



# Do marketing activities enhance firm value? Evidence from M&A transactions



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## ABSTRACT

In this paper, we use an event study approach and find that aggressive marketing activities of target firms prior to the mergers and acquisitions (M&A) deal are not always compensated with greater premiums and favorable market reactions, which would represent the presence of a potential “window-dressing.” Further analysis shows that the positive association between marketing activities and deal performance is conditional on the change in institutional ownership prior to the deal, suggesting that institutional investors cherry-pick good targets with value-enhancing marketing activities. The results hold for both OLS and 2SLS after accounting for potential endogeneity. This paper contributes to the marketing–finance interface literature by providing more precise and direct evidence on how marketing strategies affect firm value.

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“In today’s more strategically motivated mergers, marketing synergy is a more critical determinant of merger success or failure.”—Weber and Dholakia (2000, p. 158).

## 1. Introduction

Marketing activities have long been excluded from the study of a firm’s financial performance. While the firm valuation research in finance has significantly evolved for many years, researchers recently began questioning the competency of the firm valuation that is exclusively based on financial and accounting metrics. For example, Rappaport (1986) notes that the shareholder value is not reliably measured by accounting metrics, giving little credit to empirical evidence. Lev and Zarowin (1999) find that the correlations between stock returns and corporate earnings have become weaker due to the failure to incorporate critical but intangible elements such as marketing efforts. The deteriorating predictive

power of analysts is also attributable to a heavy reliance on financial metrics, with less weight on intangible elements (Aksoy, Cooil, Groening, Keiningham & Yalçın, 2008; Gupta, Lehmann, & Stuart, 2004; Hogan et al., 2002).

In response to such concerns, the marketing–finance interface research has in recent years investigated the effects of the firm’s marketing strategies on the shareholder value. Anderson, Fornell, and Mazvancheryl (2004), for example, show that customer satisfaction through marketing activities positively affects shareholder value by influencing future customer behavior. Luo (2008) finds that marketing spending prior to initial public offerings (IPOs) helps reduce underpricing and boost trading after the issuance. Luo and Jong (2012) also find evidence that a firm reducing advertising spending is more likely to experience a decrease in abnormal returns, whereas stock analysts play a role in mediating the impact of advertising on stock returns. Consistent with the aforementioned studies, Chemmanur and Yan (2009) argue that product markets are tightly linked to financial markets in terms of marketing, which is not surprising in that investors pick stocks with familiarity (Merton, 1987).

Although earlier empirical studies make important contributions to furthering our understanding of the effects of the

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marketing activities on firm value, such as Tobin's  $q$  (Tobin, 1969) and stock returns, the role of product market strategies on financial performance may be endogenously determined. That is, it is statistically too ambiguous to enable us to draw valid conclusions, in general, because marketing is too far removed from firm value and there would be many missing links between those two variables (Luo & Jong, 2012). While asking the same question in this study, we attempt to reduce this problem by focusing on a firm specific event, mergers and acquisitions (M&As), which allows us to provide more precise and direct evidence on the issue using an event study approach.

M&As are one of the most important and largest corporate events that typically involves huge pecuniary transactions. Marketing efforts usually do not reveal any identifiable event date while M&As provide an uncontroversial, clean-cut event window, which is hardly available in other contexts. The high economic significance of the M&As and its consequential strong incentive to exert marketing efforts will make the effect of marketing investments more pronounced, which makes it more opportune to immediately capture the effect of marketing on M&A outcomes. Thus, M&As are well-suited events for our purpose and they offer a natural and unique laboratory in which we can evaluate whether and how marketing activities affect firm value in the well-defined manner. Having more plausible and visible marketing effect around the neighborhood of the event also makes it feasible to more effectively control for potential sources of the endogeneity bias compared to prior literature. Further, our empirical setting allows us to address our questions using market-based performance measures—deal premium and announcement returns—rather than accounting-based measures, which is backward looking. This aspect enables us to evaluate firm value that accounts for investor's assessment in the forward looking manner. We choose M&As as the setting for empirical tests of our hypotheses and can increase our confidence on our results for these reasons.

The rest of the paper proceeds as follows. In Section 2, we review the related literature and develop hypotheses. Section 3 describes the data, variables of interest, and research design. In Section 4, we provide summary statistics and empirical results. We summarize our findings and discuss their implications in the marketing-finance interface literature in Section 5.

## 2. Related literature and hypothesis development

### 2.1. Related literature

The literature linking marketing activities and financial performance uses various measures for firm value.<sup>1</sup> First, Tobin's  $q$  is a frequently used proxy for financial performance. Anderson et al. (2004), for example, show that customer satisfaction positively affects Tobin's  $q$  by influencing future customer behavior. Using the panel analysis, Rao, Agarwal, and Dahlhoff (2004) show that the firm's branding strategy is positively and the mixed branding strategy is negatively correlated with Tobin's  $q$ . Ittner and Larcker (1996) find the same conclusion using the return on assets, market-to-book ratio, and price-to-earnings ratio, the last two of which are somewhat similar to Tobin's  $q$ .

<sup>1</sup> A body of research uses accounting-based measures of firm performance although they receive criticism that these accounting measures do not adequately measure firm value. Accounting-based measures include sales, operating margin, accounting returns, and return on investment (Anderson, Fornell, & Rust, 1997; Bolton, 1998; Ittner & Larcker, 1998; Leone, 1995; Rust, Zahorik, & Keiningham, 1995; Zeithaml, 2000).

Another approach is to examine the effect of marketing strategies on stock returns. Fornell, Mithas, Morgeson, and Krishnan (2006) show that a portfolio of firms with greater customer satisfaction, on average, achieves higher returns with lower risk than do major stock market indices. Joshi and Hanssens (2010) find that advertising spending has a positive impact on stock returns. Luo and Jong (2012) find a similar line of evidence that a firm reducing advertising spending is more likely to experience a decrease in abnormal returns, while stock analysts play a role in mediating the impact of advertising on stock returns. Srinivasan, Pauwels, Silva-Risso, and Hanssens (2009) show that adding marketing actions to the finance benchmark model significantly improves the explanatory power for stock returns, concluding that the stock market benefits from pioneering innovations.

The impact of marketing on firm volatility or risk has also been investigated. McAlister, Srivinasan, and Kim (2007) test the relationship between advertising and R&D expenditures, and firm systematic risk, derived from the capital asset pricing model (CAPM). Gruca and Rego (2005) report that customer satisfaction, as a fundamental value driver through marketing actions, increases the growth of future cash flows and reduces its variability. Luo (2007) tests the harmful impact of consumers' negative voice on stock returns. He finds that the negative voice of current consumers significantly increases the idiosyncratic risk of stock returns.

The last strand of approach regarding the relationship between marketing strategies and firm value is to test corporate events or governance, to which our paper belongs. Examining 133 M&A deals, Bahadir, Bharadwaj, and Srivastava (2008) show that both the acquirer's and target's marketing capabilities positively affect the value of the target's brands. Luo (2008) finds that marketing spending prior to initial public offerings (IPOs) helps reduce underpricing and boost trading after the issuance. Luo, Zhang, Zhang, and Aspara (2014) study the relevance of customer satisfaction information for IIs. They show evidence that an increase in customer satisfaction is more attractive for transient IIs. We extend this strand of literature. This study focuses on a firm specific event, mergers and acquisitions, allowing us to provide more precise and direct evidence on the effect of marketing with regard to financial performance. Unlike the empirical settings in most of the prior studies, M&As provide an unambiguous event window in which the effect of marketing activities can be more cleanly captured.

### 2.2. Hypothesis development

In this paper we examine whether marketing activities enhance firm value in M&A transactions. Specifically, we raise three main questions: i) what determines the degree of marketing activities on the side of the target firm in relation to the M&A; ii) whether marketing activities represent value enhancement—positive M&A outcomes—or window dressing/overinvestment problems; iii) whether institutional ownership results in a pro-marketing effect.<sup>2</sup> Based on our M&As sample in which we study the effect of marketing activities on firm value, we relate marketing and advertising spending to our measures of the M&A performance: deal premium and announcement returns using CARs (cumulative abnormal returns).

In the M&A literature, great efforts have been made to further our understandings on the nature of deal premium and announcement returns. Prior research has examined deal premium and announcement returns in the perspective of agency costs, firm characteristics, and economic conditions (e.g., Bates, Becher, &

<sup>2</sup> Literature has confirmed that institutional ownership has a desirable effect in several contexts. See Section 2.2.3 for detailed discussions.

Lemmon, 2008; Moeller, 2005; Song & Walking, 1993). In general, if a takeover is more likely to create greater synergy and economic benefits, greater premiums are paid and the financial markets react more favorably.

One of the main sources of the synergy and economic benefits is marketing gains (Weber & Dholakia, 2000), suggesting that a takeover can increase revenues from more effective media programming and advertising efforts, stronger distribution network, enhanced brand perception, and more balanced product mix. Given that M&As usually call for active involvements of all parts of the firm including marketing department (Moeller, 2005), one may expect greater premiums and announcement returns for target firms with strong marketing capability. Target management also has an incentive to increase marketing and advertising spending prior to a takeover deal agreement. Marketing literature documents that firms that place a high strategic emphasis on marketing and advertising are more likely to enjoy greater market awareness and customer loyalty, which would lead to superior market performance (Aksoy et al., 2008; Luo & Jong, 2012; Rosenberg & Czepiel, 1984; Srinivasan et al., 2009; among others). Since product markets and financial markets are tightly linked (Chemmanur & Yan, 2009), marketing efforts would lead to enhanced firm value (Joshi and Hanssens, 2010). Hence, target firms that anticipate a takeover offer in the near future have a strong incentive to increase marketing and advertising spending in pursuit of greater premium and announcement returns by obtaining customer attention and awareness for their products. However, the efficacy of the marketing efforts would vary across targets. We put forth three hypotheses: the pro-marketing effect hypothesis, window dressing hypothesis, and institutional investors' cherry-picking hypothesis.

