Attracting Investor Attention through Advertising

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Abstract

This paper provides evidence that managers adjust firm advertising, in part, to attract investor attention and to influence short term stock returns. First, the paper shows that increased advertising spending is associated with a contemporaneous rise in retail buying and in abnormal stock returns, and is followed by lower future returns. Next, the paper documents a significant increase in advertising spending prior to insider sales, and yet a significant decrease in the following year. A similar pattern arises around equity issues and stock-financed acquisitions, but is absent around debt issues and cash-financed acquisitions. Additional analyses suggest that the hump-shaped pattern in advertising spending around equity sales is most consistent with managers' opportunistically adjusting firm advertising to exploit the return effect to the benefit of their own and that of their existing shareholders.

Keywords: Investor attention, Advertising, Insider sales, Equity issues, Mergers.

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1 Introduction

Recent research has found that advertising has an important effect on the liquidity and breadth of ownership of stocks (e.g., Grullon, Kanatas, and Weston (2004)). This is intriguing as advertising is intended to increase the awareness of a firm's products rather than its securities. Nevertheless, there is evidently a spillover effect. In this paper, I start by providing evidence of the spillover effect of advertising on stock returns. In particular, I show that an increase in advertising spending is accompanied by a contemporaneous rise in retail buying and higher abnormal stock returns, and is followed by lower future returns. I then ask whether firm managers are aware of this spillover effect of product-market advertising. Evidence from insider sales, as well as equity issues and stock-financed acquisitions, appears consistent with the view that managers opportunistically adjust advertising spending, in part, to influence short term stock returns.

There are good reasons to believe that advertising has a temporary stock return effect. For example, as argued by Barber and Odean (2008), an investor has to search through thousands of stocks when making a buy decision, but only the limited number of stocks he already holds when making a sell decision. If attention is a scarce resource, investors are more likely to buy attention-grabbing stocks than to sell them.[1] Since advertising is designed to attract attention, an increase in advertising can temporarily boost firm value by generating more buy orders than sell orders. In a related vein, while advertising almost never portrays the underlying product or firm in a comprehensive and objective manner, investors with limited attention (or processing power) may take advertising at face value and respond too optimistically, thus resulting in a temporary price overshooting.[2]

The empirical evidence appears consistent with the here-proposed spillover effect of product-market advertising on stock returns. Firms in the top decile ranked by year-to-year changes in advertising spending outperform those in the bottom decile by 12.85% (t=6.72) in the ranking year, and yet underperform by 6.96% (t=-3.53) and 9.84% (t=-4.52) in the following two years, respectively. Adjusting the portfolio returns for size, value, momentum, and liquidity factors has

[1] There is a vast empirical literature on investors' limited attention. For an incomplete list, see Huberman and Regev (2001); Hong, Torous, and Valkanov (2007); Hou (2007); Cohen and Frazzini (2008); DellaVigna and Pollet (2009); Hirshleifer, Lim, and Teoh (2009). Hirshleifer (2001) provides an excellent review of this and related topics.

[2] This effect can be exacerbated by a recent finding that news media tend to use a more positive slant to reward higher advertising spending (see, e.g., Gurun and Butler (2010)). If some investors are unaware of the potential incentive problems of news agencies, they may be falsely led to bid up the stock price.

virtually no impact on the return pattern. The result is also robust to alternative variable definitions, subsample analyses, and a regression framework.

The documented return pattern, however, is also consistent with investment-based asset pricing models. For example, the Q-theory predicts that a reduction in a firm's cost of capital increases the marginal value of its investment and the firm should respond by ramping up its investment, which could then introduce a negative relation between investment (advertising included) and future stock returns.[3] Additionally, the literature on growth options argues that since growth options are more risky than assets in place, when firms realize their growth opportunities, they also lower their risk and thus their expected returns.[4]

To distinguish the limited attention channel from these investment-based interpretations, I exploit cross-sectional variation in the effect of advertising on investor attention. In particular, I examine three sets of firm characteristics. The first set of firm characteristics captures salience of advertising to investors. Consistent with that advertising for a consumer product (e.g., the iPhone) is more attention-grabbing (salient) than advertising for an industrial product (e.g., a silicon plate), the documented return effect of advertising is significantly more pronounced for firms in consumer-product industries than those in non-consumer-product industries. In addition, the return effect is also stronger for firms with lower analyst coverage than those with higher coverage (adjusted for firm size), as the former has fewer alternative information sources than the latter, thus investors (in particular, retail investors) would have to rely more on advertising for information when investing in the former.

The second set of characteristics reflects the difference in sophistication between institutional and retail investors. If inattention is at least partially responsible for the return effect, we expect that retail investors, who are usually more attention- and resource-constrained than their institutional counterparts, be the main force driving the initial price rally. Using small orders (those below \$5,000) as a measure of retail trading, I find that retail investors, on average, are net buyers in firms with increased advertising. In addition, the return effect of advertising is economically and statistically significant only if firms experience strong retail buying in the year of increased advertising, suggesting that advertising affects returns only when it captures less sophisticated investors'

[3]See, for example, Cochrane (1991, 1996); Zhang (2005); Liu, Whited, and Zhang (2009).

[4]See, for example, Berk, Green, and Naik (1999); Carlson, Fisher, and Giammarino (2004). The growth-option based explanation has some difficulty explaining the subsequent drop in risk-adjusted returns.

attention.

Third, using detailed brand data compiled by Nielson, I measure the similarity between product brands and the firm name using the number of brands a firm has (adjusted for firm size). The intuition is that a firm with more brands tends to have brand names that are more distant from the firm name; thus, viewers of its advertising is less likely to associate the brands with the underlying firm, resulting in a weaker return effect.[5] The data supports this prediction; the return effect of advertising is significantly weaker for firms with more brands. Together, while I do not provide direct evidence to rule out the investment-based explanations, all the evidence presented here is more consistent with advertising affecting short-term stock returns through a limited attention channel.

Given that advertising can affect stock returns in the short run, I then examine whether firm managers are aware of this spillover effect, and the extent to which managers adjust firm advertising to exploit investors' limited attention/processing power to the benefit of their own and, potentially, that of their existing shareholders. Anecdotal evidence suggests that managers actively use advertising to influence market perceptions and stock returns. For example, an October 2003 issue of the *Wall Street Journal* reports: "United Technologies Corp has launched an advertising campaign focused on the Wall Street area and a Times Square building looking into a Morgan Stanley trading room [...] seeks to overcome the view that it is steady, but not a star and to correct what it believes is a 20% discount in its share price against those of peers."

To empirically test managers' opportunistic behavior in setting firm advertising, I examine the pattern in advertising spending around various forms of equity sales – when stock prices matter the most. I focus on insider sales in the main analysis, as this type of equity sales has little to do with the firm's investment opportunities, and is thus unlikely to be related to advertising spending through an investment channel. The main prediction of the paper is that there exists a hump-shaped pattern in advertising spending around insider sales; specifically, there is a sharp increase in advertising spending before insider sales to pump up the stock price, and a significant decrease in advertising spending in the following year.

This prediction is corroborated by the data. After controlling for various firm characteristics

[5]For example, Procter & Gamble Co. operates in more than 10 consumer product markets with more than 100 products. It has a unique brand for its products in each market: Crest toothpaste, Cover Girl makeup, Dawn dishwashing detergent, etc.

and firm and year fixed effects, advertising spending in the years prior, contemporaneous, and subsequent to insider sales are 5.3% (p <0.01) higher, 5.9% (p <0.01) higher, and 5.1% (p <0.01) lower than the remaining years (i.e., years that are not adjacent to insider sales), respectively. This result is also robust to a matched sample approach. Further, a one-standard-deviation increase in the aggregate amount of insider sales in a year (relative to shares outstanding) is associated with a 2.01% (p <0.01) increase in advertising spending in the contemporaneous year and a 2.76% (p <0.05) decrease in the subsequent year. In robustness checks, I document a similar hump-shaped pattern in advertising spending around equity issues and stock-financed acquisitions. For comparison, there is no significant change in advertising spending around debt issues and cash-financed acquisitions, suggesting that the change in advertising spending around equity sales is unlikely to be driven by investment reasons.

The finding that advertising spending is higher prior to but lower subsequent to insider sales is also consistent with the market-timing view. That is, rather than opportunistically adjusting advertising to temporarily influence stock prices around planned equity sales, managers time their equity sales in response to planned advertising campaigns. For example, a firm may optimally choose to increase its advertising spending for business reasons (e.g., the launch of a new product). Since (retail) investors tend to overreact to increased advertising, managers respond by selling their shares when advertising spending is high. It should be noted, however, that this alternative interpretation is broadly consistent with the main theme of the paper: Managers use the levers under their control to exploit investors' imperfect rationality; the lever could be a particular investment decision or the exact timing of equity sales.

