

How do investors respond to targets' interim earnings?

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ABSTRACT

Fundamental to the accounting literature is that firms' stock prices relate positively to their earnings news. We examine a setting where investors may be unsure to which firm the announced earnings accrue: earnings announced by acquisition targets between the announcement and completion of the acquisition. We find that targets' stock prices relate positively to their unexpected earnings during this interim period, but only for unsuccessful deals. For completed deals, we fail to find evidence that the target's or acquirer's stock prices respond to the target's unexpected interim earnings at the time of announcement. However, we find that targets' interim earnings predict future abnormal returns of the combined firm following deal completion. These returns are economically significant as a trading strategy based on targets' interim earnings produces annualized abnormal returns of 8.3%. Our findings suggest that investors respond inefficiently to the earnings that targets announce between announcement and completion of acquisitions.

Keywords: Earnings; Mergers and Acquisitions; Investor Inattention; Investor Inefficiency;

I. INTRODUCTION

Beginning with Ball and Brown (1968), a vast accounting literature examines the information content of firms' accounting earnings. Of particular interest is the relation between firms' earnings disclosures and stock returns. Studies of this topic unambiguously demonstrate a positive association between a firm's earnings and its stock price. However, in these studies it is generally clear to investors that the announced earnings accrue to the current owners of the firm (i.e., the current shareholders of the firm are the beneficiaries of the firm's operating performance). In this study, we examine the information content of firms' accounting earnings in a setting where this may not be the case. Specifically, we examine the information content of unexpected earnings disclosed during the interim period after a firm announces it is being acquired by another firm but before the acquisition is completed.

Mergers and acquisitions (M&A) are often significant and complex transactions that can require substantial and indeterminate time to complete for several reasons (e.g., receiving regulatory and shareholder approval may take time). As a result, the interim period between when the details of the deal are publicly announced and when the transaction is completed can last several quarters. During this interim period, the target firm (target) continues to operate as normal, independent of the acquiring firm (acquirer), and continues to announce its quarterly earnings. However, it is not obvious how investors would respond to the target's interim earnings announcements because the purchase price of the target has been set and publicly announced, thus, it may be unclear whether the profits generated by the target firm will accrue to the current owners of the target or to the owners of the acquirer.

As an example, consider Google's acquisition of Motorola Mobility (Motorola). On August 15, 2011, Google announced that it would acquire Motorola for \$12.5 billion (\$40 per

share). Prior to this announcement, Motorola's shares traded near \$24 per share. On the day of the announcement, Motorola's share price increased to just below the announced purchase price of \$40 per share (\$38.61 at close on the day of the announcement).¹ Google's acquisition of Motorola was not completed until May 22, 2012, when the deal was finally approved by Motorola's shareholders and all the necessary regulatory bodies (i.e., the United States Department of Justice, the European Union, and Chinese authorities). During this nine-month period, Motorola announced quarterly earnings three times, and the total earnings across these quarters was a loss of nearly \$200 million. In this study, we seek to understand how investors in the target and acquirer respond to these interim earnings announcements. For example, does the target's stock price respond positively to earnings, as is typically the case, or does the stock price not respond to earnings because the valuation for the firm is already set by the details of the announced acquisition?² Further, does the acquirer's stock price respond to interim earnings announcements because the earnings are expected to eventually accrue to the owners of the acquiring firm.

To address our research questions, we examine a sample of M&A deals from SDC where the target has at least one earnings announcement after the public announcement of the deal. Our primary tests consist of OLS regressions of abnormal returns on the target's unexpected earnings during the interim period. We examine both the target's and acquirer's abnormal returns around the target's interim period earnings announcements. To test whether investors efficiently process the information content of targets' interim earnings, we also examine whether targets' interim earnings predict the combined firm's future abnormal returns.

¹ Motorola incorporated an unusually large amount of the deal premium (91.3%) around the deal announcement. For our sample, we find the target's share price incorporates on average (at the median) 55.0% (58.8%) of the premium over the three-day window around the deal announcement.

² In the case of Motorola's earnings announcements, we find that Motorola's stock price did not noticeably change in response to the interim quarterly earnings announcements. Despite reporting significant losses for each of these three quarters, Motorola's stock returns on the date of the earnings announcement were all minimal and positive (all between 0.1% and 0.3%). In fact, during the entire interim period, Motorola's share price exhibited very little movement.

We first address our research question by examining whether targets' abnormal announcement returns relate to their earnings announcement returns during the interim period. We find that targets' cumulative abnormal returns around the earnings announcement relate positively to their unexpected earnings. Further, we find that the magnitude of this relation is smaller during the interim period than it is during the pre-announcement period.³ These results suggest that, on average, investors respond to the earnings news as if the announced earnings accrue to the current owners of the firm rather than the owners of the acquiring firm but that this response is muted relative to the pre-announcement period.

Because our sample includes all announced deals, we re-examine this test after partitioning the sample based on whether the acquisition deal was eventually completed or withdrawn. When investors respond to the interim earnings news, the terms of the deal are announced but it is not known whether the announced deal will eventually be completed or withdrawn. Though most announced deals complete, some announced deals do not for various reasons (e.g., failure to gain approval from regulators or shareholders).⁴ Interestingly, we find that the positive relation between earnings announcement returns and unexpected earnings during the interim period occurs only for targets where the deal is eventually withdrawn. We fail to find any such relation for the deals that are eventually completed. These tests provide two main takeaways. First, though the eventual outcome of the deal is not yet publicly known, the way in which investors respond to earnings suggests that investors correctly anticipate whether or not the deal will eventually be successful.

³ To provide a benchmark for understanding and interpreting these interim results, we also examine how the target's and acquirer's stock prices respond to earnings announcements prior to the announcement of the M&A transaction. As expected, we find that during the pre-announcement period, the target's and acquirer's abnormal returns are positively associated with their own unexpected earnings. We fail to find that targets' stock prices respond to acquirers' unexpected earnings but find that acquirers' stock prices have a relatively smaller response to targets' earnings. These results establish that prior to the deal announcement, investors perceive that the target's earnings accrue to the current owners of the target firm and view the target and acquirer to have a small economic link prior to deal announcement.

⁴ In our sample of 1,764 transactions, 81.5% of the deals complete and 18.5% of the deals withdraw.

Second, for deals that are completed, we fail to find that investors price the target's interim earnings into the market value of the target. This is not necessarily surprising since the target price may be primarily established by the announced purchase price. Thus, investors may instead price these earnings into the market value of the acquirer.

We test this conjecture by examining the relation between acquirers' stock returns and targets' interim earnings. We begin by examining whether acquirers' abnormal returns around targets' earnings announcements relate to targets' unexpected earnings during the interim period. If investors immediately incorporate the target's earnings into the acquirer's stock price, we expect to find a positive association between the acquirer's abnormal returns and the targets' unexpected earnings. In this test, we fail to find any relation between acquirers' abnormal returns and targets' earnings announcements during the interim period.⁵ Combined with our previous results, which fail to find a relation between targets' announcement returns for completed deals, these findings suggest that for completed deals, the target's unexpected interim earnings do not affect the market value of the target or the acquirer around the earnings announcement. These results are surprising as they suggest that investors do not incorporate the unexpected earnings news from targets' interim earnings announcements into prices at the time of announcement.

Failing to find evidence that investors respond to targets' interim earnings at the time of the earnings announcement for deals that are subsequently completed, we next examine whether investors respond to targets' interim earnings with delay. We use two tests to examine whether targets' interim earnings predict acquirers' future abnormal returns. First, we examine the relation between targets' interim earnings and the combined entity's abnormal returns following the completion of the acquisition. We focus on the two year buy-and-hold returns and the cumulative

⁵ In additional analysis, we replicate these results using alternative earnings measures to help ensure that this failure to find a relation does not arise due to size differences between the target and acquirer.

abnormal returns around the combined firm's earnings announcements in the one and two years after the transaction close. We examine future earnings announcements because we expect that these disclosures will contain information about how the targets' interim earnings affect the profitability of the combined firm. Results from these tests demonstrate a positive relation between targets' interim earnings and the combined entity's future abnormal returns, particularly around future earnings announcements. These results suggest that investors possibly respond to targets' interim earnings in an inefficient manner.

Second, we implement a zero net-investment trading strategy that is long in combined entities whose targets had the largest unexpected interim earnings and short in combined entities whose targets had the smallest (i.e., most negative) unexpected interim earnings and hold these investments for two years after the completion of the acquisition. We use risk-adjusted returns from the Fama-French 5-factor plus momentum model (Fama and French 2015, 2016) to help ensure that any relation we find is related to investor inefficiency rather than common risk factors. This trading strategy earns annualized returns of 8.3 percent. Overall, the results from both tests provide evidence that investors inefficiently process the information content of targets' unexpected earnings during the interim period.⁶ Rather than incorporating the interim earnings into the targets' or acquirers' stock price when announced, investors price the interim earnings into the acquirers' stock price only in the future periods after the completion of the acquisition.

We make contributions to several literatures. We contribute to the extensive literature examining the information content of firms' accounting earnings, specifically studies examining the earnings-return relation. Beginning with Ball and Brown (1968), these studies demonstrably

⁶ In additional analysis, we find that the results from these tests are more pronounced for less sophisticated investors. These results suggest that the relations we document arise from investors' inability to efficiently process the earnings information as less sophisticated investors seem to struggle more with processing interim earnings news.

find that firms' stock returns relate positively to their earnings. Extending beyond this primary finding, studies in this area examine several factors affecting the earnings-return relation (e.g., firm size [Freeman 1987], the firm's lifecycle [Anthony and Ramesh 1992], whether the firm reported a profit or loss [Hayn 1995], and different accounting methods the firm uses [Stober 1986]). All prior studies we are aware of examining firm-level earnings and returns investigate settings where it is clear that the announced earnings accrue to the current owners of the firm. In contrast, we examine how the earnings-return relation varies in a unique setting where investors may be unsure as to whether the earnings accrue to the current owners of the firm.

In a related vein, we also contribute to the growing literature examining the returns of related firms. These studies find various settings where the returns of one group of firms positively predict the future returns of other economically-linked firms. Prior studies document this result for several forms of economic links (e.g., same industry [Moskowitz and Grinblatt 1999], along the supply chain [Cohen and Frazzini 2008; Madsen 2017], followed by the same analyst [Ali and Hirshleifer 2020; deHaan, Lee, and Loh 2021], and sharing a geographic location [Parsons et al. 2020]). Consistent with disclosure processing costs being a significant problem (Blankespoor, deHaan, and Marinovic 2020), these findings are commonly attributed to investor inattention which impedes investors' ability to efficiently price information across economically-linked firms. In our setting, we provide additional evidence that investors struggle to incorporate information across economically-linked firms. Our study is novel relative to these prior studies because the nature of the economic link that we examine is more definitive and comprehensive in the sense that it is publicly announced that the acquiring firm will soon purchase the target. We expect and provide some evidence that the inefficiency we find is more likely to arise from investors' integration costs than awareness or acquisition costs (Blankespoor et al. 2020).