### 2.2.1. The pro-marketing effect hypothesis

Under this hypothesis, firms with aggressive marketing actions are assumed to be dominantly good types. These are good firms but have lower market valuation than their true value prior to the M&A. The undervaluation would stem from high degrees of information asymmetry. To overcome this asymmetry for the establishment of the firm's true value and to better position themselves as attractive M&A targets, these firms would have a stronger incentive to employ aggressive marketing strategies. Active marketing and advertising may create favorable responses from the product market through greater market awareness and customer satisfaction, resulting in greater customer retention (Anderson et al., 2004; Anderson & Sullivan, 1993; Yi, 1991). In turn, an increase in customer retention can secure future net cash flows and lower the cost of capital of firms, suggesting that a target is more likely to receive a greater premium and favorable market reaction to a deal agreement. Through such actions, deal premium can get closer to their true value, which is expected to be higher under this hypothesis. From an acquirer's perspective, an acquirer would be willing to pay greater premiums because a takeover will create greater synergy if the target is a good type with a strong marketing capability and customer loyalty.

In sum, the pro-marketing effect hypothesis posits that undervalued target firms with high marketing efforts can facilitate a greater bargaining power to reflect their true value in M&A negotiations and, therefore, they can achieve higher deal premiums and better market reactions to the deal announcements. These target firms are assumed to be undervalued although they are in fact good firms, which would incent them to employ aggressive marketing efforts:

*The pro-marketing effect hypothesis:*

*Firms with aggressive marketing and advertising spending are positively associated with deal premiums and market reactions to the deal announcement.*

### 2.2.2. The window dressing hypothesis

An alternative explanation on the relationship between marketing strategies and deal performance is based on adverse selection. Under this hypothesis, firms with aggressive marketing actions are assumed to be dominantly bad types. These are bad firms but try to cosmeticize and signal as if they were good in order to facilitate strategic bargaining and promote deal outcomes. Given the huge economic significance of M&As, bad firms would have even a stronger incentive to be aggressive in marketing activities. Corporate managers tend to have the over-investment problem by investing free cash flows in even non-positive NPV (net present value) projects, of which costs are borne by shareholders if doing so enhances their own status and brings them private benefits (Jensen, 1986; Stulz, 1990). This suggests that increasing spending on marketing activities represents the target managers' over-investment problems. It is also plausible that target managers may "window dress" target firms through aggressive marketing strategies during the pre-merger period, so that less informed acquirers and public investors may pay high premiums or react favorably to less profitable targets. According to this agency-based explanation, higher marketing and advertising expenses may be driven by managerial incentives and/or overconfidence. Consequently, increasing marketing and advertising spending is merely suboptimal myopic marketing investments and does not guarantee greater premiums and favorable market reactions to the deal announcements.

Building upon the adverse selection theory, the window dressing hypothesis postulates that bad firms are more likely to be involved in aggressive marketing activities simply to gain better deal premiums and market reactions, in which case marketing efforts are nothing but cosmetic gestures and may lead to the over-investment problem if not successful. In the presence of informed acquirers and investors, such efforts may not guarantee intended outcomes and will end up with negative consequences—lower premiums and market reactions—for target firms because aggressive marketing by bad-type targets would simply be a negative NPV project:

*The window dressing hypothesis:*

*Firms with aggressive marketing and advertising spending are negatively associated with deal premiums and market reactions to the deal announcement.*

### 2.2.3. The institutional investors' cherry-picking hypothesis

Finally, we test whether IIs can verify the quality of marketing and advertising spending while assuming that target firms are a mix of good and bad types. Grullon, Kanatas, and Weston (2004) show that enhanced firm visibility through advertising leads to more investment by IIs. Demsetz (1983) and Shleifer and Vishny (1986) document that IIs are better informed and act as effective monitors of management. Gompers and Metrick (2003) and Yan and Zhang (2009) confirm the information advantage of IIs by showing a positive relationship between institutional ownership and future stock returns. Agrawal and Mandelker's findings (1990) support the meaningful role of institutional shareholders in monitoring managers in various types of antitakeover charter amendments. Nofsinger and Sias (1999) and Yan and Zhang (2009)

find that institutional trading exhibits information relevant to future stock returns.

A recent study by Luo et al. (2014) shows that firms experiencing positive changes in customer satisfaction are more attractive to IIs. Moreover, they also find that institutional ownership is one of the channels through which customer satisfaction affects firm value. Accordingly, we hypothesize that targets with active marketing activities will have higher deal premiums and market reactions when the institutional ownership is high, given that better informed IIs may be able to outplay bad-type targets in the existence of adverse selection and selectively invest in good type targets by verifying firm type.

Parrino, Sias, and Starks (2003) show that some IIs vote with their feet through selling their shares when the firm appears to be not promising, rather than influencing through monitoring. Chen, Harford, and Li (2007) demonstrate that concentrated holdings by independent IIs are positively correlated with merger performance and thus make the withdrawal of bad deals more likely. Consistent with Parrino et al. (2003), Chen et al. (2007) find that IIs adjust their holdings prior to the deals, by decreasing (increasing) their shares for bad (good) M&A deals, presumably based on their cost-benefit analysis of monitoring vs. trading. Note that such behavior by IIs can be both feasible and profitable when they have good stock-picking ability and valuable information regarding the target.<sup>3</sup> Therefore, we hypothesize that a greater premium will be placed on the target with active marketing strategies only when they have experienced an increase in institutional ownership prior to the deal agreement. Market reactions for these targets would be more favorable as well.

In summary, we expect IIs to cherry-pick good target firms with active marketing actions, resulting in higher institutional ownership in good targets. We also expect such cherry-picking by IIs to eventually lead to increased institutional ownership prior to the deal. The IIs' cherry-picking hypothesis postulates that firms with high or increased institutional ownership prior to the M&A announcement experience a positive association between the degree of marketing activities and deal performance:

*The institutional investors' cherry-picking hypothesis:*

i) Firms with aggressive marketing and advertising spending as well as high institutional ownership are positively associated with deal premiums and market reactions to the deal announcement.

ii) Firms with aggressive marketing and advertising spending as well as the increase in institutional ownership prior to the deal are positively associated with deal premiums and market reactions to the deal announcement.

### 3. Data, variable descriptions, and research design

#### 3.1. Data

Our sample consists of all mergers and acquisitions announced between January 2001 and December 2012, obtained from the Securities Data Corporation (SDC) Platinum Mergers and Acquisitions database. Of these, following the standard sample selection criteria in the M&A literature, we include the deals where (1) the deal value is publicly disclosed and is at least \$1 million, (2) deals

are either completed or withdrawn, (3) the percentage of shares held by a bidder at the announcement is less than 50%, and (4) stock prices are reported by the Center for Research in Securities Prices (CRSP) and financial data are reported in Compustat for target firms. These data restrictions result in 1271 deal observations. Information on marketing and advertising expenditures is obtained from the quarterly and annual financial statements reported in Compustat. The quarterly institutional ownership information is extracted from the CDA/Spectrum database for those filing a Form 13F. The cumulative abnormal returns data is obtained from CRSP.

Table 1 describes the sample distribution of marketing and advertising spending during the year prior to merger announcements. The mean and median marketing spending scaled by total assets are 23.89% and 15.65%, respectively. Of 1271 target firms, 569 firms report advertising expenditures in their income statements. Advertising spending scaled by total assets is, on average, 2.24% (with a median of 0.31%).

#### 3.2. Variable descriptions

##### 3.2.1. Marketing and advertising spending

The key variables of interest in this paper are marketing and advertising spending of the target prior to a takeover deal. We follow Mizik and Jacobson (2007) and Luo (2008), and define pre-merger marketing spending as selling and general administrative expenses (SGA) minus R&D expenses one year prior to a deal agreement, normalized by the total assets of the target firm. Mizik and Jacobson argue that SGA is a good proxy for spending on market research, sales promotion, major advertising campaigns, and other activities. Subtracting R&D expenses from SGA makes it a more appropriate measure for annual marketing spending. Even if this measure captures a multitude of marketing spending items, we also use a single marketing spending item, advertising spending, in order to render our results more robust. Advertising spending is defined as advertising expenses one year before a deal agreement, divided by total assets (Luo & Jong, 2012). To measure the growth of marketing and advertising spending, we calculate the annual changes in  $(SGA - R\&D)/Total\ Assets$  and  $(Advertising\ Spending)/Total\ Assets$  ratios.

**Table 1**

Sample distribution. This table provides summary statistics by year of marketing activities by target firms. The sample includes 1271 merger agreements announced during the period 2001 to 2012. Pre-merger marketing spending is defined as selling and general administrative expenses (SGA) minus R&D expenses one year prior to a deal agreement, normalized by the total assets of the target (Luo, 2008; Mizik & Jacobson, 2007). Advertising spending is defined as advertising expenses one year before a deal agreement, divided by total assets (Luo & Jong, 2012).