Further analyses suggest that this timing view (i.e., increased advertising triggers insider sales) is unlikely the sole mechanism generating the data. First, instead of analyzing the actual amount of shares sold by top managers in each year, I use vesting of restricted shares as an instrument for insider sales. Since vesting schedules are determined at the time of stock grants, they are less likely to be influenced by future advertising spending. In addition, simple regression analyses indicate that managers sell a considerable fraction of shares upon vesting (over 50%). Thus, vesting of restricted shares represents a material, relatively exogenous variation in insider sales. I find a similar, albeit weaker, pattern in advertising spending around vesting of restricted shares held by top executives: Advertising spending in a year in which a significant amount of restricted shares

vests is 3.4% (p <0.05) higher than that in other years.

Moreover, if managers indeed opportunistically use advertising to boost stock prices near equity sales, advertising in this period is less likely to be driven by business purposes; consequently, its effect on future sales growth should be weaker. The evidence lends support to the opportunistic advertising view: The correlation between the change in advertising spending and sales growth in the subsequent year is significantly weaker in years with insider sales than in other years. This result also implies that opportunistic advertising is potentially a wasteful investment, as it does not translate into higher future product sales. Overall, the evidence presented in this paper is most consistent with the hypothesis that increased advertising can boost stock returns in the short run and that managers opportunistically adjust advertising spending to influence firm value.

The paper proceeds as follows. The next section discusses related literature. Section 3 describes the data and screening procedures. Section 4 examines the return effect of advertising. Section 5 analyzes advertising spending around equity sales and addresses alternative explanations. Finally, section 6 concludes.

2 Related Literature

The findings of this paper are closely tied to recent studies on managers' catering incentives. Stein (1996) argues that in an inefficient financial market, managers with a short horizon exploit investors' bounded rationality by catering to time-varying investor sentiment. In a related vein, Hirshleifer and Teoh (2003) model managers' strategic disclosure behavior in a setting with attention-constrained investors. A large volume of empirical studies subsequently confirm these predictions: Many important firm decisions, such as dividend policy, stock splits, firm name, and disclosure policy, are at least partially motivated by short-term share price considerations.[6] This paper contributes to this fast-growing literature by providing additional evidence that managers also make investment decisions, in part, to influence short-term firm value.

The results on manager behavior also complement prior literature on earnings management, in particular, around equity issues.[7] This stand of research documents a substantial increase in

[6]See, for example, Aboody and Kasznik (2000); Cooper, Dimitrov, and Rau (2001); Baker and Wurgler (2004a,b); Cooper, Gulen, and Rau (2005); Baker, Greenwood, and Wurgler (2008); Polk and Sapienza (2008); Greenwood (2009). Baker, Ruback, and Wurgler (2007) provide an excellent review of this topic.

[7]See, for example, Teoh, Wong, and Rao (1998); Teoh, Welch, and Wong (1998a,b); Darrough and Rangan (2005);

abnormal accruals and/or a decrease in discretionary spending (e.g., R&D spending) in the few years before initial public offerings (IPO) and seasoned equity offerings (SEO), in order to boost the offering price.[8] This paper, in contrast, documents that managers increase advertising spending at the expense of reported earnings before insider sales, as well as equity issues and stock-financed acquisitions. These seemingly conflicting decisions by firm managers highlight the importance of advertising and its short-term return effect.

This paper also contributes to the vast literature on investors' limited attention in financial markets. Prior studies find that attention-grabbing events, such as abnormal trading volume, extreme stock returns, index additions and deletions, crossing price limits, and media coverage can lead to higher turnover and stock returns in the short run, but lower returns subsequently.[9] The common theme underlying these prior studies and this paper is that investors are more likely to buy and hold stocks that have recently attracted their attention, which in turn drives up the returns of these attention-grabbing stocks.

This paper is closely related to two recent studies that try to link product market information to investor behavior. Grullon, Kanatas, and Weston (2004) document that firms with higher advertising spending, on average, have a larger shareholder base and enjoy higher stock liquidity, and interpret these results as being broadly consistent with the predictions of Merton (1987). Relatedly, Frieder and Subrahmanyam (2005) find that a firm's brand perception/visibility among consumers is positively associated with its retail ownership. The first part of the paper (which examines the subsequent stock return in response to changes in advertising spending) can be viewed as an extension to these earlier studies by providing evidence that product-market advertising can also affect stock returns.[10]

The return result is also related to a large literature on shareholder value creation by marketing spending. The marketing literature, usually using high frequency (e.g., monthly) marketing spend-

Graham, Harvey, and Rajgopal (2005); Roychowdhury (2006).

[8] In a related vein, Coles, Hertzel, and Kalpathy (2006) show that managers also manipulate earnings around stock option reissues.

[9] See, for example, Gervais, Kaniel, and Mingelgrin (2001); Chen, Noronha, and Singal (2004); Seasholes and Wu (2007); Barber and Odean (2008); Lehavy and Sloan (2008); Fang and Peress (2009); Kaniel, Li, and Starks (2010).

[10] In an independent and closely related study, Chemmanur and Yan (2010) report a similar return effect induced by product market advertising. This paper differs importantly from Chemmanur and Yan (2010) in that it also relates the return effect of advertising to managerial behavior around equity sales. An earlier paper, Fehle, Tsyplakov, and Zdorovtsov (2005), studies the stock return pattern of firms that advertise in Super Bowl broadcasts, and finds a short-term price appreciation, without a subsequent return reversal.

ing data but focusing on a small number of industries, finds that marketing spending positively predicts firm value in the short run.[11] This positive return effect can arise both from a cash-flow channel (i.e., an immediate sales increase) and a brand-equity channel (i.e., an unobserved effect on long-run future sales). The current paper differs from this literature in that it documents a temporary return effect of advertising, which is likely to be caused by attention-driven trading.

The closest study to this paper is Chemmanur and Yan (2009). Building upon the intuition of a signaling model, Chemmanur and Yan (2009) propose and show that high-quality firms signal their high valuation before equity issuance by increasing product-market advertising, and subsequently experience lower IPO/SEO first day returns. The main contribution of this paper is to explicitly link the spillover, temporary return effect of advertising to managers' goal of maximizing the share price in insider sales (as well as other forms of equity sales). In a way, this paper both extends the existing findings in prior literature and offers a new, coherent, interpretation for these findings.

3 Data

3.1 Firm Characteristics

Data on firm advertising expenditures (data45), total assets (data6), sales (data12), and capital expenditures (data128) are obtained from the Compustat annual tape for the period of 1974 to 2010. The starting year of the sample is determined by the availability of advertising spending data in Compustat. I exclude firm-year observations with missing advertising-spending information from the sample. As a robustness check, I also treat missing advertising spending as zero and obtain similar results. I then merge the Compustat sample with the CRSP monthly stock file to obtain data on stock returns, market capitalizations, and trading volume. I further augment the sample with quarterly institutional holdings and monthly small order imbalances, obtained from Thompson Financial's CDA/Spectrum database and the the Trade and Quote (TAQ) and Institute for the Study of Security Markets (ISSM) databases, respectively. Following prior literature, I calculate institutional ownership as the total shares held by institutional investors scaled by the shares outstanding at the end of the previous quarter. Small orders are defined as those below $5,000 in size, and the monthly order imbalance is constructed as the total buy orders minus sell orders

[11] See, for example, Rao and Bharadwaj (2008); Srinivasan and Hanssens (2009); Srinivasan, Pauwels, Silva-Risso, and Hanssens (2009); Joshi and Hanssens (2010); Osinga, Leeflang, Srinivasan, and Wieringa (2011).

scaled by the sum of the two.

To mitigate the effect of outliers, I winsorize all growth (e.g., annual growth in advertising spending) and ratio (e.g., the advertising-spending-to-sales ratio) variables at the 1st and 99th percentiles. Table I presents the summary statistics of the sample. As shown in Panel A, the subsample of firms with non-missing advertising spending data is similar to that with missing advertising spending data: The former is slightly larger than the latter in terms of size and net earnings, and the two subsamples have similar age and market-to-book ratios. The average advertising spending in the sample is slightly over $42 million a year and account for about 4.33% of annual sales and 4.73% of total assets. The average annual growth of advertising spending is 27.56%. These figures indicate that advertising constitutes a non-trivial part of firm investment decisions.

3.2 Other Key Variables

3.2.1 Insider Sales

Insiders, broadly defined as directors and executives, are required to report all changes in company holdings to the Securities and Exchange Commission (SEC) through Forms 3, 4, and 5. Insider trading data are obtained from the Thompson Financial Insider Filing database. To ensure data quality, I exclude all observations with a cleanse code of "A" or "S," indicative of a failed cleansing attempt, from the sample. I retrieve three variables from the insider-filing database: the date of each transaction, the number of shares bought (or sold), and the price at which the transaction took place. I further exclude observations where the transaction price is greater than three times or less than one third of the closing price on the transaction day, as these are likely to be data errors.

