation [14].

The well documented abnormal returns following earnings announcement allow for arbitrage trading strategies, which in turn influence the behavior of the post-earnings announcement drifts. Ke and Ramalingegowda quantifies that institutional investors are able to generate an abnormal return of 5.1%, or an annualized 22%, after transaction cost through arbitrage on the PEAD [15]. While Chen et al. suggests the positive relationship between the herding behavior of institutional investors does not eliminate or reduce market underreaction to earnings surprises [16]. Milian argued that unsophisticated arbitrageurs mitigate the effect of PEAD, specifically of those firms that are easy to arbitrage, which the author identified as overcompensation [17]. Double-clicking on market participants, a recent study by Contreras noted the roles of short sellers and insider trading in reducing the PEAD using a sample of U.S. stocks from 2006 to 2017 [18]. The result suggests the competitive nature of such trading reduces information asymmetries.

Researchers have also indicated investor sentiment affects stock prices, which contracts with the assumption of rational behavior under traditional finance theory [19]. Bird and Yeurng found that low uncertainty and high sentiment result into investors ignoring bad news and that high uncertainty and low sentiment may lead to negative reactions even on good news. Livnat and Petrovits also suggested higher abnormal returns on good news during periods of low sentiment than periods of high sentiment and vice versa [20]. These empirical studies presented evidence for confirmation bias and loss aversion, where investors focus on the information that confirms their original conviction or lack of in the stock thesis.

5. Conclusion

The proliferation of hypotheses to explain the drifts of post-earning announcements suggests the multiplicity of forces driving the phenomenon. The persistence of the PEAD remains, despite the decline in magnitude and scope over time. As the observations of the drifts become less consistent across the U.S. stock market, the remainder of the effect remains on stocks of smaller capitalization, suggesting less liquidity, as well as those with limited analyst coverage. Trading activities, given the increasing awareness of the PEAD, lead to arbitrage and result in the correction of the drifts.

Meanwhile, technological advancement improves the distribution of information and mitigates market friction through transaction costs, both of which lend support to the overall decline of abnormal returns post-earnings. While at its early innings, the application of artificial intelligence should continue to improve information synthesis and potentially further limit the PEAD. Future research may assess the impact of technological advancement on improving market efficiency in processing earnings announcements. For example, Hansen and Siggard have started applying machine-learning methodologies to multi-dimensional analysis on post-earnings announcement drifts, including momentum, liquidity, and arbitrage [21]. The multi-factorial approaches are merited given the collection of explanations.

Nonetheless, the lingering effect of the drifts suggests the validity of the behavioral components of market participants, which is key to understanding market expectations. Various studies acknowledged that sentiments and bias influence market expectations, interpretation of results, and investment decisions. Contributing factors include herding and overconfidence, market sentiment, confirmation bias, and loss aversion. The complexity of behavioral and psychological factors translates into difficulties in quantifying the direct impact on post-earnings abnormal returns. Yet these biases are likely to sustain the existence of the post-earnings announcement drifts.

In conclusion, this paper discussed the myriad hypotheses that are likely contributing factors to the drift of post-earning announcements. The dynamics of companies' earnings results and commentary further have a tripling impact on others in the same sector. The collaboration of the phenomenon perhaps calls for a holistic approach, while this paper recognizes the opacity around individual investor's behavior. The paper points to the prospect of a proliferation of new research methodologies to address the multiplicity of factors to the post-earnings announcement drifts. A multi-factor model that incorporates earnings surprises, guidance upsides, sentiment indices, and observed bias may lead to a more comprehensive picture and a better understanding of the dynamics between various contributing factors.

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