Year	Marketing spending		Median	Advertising spending		Median
	No.	Mean		No.	Mean	
2001	208	0.2670	0.1709	81	0.0342	0.0011
2002	110	0.2321	0.1820	51	0.0221	0.0024
2003	150	0.2257	0.1105	69	0.0128	0.0011
2004	149	0.1985	0.1044	78	0.0101	0.0009
2005	148	0.2218	0.1694	71	0.0230	0.0056
2006	143	0.1815	0.1264	63	0.0147	0.0012
2007	114	0.2596	0.1755	63	0.0171	0.0040
2008	83	0.2681	0.1926	30	0.0222	0.0059
2009	68	0.3817	0.2398	22	0.0515	0.0121
2010	42	0.2705	0.2092	17	0.0342	0.0080
2011	33	0.3044	0.2472	11	0.0266	0.0150
2012	23	0.3044	0.2472	13	0.0663	0.0325
Total	1271	0.2389	0.1565	569	0.0224	0.0031

<sup>3</sup> Carleton, Nelson, and Weisbach (1998) find that block IIs often have access to insiders such as board members and senior management. Walther (1997) and Ke and Ramalingegowda (2005) show that IIs have better resources and capabilities to collect and utilize investment-relevant information for firms.

### 3.2.2. Merger performance

The measures for merger performance are the deal premium and cumulative abnormal returns (CARs) of target firms at the deal announcement date. The deal premium is defined as a bidder's offer value over the pre-offer market value of a target minus one. Following Officer (2003) and Jeon and Ligon (2011), we measure the deal premium using two methods. As the primary method, we calculate the aggregate value of cash, common stocks, convertible bonds, and preferred stocks paid to target shareholders, as reported by SDC, divided by the target's market value of equity 43 trading days prior to the bid announcement minus one. If the data is not available for the primary method or the deal premium is negative or greater than 2, we calculate, as the secondary method, the share price paid to the target shareholders as reported by SDC divided by the target's share price 43 trading days prior to the bid announcement minus one. If both methods produce a premium less than 0 or greater than 2, the deal premium is set as a missing observation. The standard market model is used to measure the market reaction toward a takeover bid. The CARs of targets are calculated over the event windows of [-1,1] and [-2,2] days centered around the bid announcement date relative to the value-weighted market index.

### 3.2.3. Deal characteristics

We include several variables that are found in the prior literature to affect merger performance, which reflect the features of merger deals. *ln (Deal Size)* is a natural logarithm of the dollar value of the deal, as reported by SDC. *Related* is a dummy variable equal to 1 if a bidder and its target share the same primary 2-digit SIC code and 0 otherwise. *Toehold* is defined as a fraction of the target shares held by a bidder prior to a bid announcement. *LBO* is a dummy equal to 1 if a merger transaction is classified as an LBO (leveraged buyout) by SDC. *Friendly Deal* is a dummy variable which takes a value of 1 if deal attitude is classified as "friendly" by SDC and 0 if "hostile" or "unsolicited".

### 3.2.4. Target characteristics

We also control for the characteristics of target firms in the regressions by including the following variables. *ln (Target Size)* is defined as a natural logarithm of common shares outstanding multiplied by the target share price. Target size is negatively correlated with information asymmetries since larger firms usually have more extensive analyst coverage and institutional ownership. *ROA* is a target's net income divided by total assets, measuring the profitability of a target firm. *Market to Book* is defined as total assets minus book value of equity plus market value of equity divided by total assets, where book value of equity is calculated as total assets minus total liabilities minus preferred stock plus deferred taxes plus convertible debt. This ratio serves as a proxy for the firm's growth opportunities. *Debt to Equity* is the leverage of a target, calculated by total liabilities divided by total equity. *Pre-Return* represents the pre-agreement buy-and-hold return of a target during the [-360, -15] trading day window relative to the announcement date. *Pre-Volatility* is a standard deviation of the daily returns over the [-360, -15] trading day window prior to the announcement date. Finally, *NYSE* is a dummy variable which takes the value of 1 if a target firm is listed in the New York Stock Exchange and 0 otherwise. In addition, in order to examine our II's cherry picking hypothesis, we include *Institutional Ownership* that is a percentage of the shares held by institutional target shareholders prior to a takeover bid, extracted from CDA/Spectrum institutional 13(f) filings.

### 3.2.5. Instrumental variables

We introduce two instrumental variables for marketing

activities to ensure identification of our two-stage least squared (2SLS) regressions which account for the endogeneity of marketing activities. *Industry Average* represents the target industry average (based on 2 digits of a target's SIC code) of marketing activities (marketing and advertising spending). *Annual Average* is defined as the average marketing activities (marketing and advertising spending) during the year when a takeover is announced.

### 3.3. Research design

Before examining the effects of marketing strategies on deal performance, we first investigate what determines the amount of marketing and advertising spending by target firms prior to a takeover bid. In particular, we estimate the following equations:

$$\text{Marketing Activities}_i = \alpha + \sum_{k=1}^K \beta_{k,i} \text{Target Characteristics}_{k,i} + e_i \tag{1}$$

$$\Delta \text{Marketing Activities}_i = \alpha + \sum_{k=1}^K \beta_{k,i} \text{Target Characteristics}_{k,i} + e_i \tag{2}$$

The dependent variable, *Marketing Activities*, represents a target's *Marketing* or *Advertising Spending* for firm *i*, defined as  $(\text{SGA} - \text{R\&D expenditures})/\text{total assets}$  or  $(\text{Advertising expenditures})/\text{total assets}$ , respectively. The variables for target characteristics include *ln(Target Size)*, *Institutional Ownership*, *ROA*, *Market to Book*, *Leverage*, *Pre-Return*, *Pre-Volatility*, and *NYSE* dummy, all of which are defined in Section 3.2.4. *K* is the number of the target control variables. The industry and year fixed effects are also included to capture any industry norms and economy-wide shifts.

We also examine the determinants of the changes in marketing activities by targets prior to the takeover bid. To do so, the dependent variable is transformed into the difference in marketing activities between year *t - 1* and year *t*, where year *t* is the year when the final financial data for the target is available before the merger. More specifically,  $\Delta \text{Marketing Spending}$  is defined as  $\left( \frac{\text{SGA}_t - \text{R\&D}_t}{\text{Total Assets}_t} \right) - \left( \frac{\text{SGA}_{t-1} - \text{R\&D}_{t-1}}{\text{Total Assets}_{t-1}} \right)$  and  $\Delta \text{Advertising Spending}$  is defined as  $\left( \frac{\text{Advertising Exp}_t}{\text{Total Assets}_t} \right) - \left( \frac{\text{Advertising Exp}_{t-1}}{\text{Total Assets}_{t-1}} \right)$ .

We then test how marketing activities affect deal performance by estimating the following equations<sup>4</sup>:

$$\begin{aligned} \text{Deal Performance}_i = & \alpha + \beta_{1,i} \Delta \text{Marketing Activities}_i \\ & + \beta_{2,i} \text{Marketing Activities}_{t-1,i} \\ & + \sum_{j=1}^J \gamma_{j,i} \text{Deal Characteristics}_{j,i} \\ & + \sum_{k=1}^K \delta_{k,i} \text{Target Characteristics}_{k,i} + e_i \end{aligned} \tag{3}$$

The measures for *Deal Performance* include the deal premium and target CARs around the announcement date, as defined in the

<sup>4</sup> Throughout the paper, we use White heteroscedasticity-consistent standard errors to obtain consistent and more efficient estimates.

above section. *Marketing Activities* are targets' marketing spending or advertising spending. In order to estimate the net effect of the change in marketing or advertising spending more precisely, we include the level of those variables in year  $t - 1$  before targets change their strategies. Following the previous literature, the model in Equation (3) includes a number of control variables, including deal characteristic variables, such as  $Ln(Deal Size)$ , *Related*, *Toehold*, and *Friendly Deal*, target characteristic variables, such as  $Ln(Size)$ , *ROA*, *Market to Book*, *Leverage*, *Pre-Return*, *Pre-Volatility*, and *NYSE dummy*, and industry and year fixed effects.  $J(K)$  is the number of the deal (target) control variables. The definitions of variables are discussed in Section 3.2.4.

Next, we investigate the role of IIs in verifying the quality of marketing and advertising spending by interacting marketing activities variables with institutional ownership:

Deal Performance<sub>*i*</sub> =  $\alpha + \beta_{1,i} \Delta Marketing Activities \times Institutional Ownership_i + \beta_{2,i} \Delta Marketing Activities_i$

$$+ \beta_{3,i} Institutional Ownership_i + \sum_{j=1}^J \delta_{j,i} Deal Characteristics_{j,i} + \sum_{k=1}^K \gamma_{k,i} Target Characteristics_{k,i} + e_i \tag{4}$$

Finally, we estimate the instrumental variable regressions by allowing marketing activities to be endogenously determined. That is, there may be common factors that affect both the marketing activities and deal performance simultaneously. In order to account for the endogeneity of marketing activities, we estimate the following two-stage least squared (2SLS) regressions:

$$\begin{aligned} 1st\ stage : \Delta Marketing Activities_i &= \alpha + \sum_{k=1}^K \gamma_{k,i} Target Characteristics_{k,i} + \sum_{j=1}^2 \pi_{j,i} Instruments_i + e_i \\ 2nd\ stage : Deal Performance_i &= \alpha + \beta_i Pr(\Delta Marketing Activities)_i + \sum_{j=1}^J \delta_{j,i} Deal Characteristics_{j,i} + \sum_{k=1}^K \gamma_{k,i} Target Characteristics_{k,i} + e_i \end{aligned} \tag{5}$$

or,

$$\begin{aligned} 1st\ stage : \Delta Marketing Activities \times Institutional Ownership_i &= \alpha + \sum_{k=1}^K \gamma_{k,i} Target Characteristics_{k,i} + \sum_{j=1}^2 \pi_{j,i} Instruments_i + e_i \\ 2nd\ stage : Deal Performance_i &= \alpha + \beta_i Pr(\Delta Marketing Activities \times Institutional Ownership) + \sum_{j=1}^J \delta_{j,i} Deal Characteristics_{j,i} \\ &+ \sum_{k=1}^K \gamma_{k,i} Target Characteristics_{k,i} + e_i \end{aligned} \tag{6}$$

$Pr(\cdot)$  is the predicted value obtained from the first step regressions. In the first 2SLS estimation (Equation (5)), the instrumental variables include the annual average marketing activities and target industry average marketing activities, while they are the annual and target industry average of the interaction of marketing and institutional ownership in the second 2SLS estimation (Equation (6)). The instrumental variables are described in Section 3.2.4.