I follow the rule suggested by Thompson Financial to classify insiders into different categories based on their role in the firm. Top-level insiders include the chairman of the board, the chief executive officer, the chief operating officer, the general counsel, and the president. Second-tier insiders include the vice chairman, the advisory committee, the compensation committee, the executive committee, the finance committee, the technology committee, the chief financial officer, the chief investment officer, the chief technology officer, the treasurer, the secretary, the beneficial owners, and the officers of the parent company and divisional officers. For the main analysis, I

focus on top-level insiders only, who have the ultimate control over firm investment. For robustness checks, I also include second-tier insiders and obtain similar (albeit weaker) results.

For each firm-year, I calculate aggregate insider sales as the total number of shares sold by all insiders in the year scaled by the number of shares outstanding. I define an event year as one in which the total amount of insider sales is above the 25th percentile of the sample distribution. The 25% cutoff is to weed out situations where insiders sell a tiny fraction of the available shares and hence have weak incentives to (temporarily) inflate stock prices. I obtain similar results with alternative cutoff values (e.g., 10% and 50%).

3.2.2 Restricted Shares

Firms are required to report the number of restricted shares acquired by top managers upon vesting under FAS 123R, a revised version of FAS 123, which came into effect in December 2004. The data on the vesting of restricted shares owned by the top five executives are obtained from Compustat's Executive Compensation database, and are available for the period of 2006 to 2010. In each of these five years, I calculate the total number of restricted shares that vest in the year divided by the number of shares outstanding, and define an event year as one in which this variable is above the 25th percentile of its sample distribution. Again, using alternative cutoff values does not affect the main result.

To gain a better understanding of the data, I also obtain the vesting schedules for a smaller sample of firms from Equilar for the period of 2006 to 2008. The summary statistics of this sample suggest that around one third of all restricted stock grants vest in a single year (i.e., a cliff vesting schedule). Among the remaining two-thirds observations where restricted stock grants vest gradually (i.e., a graded vesting schedule), the number of years over which these grants vest varies from two to five years, with three years being the most popular. In other words, there is a reasonable amount of variation in the number of shares vesting in each year.

3.2.3 Equity and Debt Issues

Public equity and debt issues for all US firms are obtained from Thompson Financial's Securities Data Corporation (SDC) database. For equity issues, I exclude all IPOs because the coverage of advertising spending in pre-IPO years is poor in Compustat. Specifically, I retrieve from SDC

the date of each public equity/debt offering and the principal amount received. For each firm-year, I then calculate the total equity/debt issuance as the aggregate principal amount received in all equity/debt issues in that year, divided by the market capitalization of the firm. Finally, I categorize an event year as one in which there is at least one equity/debt issue.

3.2.4 Stock- and Cash-Financed Acquisitions

Stock- and cash-financed acquisitions are also obtained from the SDC database. I only retain observations where it is clear that the deal is 100% financed by equity or 100% financed by cash. I then calculate the total proceeds involved in these stock- or cash-financed acquisitions over a year as a fraction of the acquirer's market capitalization. An event year is then defined as one in which there is at least one stock- or cash-financed acquisition.

Panel B of Table I reports the summary statistics of these corporate events (conditional on the event year dummy being one). The average magnitude of insider sales in a year is 1.22% of the shares outstanding, with a standard deviation of 2.21%. These figures may seem small in absolute terms, but they could account for a large fraction of manager wealth. The average amount of shares vesting in a year is 0.2% of the shares outstanding, with a standard deviation of 0.27%. The average proceeds received from equity and debt issues in a year amount to 17.74% and 26.47% of the firm's market value, respectively. Similarly, the total transaction values of stock- and cash-financed acquisitions in a year are 36.07% and 12.53% of the acquirer's market capitalization, respectively.

4 Advertising Spending and Stock Returns

There are good reasons to believe that advertising has a temporary effect on firm value: If some investors have limited attention, or limited processing capacity, and arbitrageurs are constrained from betting against uninformed demand, advertising can lead to a temporary overvaluation. For example, as argued by Barber and Odean (2008), an investor has to search through thousands of stocks when making a buy decision, and yet only the limited number of stocks he already holds when making a sell decision. If attention is a scarce resource, investors are more likely to buy attention-grabbing stocks than to sell them. To the extent that advertising is designed to attract attention, an increase in advertising can promote a firm's visibility among market participants

and thus temporarily boost firm value by generating more buy orders than sell orders. Relatedly, although advertising never portrays the underlying product or firm in a timely, comprehensive, and objective manner, investors with limited attention and processing capacity may take advertising at face value and respond too optimistically, thus resulting in a temporary price overshooting.

In sum, the limited attention channel predicts that an increase in advertising spending is accompanied by a contemporaneous rise in stock price, and is followed by lower future stock returns.

4.1 Return Results

To test the return effect, I start by forming calendar-time portfolios based on lagged changes in advertising spending. To avoid market microstructure issues, I follow prior literature (e.g., Jegadeesh and Titman (2001)) to exclude stocks with a price below five dollars a share and a market capitalization that would place it in the bottom NYSE size decile. I also require minimum advertising spending of $100,000 a year, to mitigate the impact of outliers (caused by small observations). Using different cutoffs (e.g., $50,000 or $200,000) does not affect the main result.

At the beginning of each month, I sort all firms with non-missing advertising spending data in the previous two fiscal years into decile portfolios, based on their percentage changes in advertising spending. For robustness, I also treat missing advertising spending as zero spending, and obtain similar results. I use percentage changes rather than dollar changes in the portfolio analysis, because the marginal effect of an advertising dollar on consumer/investor attention is likely to decrease as the total amount goes up. For example, a $1 billion increase in advertising spending by General Motors, which already spends billions of dollars on advertising each year, may have a small incremental effect on investor awareness, while a $1 million increase in advertising spending by an internet start-up may go a long way to reach out to potential investors. The decile portfolios are then held for two years and are rebalanced each month to maintain equal weights.

Panel A of Table II reports monthly returns to these decile portfolios. Changes in advertising spending are significantly and positively associated with contemporaneous stock returns. The difference in returns between the top and bottom deciles ranked by ΔAD is 1.07% (t=6.72) per month in the portfolio formation year (unreported for brevity). There is, however, a significant reversal pattern in the subsequent two years. The spread in monthly returns between the top and bottom deciles ranked by ΔAD is -58 bp (t=-3.54) and -82 bp (t=-4.52) in the following two

years, respectively. In other words, the positive return to the hedge portfolio in the formation year is completely reversed by the end of year two. Adjusting the portfolio returns by the size, value, momentum, and liquidity factors, or by the Daniel, Grinblatt, Titman, and Wermers (1997) (DGTW) characteristics-based benchmark has virtually no impact on the return pattern.

Panel B repeats the same analysis using industry-adjusted ΔAD. This is to address the possibility that the here-documented return pattern is driven by industry-wide fluctuations in both advertising spending and expected returns. The results are similar to those reported in Panel A. The return spread between the top and bottom deciles ranked by industry-adjusted ΔAD is 84 bp (t=5.74) per month in the portfolio formation year, and is -56 bp (t=-3.53) and -88 bp (t=-5.57) per month in the subsequent two years. Thus, regardless of whether we adjust for the industry component, an increase in advertising spending is associated with a contemporaneous rise and a subsequent drop in (risk-adjusted) returns.

Panels C and D check the robustness of the return pattern in different time periods. The whole sample period is divided into two halves around a regulation change taking place in fiscal years 1994 and 1995. Statement of Position (SOP) 93-7, Reporting on Advertising Costs, was issued by the Accounting Standards Executive Committee and was put into effect on June 15th 1994. It changed the practice companies use to expense their advertising costs. The return patterns in the two sub-periods are similar in both economic magnitude and statistical significance. In sum, the results shown in Table II depict a significant and robust hump-shaped return pattern around changes in advertising spending.

For further robustness, I analyze the stock return effect of advertising in a regression framework, where I can better isolate the marginal effect of advertising from other confounding factors. Specifically, I conduct the following Fama-MacBeth forecasting regression of monthly stock returns:

$$RET_{i,s} = \alpha + \beta * \Delta AD_{i,t} + \gamma * Control + \ \varepsilon_{i,s}, \tag{1}$$

where the dependent variable, $RET_{i,s}$, is the monthly stock return in the subsequent period. The independent variable of interest is the percentage change in advertising spending in fiscal years t. The control variables include percentage changes in total assets, sales, and capital expenditures in year t, all of which have been shown to be related to advertising spending. I also include a

list of known stock return predictors in the regression, such as firm size, book-to-market ratio, past returns, equity issuance (as defined in Daniel and Titman (2006)), turnover, and discretionary accruals (as in Xie (2001)).