We also add to the literature examining the outcomes of announced M&A deals. Prior studies document several deal-level characteristics that predict whether or not an announced deal is eventually completed (e.g., Hsieh and Walkling 2005; Betton and Eckbo 2000; Walkling 1985). Some studies examine firm-level characteristics that predict deal completion. For example, Skaife and Wangerin (2013) find that deals are more likely to fall through when the target has lower financial reporting quality prior to the deal announcement. Though these studies document predictors of deal outcome, little is known about the extent to which investors anticipate deal outcomes. There is evidence that risk arbitrageurs are more accurate in predicting deal success than the general market, resulting in significant premiums (Larker and Lys 1987). Further, the negative market reaction of the target's share price around the announcement of failed deals (Davidson, Dutia, and Cheng 1989) suggests that investors do not perfectly infer deal outcome. Our finding that targets' abnormal returns respond positively to interim earnings only for deals that are eventually withdrawn complements these studies by providing evidence that, to some extent, investors behave as if they can anticipate whether an announced deal will be completed.

Last, we add to the studies examining the capital market consequences of M&A deals. Many of these studies examine evidence of acquirers overbidding for the target by examining the stock returns of the acquirer and target around the deal announcement (e.g., Moeller, Schlingemann, and Stulz 2004). Other studies examine capital market effects after the deal completion, such as the stock returns of the combined entity subsequent to deal completion (e.g., Agrawal, Jaffe, and Mandelker 1992; Erickson, Wang, and Zhang 2012). This literature largely examines the capital market consequences before the announcement, at the time of announcement, or after the deal completion. Our study is unique in that it examines the capital market consequences of events occurring after the deal announcement but prior to its completion.

II. BACKGROUND AND HYPOTHESIS DEVELOPMENT

2.1. Accounting earnings and returns

Capital market research in accounting emphasizes the information content of firms' earnings. Of fundamental interest is the relation between earnings and stock returns. Beginning with Ball and Brown (1968), countless studies document that earnings are useful to investors, unambiguously finding a positive relation between a firm's earnings and its stock price. These studies typically interpret unexpected earnings changes as information about economic rents, commonly describing them as earnings "news" or "surprises" (Ball, Kothari, and Watts 1993). Following Campbell's (1991) decomposition of returns, this interpretation suggests that unexpected earnings represent a change in expected future dividends, which relate positively to returns.

Though the positive earnings-return relation is well documented, several studies examine factors that affect the earnings-return relation (e.g., firm size [Freeman 1987], the firm's lifecycle [Anthony and Ramesh 1992], whether the firm reported a profit or loss [Hayn 1995], and different accounting methods firm use [Stober 1986]). Other studies document that investors sometimes respond inefficiently to the information content of earnings and identify factors affecting this inefficiency (e.g., Bernard and Thomas 1989; Foster, Olsen, and Shevlin 1984; Sloan 1996). Overall, this extensive literature examining earnings announcements provides evidence of several characteristics that influence how investors respond to firms' earnings news.⁷ Our study differs from these prior studies as we examine a novel characteristic that we expect to influence how investors respond to a firm's earnings announcements: the announcement of a pending acquisition.

In these studies examining the earnings-return relation, it is generally clear to which owners

⁷ The research examining the earnings-return relation is too extensive to thoroughly discuss in our study all the factors that prior studies find to affect the earnings-return relation. See Kothari and Wasley (2019) for a recent review of the capital market research, including a discussion of research examining the earnings-return relation.

the earnings accrue (i.e., the owners of the firm announcing earnings). This is less clear in our setting given the announced acquisition. In that sense, our study relates to the stream of literature examining how earnings announcements affect the stock returns of other firms. Prior studies document how one firm's earnings announcement affects other economically-related firms. Early evidence from Firth (1976) indicates that firms' earnings news positively affects the stock prices of other "similar" firms. Similarly, Foster (1981) finds evidence of information transfer occurring between a firm announcing earnings and the other firms in its industry. These studies examining the information spillover from firms' earnings announcements to the stock returns of other firms relate more broadly to the studies examining the returns of related firms.

Prior studies document several forms of economic links where the returns of one group of firms positively predict the future returns of other economically-linked firms (e.g., same industry [Moskowitz and Grinblatt 1999], along the supply chain [Cohen and Frazzini 2008; Madsen 2017], followed by the same analyst [Ali and Hirshleifer 2020; deHaan et al. 2021], and sharing the same geographic location [Parsons, Sabbatucci, and Titman 2020]). These findings of predictable returns are often attributed to some form of investor inattention which impedes investors' ability to efficiently price information across economically-linked firms. This argument is consistent with Blankespoor et al. (2020), who propose that several components of disclosure processing costs—awareness costs, acquisition costs, and integration costs—explain why investors struggle to incorporate information. Our study relates to these studies because we examine how investors incorporate information across economically-linked firms. However, our study is novel because the nature of the economic link that we examine is more definitive and comprehensive in the sense that it is publicly announced that the acquiring firm will soon purchase the entire target firm.

2.2. Mergers and acquisition

As M&A represents one of the most significant investment decisions that firms make, a broad literature spanning multiple fields of study (e.g., accounting, finance, management, and strategy) examines several aspects of M&A deals. An interesting feature of M&A deals is that there can be a substantial time between deal announcement and deal completion or withdrawal (referred to as the interim period). Appendix A provides a figure describing a potential timeline for an acquisition and the related earnings announcements leading up to the merger announcement, in the interim period, and following the close of the transaction including whether the earnings are recognized in the financial statements, in the notes, or are not recognized anywhere (the stub earnings). Giglio and Shue (2014) find that deals take an average of 103.5 days to close and 66.0 days to be withdrawn, with 6.2% of deals not being resolved within a year after announcement.⁸ These extended periods leave a significant amount of time for economic events to occur within the interim period. However, there is little research examining the interim period with most M&A research examining the period prior to deal announcement, the days around and including the deal announcement, and the period including and after close.

Studies examining how firms behave in response to M&A deals largely consider firms' actions during the preannouncement period since this is when most transactions are negotiated.⁹ For example, prior studies find that acquirers, particularly for transactions with stock consideration, manage earnings upward prior to transaction announcement to reduce the cost of the acquisition (Erickson and Wang 1999; Louis 2004). In addition, acquirers are more likely to

⁸ Our sample requires the acquirer and target to both be publicly traded. In addition, we require at least one target earnings announcement in the period between transaction announcement and close. Our sample has an average (median) number of days between announcement and close of 157 (131) for completed deals and 192 (146) days for withdrawn deals.

⁹ Luo (2005) finds that 84% of transactions are announced after an agreement has been reached between the acquirer and target.

release positive news in the form of corporate press releases (Ahern and Sosyura 2014) and withhold negative news about future earnings (Ge and Lennox 2011) to further push their stock values higher. There is also evidence that acquirers strategically disclose news that will lower the stock price of target firms resulting in a lower target premium (Kim, Verdi, and Yost 2020).

Studies examining the capital market consequences of M&A often examine the period around transaction announcement, considering the market reaction of both the acquirer and target stock price to the deal announcement. Typically, the target's stock price increases substantially at the time of the merger announcement (Dodd 1980). Over time, the target's price gradually increases and, depending on the likelihood of deal completion, moves closer to the price offered by the acquirer (Bhagat, Dong, Hirschleifer, and Noah 2005). If the deal is withdrawn, the target's share prices return to pre-announcement levels (Davidson et al. 1989). At the time of the announcement, acquirers exhibit smaller and negative returns, signaling a potential overpayment by the acquirer. However, prior studies find that the returns to the acquirer capture revelations about the stand-alone value of the target in addition to information about the value of the acquisition (Bhagat et al. 2005).¹⁰

Other studies examining the consequences of M&A study the period following deal completion. For example, Bens, Goodman, and Neamtiu (2012) find that managers of the combined entity are motivated to manage earnings following the acquisition, even going so far as to misstate their financials. This is due to managers being under pressure to make the acquisition appear positive so they can retain their position. Other studies find that combined entities

¹⁰ Despite the large economic effect of mergers on both targets and acquirers, investors have limited attention regarding mergers. Louis and Sun (2010; 2016) find that managers strategically time merger announcements to take advantage of inattention. They find that mergers announced on Fridays result in lower abnormal trading and smaller abnormal stock returns for the acquiring firm. In addition, these Friday announcements are more prevalent for acquirers that managed their earnings during the negotiation process and are then completed more quickly.

underperform following the completion of the acquisition (Rau and Vermaelen 1998, Moeller et al. 2005). For example, Agrawal et al. (1992) find the combined firm has negative returns over the three to five years after the completion of the acquisition.

Though significant M&A research examines the preannouncement period, the announcement period, and the post-close period, there is little research on the interim period of M&A deals. Studies find few interim period events that affect the deal terms and, as a result, Luo (2005) finds that only 6.5% of completed deals renegotiate the terms of the deal following announcement. However, important events affecting the target and acquirer, such as public earnings announcements, are somewhat common during the interim period given the length of time between deal announcement and deal close. Yet, we are aware of only one study that examines targets and acquirers during the interim period: Chen, Thomas, and Zhang (2016).

Using a sample of M&A deals where the target has at least one quarter end within the interim period, Chen et al. (2016) examine whether targets manage earnings during the interim period. They argue that investors are inattentive between announcement and close, incentivizing targets to work with acquiring management to “spring-load” earnings in the period after close. They reason that following transaction close, investors are particularly attentive and place significant pressure on acquiring management to ensure a positive result from the combined firm (Bens et al. 2012). Finding evidence that firms experience a decline in the average growth of their cash flows during the interim period, Chen et al. (2016) conclude that targets engage in downward real earnings management during the interim period.¹¹

¹¹ Chen et al. (2016) find that firms experience a decline in earnings growth during the interim period. This decline occurs in the cash flows from operations as opposed to the accruals. Though they find that the firm experiences growth in their cash flows, this growth is muted relative to growth before the transaction announcement. Thus, they conclude that targets reduce their earnings growth in the interim period through real earnings management. They also compare the growth in the interim period to the performance after the acquisition. They find that the earnings growth of the combined company is positive but declining in the post period, potentially signaling a bump in earnings in the first year following the acquisition. This relationship moves in tandem with the interim period management of earnings

Their findings are somewhat surprising because until acquisition completion, target management is beholden to their current shareholders, not the acquiring firm, and the communication between the acquiring management and the target is limited. However, target managers face incentives that may result in a moral hazard concern. For instance, managers may be incentivized by the prospects of being retained in the combined firm or by the performance of their equity stakes in the combined firm. Further, Stewart (2020) finds the threat of shareholder litigation related to appraisal rulings is sufficient to alter target management behavior by encouraging target managers to avoid good news disclosures in the interim period and, thereby, potentially reducing the target valuation used in appraisal suits.

2.3. H1: Target's response to target's earnings during interim period

Following the acquisition announcement, the target share price adjusts based on the offer price and the probability of deal completion (Dodd 1980). In effect, the offer price creates an anchor for the value of the target's share price.¹² Thus, the target's earnings news should not affect investors' perceived value of the firm, leaving little reason for the target share price to react to its earnings news. Unless the earnings news, positive or negative, affects the likelihood of deal completion or the purchase consideration, the target share price is unlikely to respond to earnings news. As such, the economic benefits of the unexpected earnings will not accrue to the current target shareholders.