#### 4. Empirical results

##### 4.1. Summary statistics

Table 2 reports the descriptive statistics of deal premium, CARs, deal characteristics and target characteristics across marketing

spending and institutional ownership classifications. In the first three columns, the sample is divided into three groups: targets with low marketing spending, targets with medium marketing spending, and targets with high marketing spending. We categorize targets as the low group if their marketing spending is below the 33rd percentile, as the medium group if spending is between the 33rd and 66th percentile, and as the high group if spending is higher than the 66th percentile. In the last two columns, the sample

is divided into two groups based on whether the target firms increase marketing spending prior to deal announcements.

The deal premium of the high marketing spending group is

**Table 2**

Descriptive statistics. The sample includes 1271 merger agreements announced during the period 2001 to 2012. In the first three columns, the sample is divided into three groups. Target firms are categorized as the Low, Medium, or High marketing spending group if marketing spending is below the 33rd percentile, between the 33rd and 66th percentile, or above the 66th percentile, respectively. In the last two columns, the sample is divided into two groups: targets that increased marketing spending prior to the deal agreement and target that decreased it. The descriptions of variables are provided in Section 3.2.

Marketing spending		Percentiles			Changes	
		Low	Medium	High	Decrease	Increase
<b>Dependent variables</b>						
Deal premium	Mean	0.436	0.590	0.712	0.554	0.624
	Median	0.363	0.499	0.530	0.448	0.464
CAR [−1,1]	Mean	0.197	0.243	0.252	0.224	0.240
	Median	0.174	0.201	0.197	0.196	0.188
CAR [−2,2]	Mean	0.203	0.247	0.254	0.237	0.238
	Median	0.181	0.199	0.209	0.198	0.196
Institutional Ownership	Mean	0.337	0.541	0.427	0.439	0.432
	Median	0.256	0.596	0.403	0.414	0.419
<b>Deal characteristics</b>						
Ln(Deal size)	Mean	5.761	6.387	5.553	5.884	5.819
	Median	5.477	6.301	5.354	5.805	5.713
Related	Mean	0.757	0.593	0.614	0.642	0.649
	Median	1	1	1	1	1
Toehold	Mean	0.043	0.154	0.614	0.247	0.378
	Median	0	0	0	0	0
Prob. deal withdrawal	Mean	0.128	0.258	0.315	0.207	0.271
	Median	0	0	0	0	0
Friendly deal	Mean	0.950	0.860	0.863	0.893	0.881
	Median	1	1	1	1	1
LBO	Mean	0.012	0.026	0.030	0.023	0.025
	Median	0	0	0	0	0
<b>Target characteristics</b>						
Ln(Target size)	Mean	7.021	5.950	5.356	5.982	6.013
	Median	6.808	5.811	4.939	5.964	5.897
ROA	Mean	0.019	−0.003	−0.157	0.000	−0.098
	Median	0.010	0.029	0.000	0.014	0.009
Earning power	Mean	0.045	0.045	−0.086	0.035	−0.043
	Median	0.023	0.061	0.024	0.041	0.028
Market to book	Mean	0.351	1.312	1.578	1.153	1.144
	Median	0.161	1.039	0.973	0.778	0.726
Debt to equity	Mean	8.851	1.448	1.741	4.102	3.423
	Median	9.552	0.720	0.782	1.337	1.254
Pre-return	Mean	0.358	0.334	0.444	0.360	0.403
	Median	0.301	0.224	0.185	0.280	0.226
Pre-volatility	Mean	0.028	0.039	0.057	0.038	0.047
	Median	0.023	0.034	0.039	0.031	0.033

71.2%, on average, which is greater than the other two groups. Premiums are higher when the target firms increase their marketing spending prior to the takeover bid. Likewise, the average CARs are 25.2% and 25.4% over the 3-day and 5-day windows, respectively, for the targets in the high spending group, whereas they are around 20% for the low spending group. Also, CARs are slightly higher when the targets increase their marketing spending. The results from the preliminary descriptive statistics therefore seem to support the hypothesis that, active marketing investments by the targets result in a greater premium and favorable market reactions to a deal agreement. Institutional ownership is the largest in the medium group, but smallest in the low group. This partly supports the findings by Luo et al. (2014) that institutional ownership is one of the mechanisms through which customer satisfaction affects firm value, while paying too much for marketing activities may reflect the managers' overinvestment problem.

#### 4.2. Determinants of pre-merger marketing activities of target firms

Before investigating the relationship between marketing strategies and deal performance, we investigate the determinants of marketing activities by target firms. Lower market valuation and weak profitability in the pre-merger period may reduce the bargaining power of targets, thereby resulting in lower offer premiums. One of the methods to increase the bargaining power is

through marketing and advertising spending, which can increase market awareness and customer loyalty. With this context, we first hypothesize that pre-merger market valuation and profitability of targets are negatively correlated with marketing and advertising spending. This analysis also produces the predicted value of marketing activities that can be used to deal with the possible endogeneity bias in our two-step regressions. In addition, we can check the validity of the instrumental variables for marketing activities by including them in the regressions.

In the first and third regressions of Table 3, the dependent variables are our measures for marketing and advertising spending during the year prior to the takeover announcements, while we also use the changes in marketing and advertising spending in the second and fourth regressions. The negative correlation between marketing spending and target size is due to the definition of marketing spending denominated by total assets. Larger targets, however, tend to pay more advertising expenditures, consistent with the fact that only 569—most of which are large firms—out of our 1,271 sample target firms report positive advertising spending. Targets with greater profitability—measured by ROA—or greater pre-announcement returns—measured by Pre-return—tend to have low marketing spending or lower advertising spending. This result is consistent with an argument based on adverse selection that target managers experiencing lower profitability may have greater incentives to “window dress” their firms

**Table 3**  
Determinants of marketing activities of target firms. The table examines the determinants of marketing and advertising spending of targets. In the first and third regressions, the dependent variables are targets' marketing and advertising spending during the year prior to takeover announcements, while the changes in marketing and advertising spending are used in the second and fourth regressions. Year and industry dummies are included but their coefficients are not reported. The *t* statistics reported in brackets use White robust standard errors. \*\*\*, \*\*, and \* represent statistical significance at the 1%, 5%, and 10% level, respectively. The descriptions of variables are provided in Section 3.2.

Dependent Variables	Marketing spending	$\Delta$ Marketing spending	Advertising spending	$\Delta$ Advertising spending
Ln(Target Size)	-0.0369*** [-6.59]	0.0053* [1.81]	-0.0007 [-0.33]	0.0415*** [5.31]
Institutional Ownership	-0.0236 [-0.87]	-0.0099 [-0.65]	-0.0235** [-2.07]	-0.0306 [-0.64]
ROA	-0.2908*** [-11.29]	-0.1546*** [-5.00]	-0.0289** [-2.56]	-0.0244 [-0.34]
Market to book	0.0171*** [3.66]	-0.0053 [-1.60]	-0.0017 [-0.73]	-0.0377* [-1.84]
Debt to equity	0.0017 [1.42]	-0.0002 [-0.39]	0.0000 [0.13]	0.0017 [1.42]
Pre-return	-0.0082* [-1.88]	-0.0051 [-1.28]	-0.0043** [-2.15]	-0.0076 [-0.93]
Pre-volatility	0.3696** [2.00]	-0.0054 [-0.04]	0.0262* [0.45]	-0.5155** [-2.10]
NYSE	0.0348* [1.75]	0.0035 [0.55]	0.0097 [1.15]	-0.0384 [-1.07]
Industry average	0.8857*** [3.54]	0.8922*** [2.64]	1.0319** [2.08]	2.0524* [1.83]
Annual average	0.2662* [1.92]	0.4741* [1.65]	0.2223** [2.13]	1.1705** [2.01]
Intercept	0.2205 [1.16]	-0.0426** [-2.57]	0.0372 [1.48]	-0.4321*** [-4.62]
Industry dummies	Included	Included	Included	Included
Year dummies	Included	Included	Included	Included
No. of observations	1106	1106	518	497
F-test	65.56	29.84	36.31	27.21
R <sup>2</sup>	0.5298	0.1193	14.94	0.4227

by increasing their marketing and advertising spending. By doing so, they pursue greater premiums and more favorable financial market reactions to the deal agreement. Likewise, the positive effect of *Pre-Volatility* suggests that targets with greater risk tend to increase their marketing spending in order to window dress their firms. In addition, the instrumental variables, defined as the target industry average or annual average of the dependent variables, are significantly and positively correlated, confirming the validity of the instrument set for our instrumental variable analysis.<sup>5</sup>

#### 4.3. Effect of pre-merger marketing activities on deal premium

In this section, we investigate the effect of target marketing strategies on deal premiums. We hypothesize that greater deal premiums will be given to good-type targets with higher marketing and advertising spending, to be consistent with the pro-marketing effect hypothesis. The alternative hypothesis is that the managers of bad-type targets may “window dress” target firms or overinvest in marketing expenditures and, as a result, informed acquirers pay lower premiums to less profitable targets. Finally, we examine whether IIs can cherry-pick or screen targets with quality marketing and advertising spending.