Columns 1 and 2 of Table III examine monthly returns in the immediate following year. The regression result implies that a one-standard-deviation increase in ΔAD is associated with a 20.2 bp (p <0.01) decrease in monthly returns in the subsequent year in a univariate regression, and a 9.3 bp (p <0.05) decrease in monthly returns with all the control variables mentioned above. Columns 3 and 4 of the same table extend the return horizon to year two. A one-standard-deviation increase in ΔAD is associated with a 17.7 bp (p <0.01) decrease in monthly returns in the second year after the fiscal year end in a univariate regression, and a 9.3 bp (p <0.01) decrease after controlling for all the confounding factors. Columns 5 and 6 examine the monthly return in months 7 to 18 after the fiscal year end, following the usual practice of skipping six months between fiscal year end and the analysis. The results are similar to those reported in columns 1 through 4.

The coefficients on the control variables are generally consistent with prior research. Asset growth significantly and negatively predicts future stock returns in the next two years, in line with the finding in Cooper, Gulen, and Schill (2008). Changes in capital expenditures also negatively predict future stock returns, albeit with marginal statistical significance (e.g., Titman, Wei, and Xie (2004)). The return predictability of advertising is also unaffected by the inclusion of stock liquidity measures, suggesting that the return pattern is not driven by an increase in stock liquidity induced by higher advertising spending (Grullon, Kanatas, and Weston (2004)).

In sum, evidence from both the calendar-time portfolio approach and Fama-MacBeth regression analysis suggests a hump-shaped return pattern associated with changes in advertising spending. This return effect is unrelated to common risk factors and previously-known return determinants, and is robust to alternative definitions of ΔAD and different sample periods.

4.2 Alternative Interpretations

There are, however, alternative interpretations that can link product-market advertising to contemporaneous and future stock returns. First, a signaling model argues that, while the content of advertising may be uninformative about the firm's future profitability and growth prospects, the act of advertising can be a value-relevant signal, as only firms with good future prospects can

afford to advertise.[12] Therefore, increased advertising, which indicates higher future profitability, should be associated with higher equity valuation.[13] The signalling view, while consistent with the initial stock price run-up for firms with increased advertising, can not explain the subsequent return reversal.

The reversal pattern is consistent with some investment-based asset pricing models. For example, the Q-theory predicts that a reduction in a firm's cost of capital increases the marginal value of its investment and the firm should respond by increasing investment (e.g., advertising), which could then introduce a negative relation between investment and future stock returns (e.g., Cochrane (1991, 1996); Zhang (2005); Liu, Whited, and Zhang (2009)). Additionally, the literature on growth options predicts that since growth options are more risky than assets in place, when firms realize their growth opportunities, they lower their risk and thus their future expected returns (e.g., Berk, Green, and Naik (1999); Carlson, Fisher, and Giammarino (2004)). The growth-option based explanation, however, has some difficulty explaining the subsequent drop in *risk-adjusted* returns. In this section, I provide additional evidence to distinguish the limited-attention channel from alternative, investment-based theories.

4.2.1 Retail Investor Trading

If advertising affects stock returns, in part, because it attracts investor attention, we expect that retail investors, who are usually more attention and resource constrained than their institutional counterparts, be the net buyers in stocks with increased advertising spending.

Following prior studies on retail vs. institutional trading (e.g., Barber, Odean, and Zhu (2007) and Hvidkjaer (2008)), I categorize orders from TAQ and ISSM which are smaller than $5,000 as retail orders. This simple rule to identify retail vs. institutional trades became much less effective after year 2000, when the NYSE adopted decimalization in its pricing system. Hence, I end my analysis in year 2000. Specifically, I conduct the following Fama-MacBeth regression:

$$IMBAL_{i,s} = \alpha + \beta * \Delta AD_{i,t} + \gamma * Control + \ \varepsilon_{i,s}, \tag{2}$$

[12] See, e.g., Nelson (1974); Grossman and Shapiro (1984); Kihlstrom and Riordan (1984); Milgrom and Roberts (1986); Chemmanur and Yan (2009).

[13] The exact prediction of the signaling model is that the announcement return of increased advertising should be significantly positive. Firms, however, do not always make specific announcements about advertising spending; a more general, and testable, prediction of the signaling model is that stock prices should generally rise with increased advertising spending.

where $IMBAL_{i,s}$ is the monthly small-trade imbalance, defined as the number of small buy orders minus the number of small sell orders, scaled by the total number of small orders in that month. I also define $IMBAL$ based on the total dollar value of buy and sell orders. The list of control variables includes asset, sales, and capital expenditures growth, past returns, size, book-to-market, firm age, turnover, etc.

In the first two columns of Table IV, the dependent variable is the monthly small-trade imbalance in the contemporaneous year. The result suggests that retail investors are net buyers of firms with increased advertising spending in the year of the increase: After controlling for other confounding factors, a one-standard-deviation increase in advertising spending is associated with a 3.4% (p <0.01) increase in monthly small-trade imbalance in the same year. As can be seen in columns 3 and 4, where the dependent variable is the monthly small-trade imbalance in year t+1, there is some spillover effect on attention in the following year. A one-standard-deviation increase in advertising spending is associated with a 1.7% (p <0.1) increase in monthly small-trade imbalance in the following year.

The next four columns conduct the same analysis with an alternative definition of small-trade imbalance, which is based on total dollar amount bought and sold by small orders in a month. The results are almost identical to those reported in columns 1 through 4. In sum, these results suggest that advertising not only attracts consumer attention, but also investor attention, and in particular, retail investors' attention.

4.2.2 Three Sets of Firm Characteristics

To distinguish the limited-attention channel from the investment-based theories, I examine cross-sectional variation in the effect of advertising on investor attention, using three sets of firm characteristics. Specifically, I conduct the following Fama-MacBeth regression analysis:

$$RET_{i,s} = \alpha + \beta_1 * \Delta AD_{i,t} + \beta_2 * \Delta AD_{i,t} * IND_{i,t} + \beta_3 * IND_{i,t} + \gamma * Control + \varepsilon_{i,s}, \quad (3)$$

where $RET_{i,s}$ is the monthly stock return in months 6 to 18 after the fiscal year end. I skip six months between the dependent variable and the fiscal year end to ensure that the financial data is publicly available by the time these returns are calculated. IND is a binary variable defined based

on the corresponding firm characteristic. The coefficient on ΔAD captures the return effect of advertising for firms whose corresponding IND is equal to zero, and that on the interaction term, β_2, captures the difference in return effect between the two sets of firms. A negative coefficient on the interaction term then indicates a stronger return effect for firms whose IND is equal to one than for those whose IND is equal to zero.

The first set of firm characteristics captures the salience of advertising to less sophisticated investors. Since advertising for a consumer product (e.g., the iPhone) is more attention-grabbing than advertising for an industrial product (e.g., a silicon plate), the return effect of advertising should be stronger for firms in consumer product industries than those in non-consumer product industries. Similarly, the return effect should be stronger for firms with low analyst coverage than those with high analyst coverage: Since the former has fewer alternative information sources than the latter, investors, in particular small investors, may have to rely more on advertising for information when investing in the former.

The results are consistent with both predictions. As can be seen in columns 1 and 2 of Table V, the subsequent return reversal is substantially stronger for firms in consumer-product industries and with lower analyst coverage than those in non-consumer-produce industries and with higher analyst coverage. The coefficient on the interaction term between ΔAD and a dummy variable that equals one if the firm is in a consumer-product industry and zero otherwise is -0.18 (p <0.05), and that on the interaction term between ΔAD and a dummy variable that equals one if the firm is above the median analyst coverage (adjusted for firm size) in that year is 0.21 (p <0.01).

The second set of firm characteristics reflects the difference in sophistication between institutional and retail investors. Consistent with the view that retail investors are more attention-constrained and are thus more susceptible to advertising, Table IV shows that, on average, retail investors are the net buyers of firms with increased advertising. An immediate prediction is that the documented return effect should be stronger when there is more retail buying in the same year as the firm increases its advertising. In a related vein, the return effect should also be stronger for firms with higher share turnover and those with higher retail ownership.

The results shown in columns 3 to 5 support these predictions. The return effect of advertising is significantly stronger for firms that experience stronger retail buying, that have higher turnover, or that have larger retail ownership. Specifically, the coefficient on the interaction term between

ΔAD and a dummy variable that equals one if the retail buying intensity is above the median intensity in that year is -0.25 (p <0.05), the coefficient on the interaction term between ΔAD and a dummy variable that equals one if share turnover is above the median turnover in that year is -0.21 (p <0.05), and finally that on the interaction term between ΔAD and a dummy variable that equals one if institutional ownership (adjusted for firm size) is above the median institutional ownership is 0.10 (p <0.1).