Rather, they will accrue to the future owners of the firm (i.e., the owners of the acquirer). However,

growth such that a decline in growth of the target's earnings in the interim period predicts an increase in growth of the combined firm's earnings in the post period. They interpret this finding as evidence that the target manages earnings growth downwards in the interim period to increase the earnings growth of the combined firm after transaction close.¹² One potential concern is that the premium the acquirer offers for the target may relate to the target's future interim earnings. If this were the case, it could affect the relation we examine between unexpected interim earnings and abnormal returns around the earnings announcement. This would be an issue if the premium already contains the information content of the future interim earnings, leading us to observe no contemporaneous earnings-return relation. We do not anticipate this to be the case since the earnings would then be expected. However, to address this concern, we examine whether the deal premium relates to targets' interim unexpected earnings. In untabulated analysis, we fail to find a relation between the deal premium and the target's interim unexpected earnings. These results allay concerns that the terms of the deal already consider the economic consequences of the target's future interim earnings.

investors may continue to respond to targets' unexpected earnings in the normal fashion (i.e., positively) for at least three reasons. First, investors may think that the announced deal will not complete and, as such, the economic benefits of the announced earnings would accrue to the owners of the target. Second, investors believe the announced earnings will alter the consideration offered by the acquirer.¹³ Third, investors may be inattentive to or unaware of the economic consequences of the pending acquisition. Such investors would naively respond to the earnings news as if they accrue to the current owners of the target, resulting in the typical positive earnings-return relation. Of these three reasons, we expect investors' expectations about deal outcome to have the greatest influence on how investors respond to the target's interim earnings.

Announced deals may not complete for a variety of reasons, such as regulatory intervention, the introduction of an additional bidder, no vote by target shareholders, disagreement among target and acquirer management, etc. Skaife and Wangerin (2013) find that 13.96% of acquisitions of public companies do not reach completion.¹⁴ Many of these hurdles that announced deals face to reach completion are publicly observable by investors. In addition, prior studies document several deal and firm characteristics that predict whether or not an announced deal is eventually completed (e.g., Hsieh and Walkling [2005]; Betton and Eckbo [2000]; Walkling [1985]; Skaife and Wangerin [2013]). As such, investors may also form expectation as to how likely announced deals are to reach completion based on these deal and firm characteristics. If investors anticipate that an announced deal will eventually fall through, we expect that investors

¹³ Liu and Officer (2021) find 10% of completed deals renegotiate terms between deal announcement and deal completion. They find the value of the renegotiated terms is unrelated to earnings announcement returns. Our sample has a slightly higher incidence of renegotiation with 12.7% of the sample experiencing a reported change in price between deal announcement and deal completion. This is not surprising since our sample requires at least one earnings announcement in the interim window resulting in longer interim periods. Similarly, we find the occurrence of renegotiations, as well as, the dollar value and percent change in consideration are unrelated to the value of the target's unexpected earnings announcements in the interim period.

¹⁴ In our sample, 18.54% of the transactions (327 out of 1,764 transactions) are withdrawn prior to completion.

will be more likely to significantly respond to unexpected earnings in the typical fashion (i.e., positively) because investors expect the economic benefit of the announced earnings to accrue to the current owners of the target. In contrast, we expect that for deals that investors expect to reach completion, investors will respond less to the target's interim earnings because the firm's value is determined by the terms of the deal. To proxy for investors' expectation of deal success during the interim period, we use the eventual deal success or failure.¹⁵ We state our first hypothesis in the null form as the following:

H1a: The target's share price does not respond to the target's unexpected earnings that are announced during the interim period.

H1b: The target's share price response to unexpected earnings during the interim period is the same whether the deal completes or is withdrawn.

The reaction (or lack thereof) of the target share price to the target earnings during the interim period does not necessarily reflect inattention by target shareholders, but instead may reflect the investors' certainty of the target's value as determined by the offer price. In particular, if investors respond differently to target earnings based on the likelihood of deal success, this suggests that investors are attentive to the merger process and the potential outcomes.

2.4. H2: Acquirer's response to target's earnings during interim period

When it is likely the deal will be successful, the future benefits of the target's interim earnings should accrue to the acquirer since the acquirer has a right to the future earnings and cash flows of the target. Further, the offer price is set at announcement and, as such, is unaffected by the target's interim earnings. If investors identify that targets' interim earnings accrue to the acquirer, we

¹⁵ Little is known about the extent to which investors correctly anticipate deal outcomes. Larker and Lys (1987) document that risk arbitrageurs are more accurate in predicting deal success than the general market, resulting in significant premiums. In addition, the negative market reaction of the target's share price around the announcement of failed deals (Davidson et al. 1989) suggests that investors do not perfectly infer deal outcome. Thus, we rely on the ex-post outcome to proxy for investors' expectations.

predict a positive relationship between acquirer returns in the window around target earnings announcements and the earnings surprise of the target. However, if positive earnings surprises result in higher potential litigation or in lower post-acquisition performance, as proposed by prior literature (Chen et al. 2016; Stewart 2020), then we predict a negative relation between the acquirer's share price and the target's earnings surprise.

If investors are inattentive to the target's earnings announcements or uncertain as to the relation between the target and acquirer during the interim period, we expect no relation between the acquirer's stock price and the target's interim earnings. Relatedly, M&A deals are inherently complex, and correctly incorporating the target's unexpected earnings into the acquirer's share price may present a challenge for investors. For example, investors must translate the target's unexpected earnings into the economic consequence on the joint entity on a per share basis for the acquiring firm. Further, investors must assess to what extent the target's interim earnings will sustain post acquisition in the combined firm. Such issues may make it harder for investors to process the effect of interim target earnings on the stock price of the acquiring firm at the time of the earnings announcement. We state our second hypothesis in the null form as the following:

H2: The acquirer share price does not respond to the target's unexpected earnings during the interim period.

Acquiring shareholders should respond to the earnings announcement of the target if acquiring shareholders are attentive, expect the merger will be successful, and are able to process the information. A positive earnings surprise for the target should reflect positive future earnings and cash flows for the acquirer leading to an increase in the acquirer share price. However, if the positive earnings news increases the likelihood and cost of shareholder litigation, the positive interim earnings surprise will be associated with negative future earnings and cash flows. If instead acquiring shareholders are unaware or face high processing costs, the acquiring shareholders will

not fully respond to the earnings news of the target, which then begs the questions of whether and when investors value these unexpected earnings?

2.6. H3: Target's interim earnings and the combined firm's future returns

If the target interim earnings are not incorporated into the stock price of the target or the acquirer at the time of announcement, this may suggest that the announced M&A deal leads to investor inefficiency regarding the earnings news. Such inefficiency may arise due to investor information processing costs involved with the announced deal. In their review, Blankespoor et al. (2020) find that information processing costs are a significant problem in several settings, and these costs result in some form of investor inattention which impedes investors' ability to efficiently price information. As described above, the complex relation between targets' interim earnings and the acquirer/joint entity may hinder investors' ability to efficiently process target's interim earnings. If investors inefficiently price targets' interim earnings, we expect that investors will eventually incorporate these earnings into the stock price of the combined firm after completion of the deal, resulting in a positive relation between targets' interim earnings news and combined firms' future abnormal returns. We state our third hypothesis in the null form as the following:

H3: Target's interim earnings are unrelated to the future abnormal returns of the combined entity following the completion of the deal.

III. RESEARCH DESIGN

3.1. Sample selection and descriptive statistics

To test our hypotheses, we identify a sample of mergers and acquisitions between publicly traded firms. Table 1, Panel A describes our sample selection process. We begin our sample by obtaining deal information for all public-on-public deals announced between March 15, 1978 and December 31, 2017 from SDC. This process results in 8,891 unique transactions. We require deals to be announced by December 31, 2017 to ensure we have sufficient post-transaction data to

complete our analysis. We remove deals where we are unable to match to Compustat data (2,081 deals), those missing required control variables (4,659), those showing the same acquirer and target (279), and those without target interim (between the deal announcement and closure) earnings announcements (108). Our resulting final sample contains 1,764 unique transactions with at least one target interim earnings announcement. Of these deals, 1,437 completed, while the remaining 327 are withdrawn. Table 1, Panel B shows the distribution of the number of target earnings announcements during the interim period. More than half (934 of 1,764) of our transactions have only one target earnings announcement during the interim period. Thirty-one percent (548 of 1,764) of deals provide two interim target earnings announcements. The remaining sixteen percent of deals have three or more interim target earnings announcements. Table 1, Panel C shows the distribution of our sample by year. Due to data constraints, the earliest deal included in our sample is announced in 1984 and our latest deals were announced in 2017. No year has more than 121 (7%) deal announcements; thus, our sample covers a broad time period of 34 years.

Table 2 provides summary statistics for the sample. To mitigate the influence of outliers, we winsorize all continuous variables at 1% and 99%. We define all variables in Appendix B. Table 2, Panel A presents deal-level descriptive statistics, such as the deal size, premium, and relative size. Given that we require the target firm to be publicly traded, the transactions in our sample tend to be large both in dollar value and size relative to the acquirer. The average (median) purchase price in our sample is about \$3.4 billion (\$851.3 million). On average (at the median) these transactions have a relative size to the market value of the acquirer of 56% (29%), suggesting that the target's potential effect on the acquirer is economically significant. The purchase price results in an average (median) per share premium of \$32.08 (\$27.47) for the target shareholders.¹⁶

¹⁶ Upon the deal announcement, the target share price responds both to the premium being offered and the probability of deal completion. If the market believes a transaction has zero likelihood of completing, the target share price should

In addition, the deals in our sample have an average (median) period between announcement and close of 160.7 days (133.0 days). Table 2, Panels B and C present the pre-deal-announcement and interim period descriptive statistics, respectively, partitioned by the acquirer and target. These statistics are provided at the earnings announcement level.

3.2. Research design

We use the following model to examine the market reaction of Firm A to the earnings announcement of Firm B, where Firms A and B can be either the target or the acquirer depending on the analysis:

$$(1) CAR_A = \alpha_0 + \beta_1 UE_B + \beta_2 \text{Log}(\text{Assets}_A) + \beta_3 MTB_A + \beta_4 \text{Leverage}_A + \beta_5 \text{Loss}_B + \beta_6 CAR_Prior_A + \beta_7 \text{Same EA Date} + \beta_8 UE_Overlap_A + \varepsilon_{i,t}^{17}$$

CAR is the three-day value-weighted cumulative abnormal return of Firm A around the earnings announcement date of Firm B. *UE* is the unexpected earnings of Firm B.¹⁸ Because the dependent variable is the abnormal return of Firm A, we include typical controls for the return of Firm A. Specifically, we control for the size of Firm A using the log of total assets, the growth of Firm A using the market-to-book ratio, the leverage of Firm A, and the prior returns of Firm A over the

not adjust based on the announcement (excluding any additional information content). If the market believes the transaction is guaranteed to complete, the target share price will adjust to a price near the announcement purchase price. In our sample, the average (median) target share price adjusts to reflect the market's belief of a 55.0% (58.8%) likelihood of deal completion. This means the average target share still has a gap of \$15.81 between the share price and the purchase price following announcement.