Panel A of Table 4 reports the results of OLS and 2SLS regressions on deal premiums as a function of target marketing activities as well as control variables. Due to space limitation, we only report the results of the second-stage regressions of the 2SLS, while the results of the first-stage regressions are reported in Appendix. In both OLS and 2SLS regressions, the change in annual marketing spending before a takeover agreement is not significantly correlated with deal premiums. There is no significant evidence that target firms with active marketing strategies before the merger deal benefit from greater deal premiums. Panel B examines the effect of advertising activities on deal premiums. The results of our OLS and 2SLS regressions demonstrate that the coefficients of the change in advertising spending are negative and weakly significant

at the 10% level. The results suggest that target firms with active advertising strategies prior to merger deals, in fact, receive lower premiums from acquiring firms. Therefore, the evidence presented in Table 4 does not support the pro-marketing effect hypothesis. Rather, the results are, at least in part, consistent with the notion that, greater advertising spending may reflect the target managers' overinvestment problem or window dressing behavior, which results in a reduction in premiums.

In each regression, we control for the level of marketing or advertising spending in year  $t - 1$  before targets change their spending. While we had no a priori expectation regarding the sign of this variable, the results show that there is no significant relationship between premiums and the level of marketing spending. In unreported results, we drop the level of marketing spending, and rerun the analysis to ensure that multicollinearity between the change measure and the level is not driving the results. The coefficients on  $\Delta$  *Marketing Spending* are not significantly changed.

The negative coefficient of institutional ownership implies that an acquirer has a smaller incentive to pay a larger premium to a target with higher institutional ownership. IIs have a greater incentive to effectively monitor firm management and to reduce agency costs than retail investors (Shleifer & Vishny, 1986). As a result, the target with greater institutional ownership is likely to be highly valued or less undervalued prior to a merger bid, suggesting that the value to be additionally created after the merger would be relatively smaller and, therefore, the acquirer is less likely to provide a larger premium.

Note that most of the coefficients of the control variables in both panels are signed in accordance with our expectations and prior literature. *Toehold* is negatively correlated with deal premiums, suggesting that bidders with toeholds in targets would be able to influence the deal outcomes in their favor and lower takeover premiums (Officer, 2003) as well as lower target free-riding problems (Betton, Eckbo, & Thorburn, 2008). The negative effect of target size is consistent with Alexandridis, Fuller, Terhaar and Travlos's findings (2013) that a high value at stake can result in a more accurate valuation; Gorton, Kahl and Rosen (2009) show that the competition for large targets is less intense with fewer potential buyers. The negative coefficients on *Market-to-Book* suggest that, targets with a greater market-to-book ratio are more likely to be overvalued before the deal agreements. *Pre-Volatility* represents riskiness and at the same time growth potential and, therefore, the positive coefficient suggests that such potential is reflected in the

<sup>5</sup> Two statistical conditions must be satisfied for instrumental variables being valid. First, they must be significantly correlated with an endogenous variable. Second, the exclusion condition requires them not to be the determinants for the deal premium and announcement returns, which are the dependent variables in the main regressions. We employ Sargan (1958) test, one of the over-identifying restriction tests that examines whether instruments are orthogonal to the error term, and find that our instruments satisfy the exclusion condition. The results reported in Appendix ensure the validity of the instruments.



**Table 4**

Effects of Target Marketing Activities on Deal Premiums. The table estimates OLS and 2SLS regressions on deal premiums as a function of the change in marketing and advertising spending prior to deal agreements by target firms. Year and industry (1-digit SIC) dummies are included but their coefficients are not reported. The *t* statistics reported in brackets use White robust standard errors. \*\*\*, \*\*, and \* represent statistical significance at the 1%, 5%, and 10% level, respectively. The descriptions of variables are provided in Section 3.2.

Dependent variables: deal premiums	OLS coeff.	t-value	2SLS coeff.	t-value
<b>Panel A. Effect of marketing spending on deal premiums</b>				
Marketing activities				
Δ Marketing spending	0.0852	[0.54]	0.9445	[1.76]
Marketing spending <sub>t-1</sub>	0.0935	[1.15]	0.3703	[1.25]
Institutional ownership	-0.2590	[-4.37]***	-0.2528	[-4.11]***
Deal characteristics				
ln(Deal Size)	0.0825	[2.05]**	0.0891	[3.85]***
Related	0.0239	[0.82]	0.0148	[0.48]
Toehold	-0.0118	[-2.22]**	-0.0123	[-1.65]*
LBO	-0.0849	[-0.76]	-0.0609	[-0.66]
Friendly deal	0.0599	[1.25]	0.0755	[1.51]
Target characteristics				
ln(Target Size)	-0.0915	[-2.27]**	-0.0891	[-3.66]***
ROA	0.0536	[0.73]	0.2411	[1.94]*
Market to book	-0.0602	[-2.16]**	-0.0625	[-4.82]***
Debt to equity	-0.0040	[-1.35]	-0.0042	[-1.94]*
Pre-returns	0.0077	[0.42]	0.0120	[0.89]
Pre-volatility	0.9751	[2.26]**	0.9836	[3.05]***
NYSE	0.0351	[0.86]	0.0185	[0.40]
Intercept	1.2208	[14.66]***	1.1568	[2.73]***
Industry dummy	Included		Included	
Year dummy	Included		Included	
No. observation	1106		1075	
F-test	15.33		6.69	
R <sup>2</sup>	0.1513		0.0941	
<b>Panel B. Effect of advertising spending on deal premiums</b>				
Marketing activities				
Δ Advertising spending	-0.9000	[-1.97]*	-1.1633	[-1.78]*
Advertising spending <sub>t-1</sub>	-0.2931	[-1.10]	-3.7783	[-1.64]
Institutional ownership	-0.2733	[-3.29]***	-0.3233	[-3.05]***
Deal characteristics				
ln(Deal Size)	0.0852	[2.41]**	0.0221	[2.40]**
Related	-0.0019	[-0.04]	-0.0174	[-0.35]
Toehold	-0.0138	[-1.91]*	-0.0119	[-1.95]*
LBO	0.0876	[0.49]	-0.0197	[-0.12]
Friendly deal	0.0058	[0.08]	0.0354	[0.44]
Target characteristics				
ln(Target Size)	-0.0745	[-2.17]**	-0.0089	[-2.15]**
ROA	0.0037	[0.05]	-0.0978	[-0.84]
Market to book	-0.0623	[-2.03]**	-0.0424	[-2.43]**
Debt to equity	-0.0103	[-2.75]***	-0.0113	[-3.30]***
Pre-returns	0.0240	[1.16]	0.0178	[0.92]
Pre-volatility	1.4305	[2.63]***	1.5070	[2.89]***
NYSE	0.0104	[0.16]	0.0379	[0.50]
Intercept	0.7355	[4.78]***	1.0978	[3.95]***
Industry dummy	Included		Included	
Year dummy	Included		Included	
No. observation	518		497	
F-test	5.3		4.19	
R <sup>2</sup>	0.1773		0.1481	

premium.

Even though Table 4 does not provide a positive effect of marketing activities on the deal premium, we may be able to observe a positive correlation if both marketing and advertising may create favorable responses in the product market through greater market awareness and customer satisfaction. According to Luo et al. (2014), target firms that experience positive changes in customer satisfaction as a result of active marketing strategy are more attractive to IIs. Therefore, our institutional investors' cherry-picking hypothesis stipulates that firms with higher institutional ownership and with the increase in the ownership prior to the deal are associated with higher deal premiums. To investigate this hypothesis, we create new variables by interacting marketing and advertising spending with institutional ownership.

Table 5 reports the estimates of OLS and 2SLS regressions on deal premiums as a function of the interaction of marketing activities and institutional ownership. Again, we only report the results of the second-stage regressions of the 2SLS and the results of the first-stage regressions are reported in Appendix. In Panel A, the positive coefficient on the interaction of the change in marketing spending and pre-merger institutional ownership and the insignificant coefficient on the change in marketing spending suggest that targets with active marketing strategies by increasing their spending receive a greater deal premium only when they have greater institutional ownership prior to the deal agreements. Similar results are obtained when advertising variables are used in Panel B, which shows that the effect of the interaction of the change in advertising spending and institutional ownership is positively correlated with deal premiums. Again, the change in

**Table 5**  
Determinants of Deal Premium and Role of Institutional Ownership. The table reports estimates OLS and 2SLS regressions that test the determinants of deal premiums. The regressions include the interaction term of marketing activities and institutional ownership prior to deal agreements. Year and industry (1-digit SIC) dummies are included but their coefficients are not reported. The *t* statistics reported in brackets use White robust standard errors. \*\*\*, \*\*, and \* represent statistical significance at the 1%, 5%, and 10% level, respectively. The descriptions of variables are provided in Section 3.2.