Third, using detailed brand data compiled by Nielson, I measure the closeness between product brands and the firm name using the number of brands a firm has. The intuition here is that a firm with more brands tends to have brand names that are more distant from the firm name; thus, viewers of its advertising is less likely to associate the brands with the underlying firm, resulting in a weaker return effect. For example, consider Procter & Gamble Co. (P%G), which operates in more than 10 consumer product markets with over 100 products. P&G has a unique brand for its products in each market: Crest toothpaste, Cover Girl makeup, Dawn dishwashing detergent, etc, none of which has any hint of the company name.

The evidence presented in column 6 of Table V supports this prediction: The return effect of advertising is significantly weaker for firms with more brands. The coefficient on the interaction term between ΔAD and a dummy variable that equals one if the number of brands (adjusted for firm size) is above the sample median is 0.24 (p <0.05). Together, while these tests do not fully rule out investment-based theories as a potential explanation, the evidence presented here is more consistent with advertising affecting short-term stock returns through a limited-attention channel.

5 Advertising Spending around Equity Sales

Given the spillover effect of advertising on stock returns, I then ask whether firm managers are aware of this return effect, and more importantly, the extent to which managers adjust firm advertising to exploit investors' imperfect rationality (e.g., limited attention) to the benefit of their own and, potentially, that of their existing shareholders.

To empirically test managers' opportunistic behavior in adjusting firm advertising, I look at changes in advertising spending around various forms of equity sales – when stock prices matter the most. I focus on insider sales in the main analysis, as this type of equity sales has little to do

with the underlying firm's investment opportunities, and is thus unlikely to be related to changes in advertising spending through an investment channel. The main prediction of the paper is that there exists a hump-shaped pattern in advertising spending around insider sales (and other forms of equity sales); that is, there is a sharp increase in advertising spending before insider sales to push up the stock price, and a significant decrease in advertising spending in the following year.

5.1 Advertising Spending around Insider Sales

The data on insider sales is obtained from Thompson Financial. I compute the aggregate value of insider sales in each year as the total number of shares sold by all top executives in a year scaled by the number of shares outstanding at the end of the previous year. An event year is then defined as one in which the amount of insider sales is above the 25th percentile of the sample distribution. The 25% threshold is to weed out observations where managers sell a tiny fraction of the shares available and thus do not have a strong incentive to (temporarily) inflate stock prices.[14] I conduct the following pooled OLS regression with firm-year observations:

$$AD_{i,t} = \alpha + \beta_1 * PreEvent_{i,t} + \beta_2 * Event_{i,t} + \beta_3 * PostEvent_{i,t} + \gamma * Control + \ \varepsilon_{i,t}. \quad (4)$$

The dependent variable is the logarithm of advertising spending in year t. On the right hand of the equation, $Event_t$ is an indicator function that equals one if t is an event year, and zero otherwise. For all years in which $Event_t$ equals zero, $PreEvent_t$ equals one if t+1 is an event year, and $PostEvent_t$ equals one if t-1 is an event year. If both $PreEvent_t$ and $PostEvent_t$ equal one (i.e., both t-1 and t+1 are event years), both variables are reset to zero, as the prediction on advertising spending in year t is unclear in this case. The coefficients on these binary variables, $PreEvent_t$, $Event_t$, and $PostEvent_t$, then indicate the extent to which managers adjust advertising spending in the years prior, contemporaneous, and subsequent to insider sales, relative to all other years (i.e., when all three binary variables are zero), respectively.

The list of control variables include lagged total sales, total assets, advertising spending, market capitalization, book-to-market ratio, firm age, turnover, and return volatility. I also control for past stock returns from various horizons, to address the concern that both advertising spending and

[14] The results are unchanged if I use 10% or 50% as the threshold.

insider sales are positively associated with past firm performance. Additionally, I include financial constraints, measured by the Kaplan and Zingales (1997) index, in the regression to capture the negative relation between financial constraints and advertising spending.[15] I also include year-fixed effects in all regression specifications to eliminate market-wide fluctuations in advertising spending. For further robustness, I use industry-adjusted advertising spending as the dependent variable and obtain similar results (untabulated for brevity).

The result of the baseline regression, shown in Panel A in Table VI, is consistent with managers' exhibiting opportunistic behavior in advertising policy. As can be seen from column 1, there is a significant hump-shaped pattern in advertising spending around insider sales. The average advertising spending in the years prior, contemporaneous, and subsequent to insider sales is 5.3% (p <0.01) higher, 6.9% (p <0.01) higher, and 3.9% (p <0.01) lower than that in the other years, respectively. Taking the mean (median) annual advertising spending of \$42 (\$2.2) million in my sample, these coefficients imply that firms in the years prior, contemporaneous, and subsequent to insider sales spend \$2.2 (\$0.12) million more, \$2.9 (\$0.15) million more, and \$1.6 (\$0.09) million less on advertising than other years, respectively. The negative coefficient on the *PostEvent* dummy suggests that managers try to make up for the excessive advertising in the previous two years by cutting down advertising spending in the post-insider-sales year. The coefficients on the control variables are in line with prior literature. For example, advertising spending is highly persistent over time and is, to a large degree, determined by firm sales and assets.

Column 2 conducts a similar regression analysis, except that now instead of controlling for lagged advertising spending, I include firm-fixed effects in the regression specification. This is to eliminate the impact of unobserved firm characteristics that can drive both advertising spending and insider sales. The result is virtually identical to that presented in column 1. The average advertising spending in the years prior, contemporaneous, and subsequent to insider sales is 5.3% (p <0.01) higher, 5.9% (p <0.01) higher, and 5.1% (p <0.01) lower than that in the other years. Column 3 uses an alternative definition of advertising spending, which is the ratio of advertising spending to firm sales. The results are by and large unchanged. The average advertising-spending-to-sales ratio in the years prior, contemporaneous, and subsequent to insider sales is 4.9% (p <0.01)

[15] Following Lamont, Polk, and Saa-Requejo (2001), and Baker, Stein, and Wurgler (2003), I define $kz_{i,t}$ as $-1.002 * \frac{cashflow_{i,t}}{assets_{i,t-1}} - 39.368 * \frac{dividend_{i,t}}{assets_{i,t-1}} - 1.315 * \frac{cash_{i,t}}{assets_{i,t-1}} + 3.139 * leverage_{i,t}$.

higher, 5.9% (p <0.01) higher, and 4.9% (p <0.01) lower than that in the remaining years.

To check the robustness of the result, in particular, to address the concern that advertising spending has a non-linear relation with many of the control variables, I conduct a matched-sample analysis. I require an event firm to be above the 25th percentile of the insider-sales distribution in year t, but to be below the 25th percentile in the four adjacent years (i.e., t-2, t-1, t+1, and t+2). I then construct a potential matching sample that includes all firms below the 25th percentile in all these five years. For each event firm, a matching firm is then selected based on industry, firm size, and past 12-month stock returns using the algorithm outlined in Loughran and Ritter (1997). Specifically, I only retain potential matching firms that have the same two-digit SIC code as the corresponding event firm and whose total assets lie between 25% and 250% of the size of the event firm in year t. If the matching procedure yields zero non-event firms, I relax the industry and assets matching requirements. The remaining non-event firms are then ranked by their past 12-month returns, and the one with the closest past 12-month return with the corresponding event firm is selected as the matching firm.

There are in total 1,737 event firms with valid advertising spending data. I then calculate the differences in advertising spending between year t and the four adjacent years for both the event sample and the matching sample. I report the difference between the two samples in Panel B of Table VI. As shown in column 2, relative to the matching sample, the average advertising spending in year t of an event firm is 8.5% (p <0.01), 2.4% (p <0.1), 5.8% (p <0.01), and 4.6% (p <0.1) higher than that in years t-2, t-1, t+1, and t+2, respectively. Column 3 reports the differences in terms of median advertising spending; the results are similar to those reported in column 2.

Finally, if managers opportunistically adjust advertising to temporarily inflate stock prices and to maximize the proceeds from insider sales, we expect the hump-shaped pattern in advertising spending to be more pronounced when the magnitude of insider sales is larger. The prediction is again corroborated by the data. Panel C conducts the same regression analysis as in Panel A except that now I also include in the regression specification interaction terms between the three event-related dummies and the aggregate amount of insider sales in year t. The result is robust to various regression specifications (i.e., with or without firm-fixed effects, or with different definitions of advertising spending). For example, the coefficients in column 2 suggest that a one-standard-deviation increase in the aggregate amount of insider sales in a year (relative to shares outstanding)

is associated with a 2.01% (p <0.01) increase in advertising spending in the contemporaneous year and a 2.76% (p <0.05) decrease in the subsequent year. This result is consistent with the idea that managers' incentive to influence share prices is positively related to the magnitude of insider sales.