¹⁷ As described below, *Same EA Date* and *UE Overlap* are relevant variables only when Firm A and Firm B are not the same firm (i.e., when we examine the target's returns around the acquirer's earnings announcement). As such when we examine Firm A's returns around Firm A's earnings announcement, these variables are excluded.

¹⁸ Following prior studies, we measure unexpected earnings as the IBES actual less median analyst estimate, scaled by the end-of-quarter stock price. It is important to note that this measure relies on analyst forecasts to identify the earnings surprise. One potential concern of this approach is that analysts' behavior may change following the M&A announcement. For example, analysts could consider dropping the target firm or put less effort into following the firm, resulting in less accurate estimates. Such behavior could affect the usefulness of this measure to capture unexpected earnings. To address this possibility, we examine whether analyst behavior changes following the announcement of the M&A deal. In untabulated analysis, we find that the number of analysts following the target does not decrease after the deal announcement. Further, we find that the accuracy of analysts' forecasts for the targets' interim earnings is not different from the accuracy prior to the M&A deal announcement. Overall, these tests provide support for using analysts' forecasts to measure earnings news during the interim period.

month prior to the earnings announcement (-35 to -6). In addition, because investors respond differently to the earnings announcements of loss firms, we control for whether the earnings announcement of Firm B is a loss (Hayn 1995). Lastly, when looking across firms (i.e., examining acquirer's returns around targets' earnings announcements), we control for whether Firm A is also announcing earnings on the day of Firm B's earnings announcement and, when that occurs, the unexpected earnings of Firm A.¹⁹ These variables help control for the portion of Firm A's return that arises due to its own earnings announcement.

To set a benchmark for how targets' and acquirers' share price responds to earnings announcements without the effects of an announced merger, we first estimate equation 1 to examine their market responses to the earnings announcements of both the target and acquirer in the period prior to the transaction announcement. During this period, the market should have a clear understanding of how announced earnings relate to each firm. The target (acquiring) firm should respond to the target (acquiring) firm earnings announcement, but not the earnings announcement of the acquiring (target) firm, unless investors view the two firms as being economically-linked prior to deal announcement. These tests establish a baseline to which we can compare to interim earnings announcements.

To examine our first hypothesis, we move our attention to earnings announcements occurring during the period between announcement and close (interim period). We are interested in whether the target firm responds to its own earnings announcements during the interim period. To test our first hypothesis, we estimate equation 1 using the target firm as both Firm A and Firm B. If investors do not respond to the target's interim earnings news because the target stock price is already set by the announced acquisition price, we expect β_1 to be insignificant. If instead, the

¹⁹ In untabulated results, we exclude the observations with overlapping earning announcements. This does not change our inferences.

market believes the deal will eventually be unsuccessful or if the earnings announcement affects the likelihood of deal completion, we would expect β_1 to be significantly positive.

We next examine whether the market differentially responds to targets' earnings announcements depending on whether investors expect the deal to be successful. We proxy for the market's expectation of the likelihood of deal success using the eventual deal success or failure by splitting the sample into transactions that complete and those that are withdrawn. We estimate equation 1 again to test our hypothesis 1b using the target firm as both Firm A and Firm B after partitioning the observations by deal outcome. If investors does not consider the acquisition or cannot predict deal success, we expect the difference in β_1 across the two samples (transactions that complete vs those that are withdrawn) to be insignificant. If instead, the market is attentive to and informed about the merger process and the potential merger outcomes, β_1 will be significantly different for the withdrawn deals and the completed deals. Specifically, we expect β_1 will be significantly positive for deals that are withdrawn and insignificant for deals that are completed.

For completed deals, the future benefits of the target earnings surprises will not likely accrue to the shareholders of the target since the target is being acquired at a set price. Instead, the acquiring shareholders will receive the future economic benefits of the announced earnings. Thus, we examine whether the acquiring firm responds to target's interim earnings news. We use equation 1 to test our second hypothesis by setting the acquirer as Firm A and the target as Firm B. If the market is inattentive or if the market is uncertain to the effects of the merger, we would expect β_1 to be insignificant. If instead, the market fully internalizes the merger, we would expect β_1 to be positive. However, if larger interim target earnings results in greater litigation, we expect β_1 to be negative.

Having established investors' reaction to targets' interim earnings announcements, we test our third hypothesis by examining the future returns of the combined firm. We examine the future returns of the combined firm after deal completion in two ways: (1) Abnormal returns (2) Trading strategy based on Fama-French returns. To examine the effects of the target earnings announcements in the interim period on future acquirer returns, we estimate the following model:

$$(2) AR_C = \alpha_0 + \beta_1 \Sigma(UE_T) + \beta_2 \text{Log}(Assets_A) + \beta_3 MTB_A + \beta_4 \text{Leverage}_A + \beta_5 \text{Loss}_T + \beta_6 \text{CAR_Prior}_A + \varepsilon_{i,t}$$

where AR is either (1) The two-year value-weighted abnormal buy-and-hold return of the combined firm beginning one day before the first earnings announcement after deal close or (2) The cumulative abnormal three day returns around the earnings announcements of the combined firm in the one or two years after transaction completion. $\text{Sum of } UE_{\text{Target}}$, our variable of interest, is the sum of all target unexpected earnings during the interim period. For these tests, we examine only observations where the deal was completed.

If investors fully price the earnings news of the target during the interim period, then we expect β_1 of equation 2 to be insignificant. However, if investors do not price the earnings news of the target during the interim period, but instead inefficiently price the news into the combined firm after deal completion, we expect β_1 of equation 2 to be significantly positive. We also consider the possibility that the target may engage in earnings management to deflate earnings during the interim period either to “spring-load” the earnings of the combined firm after the close of the acquisition or to reduce litigation risk associated with the appraisal remedy. Such actions would create lower unexpected target interim earnings while increasing the future returns of the combined firm, either as a result of future earnings surprises after close or decreased litigation costs. Thus, if the target's manager engages in such earnings management in the interim period, we expect β_1 of equation 2 to be significantly negative.

To further examine the relation between target interim earnings and the future returns of the combined firm, we examine a zero net-investment trading strategy using Fama-French (1993) 5-factor alphas for the combined entity after completion of the deal. Following Ali and Hirshleifer (2020), we use a 5-factor model that includes market, size, value, momentum, and short-term reversal factors. We separate our sample into quintiles based on the size of the sum of the target's earnings surprises during the interim period. We estimate the following model for each quintile:

$$(3) R_{C,t} - R_{f,t} = \alpha_0 + b_{C,M}(R_{M,t} - R_{f,t}) + s_C \text{SMB}_t + h_C \text{HML}_t + m_C \text{UMD}_t + r_C \text{STR}_t + \varepsilon_{C,t}$$

where the dependent variable is the monthly excess stock return, which is calculated as a firm's monthly raw return minus the monthly risk-free rate factor from Fama and French (1993). As independent variables, we include a constant, *MKT_RF*, *SMB*, and *HML* as defined by Fama and French (1993), *UMD* as used by Carhart (1997), and *STR* (short-term reversal) as published on Ken French's website. Within each quintile, the coefficient on the constant (α_0) represents the abnormal monthly return for firms in that quintile after controlling for the common risk factors. We compare the coefficients from the smallest and largest quintile to identify mispricing of target's interim earnings announcement information.

If investors do not consider the interim target earnings in the returns of the combined firm, we expect there to be no difference in α_0 across the quintiles. If instead, investors incorporate the "missed" earnings after deal completion, we expect α_0 to be greater for the transactions with the largest collection of interim earnings surprises than for transactions with the lowest amounts (most negative) of target interim earnings surprises. Lastly, investor may believe the "missed" earnings subject the combined firm to greater litigation liability as a result of increased appraisal risk or are the result of target managers deflating the interim earnings to increase the earnings of the combined firm post acquisition. In this case, lower interim target earnings surprises are associated with

greater combined firm returns as the combined firm either faces decreased litigation risk or increased earnings surprises in the period after deal completion. Under such circumstances, we expect α_0 to be greater for the transactions with the lowest interim earnings surprises.

IV. RESULTS

4.1. Pre-announcement abnormal returns

Table 3 presents the results of estimating equation (1) using ordinary least squares (OLS) regressions. In these regressions, we include industry and fiscal year-quarter fixed effects and use White standard errors clustered by the earnings announcement date to control for heteroscedasticity and serial correlation. As expected, we find that UE_{Target} ($UE_{Acquirer}$) is positively associated with CAR_{Target} ($CAR_{Acquirer}$) in the pre-announcement period (Target-to-Target: $\beta_1 = 1.758, p < 0.001$; Acquirer-to-Acquirer: $\beta_1 = 3.108, p < 0.001$). When we examine across firms in the pre-announcement period, we fail to find that CAR_{Target} relate to $UE_{Acquirer}$. However, we find some evidence of a relation between $CAR_{Acquirer}$ and UE_{Target} (Acquirer-to-Target: $\beta_1 = 0.160, p < 0.05$). Though statistically significant, this relation is substantially smaller in magnitude than the relation between $CAR_{Acquirer}$ and $UE_{Acquirer}$. These results are consistent with the existence of information spillover, where investors perceive some economic connection between acquirers and targets in the pre-deal-announcement period. Overall, these four relations are consistent with prior research linking cumulative abnormal returns to unexpected earnings.

4.2. Target-to-target abnormal returns

Table 4 presents the results of estimating equation (1) in the interim period. In these regressions, we include industry and fiscal year-quarter fixed effects and use White standard errors clustered by the earnings announcement date. We examine all interim earnings announcements in column (1). Interestingly, we find UE_{Target} is positively associated with CAR_{Target} for earnings announcements in the interim period, ($\beta_1 = 0.306, p < 0.05$). This result leads us to reject our

hypothesis 1a that the target's stock price does not respond to the target's earnings news during the interim period. This finding is surprising in the sense that the target's stock price responds to the target's earnings even though it is unlikely that the economic benefits of these earnings will accrue to the current shareholders of the target firm.

However, the magnitude of the coefficient is noticeably smaller in the interim period than during the pre-announcement period (0.306 vs. 1.758). We perform a Chi-squared test of the coefficients on *UE* (β_1) in Table 3, Column (1) and Table 4, Column (1) to test the significance of this difference. The results of the Chi-squared test suggest the coefficient magnitude is significantly smaller in the interim period than in the pre-announcement. Overall, these tests suggest that investors continue to respond to target earnings during the interim period but that this response is muted relative to the response prior to the merger announcement.