Dependent Variables: deal premiums	OLS coeff.	t-value	2SLS coeff.	t-value
<b>Panel A. The effect of marketing spending and institutional ownership</b>				
Marketing activities				
Δ MKT spending × Inst. own.	1.1153	[2.48]**	3.6750	[1.87]*
Δ Marketing spending	−0.2796	[−1.38]	−1.1167	[−1.71]*
Marketing spending <sub>t−1</sub>	0.0786	[0.99]	0.0443	[0.58]
Institutional ownership	−0.2540	[−4.34]***	−0.2426	[−3.97]***
Deal characteristics				
ln(Deal Size)	0.0813	[2.04]**	0.0785	[3.47]***
Related	0.0285	[0.98]	0.0390	[1.26]
Toehold	−0.0112	[−2.05]**	−0.0097	[−1.30]
LBO	−0.0796	[−0.75]	−0.0674	[−0.74]
Friendly deal	0.0608	[1.27]	0.0629	[1.30]
Target characteristics				
ln(Target Size)	−0.0935	[−2.35]**	−0.0980	[−4.06]***
ROA	0.0321	[0.46]	−0.0172	[−0.24]
Market to book	−0.0581	[−2.14]**	−0.0531	[−4.00]***
Debt to equity	−0.0040	[−1.33]	−0.0038	[−1.77]*
Pre-returns	0.0064	[0.35]	0.0035	[0.26]
Pre-volatility	0.9786	[2.30]**	0.9868	[3.11]***
NYSE	0.0416	[1.02]	0.0566	[1.24]
Intercept	1.2346	[14.99]***	1.2664	[3.04]***
Industry dummy	Included		Included	
Year dummy	Included		Included	
No. observation	1106		1075	
F-test	14.88		6.62	
R <sup>2</sup>	0.159		0.120	
<b>Panel B. The effect of advertising spending and institutional ownership</b>				
Marketing activities				
Δ Adv. spending × inst. own.	0.7119	[1.95]*	0.9797	[2.41]**
Δ Advertising spending	−1.0071	[−1.12]	−1.3527	[−1.32]
Advertising spending <sub>t−1</sub>	−0.2825	[−1.08]	−0.5150	[−1.48]
Institutional ownership	−0.2723	[−3.27]***	−0.2941	[−3.22]***
Deal characteristics				
ln(Deal Size)	0.0858	[2.41]**	0.0730	[2.14]**
Related	−0.0019	[−0.04]	−0.0018	[−0.04]
Toehold	−0.0135	[−1.85]*	−0.0192	[−2.34]**
LBO	0.0858	[0.48]	0.1259	[0.96]
Friendly deal	0.0044	[0.06]	0.0347	[0.48]
Target characteristics				
ln(Target Size)	−0.0753	[−2.18]**	−0.0568	[−2.54]**
ROA	0.0046	[0.06]	−0.0134	[−0.16]
Market to book	−0.0626	[−2.03]**	−0.0566	[−2.34]**
Debt to equity	−0.0102	[−2.73]***	−0.0112	[−3.65]***
Pre-returns	0.0239	[1.16]	0.0258	[1.51]
Pre-volatility	1.4255	[2.62]***	1.5348	[3.27]***
NYSE	0.0104	[0.16]	0.0103	[0.16]
Intercept	0.7386	[4.79]***	0.9379	[3.90]***
Industry dummy	Included		Included	
Year dummy	Included		Included	
No. observation	518		497	
F-test	8.98		4.94	
R <sup>2</sup>	0.204		0.0933	

advertising spending itself does not have a significant effect. Overall, the results of Table 5 are consistent with the institutional investors' cherry picking hypothesis wherein IIs cherry-pick good-type targets with quality marketing actions and increase their ownership in those targets while voting with their feet on bad-type targets. Results imply that institutional ownership could be used an effective signal or information source for investors' investment decisions.

In addition, the effect of the level of marketing (or advertising) spending is not significant, as we found in Table 4. As before, in unreported results, we delete Marketing Spending and rerun the analyses to ensure that multicollinearity does not drive the results. We find qualitatively the same results.

#### 4.4. Effect of marketing activities on market reactions to merger announcements

In this section, we examine whether active marketing actions by targets are associated with the market reactions to deal announcements. If active marketing by targets is expected to create greater synergy and economic benefits through greater customer satisfaction and retention, the financial market will react more favorably to merger bids. On the other hand, if the active marketing strategy reflects the target managers' overinvestment problem of window-dressing target firms or pursuing managers' private benefits, we will observe negative market reactions to merger agreements.

In order to investigate the financial market reactions, we employ cumulative abnormal returns (CARs) of targets at merger announcements, computed over the three-day  $[-1,1]$  and five-day  $[-2,2]$  windows using the market model, where the CRSP value-weighted index is used as the measure of market returns.

Table 6 reports the estimates of OLS regressions, where the dependent variables are the three-day and five-day window CARs around the merger announcement date. In the first and second regressions of Panel A, the coefficients on the change in marketing spending are positive and statistically significant, whereas the levels of marketing spending are negatively and significantly correlated. The results indicate that an increase in the change of marketing spending by one unit causes an increase in the  $[-1,1]$  CAR by 18.09% and  $[-2,2]$  CAR by 11.44%. The evidence suggests that the financial market, in general, positively reacts to targets that increase marketing investments around the merger deals.

Panel B shows that one unit increase in the change in advertising spending leads to the increases in the  $[-1,1]$  CAR by 14.97% and  $[-2,2]$  CAR by 11.47%. Different from the case of the deal premium, active marketing strategy by the targets is, in general, directly compensated via higher abnormal returns at merger announcements. We, however, further examine whether CARs at the announcements are affected by institutional ownership prior to the merger in order to test the institutional investors' cherry-picking hypothesis.

If IIs cherry-pick good-type targets—those targets would be ones with higher CARs in this section—we should observe higher (lower) CARs on targets that experience the increase (decrease) in the institutional ownership because IIs will adjust based on their information and stock-picking ability. In Table 7, the sample is divided into two groups depending on whether a target experiences an increase in institutional ownership or not before a deal

**Table 6**

Effects of target marketing activities on announcement returns. The table reports estimates the regressions on the 3-day and 5-day cumulative abnormal returns (CARs) as a function of marketing and advertising spending by target firms. The regressions include both the level and change of annual marketing and advertising spending. Year and industry (1-digit SIC) dummies are included but their coefficients are not reported. The *t* statistics reported in brackets use White robust standard errors. \*\*\*, \*\*, and \* represent statistical significance at the 1%, 5%, and 10% level, respectively. The descriptions of variables are provided in Section 3.2.

	CAR $[-1,1]$ coeff.	t-value	CAR $[-2,2]$ coeff.	t-value
<b>Panel A. Effect of marketing spending on announcement returns</b>				
Marketing activities				
Δ Marketing spending	0.1809	[2.93]***	0.1144	[1.78]*
Marketing spending <sub>t-1</sub>	-0.1573	[-3.43]***	-0.1505	[-3.16]***
Deal characteristics				
ln(Deal Size)	0.0494	[3.52]***	0.0440	[3.02]***
Related	-0.0056	[-0.30]	0.0006	[0.03]
Toehold	-0.0009	[-0.20]	-0.0023	[-0.48]
LBO	0.0461	[0.79]	0.0619	[1.02]
Friendly deal	0.0046	[0.15]	0.0085	[0.27]
Target characteristics				
ln(Target Size)	-0.0645	[-4.31]***	-0.0582	[-3.74]***
ROA	0.0013	[0.03]	-0.0106	[-0.26]
Market to book	-0.0201	[-2.59]**	-0.0167	[-2.07]**
Institutional ownership	-0.0495	[-1.30]	-0.0504	[-1.27]
Debt to equity	0.0020	[1.21]	0.0015	[0.90]
Pre-return	-0.0280	[-3.39]***	-0.0286	[-3.33]***
Pre-volatility	1.8650	[7.22]***	1.9406	[7.24]***
NYSE	0.0066	[0.24]	0.0136	[0.47]
Intercept	0.3467	[1.32]	0.6349	[2.34]**
Industry dummies	Included		Included	
Year dummies	Included		Included	
No. of observations	1075		1075	
F-test	5.12		4.83	
R <sup>2</sup>	0.115		0.109	
<b>Panel B. Effect of advertising spending on announcement returns</b>				
Marketing activities				
Δ Advertising spending	0.1497	[2.44]**	0.1147	[1.78]*
Advertising spending <sub>t-1</sub>	-0.0025	[-0.28]	-0.0007	[0.00]
Deal characteristics				
ln(Deal Size)	0.0839	[3.27]***	0.0829	[3.07]***
Related	0.0019	[0.06]	0.0100	[0.32]
Toehold	0.0003	[0.05]	-0.0012	[-0.21]
LBO	0.0816	[0.94]	0.1299	[1.42]
Friendly deal	0.0495	[1.01]	0.0459	[0.89]
Target characteristics				
ln(Target Size)	-0.0962	[-3.49]***	-0.0971	[-3.34]***
ROA	-0.1240	[-1.96]**	-0.1097	[-1.64]
Market to book	-0.0472	[-2.07]**	-0.0470	[-1.96]*
Institutional ownership	-0.0097	[-0.15]	0.0163	[0.24]
Debt to equity	-0.0016	[-0.75]	-0.0026	[-1.15]
Pre-return	-0.0201	[-1.69]*	-0.0184	[-1.88]*
Pre-volatility	0.6956	[2.17]**	0.8245	[2.44]**
NYSE	0.0194	[0.39]	0.0351	[0.67]
Intercept	0.2174	[1.80]*	0.2293	[1.80]*
Industry dummies	Included		Included	
Year dummies	Included		Included	
No. observation	497		497	
F-test	2.93		2.74	
R <sup>2</sup>	0.081		0.074	

agreement.