5.2 An Alternative Explanation

The finding that advertising spending is higher prior to but lower subsequent to insider sales is also consistent with the marketing-timing view. That is, rather than opportunistically adjusting advertising to temporarily influence stock prices around planned insider sales, managers may time their sales in response to planned advertising campaigns. For example, a firm may optimally choose to increase its advertising spending for business reasons (e.g., the launch of a new product). The fact that investors tend to overreact to increased advertising can induce managers to sell their shares when advertising spending is high. It should be noted, however, that this alternative interpretation is broadly consistent with the main theme of the paper: Managers use the levers under their control to exploit investors' imperfect rationality; the lever could be a particular investment decision or the exact timing of equity sales.

5.2.1 An Instrument-Variable Approach: Restricted Shares Vesting

To distinguish the opportunistic advertising story from the alternative market-timing view, I start with an instrument-variable approach. Prior studies (e.g., Huddart and Lang (1996) and Fu and Ligon (2010)) find that top executives exercise a significant fraction of their stock options for diversification and liquidity reasons soon after the vesting dates. While there is little direct evidence on executives' restricted stock sales due to the lack of data in the pre-2005 period, it is reasonable to expect that the same diversification and liquidity needs also motivate top managers to sell their restricted shares upon vesting.[16] In untabulated results, I show that in a univariate regression, managers sell over 50% (p <0.01) of their restricted shares in the year of vesting (by matching the insider sales data from Thompson Financial with the restricted shares vesting data from ExecuComp). In addition, vesting schedules are determined at the time of stock grants and are thus less likely to be influenced by future advertising spending. Therefore, vesting of restricted shares in each year represents a material, relatively exogenous variation in insider sales in that year.

[16]Firms are required to report the number of shares acquired upon vesting by their top executives after year 2006, under Statement of Financial Accounting Standards (SFAS) No. 123.

The data on restricted shares vesting is obtained from ExecuComp. I compute the aggregate value of restricted shares vesting in each year as the total number of shares acquired by top five executives upon vesting, scaled by total shares outstanding at the end of the previous year. I choose to focus on restricted shares, as opposed to incentive stock options, for two reasons. First, only about one third of the incentive stock options are exercised within one year of vesting (Fu and Ligon (2010)). Second, the gains from exercising these options are taxed as personal income if the acquired shares are sold immediately, but are taxed as capital gains if they are sold after one year. So there are good reasons to believe that managers hold onto these shares at least for some time. If managers do not sell their acquired shares upon exercising, they have no incentive to inflate stock prices at the time of option exercising.

The regression results based on restricted shares vesting are reported in Table VII. The analysis is similar to that in Panel A of Table VI, except that now an event year is defined as one in which the aggregate value of restricted shares vesting is above the 25th percentile of the sample distribution.[17] There is a significant hump-shaped pattern in advertising spending around vesting of restricted shares, and this result is robust to various regression specifications. For example, as shown in column 2, where the dependent variable is the logarithm of advertising spending, the average advertising spending in a year, in which a significant amount of restricted shares vests, is 3.4% (p <0.05) higher than that in other years. Taking the mean (median) annual advertising spending of \$42 (\$2.2) million in my sample, this coefficient implies additional spending on advertising of \$1.4 (\$0.08) million when restricted shares vest.

5.2.2 The Sensitivity of Future Sales to Advertising Spending

If managers opportunistically adjust advertising to influence stock prices around insider sales, we expect a weaker correlation between advertising spending and future sales growth around insider sales than in other years. For one thing, advertising in this period is more likely to target stock-market investors than product-market consumers; for example, firms may be promoting the firm image rather than the products in their advertisements. In addition, advertising in this period is less likely to be driven by business purposes, such as the launch of a new product, which are usually associated with higher subsequent sales.

[17] Using other cutoffs (e.g., 10% or 50%) yields similar results.

To test this prediction, I look at the correlation between the change in advertising spending and future sales growth, and compare this correlation in years without insider sales to that in years with insider sales. The results are shown in Table VIII, where the dependent variable is sales growth in year t and the independent variable of interest is the change in advertising spending in year t-1. I also include an interaction term between ΔAD and an event dummy that equals one if the amount of insider sales is above the 25th percentile of the sample distribution. Other control variables include sales and asset growth, past stock returns, return volatility, firm size, the book-to-market ratio, firm age, turnover, etc.

As can be seen from Table VIII, ΔAD and the sales growth in the subsequent year are significantly and positively correlated in non-insider-sales years across all regression specifications.[18] However, this correlation is significantly smaller in years with insider sales. For example, as shown in column 4, after controlling for all other confounding factors, a one-standard-deviation increase in ΔAD is associated with a 2.7% (p <0.01) increase in firm sales in the subsample without insider sales, and is associated with a 1.6% (insignificant) decrease in firm sales in the subsample with insider sales; the difference of 4.3% is statistically significant at the 1% level.

This result suggests that advertising carried out around insider sales is not entirely intended to promote product sales. Therefore, opportunistic advertising on the part of the managers represents a true cost to their investors, as higher advertising spending before insider sales does not translate into higher future product sales.

5.2.3 Operation Complexity and Corporate Governance

If managers opportunistically advertise to maximize the proceeds from insider sales, we expect such behavior to be more pronounced if top managers have more direct control over detailed firm investments. The level of direct control is likely to weaken as the firm has more operating divisions. Thus, top managers are more likely to implement changes to advertising before insider sales in firms that operate in only one segment (i.e., stand-alone firms) than those operating in multiple segments (i.e., conglomerate firms), due to lower institutional frictions.[19]

In untabulated results, I show that the humped-shaped pattern in advertising spending around

[18] In untabulated robustness checks, there is no significant correlation between ΔAD and future sales growth beyond year one.

[19] Industry segments are defined based on two-digit SIC codes. For robustness, I also use the Fama-French 48 industry definition and obtain similar results.

insider sales is significantly more pronounced among stand-alone firms than conglomerate firms. For example, in the subset of firms whose market capitalization is below the NYSE size median, relative to conglomerate firms, managers in stand-alone firms increase their advertising spending by 5.9% (p <0.05) more in the year of insider sales, and decrease their advertising spending by 4.1% (p <0.1) more in the year after.[20]

In addition, managers' decision to spend more on advertising before their own equity sales reflects an agency problem between the top managers and their shareholders. To the extent that corporate governance can help alleviate agency issues, we expect such opportunistic behavior to be less pronounced with stronger corporate governance. To test this prediction, I construct a binary variable, *dictator*, which equals one if the Governance index proposed in Gompers, Ishii, and Metrick (2003) is above 12 and zero otherwise. Around 6%-10% of the firms are classified as dictators in my sample. In untabulated results, I find that in the year of insider sales, dictator firms increase their advertising spending by 25.5% (p <0.1) more than their non-dictator counterparts. Non-dictator firms, on the other hand, do not significantly change their advertising spending around insider sales.

5.3 Advertising Spending around Other Forms of Equity Sales

If managers opportunistically adjust advertising spending around insider sales, we expect a similar pattern around other forms of equity sales, such as equity issues and stock-finance acquisitions (from the acquirer's perspective). For equity issues, I focus on seasoned equity offerings, as firms usually do not report their advertising spending before initial public offerings. Specifically, in each year, I calculate the aggregate amount of equity issuance as the total proceeds received from all seasoned equity offerings in that year scaled by the market capitalization of the firm at the end of the previous year. An event year is then defined as having at least one seasoned equity offering.

The results are presented in Panel A of Table IX. As can be seen from column 1, where the dependent variable is the logarithm of advertising spending, firms spend substantially more on advertising shortly before equity issues. The average advertising spending in the years prior, contemporaneous, and subsequent to equity issues is 3.8% (p <0.01), 7.7% (p <0.01), and 0.8% (insignificant) higher

[20] I focus on small-cap stocks in the analysis to alleviate the concern that the classification of stand-alone vs. conglomerate firms is correlated with firm size.

than that in other years, respectively. Taking the mean (median) annual advertising spending of \$42 (\$2.2) million in my sample, these coefficients imply that firms in the years prior and contemporaneous to equity issues spend \$1.6 (\$0.08) million and \$3.2 (\$0.17) million more on advertising than the remaining years. In addition, as shown in column 2, a one-standard-deviation increase in the aggregate amount of equity issues in a year is associated with a 3.66% (p <0.01) increase in advertising spending in the prior year, a 5.89% (p <0.01) increase in the contemporaneous year, and a 2.86% (p <0.1) decrease in the subsequent year.

In a related vein, I also examine changes in advertising spending around stock-financed acquisitions. The result, as shown in Panel B of Table IX, are consistent with the opportunistic advertising view. The average advertising spending by the acquirer in the year contemporaneous to stock-financed acquisitions is 14.0% (p <0.01) higher than that in other years. Further, a one-standard-deviation increase in the aggregate transaction value involved in these acquisitions is associated with a 4.76% (p <0.05) increase in advertising spending in the contemporaneous year.