In column (2) of Table 4 we narrow our scope to consider only majority-cash transactions. We define majority-cash transactions as those where cash composes more than 50% of the consideration value.²⁰ Focusing on majority-cash transactions significantly reduces our sample from 2,717 earnings announcements to 1,222 earnings announcements. However, majority-cash deals provide a cleaner setting since the reactions of the target shareholders are not as contaminated by the potential loop created when stock is used as the primary consideration (i.e., target stock responds to the acquirer stock being used as consideration while the acquirer stock responds to target earnings announcement). We find similar results with this subsample. The coefficient for *UE* is significantly positive ($\beta_1 = 0.352, p < 0.05$). Further, we again find a statistically significant difference between the coefficients on *UE* in Table 3, column (1) and Table 4, column (2) (1.758 vs 0.352). Overall, the results increase our confidence that we can reject our hypothesis 1a that the

²⁰ In untabulated analysis, we alternatively examine the subsample of deals where the portion of cash given for consideration is above the sample median rather than above 50% and find consistent results.

target returns do not respond to the target earnings announcements during the interim period. From these results, we conclude that investors unexpectedly respond to targets' interim earnings news, albeit to a significantly lesser extent. This may be the result of the market being inattentive to the merger or the market anticipating a withdrawal of the deal.

Thus, we test our hypothesis 1b which examines whether the target's price response to interim earnings news depends on investors' expectations about the outcome of the deal. Table 5 presents the results of estimating equation (1) in the interim period after partitioning the sample based on eventual deal completion.²¹ This regression includes industry and fiscal year-quarter fixed effects and White standard errors clustered by earnings announcement date. We find that UE_{Target} is positively associated with CAR_{Target} for interim earnings announcements only when deals are ultimately withdrawn ($\beta_1 = 0.749$, $p < 0.01$). We fail to find an association between UE_{Target} and CAR_{Target} for earnings announcements in the interim period for deals that complete ($\beta_1 = 0.087$, $p < 0.52$). We perform a Chi-squared test comparing the coefficients of UE (β_1) in Table 5, Column (1) and Table 5, Column (2). The results of the Chi-squared test suggest the association is significantly different between completed and withdrawn deals ($p < 0.01$). Further, we compare the coefficients of UE (β_1) in Table 5, Column (1) and Table 5, Column (2) to the coefficient of UE (β_1) in Table 3, Column (1). The results of the Chi-squared tests suggest the coefficient magnitude is statistically different between the pre-announcement and interim periods for completed transactions but not for withdrawn transactions.

²¹ Our primary analysis relies on an *ex-post* measure of deal outcome. This approach reduces noise in measuring investors' expectations for deal outcome and avoids the challenge of deal outcome likelihood changing throughout the interim period. In untabulated analysis, we use an *ex-ante* measure of deal outcome based on Brown and Raymond (1986). Using their technique, we create two variables: a measure of deal likelihood following deal announcement and a measure of deal likelihood prior to each earnings announcement. We then split our sample based on more or less than a 50% likelihood of deal completion. Using these measures, we fail to find the same associations documented in Table 5. It is not surprising that we fail to find the same results as with our *ex-post* measure because recent studies suggest that these *ex-ante* measures struggle to accurately predict deal success (e.g., Cai, Song, and Walkling 2011; Wang 2018).

These findings provide two main conclusions. First, these results suggest that target investors are attentive to the merger and correctly anticipate whether or not an announced deal will be completed, as they price the targets' interim earnings into the target's stock price only in cases when the deal is withdrawn, consistent with these earnings accruing to the target's owners.²² Second, for completed deals, investors seem to understand that the benefit of the earnings news does not accrue to the owners of the target. This raises the question of whether investors incorporate the earnings news from targets' interim earnings for deals that are eventually completed into the stock price of the acquiring firm, as its owners are the eventual beneficiary of the earnings news.

4.3. Interim acquirer-to-target abnormal returns tests

We next test our second hypothesis examining whether acquirers' stock prices respond to targets' interim earnings news. Table 6 presents the results of estimating equation (1) for acquirer market responses to target earnings in the interim period. We include industry and fiscal year-quarter fixed effects and use White standard errors clustered by the earnings announcement date. Column (1) shows no statistically significant association between UE_{Target} and $CAR_{Acquirer}$ for our 2,717 interim target earnings announcement observations ($\beta_1 = 0.039, p < 0.59$). These results indicate that we cannot reject the null form of our second hypothesis, that acquirers' stock price does not respond to targets' interim earnings news. These results suggest that investors do not contemporaneously price targets' interim earnings into acquirers' stock prices.

²² In untabulated analysis, we find that the ratio of the target's CAR to its UE during the interim is significantly positively associated with the likelihood of subsequent deal completion. Thus, the stronger the price reaction to the unexpected earnings of the target the more likely the deal is to be withdrawn, implying that, to some extent, investors are able to anticipate deal success. We find being in the upper half of investor responses (those with stronger responses to the unexpected earnings) results in an approximately 3.8% increase in the probability of deal withdrawal.

To further examine our second hypothesis, we partition deals into completed and withdrawn-deal interim earnings announcements in Columns (2) and (3), respectively. This allows us to address concerns that we are contaminating our sample with deals that the market anticipates being withdrawn and, thus, has accrued the benefits of the earnings announcements to the target shareholders. Neither subsample yields a statistically significant association (Completed: $\beta_1 = 0.083$, $p < 0.31$; Withdrawn: $\beta_1 = -0.097$, $p < 0.52$), providing further evidence that investors do not contemporaneously incorporate targets' interim earnings news into acquirers' stock price.²³ When combined with our results from Table 4, these results suggest that for deals that are eventually completed, investors do not price targets' interim earnings news into the targets' or acquirers' stock prices at the time of announcement. These findings raise the question of whether and when this earnings news is incorporated into equity prices by investors.

4.4. Combined entity value relevance test of target's interim earnings

Given our failure to find evidence that for completed deals the acquirer or target shareholders accrue the benefits of the target earnings during the interim period, for our third hypothesis we expand our scope to examine the future returns of the combined firm after the completion of the merger. We present the first set of tests of our third hypothesis in Table 7, which presents the results of value relevance tests of the *Sum of UE_{Target}*. To perform this test, we estimate equation 2 including industry and fiscal year-quarter fixed effects and use White standard errors that are clustered by earnings announcement date. In column (1), our measure of abnormal returns is the two year buy-and-hold returns beginning one day prior to the announcement of the earnings

²³ We consider whether our results are due to the target earnings being insignificant to the acquirer. We do not suspect this to be the case given the relatively large size of our targets (Table 2, Panel A). In untabulated analysis, we partition the sample based on median relative size and find similar results in both the smaller and larger transactions (relative to acquirer size). In addition, we also consider the noise introduced by varying levels of stock and cash consideration. We find that adjusting our measure of UE_{Target} to account for these items, both the relative size and consideration, produces similar results. We discuss this analysis in more detail in Section 4.6.

for the period the transaction closed to one day after the announcement of earnings eight quarters after the transaction closed. This results in one observation per transaction. Columns (2) and (3) use the cumulative abnormal returns for the three-day window around the combined firm's earnings announcements for the four and eight quarters after the transaction closes. We examine future earnings announcements because we expect that these disclosures will contain information about how the targets' interim earnings affect the profitability of the combined firm.

The results of column (1) demonstrate a statistically significant positive association between $Sum\ of\ UE_{Target}$ and $BHAR_{Combined}$ ($\beta_1 = 1.997, p < 0.05$). This result leads us to reject the null form of our third hypothesis that target interim earnings do not predict the future abnormal returns of the combined firm. These results suggest that investors price the target interim earnings in the returns of the combined firm following deal completion, consistent with investors responding inefficiently to targets' interim earnings news. In addition, column (2) further demonstrates a significant positive association between $Sum\ of\ UE_{Target}$ and $CAR_{Combined}$ ($\beta_1 = 0.106, p < 0.01$) around the earnings announcements in the two years following the deal completion. Column (3) focuses on the first four quarters following transaction completion and finds a positive association between $Sum\ of\ UE_{Target}$ and $CAR_{Combined}$ ($\beta_1 = 0.127, p < 0.05$), which is somewhat larger than that in column (2). Overall, the results in Table 7 provide evidence that targets' interim earnings are positively associated with the combined firms' future returns, particularly around the combined firms' future earnings announcements. When viewed in conjunction with our previous results, these results suggest that investors fail to respond to targets' interim earnings news at the time of announcement but over time the economic benefit of these earnings are eventually priced into the stock price of the combined firm.

For the second test of our third hypothesis, we examine risk-adjusted future returns of the combined firm using a 5-factor model. Table 8 presents the results of our examination of whether the differences in returns across *Sum of UE_{Target}* quintiles are robust to controlling for common risk factors. This test provides confidence that investor inefficiency rather than other common risk factors drives the value relevance results reported in Table 7. Specifically, we examine the difference in monthly stock returns of firms in the bottom and top quintiles of *Sum of UE_{Target}* over a two-year period after deal completion, controlling for five factors: market, size, and value following Fama and French (1993), momentum following Carhart (1997), and the short-term reversal factor per Ken French's website. We expect that if investors price the target's interim earnings announcements after deal completion, firms in the largest quintile of *Sum of UE_{Target}* will have higher stock returns than those in the smallest quintile (most negative). We estimate equation 3 within each quintile of *Sum of UE_{Target}*.

Table 8 presents results for the Fama-French abnormal return regressions by *Sum of UE_{Target}* quintile. We find that firms in the largest quintile of *Sum of UE_{Target}* have an abnormal return that is greater than that of firms in the smallest quintile of *Sum of UE_{Target}*. An investment strategy of buying (selling) firms in the largest (smallest) quintile earns a significantly positive monthly return of 0.670 percent ($p < 0.01$), which translates into an annualized return of 8.34%. In summary, the evidence in Table 8 suggests that even after controlling for common risk factors, there is significant mispricing of target interim earnings announcement information. Overall, the tests of our third hypothesis suggest that targets' interim earnings news predict future returns, suggesting that investors inefficiently process the information content of targets' unexpected earnings following the announcement of an acquisition.

We note that if the earnings news of the target were not priced during the interim period by the acquirer because either investors think the target managed earnings during the interim period or because it is associated with increased litigation risk for the combined firm, we would have expected to find a negative relation between target $Sum\ of\ UE_{Target}$ and $AR_{Combined}$. For example, if targets managed earnings down during the interim period to “spring-load” earnings, we would expect them to exhibit bad interim earnings news and higher future returns for the combined firm. However, we find that firms that report bad interim earnings news (i.e., smallest earnings quintile in Table 8) exhibit significantly negative future returns. As such, our results are not consistent with investors responding to earnings management or changes in litigation risk. Rather, our results are more consistent with investors reacting inefficiently to interim earnings news.

4.5. Disclosure Processing Costs: Awareness, Acquisition, and Integration

Blankespoor et al. (2020) and Blankespoor, deHaan, Wertz, and Zhu (2019) identify three components of disclosure processing costs: awareness, acquisition, and integration. In this section, we seek to provide insight into which of these costs likely explains the inefficiency we find. Because we examine earnings announcement that are widely disseminated and M&A deals of public targets, which are publicly announced, we anticipate that awareness and acquisition costs are not as relevant to investors in our setting.²⁴ Further, M&A deal are complex, and we expect that investors may struggle to understand how targets’ interim earnings are likely to affect the combined firm. As such, we expect that in our setting investors are more likely to face integration costs, which impede investors’ ability to analyze the implications of the M&A for firm value.