In Panel A, for 330 targets whose institutional ownership did not increase, the effect of the change in marketing spending is insignificant in both the CARs  $[-1,1]$  and CARs  $[-2,2]$  regressions. However, in the group of the targets experiencing an increase in institutional ownership, the change in marketing spending significantly increases in CARs  $[-1,1]$  by 20.23% and CARs  $[-2,2]$  by 16.15%. Compared to Table 6, where the marginal effect of marketing spending is 18.09% on the three-day CARs and 11.44% on the five-day CARs, the table shows that the effect of active marketing becomes even stronger with the positive change in institutional ownership, which is in line with the IIs cherry-picking.

Further, Panel B reports the effect of advertising spending on

CARs conditional on the change in institutional ownership. The table conveys that the coefficient on an increase in advertising spending is positive, but insignificant for the subsample where institutional ownership did not increase prior to merger deals. In contrast, for the group of targets with an increase in institutional ownership, the marginal effect of an increase in advertising spending is 24.71% and 23.35% for three-day and five-day CARs, respectively. Again, these numbers are much larger than 14.97% and 11.47%, as reported in Table 6. In sum, the evidence indicates that, in general, the financial market positively react to targets with active marketing strategies; yet, the takeover announcement returns are much higher for targets with high and increased institutional ownership, which points to the notion that IIs are a cherry-picker.

**Table 7**

Effects of Target Marketing Activities on CARs – Subsample Analysis. The table reports estimates the regressions that test the determinants of 3-day and 5-day CARs. The sample is divided into two groups depending whether a target experiences an increase in institutional ownership or not before a deal agreement. Both the level and change of annual marketing and advertising spending are examined. Year and industry (1-digit SIC) dummies are included but their coefficients are not reported. The *t* statistics reported in brackets use White robust standard errors. \*\*\*, \*\*, and \* represent statistical significance at the 1%, 5%, and 10% level, respectively. The descriptions of variables are provided in Section 3.2.

	Institutional ownership			
	Decrease		Increase	
	CAR $[-1,1]$	CAR $[-2,2]$	CAR $[-1,1]$	CAR $[-2,2]$
<b>Panel A. Effect of marketing spending and institutional ownership on CARs</b>				
Marketing activities				
Δ Marketing spending	0.1520 [1.28]	0.0546 [0.43]	0.2023*** [2.77]	0.1615** [2.22]
Marketing spending <sub>t-1</sub>	-0.0333 [-0.38]	-0.0287 [-0.31]	-0.2257*** [-4.12]	-0.1987*** [-3.63]
Deal characteristics				
ln(Deal Size)	0.0815** [2.02]	0.0847* [1.96]	0.0411*** [2.91]	0.0320** [2.26]
Related	-0.0021 [-0.05]	0.0180 [0.38]	-0.0120 [-0.62]	-0.0113 [-0.59]
Toehold	-0.0002 [-0.04]	-0.0013 [-0.17]	-0.0082 [-0.94]	-0.0104 [-1.20]
LBO	0.1360 [1.48]	0.1593 [1.62]	-0.1310 [-1.38]	-0.0961 [-1.02]
Friendly deal	-0.0053 [-0.08]	-0.0209 [-0.31]	-0.0091 [-0.27]	0.0056 [0.17]
Target characteristics				
ln(Target Size)	-0.0783** [-1.99]	-0.0768* [-1.82]	-0.0654*** [-4.25]	-0.0549*** [-3.57]
ROA	0.0170 [0.23]	-0.0101 [-0.12]	-0.0711 [-1.51]	-0.0829* [-1.76]
Market to book	-0.0356* [-1.98]	-0.0332* [-1.88]	-0.0176** [-2.43]	-0.0143** [-1.97]
Institutional ownership	-0.0779 [-0.79]	-0.0898 [-0.85]	-0.0414 [-1.07]	-0.0402 [-1.04]
Debt to equity	0.0063 [1.56]	0.0059 [1.37]	0.0012 [0.73]	0.0010 [0.61]
Pre-return	-0.0408** [-2.34]	-0.0524** [-2.15]	-0.0414*** [-5.33]	-0.0448*** [-5.78]
Pre-volatility	1.2306*** [3.05]	1.2798*** [3.56]	2.0381*** [8.32]	2.1060*** [8.60]
NYSE	-0.0582 [-0.88]	-0.0395 [-0.56]	0.0388 [1.36]	0.0350 [1.23]
Intercept	0.2577 [1.17]	0.2884 [1.22]	0.4316*** [5.44]	0.4019*** [5.07]
Industry dummies	Included	Included	Included	Included
Year dummies	Included	Included	Included	Included
No. of observations	330	330	745	745
F-test	3.258	3.8093	7.87	8.38
R <sup>2</sup>	0.062	0.061	0.217	0.228
<b>Panel B. Effect of advertising spending and institutional ownership on CARs</b>				
Marketing activities				
Δ Advertising spending	0.0827 [0.66]	0.0332 [0.24]	0.2471*** [3.77]	0.2335*** [3.54]
Advertising spending <sub>t-1</sub>	0.5680 [0.96]	0.5755 [0.90]	-0.1239 [-0.54]	-0.2349 [-1.03]
Deal characteristics				
ln(Deal Size)	0.0625** [2.45]	0.0558** [2.26]	0.0571** [2.42]	0.0532** [2.25]
Related	0.0080 [0.11]	0.0353 [0.44]	-0.0198 [-0.75]	-0.0193 [-0.73]
Toehold	-0.0009 [-0.10]	-0.0018 [-0.19]	-0.0088 [-0.93]	-0.0096 [-1.02]
LBO	-0.1052 [-1.02]	-0.1123 [-0.98]	-0.2030 [-1.54]	-0.0246 [-1.33]
Friendly deal	0.0933 [0.91]	0.0468 [0.42]	-0.0193 [-0.39]	0.0141 [0.28]
Target characteristics				
ln(Target Size)	-0.0458* [-1.90]	-0.0335** [-2.11]	-0.0867*** [-3.41]	-0.0853*** [-3.34]
ROA	-0.3096*** [-4.91]	-0.2941*** [-4.75]	-0.3127*** [-4.97]	-0.3018*** [-4.77]
Market to book	-0.0998 [-1.54]	-0.0998 [-1.42]	-0.0103 [-0.52]	-0.0114 [-0.58]
Institutional ownership	0.0047 [0.03]	-0.0119 [-0.06]	-0.0378 [-0.67]	-0.0144 [-0.25]
Debt to equity	-0.0017 [-1.02]	-0.0034 [-0.52]	-0.0043** [-2.19]	-0.0043** [-2.16]
Pre-return	0.0848 [1.27]	0.0951 [1.31]	-0.0394*** [-4.13]	-0.0402*** [-4.20]
Pre-volatility	-1.7728 [-1.05]	-1.5079 [-0.82]	1.0847*** [3.97]	1.1213*** [4.08]
NYSE	-0.1013 [-0.85]	-0.0733 [-0.57]	0.0931** [2.09]	0.0945** [2.11]
Intercept	-0.1402 [-0.20]	-0.0124 [-0.02]	0.5696*** [4.41]	0.5316*** [4.10]
Industry dummies	Included	Included	Included	Included
Year dummies	Included	Included	Included	Included
No. of observations	157	157	340	340
F-test	2.97	2.91	6.25	6.32
R <sup>2</sup>	0.129	0.122	0.301	0.303

## 5. Conclusions and discussions

A substantial body of literature on the marketing-finance interface investigates the effect of marketing strategies on firm value. In this study, we extend the literature and provide more direct evidence using merger and acquisition (M&A) transactions as our empirical laboratory. We examine three hypotheses in this paper. First, temporarily undervalued target firms with a high strategic emphasis on marketing may obtain greater market awareness and customer loyalty. If this is the case, the strong marketing capability of target firms may create marketing synergy and, therefore, acquirers will pay greater premiums to targets and the financial market will react more favorably to merger announcements given that product and financial markets are tightly linked—the pro-marketing effect hypothesis. An alternative hypothesis suggests that, under an environment of information asymmetry, target managers may “window dress” target firms, and higher marketing and advertising expenses may represent the target managers' overinvestment problem. As a result, acquirers and public investors with imperfect information would have a concern about paying high premiums or reacting favorably to less profitable targets—the window dressing hypothesis. In addition, given that better informed IIs may be able to play better in the existence of window dressing and selectively invest in better performing targets, we hypothesize that a greater premium will be placed on targets with active marketing strategies only when they have high institutional ownership or have experienced an increase in the ownership prior to the deal agreement—the institutional investors' cherry-picking hypothesis.

Based on 1271 merger deals from 2001 through 2012, our results reveal that active marketing strategies prior to the deal agreement by target firms are not always compensated in the M&A transactions. In fact, we find that the effects of marketing and advertising spending on deal premium are insignificant or even negative. The results support, at least in part, that even though the market appreciates marketing activities by targets, acquirers may have concerns as to whether the activities reflect the target managers' overinvestment problem or window dressing behavior. In order to identify the role of the institutional investors (IIs) in the presence of asymmetric information, we create interaction variables of marketing expenditures and institutional ownership. We find that the interaction variables are positively correlated with deal premiums, suggesting that deal premiums are higher if targets both increase marketing spending and maintain higher institutional ownership. We also find that active marketing activities by targets are, in general, positively correlated with CARs at the merger announcement. However, our subsample analysis indicates that targets experiencing an increase in institutional ownership only enjoy greater CARs. Overall, the results are consistent with the institutional investors' cherry-picking hypothesis that active marketing actions lead to better deal performance only when these actions are combined with the increase in institutional ownership in the target. Our paper shows that IIs cherry-pick good targets with value-enhancing marketing activities.