For comparison, I repeat the exact same analysis for debt issues (columns 3 and 4 in Panel A) and cash-financed acquisitions (from the acquirer's perspective, columns 3 and 4 in Panel B). As shown in the respective panel, there is no significant change in advertising spending around these two types of corporate events. The stark contrast in firm behavior between equity issues (stock-financed acquisitions) and debt issues (cash-financed acquisitions) implies that the hump-shaped pattern in advertising spending around equity sales is unlikely to be driven by an investment channel.

6 Conclusion

There is accumulating evidence that managers make important firm decisions, in part, to maximize short-term stock prices. This paper contributes to this fast-growing literature by providing evidence that managers choose advertising spending to maximize the proceeds from insider sales and other forms of equity sales. Specifically, I first document a significant spillover effect of product-market advertising on stock market returns: There is a significant rise in stock price contemporaneous to increased advertising, which is then reversed in the following two years. Additional analyses suggest that at least part of the initial price run-up is due to advertising attracting investor attention.

I then examine the extent to which managers adjust firm advertising spending to influence short-term stock prices. There appears a sharp increase in advertising spending shortly before insider sales, and a significant decrease in the following year. A similar pattern arises around equity issues and stock-financed acquisitions, but is absent around debt issues and cash-financed acquisitions. Further analyses suggest that the hump-shaped pattern in advertising spending around equity sales is most consistent with managers' opportunistically adjusting firm advertising to temporarily inflate stock prices to the benefit of their own and the existing shareholders.

More broadly, the findings of this paper imply that firms' investment decisions can be, in part, motivated by short-term stock price considerations. A potentially interesting direction for future research is to identify similar patterns in other investment decisions that also have short-term stock return implications.

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Table I: Summary Statistics

This table reports summary statistics of the sample that spans from 1974 to 2010. Panel A: This panel is the summary of firms with missing and non-missing advertising spending data. Data on advertising spending (data45), total assets (data6), equity (data216), annual sales (data12), income (data18), and firm age are obtained from COMPUSTAT annual files. The COMPUSTAT sample is then merged with CRSP monthly stock files to obtain market capitalization. To reduce the impact of outliers, the following variables: the market-to-book ratio, advertising spending to sales ratio, advertising spending to assets ratio, and annual growth in advertising spending, are winsorized at the 1st and 99th percentiles. To further ensure data quality, the first two years of financial data of each firm from COMPUSTAT are excluded from the sample. Panel B: This panel contains the summary for various corporate events, including insider selling, restricted shares vesting, equity issues, debt issues, and stock- and cash-financed acquisitions (only acquirers are considered). Insider sales (restricted shares vesting) are defined as the aggregate number of shares sold (vested) across all top executives over a year scaled by the shares outstanding. Equity issues, debt issues, and stock and cash-financed acquisitions are defined as the total principal amount involved in these transactions over a year divided by the market capitalization of the firm. All variables are winsorized at the 99th percentile. In the case of insider sales and restricted shares vesting, very small observations (i.e., those in the bottom quartile) are omitted for power reasons.

Panel A: Advertising Spending (1974 – 2010)

	Firms with AD spending			Firms missing AD spending		
Firm Characteristics	Mean	Medium	Stdev	Mean	Medium	Stdev
Market Cap (Million $)	1784	93	10975	1170	95	7986
Total Assets (Million $)	3034	163	33884	2828	133	27028
Sales (Million $)	1480	120	8120	1102	109	5733
Net Earnings (Million $)	76.58	3.73	799.46	57.45	3.33	553.52
Firm Age	15.31	12.00	11.85	15.57	12.00	12.29
Market to Book	2.48	1.52	3.42	2.65	1.46	3.91
Advertising (Million $)	42.09	2.16	219.14			
AD to Sales ratio	4.33%	2.06%	7.33%			
AD to Assets ratio	4.73%	2.27%	7.27%			
% Growth in AD	27.56%	10.16%	84.23%			
No Obs		66113			122370	

Panel B: Various Corporate Events

	From	Obs	All Obs with AD	Mean	Median	Stdev
Insider sales and restricted shares vesting						
Insider sales	1986	9005	45034	1.22%	0.48%	2.21%
Restricted shares vesting	2006	2170	9275	0.20%	0.10%	0.27%
Other corporate events						
Equity issues	1974	3458	66113	17.74%	13.50%	17.86%
Debt issues	1974	4979	66113	26.47%	15.74%	35.02%
Stock-financed acquisitions	1980	490	55689	36.07%	16.41%	45.73%
Cash-financed acquisitions	1980	2869	55689	12.53%	7.30%	14.13%

Table II: Calendar-Time Portfolio Returns

This table shows calendar-time equal-weighted monthly returns to portfolios sorted by log changes in advertising spending (ΔAD). Panel A: These portfolios are ranked by changes in advertising spending in the previous fiscal year, and are rebalanced every month using the most recent advertising spending data. The portfolios are then held for two years. Panels B: Portfolios are sorted by industry-adjusted changes in advertising spending from the previous fiscal year. Panels C and D: These two panels report subsample analyses, where portfolios are ranked by changes in advertising spending in the previous fiscal year. Two years, 1994 and 1995, are skipped here due to a regulatory change on the reporting of advertising expenditures that was introduced in 1994. To deal with overlapping portfolios in each holding month, the equal-weighted average return across portfolios formed in different months is reported (as Jegadeesh and Titman (1993)). A number of risk benchmarks are employed here: the Fama-French three-factor model, the Carhart four-factor model, and the Daniel, Grinblatt, Titman and Wermers (2006, DGTW) characteristics-adjustment model. T-statistics, shown in parentheses, are computed based on standard errors corrected for serial-dependence with 12 lags. 5% statistical significance is indicated in bold.

Decile	Excess	3-factor alpha	4-factor alpha	DGTW adjusted	Excess	3-factor alpha	4-factor alpha	DGTW adjusted
	Year 1 after portfolio formation				Year 2 after portfolio formation			
Panel A: Sort by ΔAD, 1974-2010								
1	0.79%	-0.07%	0.31%	0.10%	1.18%	0.31%	0.43%	0.22%
10	0.20%	-0.56%	-0.17%	-0.34%	0.36%	-0.40%	-0.14%	-0.39%
10 - 1	**-0.58%**	**-0.49%**	**-0.48%**	**-0.44%**	**-0.82%**	**-0.71%**	**-0.57%**	**-0.62%**
	(-3.54)	(-3.24)	(-3.07)	(-3.13)	(-4.52)	(-3.88)	(-2.88)	(-3.70)
Panel B: Sort by industry-adjusted ΔAD, 1974-2010								
1	0.72%	-0.09%	0.32%	0.01%	1.26%	0.46%	0.55%	0.31%
10	0.16%	-0.61%	-0.27%	-0.40%	0.38%	-0.42%	-0.29%	-0.40%
10 - 1	**-0.56%**	**-0.52%**	**-0.59%**	**-0.41%**	**-0.88%**	**-0.88%**	**-0.84%**	**-0.71%**
	(-3.53)	(-3.15)	(-3.22)	(-2.62)	(-5.57)	(-5.53)	(-4.85)	(-4.66)
Panel C: Sort by ΔAD, 1974-1993								
1	0.65%	-0.03%	0.26%	0.02%	1.00%	0.28%	0.47%	0.14%
10	0.05%	-0.66%	-0.42%	-0.43%	0.07%	-0.57%	-0.25%	-0.57%
10 - 1	**-0.60%**	**-0.62%**	**-0.68%**	**-0.46%**	**-0.93%**	**-0.85%**	**-0.71%**	**-0.71%**
	(-3.04)	(-3.19)	(-3.28)	(-2.76)	(-4.86)	(-4.60)	(-3.86)	(-3.94)
Panel D: Sort by ΔAD, 1996-2010								
1	0.86%	-0.08%	0.32%	0.06%	1.32%	0.43%	0.43%	0.24%
10	0.31%	-0.50%	-0.08%	-0.34%	0.57%	-0.21%	-0.11%	-0.40%
10 - 1	**-0.55%**	**-0.43%**	**-0.40%**	**-0.41%**	**-0.77%**	**-0.64%**	**-0.54%**	**-0.64%**
	(-2.44)	(-2.25)	(-2.10)	(-2.38)	(-2.46)	(-2.37)	(-2.22)	(-2.30)

Table III: Fama-MacBeth Return Regressions

This table reports forecasting regressions of stock returns on changes in advertising spending and other control variables that are known to predict stock returns. The dependent variable in columns 1 and 2 is the monthly stock return in the year following the fiscal year end; in columns 3 and 4, it is the monthly stock return in the second year following the fiscal year end; and in columns 5 and 6, it is the monthly stock return in months 7 to 18 after the fiscal year end. The independent variable of interest is the log change in advertising spending (ΔAD) in the previous fiscal year. $\Delta ASSETS$, $\Delta SALES$, and $\Delta CAPEX$, are log changes in assets, sales, and capital expenditures in the same fiscal year. Other control variables include cumulative stock returns at various horizons, firm size, the market-to-book ratio, firm age, aggregate equity issuance in the previous four years as defined in Daniel and Titman (2006), discretionary accruals as defined in Xie (2001), and average monthly turnover in the fiscal year. Coefficients are estimated using the Fama-MacBeth approach. Standard errors, shown in brackets, are corrected for serial-dependence with 12 lags. *, **, *** denote significance at the 90%, 95%, and 99% level, respectively.