²⁴ Our results that target investors’ response to interim earnings varies by deal outcome provide evidence that investors are aware of the M&A deal and, when relevant, acquiring and processing the disclosed earnings surprises. This finding provides some evidence that awareness and acquisition costs may not be significant in this setting.

We perform two tests to provide evidence for our conjecture that acquirer investors' inefficient processing of targets' interim earnings arises more from integration costs than awareness and acquisition costs. First, we examine a setting where we expect awareness costs to be particularly low.²⁵ Using RavenPack data, we measure the number of news articles mentioning both the acquirer and target in the three day window around the target's earnings announcement to identify investors' awareness of the M&A deal. We find no difference in the association between the UE_{Target} and $CAR_{Acquirer}$ for transactions in the top tercile of number of articles.²⁶ Thus, even when there is significant media coverage surrounding the transaction at the time of the target's earnings announcement, acquirer investors do not efficiently price the target's unexpected earnings. This aligns with awareness not being the primary processing cost.

Second, we examine whether our results vary based on the sophistication of the acquiring firm's ownership. We expect less sophisticated investors to be less familiar with the consequences of M&A deals and therefore to face greater integration costs. As such, we predict that for deals where the acquirer has lower institutional ownership (i.e., less sophisticated investors), interim earnings news will correlate more strongly with the future returns of the combined firm. In untabulated analysis, we test this prediction by replicating our tests of future returns (Tables 7 and 8) after removing firms from the top quintile of institutional ownership. The results replicating Table 7 demonstrate that firms in the lower four quintiles of institutional ownership exhibit a relation between unexpected earnings and future buy-and-hold returns ($\beta_1 = 2.259, p < 0.01$) that is more pronounced than the full sample results in Table 7 and that is significantly larger than that

²⁵ While we think it is unlikely the acquirer investors are unaware of the transactions in our sample due to their large size (as a result of requiring the targets being public), prior studies find that acquirer investors have limited attention to the mergers (Louis and Sun 2010; 2016).

²⁶ We measure the number of stories from the Dow Jones, web, and press-releases. In addition, we run the analysis using a more refined sample limited to "full articles" released by Dow Jones.

relation for firms in the top quintile. As expected, replicating Table 8 after removing firms in the top quintile of institutional ownership increases the Fama-French returns from 8.3% per year (for the full sample) to 10.1% per year. Overall, the results from these analyses suggest that less sophisticated investors are less efficient at processing interim earnings news, suggesting that integration costs are relevant to the inefficiency we find.

4.6. Alternative scaling of target interim earnings

In our main analysis, we define UE_{Target} as the earnings surprise per target share scaled by the target's share price (see Appendix B). We recognize that the lack of significance on the coefficient of UE_{Target} in Table 6 could be explained by noise due to scaling earnings based on the target's size and number of shares outstanding. To address this concern, we create an alternative measurement of UE_{Target} that scales the target's unexpected earnings to the size of an acquirer share. We define this alternative measure as the target's earnings surprise per acquirer share scaled by the share price of the acquiring firm. Using this alternative measure produces statistically and economically similar results (untabulated) to those in Table 6. These results are not surprising given that our sample consists of public targets with deal sizes that average 56% of the acquirer's market value (Table 2, Panel A), suggesting that the target firm is economically meaningful to the acquirer. These results provide evidence that the lack of acquirer stock price response to target earnings is not due to target earnings being economically insignificant to the acquirer.²⁷

We also consider the fact that transactions involving equity consideration may result in the target earnings accruing benefits to both target and acquirer shareholders. For instance, transactions where target shareholders receive only cash, the interim target earnings are expected to accrue only to the acquirer. In contrast, transaction where the target shareholders receive stock,

²⁷ In addition, in untabulated analysis, we partition Table 6 by relative size and find similar results for both the smaller and larger transactions.

the interim target earnings would accrue to both the target and acquirer based on the portion of the combined company their respective shareholders will own after deal completion. To address this issue, we create an alternative measure of UE_{Target} that measures the value of the portion of the target's unexpected earnings that is expected to accrue to each firm.²⁸ The alternative measure of UE_{Target} produces similar results in all tables with Table 8 resulting in annualized abnormal returns of 8.5% (untabulated). These results provide evidence that our failure to find both a target stock price response to target interim earnings for completed deals and an acquirer stock price reaction to target interim earnings is not the result of noise introduced by differing consideration.

IV. CONCLUSION

A question of fundamental importance in the accounting literature is how firms' accounting earnings relate to their stock prices. Countless studies examine this relation and provide overwhelming evidence that firms' stock prices relate positively to their earnings news. In this study, we examine a setting where investors may be unsure as to which firm the reported accounting earnings accrue: targets' earnings announcements occurring after the public announcement of an acquisition but before the deal's completion. On average, we find that targets' stock prices relate positively to their unexpected earnings during this interim period. However, we find that this positive relation exists only for deals that are subsequently withdrawn but not for deals that are eventually completed. These results suggest that investors correctly anticipate the eventual outcome of announced acquisitions as earnings are priced into the target's stock price only if their announced acquisition eventually falls through. These findings add to the literature

²⁸ For Tables 4 and 5, we define the alternative earnings measure as the target's earnings surprise per combined firm share times the portion of the combined firm that will be owned by the target scaled by the share price of the target firm. For Table 6, we define the alternative variables as the target's earnings surprise per combined firm share times the portion of the combined firm that will be owned by the acquirer scaled by the share price of the acquiring firm. Finally, for Tables 7 and 8, we define the alternative variables as the target's earnings surprise per combined firm share scaled by the share price of the combined firm.

examining the determinants of M&A deal outcomes for announced deals as they provide evidence that investors seem to correctly anticipate whether announced deals are eventually completed. Further, these findings add to the studies examining what factors affect the earnings-return relation, as they suggest that announced M&A deals affect this widely-studied relation.

For M&A deals that are eventually completed, we fail to find evidence that the target's or the acquirer's stock prices respond to the target's unexpected interim earnings at the time of announcement. However, we find that targets' interim earnings predict future abnormal returns of the combined entity subsequent to deal completion. These returns are economically significant as a trading strategy based on targets' interim earnings produces annualized abnormal returns of 8.3%. Our findings suggest that investors respond inefficiently to the unexpected earnings that targets announce after the public announcement but before the completion of M&A deals. These findings contribute to the studies that find that the costs to investors of integrating information impedes investors' ability to efficiently price information across economically-linked firms. Our setting is novel compared to these prior studies because the nature of the economic link that we examine is more definitive and comprehensive in the sense that it is publicly announced that the acquiring firm will soon purchase the entire target firm. Despite the public announcement of this pending acquisition, we find that investors struggle to efficiently incorporate the targets' unexpected earnings into the price of the acquirer. Overall, our findings suggest that target interim earnings news positively predicts the future returns of the combined firm because investors, while aware of the M&A, face costly information integration costs.

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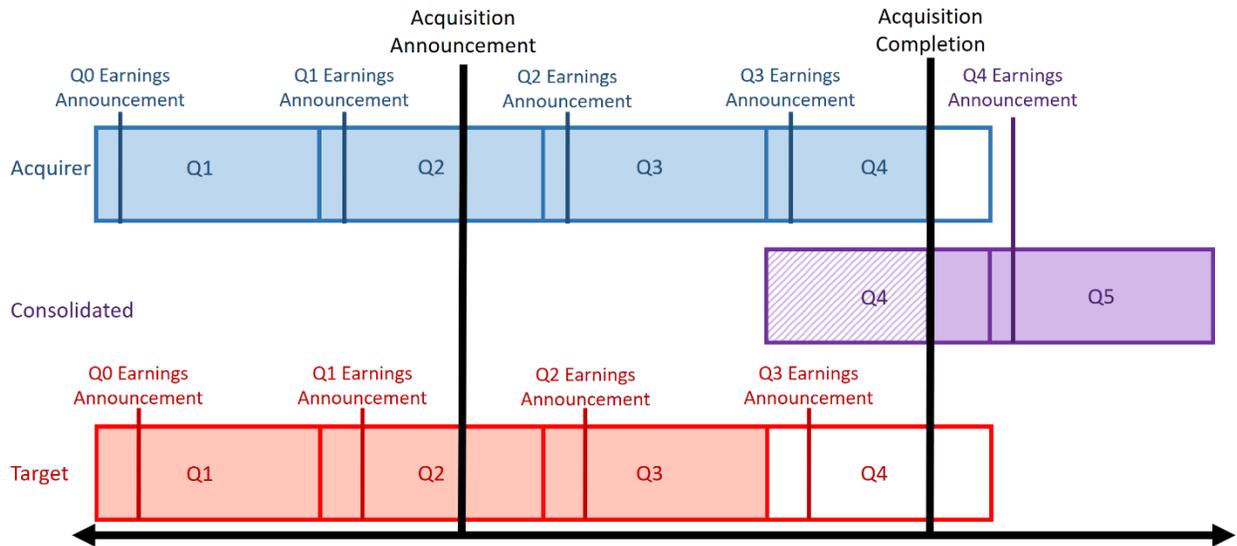
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APPENDIX A: Figure



This figure describes the timeline of events. The top line represents the acquiring company, the bottom line the target company, and the middle line the combined entity. The shaded regions are the earnings that are recognized in the financial statements released by the firm. The dashed regions are the earnings disclosed in the notes to the financial statements released by the firm. Lastly, the white regions are the earnings that are neither recognized nor disclosed in the financial statements.

APPENDIX B
Variable Definitions

Variable	Definition
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Dependent Variables:

<i>CAR</i>	Three-day ($t-1$ to $t+1$), value-weighted cumulative abnormal returns around the earnings announcement dates of the acquirer, target, or combined firm.
<i>BHAR</i>	Two-year, value-weighted cumulative abnormal returns for the period from one day before the earnings announcement date related to the first period end after deal close to one day after the earnings announcement date related to the period two fiscal years after the first period after the deal close.

Variables of Interest:

<i>UE</i>	Unexpected earnings ((IBES actual less median estimate) / Compustat end-of-quarter stock price (PRCCQ)) of the acquirer or target.
<i>Sum of UE</i>	Sum of all target <i>UE</i> for earnings announcements made during the interim period (after deal announcement and before deal closure).

Deal-Level Characteristics:

<i>Deal Size</i>	Value paid for target in millions (SDC: ValueofTransactionmil).
<i>Premium</i>	Offer price minus target stock price 1 day prior to announcement (SDC: Prem1Day).
<i>Relative Size</i>	<i>Deal Size</i> / acquirer's market value (CSHO * PRCC_F) at end of fiscal year before deal announcement.
<i>Same Industry</i>	Indicator variable equal to 1 if acquirer and target share Fama-French 12 industry classification.
<i>Duration</i>	Number of days in period between deal announcement and close.