This paper makes several implications and contributions to the current marketing-finance interface literature. First, we complement the marketing-finance interface literature by for the first time examining how marketing activities affect firm value in the context of M&As. Although Bahadir et al. (2008) examine M&As in terms of the target brand value, no study has examined the overall firm value using market-based metrics such as deal premium and announcement returns.

Second, in a departure from the traditional marketing-finance interface approach that directly relates marketing activities to financial metrics, we consider an important mediator and newly

show evidence that IIs cherry-pick good targets in M&A transactions. To the best of our knowledge, the only paper to investigate the role of institutional investors in the marketing-finance interface literature is Luo et al. (2014). They find that customer satisfaction is critical for transient IIs. We emphasize the role of the IIs in scrutinizing firms' marketing activities in a different setting, i.e., in the presence of information asymmetries between targets, acquirers, and public investors. While prior literature points to the notion that marketing activities generally increase firm value, our findings suggest that it might not be always the case; not all marketing efforts lead equally to the same consequence. Marketing activities prior to M&As are effective conditional on institutional ownership, which suggests that IIs are generally a talented cherry-picker in M&A markets. Taking the sample as a whole only may overlook the existence of the dichotomous phenomena in the subgroups of the sample. Averaging offsetting phenomena may tell a misleading story. Therefore, future research should take a closer look by identifying major potential mediators such as institutional ownership in order not to come to misleading conclusions. Investors should note our finding on the role of IIs that provides a strong rationale for investment decision: targets with higher or increased institutional ownership have a higher propensity to create value for shareholders in M&As.

Third, given that the field of marketing and finance would benefit from analysis of the endogeneity of marketing activities and firm value, we successfully reduce the endogenous problem and provide more precise and direct evidence on the issue by focusing on a firm specific event, M&As. We point out that, except several studies (e.g., Bahadir et al., 2008; Luo, 2008), most of the prior literature that examined the effect of the marketing activities on firm value use firm valuation metrics relevant to an event study approach although their empirical settings provide rather controversial event windows. Finally, while most of the prior and current studies focus on acquirers, we analyze the marketing strategy and firm value of the target.

Although our findings further enlighten our understanding on the financial accountability of marketing and the role of IIs in the M&A markets, certain limitations are inherent. We point out three limitations, which in turn translate into avenues for future research. First, IIs, as a mediator in the bridge between marketing and firm value, are definitely a critical factor that shapes up the effect of marketing activities in the M&A transactions. However, we must admit that IIs are not the only mediator. We emphasize that future research should pay more attention to identifying and testing other potential mediator(s). Possible candidates would include factors such as analyst following and prior relationship with M&A advisors, which are found to impact financial outcomes in various contexts including marketing aspect (e.g., Luo & Jong, 2012). With additional mediators in the whole picture, we can better grasp the real effect of marketing activities on firm value.

Another limitation we recognize is that we cannot clearly disentangle our firm valuation measures into the value of intangible assets and the portion that traditional accounting metrics would measure, as other studies commonly encounter. If the net value of marketing effect can be captured through a novel measure or innovative way of disentanglement, there will be more enlightenment and implications that can be obtained with greater confidence. Although metrics such as deal premium, announcement returns, and Tobin's q contain the value of intangible assets, to our knowledge, there is no way to cleanly separate the value of marketing activities out of the firm value.

Finally, our findings based only on M&As may not be applicable to other non-M&A firms because the roles of the IIs may be heterogeneous in different settings such as IPOs and a sample of technology firms. Therefore, one should be careful in generalizing

our findings into other contexts. There is a need for further research to ascertain the generalizability.

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### Appendix. The results of first-stage regressions of 2SLSs in Tables 4 and 5.

In Table 4, we estimate 2SLS for deal performance in order to account for the endogeneity of  $\Delta$ Marketing Spending (Panel A) and  $\Delta$ Advertising Spending (Panel B). To ensure identification in 2SLS, we specify two instrumental variables, *Industry Average* and *Annual Average*, each of which is an endogenous variable. The definitions of instrumental variables are provided in Section 3.2.4 and the models are specified in Section 3.3. Table A1 reports the results of the first-stage regressions which are omitted in Table 4 due to space limitation. The significant coefficients on the instruments suggest that we are free of weak instrumental problems, and  $\chi^2$ -statistics of 1.201 and 0.975 from the Sargan's test fail to reject the null that instruments are valid.

**Table A1**  
The results of first-stage regressions of 2SLS in Table 4.

	First-stage regressions of 2SLS in:			
	Panel A		Panel B	
	$\Delta$ marketing spending	$\Delta$ advertising spending	$\Delta$ marketing spending	$\Delta$ advertising spending
	coeff.	t-value	coeff.	t-value
<b>Dependent variables</b>				
Marketing spending <sub>t-1</sub>	-0.3287	[-18.22]***		
Advertising spending <sub>t-1</sub>			-0.6537	[-30.03]***
Institutional ownership	-0.0032	[-0.18]	-0.0084	[-0.82]
<b>Deal characteristics</b>				
ln(Deal size)	-0.0001	[-0.02]	-0.0120	[-3.20]***
Related	0.0103	[1.20]	-0.0027	[-0.55]
Toehold	-0.0002	[-0.12]	0.0002	[0.28]
LBO	-0.0445	[-1.68]*	-0.0256	[-1.73]*
Friendly deal	-0.0074	[-0.52]	0.0075	[0.95]
<b>Target characteristics</b>				
ln(Target size)	-0.0096	[-1.38]	0.0122	[3.03]***
ROA	-0.2203	[-13.83]***	-0.0219	[-2.27]**
Market to book	0.0028	[0.77]	0.0046	[1.71]*
Debt to equity	0.0003	[0.45]	-0.0001	[-0.43]
Pre-returns	-0.0057	[-1.51]	-0.0013	[-0.69]
Pre-volatility	-0.0198	[-0.22]	0.0099	[0.19]
NYSE	0.0251	[1.95]*	0.0072	[0.96]
<b>Instrumental variables</b>				
Industry average	0.9836	[5.76]***	0.2538	[2.98]***
Annual average	0.9784	[3.50]***	0.4594	[2.63]***
Intercept	0.0922	[0.77]	0.0084	[0.45]
No. of observations	1075		497	
F-test	23.79		46.49	
R <sup>2</sup>	0.387		0.691	
Sargan's test	1.201		0.975	

The table shows that two instrumental variables, *Industry Average* and *Annual Average*, are significantly correlated with the endogenous variable,  $\Delta$  Marketing Spending and  $\Delta$  Advertising Spending, suggesting that we are free of weak instrumental problems.

Table A2 reports the results of the first regressions of 2SLS estimated in Table 5. The endogenous variables are  $\Delta$  MKT Spending  $\times$  Inst. Own (Panel A) and  $\Delta$  Adv. Spending  $\times$  Inst. Own (Panel B). Our instrumental variables are significantly correlated with each endogenous variable and  $\chi^2$ -statistics of 0.958 and 0.822 from the Sargan's test fail to reject the null that instruments are valid.

**Table A2**  
The results of first-stage regressions of 2SLS in Table 5.

	First-stage regressions of 2SLS in:			
	Panel A		Panel B	
	$\Delta$ MKT spending $\times$ inst. own	$\Delta$ MKT spending $\times$ inst. own	$\Delta$ MKT spending $\times$ inst. own	$\Delta$ MKT spending $\times$ inst. own
	Coeff.	t-value	Coeff.	t-value
<b>Marketing Activities</b>				
$\Delta$ Advertising spending	0.3143	[34.35]***	0.1451	[16.55]***
Marketing spending <sub>t-1</sub>	0.0072	[1.24]		
Advertising spending <sub>t-1</sub>			-0.0152	[-2.15]**
Institutional ownership	-0.0045	[-0.92]	-0.0010	[-0.53]
<b>Deal characteristics</b>				
ln(Deal size)	0.0029	[1.57]	-0.0008	[-1.10]
Related	-0.0038	[-1.58]	0.0002	[0.20]
Toehold	-0.0008	[-1.42]	-0.0003	[-1.78]*
LBO	-0.0099	[-1.34]	-0.0006	[-0.20]
Friendly deal	0.0018	[0.46]	0.0024	[1.60]
<b>Target characteristics</b>				
ln(Target size)	0.0000	[0.01]	0.0010	[1.36]
ROA	0.0159	[3.30]***	-0.0015	[-0.83]
Market to book	-0.0017	[-1.66]*	0.0006	[1.19]
Debt to equity	-0.0001	[-0.38]	0.0000	[-0.22]
Pre-returns	0.0008	[0.79]	-0.0001	[-0.26]
Pre-volatility	-0.0025	[-0.10]	0.0051	[0.52]
NYSE	-0.0038	[-1.07]	0.0010	[0.69]
Industry average	0.4946	[5.56]***	0.7000	[7.28]***
Annual average	0.5660	[2.91]***	0.3260	[1.99]*
Intercept	-0.0071	[-0.22]	-0.0031	[-0.89]
No. observation	1075		497	
F-test	76.73		55.11	
R <sup>2</sup>	0.680		0.735	
Sargan's test	0.958		0.822	

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