Control Variables (at end of fiscal year before deal announcement, unless otherwise noted):

<i>Log(Assets)</i>	Natural log of total assets (AT).
<i>MTB</i>	Market-to-Book Ratio: Market value (PRCC_F * CSHO) / Common Shareholder's Equity (CEQ).
<i>Leverage</i>	Ratio of total long-term debt (DLTT) to end-of-year total assets (AT).
<i>Loss</i>	Indicator variable equal to 1 if basic EPS excluding extraordinary items (epspxy) is less than 0 in current quarter earnings announcement.
<i>CAR_Prior</i>	Value-weighted cumulative abnormal returns for the period from 35 to 6 days before the earnings announcement date.
<i>Same EA Date</i>	Indicator variable equal to 1 if acquirer and target announce earnings on the same date.
<i>UE_Overlap_{Counterparty}</i>	Unexpected earnings of counterparty (acquirer or target) if acquirer and target announce earnings on the same date; 0 if no overlap exists.

TABLE 1

Sample selection and composition

Panel A: Sample selection			
Unique mergers and acquisitions of public targets by public acquirers from SDC (deals announced between Mar 15, 1978 and Dec 31, 2017)		8,891	
Less: Unable to match to Compustat data		(2,081)	
Missing required control variables		(4,659)	
Deals with same acquirer and target		(279)	
Deals without target interim earnings announcements & post-acquisition data		(108)	
Number of unique transactions with target interim earnings announcements		1,764	
Number of unique <i>completed</i> transactions		1,437	
Number of unique <i>withdrawn</i> transactions		327	
Panel B: Distribution of the number of target earnings announcements during the interim period			
	Number of Earnings Announcements	Total	
		N	%
	1	934	53%
	2	548	31%
	3	156	9%
	4	68	4%
	5 or more	58	3%
	Total	1,764	100%

TABLE 1 (continued)

Panel C: Distribution of announced transactions with interim earnings announcements by year

Year Deal Announced	Total		Year Deal Announced	Total	
	N	%		N	%
1984	1	0%	2001	72	4%
1985	5	0%	2002	29	2%
1986	2	0%	2003	50	3%
1987	4	0%	2004	57	3%
1988	13	1%	2005	56	3%
1989	21	1%	2006	74	4%
1990	14	1%	2007	78	4%
1991	20	1%	2008	64	4%
1992	25	1%	2009	60	3%
1993	35	2%	2010	53	3%
1994	62	4%	2011	49	3%
1995	72	4%	2012	49	3%
1996	81	5%	2013	42	2%
1997	117	7%	2014	61	3%
1998	114	6%	2015	79	5%
1999	121	7%	2016	62	4%
2000	90	5%	2017	32	2%
			Total	1,764	100%

TABLE 2
Summary statistics

Panel A: Deal-level descriptive statistics (N = 1,764)					
	Mean	S.D.	P25	Median	P75
<i>Deal Size</i>	3,435.22	7,551.33	279.08	851.30	2,780.41
<i>Premium</i>	32.08	29.19	13.76	27.47	44.63
<i>Relative Size</i>	0.56	0.88	0.10	0.29	0.62
<i>MVE_{Target}</i>	2,103.29	4,634.49	142.23	467.11	1,677.10
<i>MTB_{Target}</i>	2.96	4.56	1.24	1.97	3.29
<i>Same Industry</i>	0.71	0.46	0.00	1.00	1.00
<i>Duration</i>	160.74	107.47	91.00	133.00	195.00

TABLE 2 (continued)

Panel B: Pre-deal-announcement period descriptive statistics with acquirer/target partition										
	Acquirer (N = 23,454)					Target (N = 19,897)				
	Mean	S.D.	P25	Median	P75	Mean	S.D.	P25	Median	P75
<i>CAR</i>	0.01	0.11	-0.04	0.00	0.06	0.01	0.14	-0.05	0.00	0.06
<i>UE</i>	0.45	4.60	-0.13	0.36	1.39	-0.16	9.77	-0.75	0.37	1.94
<i>Log(Assets)</i>	8.17	1.93	6.81	8.23	9.57	6.78	1.87	5.37	6.79	8.14
<i>MTB</i>	3.37	3.50	1.63	2.43	3.93	3.29	4.24	1.38	2.19	3.64
<i>Leverage</i>	0.19	0.17	0.05	0.16	0.29	0.20	0.20	0.02	0.15	0.31
<i>Loss</i>	0.14	0.34	0.00	0.00	0.00	0.23	0.42	0.00	0.00	0.00
<i>CAR_Prior</i>	0.01	0.11	-0.05	0.00	0.06	0.00	0.14	-0.08	0.00	0.07

Panel C: Interim period descriptive statistics with acquirer/target partition										
	Acquirer (N = 2,778)					Target (N = 2,750)				
	Mean	S.D.	P25	Median	P75	Mean	S.D.	P25	Median	P75
<i>CAR</i>	0.01	0.10	-0.04	0.00	0.05	0.01	0.09	-0.03	0.00	0.03
<i>UE</i>	0.04	4.81	-0.24	0.27	1.07	-3.05	20.94	-1.64	0.20	1.70
<i>Log(Assets)</i>	8.63	1.84	7.38	8.66	10.02	7.17	1.89	5.80	7.20	8.59
<i>MTB</i>	3.73	5.30	1.58	2.36	3.83	2.92	4.42	1.29	2.02	3.34
<i>Leverage</i>	0.21	0.17	0.07	0.18	0.31	0.21	0.20	0.03	0.17	0.33
<i>Loss</i>	0.13	0.34	0.00	0.00	0.00	0.25	0.43	0.00	0.00	0.00
<i>CAR_Prior</i>	-0.01	0.11	-0.07	-0.01	0.05	0.08	0.21	-0.04	0.02	0.15

This table presents descriptive statistics for the various samples used in the study. Panel A presents deal-level descriptive statistics. Panel B presents descriptive statistics for the variables used in the pre-announcement (earnings announcements prior to the deal announcement) abnormal returns tests. Panel C presents descriptive statistics for the variables used in the interim (between deal announcement and completion/withdrawal) abnormal returns tests. Continuous variables are winsorized at 1 percent and 99 percent. We multiply all descriptive statistic values of *UE* by 1,000 to provide more useful information. Appendix B contains detailed definitions of all variables.

TABLE 3

Pre-announcement abnormal returns tests

$$\text{Model: } CAR = \alpha_0 + \beta_1 UE + \beta_2 \text{Log}(\text{Assets}) + \beta_3 \text{MTB} + \beta_4 \text{Leverage} + \beta_5 \text{Loss} \\ + \beta_6 \text{CAR_Prior} + \beta_7 \text{Same EA Date} + \beta_8 \text{UE_Overlap} + \varepsilon_{i,t}$$

Abnormal Returns-to-UE	Target-to-Target	Acquirer-to-Acquirer	Target-to-Acquirer	Acquirer-to-Target
	(1)	(2)	(3)	(4)
Dependent Variable:	CAR_{Target}	$CAR_{Acquirer}$	CAR_{Target}	$CAR_{Acquirer}$
UE_{Target}	1.758*** (10.762)			0.160** (2.284)
$UE_{Acquirer}$		3.108*** (11.471)	0.250 (1.239)	
$\text{Log}(\text{Assets})_{Target}$	-0.001 (-1.112)		0.000 (0.444)	
$\text{Log}(\text{Assets})_{Acquirer}$		-0.002*** (-3.077)		-0.000 (-0.755)
MTB_{Target}	-0.001*** (-2.779)		0.000** (2.270)	
$\text{MTB}_{Acquirer}$		-0.000 (-0.905)		0.000 (0.708)
Leverage_{Target}	0.020*** (3.025)		0.002 (0.413)	
$\text{Leverage}_{Acquirer}$		0.009 (1.250)		-0.000 (-0.076)
Loss_{Target}	0.000 (0.073)			0.001 (0.538)
$\text{Loss}_{Acquirer}$		-0.001 (-0.138)	0.001 (0.353)	
$\text{CAR_Prior}_{Target}$	-0.031*** (-3.091)		-0.007 (-0.900)	
$\text{CAR_Prior}_{Acquirer}$		-0.043*** (-3.488)		-0.005 (-0.655)
Same EA Date			0.006 (1.621)	-0.005* (-1.688)
$\text{UE_Overlap}_{Counterparty}$			5.642*** (5.236)	7.131*** (5.060)
Industry fixed effects	Yes	Yes	Yes	Yes
Fiscal year-quarter fixed effects	Yes	Yes	Yes	Yes
Observations	18,877	16,791	16,791	18,877
Adjusted R-squared	0.020	0.022	0.007	0.004

This table presents results from regressing three-day ($t-1$ to $t+1$) value-weighted cumulative abnormal returns (CAR) around pre-deal-announcement earnings announcements. Column (1) regresses target's CAR on target's unexpected earnings (UE). Column (2) regresses acquirer's CAR on acquirer's UE . Column (3) regresses target's CAR on acquirer's UE . Column (4) regresses acquirer's CAR on target's UE . Industry fixed effects are based on the Fama-French (1997) 12-industry classifications. We report t-statistics in parentheses. The symbols ***, **, and * indicate one percent, five percent, and ten percent significance levels, respectively, using two-tailed t-tests. We cluster standard errors at the earnings announcement date level. We winsorize continuous variables at 1 percent and 99 percent. Appendix B contains detailed definitions of all variables.

TABLE 4

Interim target-to-target abnormal returns tests

$$\text{Model: } CAR = \alpha_0 + \beta_1 UE + \beta_2 \text{Log}(\text{Assets}) + \beta_3 \text{MTB} + \beta_4 \text{Leverage} + \beta_5 \text{Loss} + \beta_6 \text{CAR}_{\text{Prior}} + \varepsilon_{i,t}$$

Sample	All Interim EAs	Majority-Cash Interim EAs
Abnormal Returns-to-UEs	Target-to-Target	
Dependent Variable:	(1)	(2)
	CAR_{Target}	
UE_{Target}	0.306** (2.520)	0.352** (2.151)
$\text{Log}(\text{Assets})_{\text{Target}}$	0.001 (0.807)	-0.004*** (-2.684)
$\text{MTB}_{\text{Target}}$	0.000 (0.690)	-0.000 (-0.002)
$\text{Leverage}_{\text{Target}}$	0.001 (0.139)	0.004 (0.295)
$\text{Loss}_{\text{Target}}$	-0.003 (-0.712)	-0.004 (-0.742)
$\text{CAR}_{\text{Prior}}_{\text{Target}}$	-0.012 (-1.216)	-0.016 (-1.504)
Chi ² -test of $\beta_1 UE$ (Pre-Announcement \neq Interim) (<i>p-value</i>)	13.81*** (0.000)	17.50*** (0.000)
Industry fixed effects	Yes	Yes
Fiscal year-quarter fixed effects	Yes	Yes
Observations	2,717	1,222
Adjusted R-squared	0.010	0.011

This table presents results of regressing the target's three-day ($t-1$ to $t+1$) value-weighted cumulative abnormal returns (CAR) around the interim (between deal announcement and completion/withdrawal) earnings announcement of the target's earnings. Column (1) regresses the target's CARs on the target's unexpected earnings (UE) for all interim earnings announcements. Column (2) regresses the target's CARs on the target's UEs for majority-cash deal interim earnings announcements. Majority-cash deals are transactions where cash comprises more than 50% of the consideration. Industry fixed effects are based on the Fama-French (1997) 12-industry classifications. We report t-statistics in parentheses. The symbols ***, **, and * indicate one percent, five percent, and ten percent significance levels, respectively, using two-tailed t-tests. We cluster standard errors at the earnings announcement date level. We winsorize continuous variables at 1 percent and 99 percent. Appendix B contains detailed definitions of all variables.

TABLE 5

Interim target-to-target abnormal returns tests with completion/withdrawal partition

$$\text{Model: } CAR = \alpha_0 + \beta_1 UE + \beta_2 \text{Log}(\text{Assets}) + \beta_3 \text{MTB} + \beta_4 \text{Leverage} + \beta_5 \text{Loss} + \beta_6 \text{CAR}_{\text{Prior}} + \varepsilon_{i,t}$$

Sample	Completed Deal	Withdrawn Deal
	Interim EAs	Interim EAs
Abnormal Returns-to-UEs	Target-to-Target	
Dependent Variable:	(1)	(2)
	CAR_{Target}	
UE_{Target}	0.087 (0.650)	0.749*** (3.132)
$\text{Log}(\text{Assets})_{\text{Target}}$	0.001 (0.620)	0.003 (0.929)
$\text{MTB}_{\text{Target}}$	0.001 (0.971)	-0.000 (-0.132)
$\text{Leverage}_{\text{Target}}$	-0.000 (-0.014)	0.031 (0.994)
$\text{Loss}_{\text{Target}}$	-0.006 (-1.238)	0.003 (0.203)
$\text{CAR}_{\text{Prior}}_{\text{Target}}$	0.007 (0.730)	-0.086*** (-2.788)
Chi ² -test of $\beta_1 UE$ (Pre-Announcement \neq Interim) (<i>p-value</i>)	26.07*** (0.000)	0.08 (0.782)
Chi ² -test of $\beta_1 UE$ (Completed \neq Withdrawn) (<i>p-value</i>)		7.65*** (0.006)
Industry fixed effects	Yes	Yes
Fiscal year-quarter fixed effects	Yes	Yes
Observations	2,110	607
Adjusted R-squared	-0.002	0.035

This table presents results of regressing the target's three-day ($t-1$ to $t+1$) value-weighted cumulative abnormal returns (CAR) around the interim (between deal announcement and completion/withdrawal) earnings announcement of the target's earnings. Column (1) regresses the target's CARs on the target's unexpected earnings (UE) for all interim completed-deal earnings announcements. Column (2) regresses the target's CARs on the target's UEs for interim withdrawn-deal earnings announcements. Industry fixed effects are based on the Fama-French (1997) 12-industry classifications. We report t-statistics in parentheses. The symbols ***, **, and * indicate one percent, five percent, and ten percent significance levels, respectively, using two-tailed t-tests. We cluster standard errors at the earnings announcement date level. We winsorize continuous variables at 1 percent and 99 percent. Appendix B contains detailed definitions of all variables.

TABLE 6

Interim acquirer-to-target abnormal returns tests

$$\text{Model: } CAR = \alpha_0 + \beta_1 UE + \beta_2 \text{Log}(\text{Assets}) + \beta_3 \text{MTB} + \beta_4 \text{Leverage} + \beta_5 \text{Loss} + \beta_6 \text{CAR}_{\text{Prior}} + \beta_7 \text{Same EA Date} + \beta_8 \text{UE}_{\text{Overlap}} + \varepsilon_{i,t}$$

Sample	All Interim EAs	Completed Deal Interim EAs	Withdrawn Deal Interim EAs
Abnormal Returns-to-UEs	Acquirer-to-Target		
Dependent Variable:	(1)	(2)	(3)
	CAR_{Acquirer}		
UE_{Target}	0.039 (0.540)	0.083 (1.020)	-0.097 (-0.644)
$\text{Log}(\text{Assets})_{\text{Acquirer}}$	-0.001 (-0.548)	0.000 (0.284)	-0.003 (-1.135)
$\text{MTB}_{\text{Acquirer}}$	0.000 (1.271)	0.000 (0.802)	0.001 (1.138)
$\text{Leverage}_{\text{Acquirer}}$	0.003 (0.244)	0.003 (0.209)	-0.003 (-0.103)
$\text{Loss}_{\text{Target}}$	-0.001 (-0.240)	-0.002 (-0.405)	0.001 (0.115)
$\text{CAR}_{\text{Prior}}_{\text{Acquirer}}$	0.004 (0.213)	0.014 (0.727)	-0.032 (-0.744)
Same EA Date	-0.005 (-0.815)	-0.005 (-0.783)	-0.010 (-0.529)
$UE_{\text{Overlap}}_{\text{Counterparty}}$	9.150*** (3.501)	9.666*** (3.378)	13.373** (2.125)
Industry fixed effects	Yes	Yes	Yes
Fiscal year-quarter fixed effects	Yes	Yes	Yes
Observations	2,717	2,110	607
Adjusted R-squared	0.003	0.004	-0.026

This table presents results of regressing the acquirer's three-day ($t-1$ to $t+1$) value-weighted cumulative abnormal returns (CAR) around the interim (between deal announcement and completion/withdrawal) earnings announcement of the target's earnings. Column (1) regresses the acquirer's CAR on the target's unexpected earnings (UE) for all interim earnings announcements. Column (2) regresses the acquirer's CAR on the target's UE s for completed-deal interim earnings announcements. Column (3) regresses the acquirer's CAR on the target's UE s for withdrawn-deal interim earnings announcements. Industry fixed effects are based on the Fama-French (1997) 12-industry classifications. We report t-statistics in parentheses. The symbols ***, **, and * indicate one percent, five percent, and ten percent significance levels, respectively, using two-tailed t-tests. We cluster standard errors at the earnings announcement date level. We winsorize continuous variables at 1 percent and 99 percent. Appendix B contains detailed definitions of all variables.

TABLE 7

Value relevance test of target's interim earnings

Model: $AR = \alpha_0 + \beta_1 \text{Sum of UE} + \beta_2 \text{Log(Assets)} + \beta_3 \text{MTB} + \beta_4 \text{Leverage} + \beta_5 \text{Loss} + \beta_6 \text{CAR Prior} + \varepsilon_{i,t}$

Dependent Variable: Time Period:	(1) <i>BHAR</i> _{Combined} Q1 – Q8	(2) <i>CAR</i> _{Combined} Q1 – Q8	(3) <i>CAR</i> _{Combined} Q1 – Q4
<i>Sum of UE</i> _{Target}	1.997** (2.512)	0.106*** (2.702)	0.127** (2.074)
<i>Log(Assets)</i> _{Acquirer}	0.008 (0.941)	-0.000 (-0.836)	-0.000 (-0.310)
<i>MTB</i> _{Acquirer}	-0.006* (-1.814)	-0.000 (-0.010)	0.000 (0.106)
<i>Leverage</i> _{Acquirer}	0.072 (0.687)	-0.004 (-0.661)	0.003 (0.363)
<i>Loss</i> _{Target}	0.001 (0.038)	-0.002 (-0.821)	-0.003 (-1.083)
<i>CAR_Prior</i> _{Acquirer}	0.161 (0.902)	0.020** (2.315)	0.029** (2.400)
Industry fixed effects	Yes	Yes	Yes
Fiscal year-quarter fixed effects	Yes	Yes	Yes
Observations	1,437	11,361	5,708
Adjusted R-squared	0.045	0.001	0.000

This table presents results of regressing abnormal returns (*BHAR*/*CAR*) for the combined entity on the sum of all interim (between deal announcement and completion) earnings announcement of the target's earnings. *BHAR* is the two-year value-weighted buy-and-hold abnormal return for the period beginning one day before the earnings announcement date of the first period ending after deal close. *CAR* is the value-weighted abnormal return for the three days ($t-1$ to $t+1$) around the post-period earnings announcements of the combined firm beginning with the first full quarter after deal completion. Column (1) regresses the combined firm's buy-and-hold abnormal returns (*BHAR*) on the sum of the target's unexpected earnings (*Sum of UE*) for all interim completed-deal earnings announcements. Columns (2) and (3) regress the combined firm's *CAR* on the *Sum of UE*. Column (2) has one observation for each of the three-day earnings announcement windows for the eight quarters subsequent to the quarter of transaction completion. Column (3) has one observation for each of the three-day earnings announcement windows for the four quarters subsequent to the quarter of transaction completion. Industry fixed effects are based on the Fama-French (1997) 12-industry classifications. We report t-statistics in parentheses. The symbols ***, **, and * indicate one percent, five percent, and ten percent significance levels, respectively, using two-tailed t-tests. We cluster standard errors at the earnings announcement date level. We winsorize continuous variables at 1 percent and 99 percent. Appendix B contains detailed definitions of all variables.

TABLE 8

Fama-French returns

$$\text{Model: } R_{i,t} - R_{f,t} = \alpha_0 + b_{i,M}(R_{M,t} - R_{f,t}) + s_i \text{SMB}_t + h_i \text{HML}_t + m_i \text{UMD}_t + r_i \text{STR}_t + \varepsilon_{i,t}$$

<u>Sum of UE</u>	<u>Firms</u>	<u>Alpha</u>	<u>MKT_RF</u>	<u>SMB</u>	<u>HML</u>	<u>UMD</u>	<u>STR</u>	<u>R²</u>
1 (largest)	285	0.369** (2.372)	1.021*** (26.239)	0.361*** (7.531)	0.117** (2.274)	-0.119*** (-3.691)	0.000 (1.013)	0.136
2	287	0.006 (0.040)	1.074*** (32.655)	0.131*** (3.382)	0.222*** (5.097)	-0.348*** (-12.986)	0.000 (1.446)	0.213
3	287	-0.214 (-1.394)	1.154*** (32.226)	0.100** (2.527)	0.222*** (4.856)	-0.279*** (-10.129)	0.000 (-0.593)	0.187
4	288	-0.060 (-0.423)	0.996*** (28.822)	0.222*** (5.536)	0.254*** (5.649)	-0.343*** (-12.324)	0.001*** (2.707)	0.182
5 (smallest)	290	-0.301* (-1.791)	1.124*** (27.561)	0.563*** (11.115)	0.116** (2.144)	-0.371*** (-10.979)	0.000* (1.672)	0.185
Alpha of (1-5)		0.670						
<i>p</i> -value		0.005***						
Annualized return		8.34%						

This table presents Fama-French (1993) 5-factor abnormal returns regressions for the combined entity after deal completion by *Sum of UE* quintile using monthly stock returns. *MKT_RF*, *SMB*, and *HML* are as defined by Fama and French (1993), *UMD* is defined as by Carhart (1997), and *STR* is the short-term reversal factor as constructed by Ken French's website. The bottom of the table presents the mean difference in alpha, the *p*-value from the difference between the alpha of the first and fifth quintile, and the annualized return. We report t-statistics in parentheses. The symbols ***, **, and * indicate one percent, five percent, and ten percent significance levels, respectively, using two-tailed t-tests. Appendix B contains detailed definitions of all variables.