	Monthly stock returns in year 1		Monthly stock returns in year 2		Monthly returns in year 1 (skip 6 mo)	
(X 100)	[1]	[2]	[3]	[4]	[5]	[6]
ΔAD	-0.24***	-0.11**	-0.21***	-0.11***	-0.23***	-0.10**
	[0.07]	[0.05]	[0.05]	[0.04]	[0.06]	[0.04]
$\Delta ASSETS$		-0.79***		-1.23***		-1.34***
		[0.27]		[0.23]		[0.32]
$\Delta SALES$		-0.18		0.26		-0.03
		[0.31]		[0.25]		[0.30]
$\Delta CAPEX$		-0.08		-0.08		-0.08
		[0.06]		[0.07]		[0.07]
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R^2	0.07	0.09	0.06	0.08	0.06	0.08
No Obs	386488	386488	351985	351985	369561	369561

Table IV: Retail Investor Trading

This table reports regressions of monthly small trade imbalance on changes in advertising spending and other control variables. The sample period is from 1983 to 2000. The starting year of the sample is determined by data availability, and the end year by the validity of small trades as a measure of retail trading activities. The dependent variable in columns 1-4 is the number of small buy orders minus that of small sell orders, divided by the total number of small orders in a month. In columns 5-8, it is the dollar volume of small buy orders minus that of small sell orders, divided by the total dollar amount of small orders in a month. Small orders are defined as those below $5,000 in size. The independent variable of interest is the log change in advertising spending (ΔAD). $\Delta ASSETS$, $\Delta SALES$, and $\Delta CAPEX$, are log changes in assets, sales, and capital expenditures in the same fiscal year. Other control variables include cumulative stock returns at various horizons, firm size, the market-to-book ratio, firm age, and average monthly turnover in the fiscal year. In columns 1, 2, 5, and 6, the small trade imbalance is measured in the same year as ΔAD, while in columns 3, 4, 7, and 8, it is measured in the following year. Coefficients are estimated using the Fama-MacBeth approach. Standard errors, shown in brackets, are corrected for serial-dependence with 12 lags. *, **, *** denote significance at the 90%, 95%, and 99% level, respectively.

	Monthly ImbNum in year 0		Monthly ImbNum in year 1		Monthly ImbDol in year 0		Monthly ImbDol in year 1	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
ΔAD	0.10***	0.04***	0.07***	0.02*	0.08***	0.04***	0.06**	0.02*
	[0.01]	[0.01]	[0.02]	[0.01]	[0.01]	[0.01]	[0.02]	[0.01]
$\Delta ASSETS$		0.20***		0.20***		0.16***		0.17***
		[0.03]		[0.02]		[0.03]		[0.02]
$\Delta SALES$		0.14***		0.10***		0.13***		0.08***
		[0.02]		[0.02]		[0.02]		[0.02]
$\Delta CAPEX$		0.01*		0.01		0.01		0.01
		[0.01]		[0.01]		[0.01]		[0.01]
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R^2	0.03	0.05	0.03	0.05	0.03	0.04	0.03	0.04
No Obs	130812	130812	127029	127029	130812	130812	127029	127029

Table V: The Mechanism of Stock Return Predictability

This table reports forecasting regressions of stock returns on changes in advertising spending and other control variables that are known to predict stock returns. The dependent variable is the monthly stock return in months 7-18 after the fiscal year end. The independent variable of interest is the log change in advertising spending (ΔAD) in the previous fiscal year. $\Delta ASSETS$, $\Delta SALES$, and $\Delta CAPEX$, are log changes in assets, sales, and capital expenditures in the same fiscal year. Other control variables include cumulative stock returns at various horizons, firm size, the market-to-book ratio, firm age, aggregate equity issuance in the previous four years as defined in Daniel and Titman (2006), discretionary accruals as defined in Xie (2001), and average monthly turnover in the fiscal year. The regressions also include a list of interaction terms between ΔAD and dummy variables. $Consumer\ industry$ is an indicator variable that takes the value of 1 if the firm operates in a consumer-product industry based on the Fama-French five-industry definition and 0 otherwise. All the other indicator variables take the value of 1 if the corresponding firm characteristic is above the sample median in the previous year and 0 other wise. Both analyst coverage and institutional ownership are the residuals from cross-sectional regressions on firm size. Retail trading is defined as the number of small buy orders minus that of small sell orders, divided by the total number of small orders in the previous year. $\#\ brands$ is the number of brands a firm had (compiled by Nielson) in years 2002-2006 adjusted for firm size in 2002 and is extrapolated to the period of 1990-2010. Coefficients are estimated using the Fama-MacBeth approach. Standard errors, shown in brackets, are corrected for serial-dependence with 12 lags. *, **, *** denote significance at the 90%, 95%, and 99% level, respectively.

Monthly stock returns in year 1 (skip 6 months)						
(X 100)	[1]	[2]	[3]	[4]	[5]	[6]
ΔAD	-0.08*	-0.29**	-0.11*	-0.05	-0.17**	-0.23**
	[0.05]	[0.12]	[0.07]	[0.09]	[0.07]	[0.09]
ΔAD *	-0.18**					
consumer industry	[0.08]					
ΔAD *		0.21***				
high analyst coverage		[0.07]				
ΔAD *			-0.25**			
high retail buying			[0.10]			
ΔAD *				-0.21**		
high turnover				[0.08]		
ΔAD *					0.10*	
high institution holding					[0.06]	
ΔAD *						0.24**
high # brands						[0.11]
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R^2	0.09	0.11	0.12	0.10	0.09	0.16
No Obs	369561	285526	138315	342832	304440	55321

Table VI: Advertising Spending around Insider Sales

This table reports analyses of advertising spending around insider sales. The sample period is from 1986 to 2010. Panel A: This panel reports a panel regression analysis. The dependent variable in columns 1 and 2 is the logarithm of advertising spending (AD) in year t, and in column 3, it is the advertising spending to sales ratio. The independent variables of interest are three event-related dummies. A year is labelled an event year if the amount of insider sales (AMT) is above the 25th percentile of the sample distribution, where AMT is defined as the total number of shares sold by all top-level directors and offices in year t scaled by shares outstanding of the firm. $PreEvent$, $Event$, and $PostEvent$ are indicator variables, which equal to 1 if the following year, the current year, and the previous year are an event year, respectively, and 0 otherwise. $ASSETS$ and $SALES$ are the logarithm of total assets and sales, respectively. Other control variables include cumulative stock returns at various horizons, the return volatility, firm size, the market-to-book ratio, firm age, average monthly turnover in the fiscal year, and Kaplan-Zingales index. Year fixed effects are included in column 1, and both year and firm fixed effects are included in columns 2 and 3. Standard errors, shown in brackets, are clustered at the firm level. Panel B: This panel reports the mean and median differences in log changes in advertising spending around event years (i.e., insider selling) between event firms and matching firms. A matching firm is constructed for each event firm based on industry, firm size, and past 12-month stock returns using the algorithm outlined in Loughran and Ritter (1997). Statistical significance of medians is based on Wilcoxon tests. Panel C: This panel reports a similar panel regression analysis as in Panel A, with three additional interaction terms between the event-related dummies and AMT. *, **, *** denote significance at the 90%, 95%, and 99% level, respectively.

Panel A: Panel regression of AD_t

	[1]	[2]	[3]
$PreEvent_t$	0.053***	0.053***	0.049***
	[0.016]	[0.018]	[0.018]
$Event_t$	0.069***	0.059***	0.059***
	[0.009]	[0.011]	[0.011]
$PostEvent_t$	-0.039***	-0.051***	-0.049***
	[0.015]	[0.018]	[0.018]
$SALES_{t-1}$	0.031***	0.198***	-0.658***
	[0.004]	[0.012]	[0.012]
$ASSETS_{t-1}$	0.006	0.496***	0.397***
	[0.005]	[0.015]	[0.015]
AD_{t-1}	0.940***		
	[0.003]		
Other Controls	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	No	Yes	Yes
Adj-R^2	0.95	0.94	0.80
No Obs	27232	29306	29306

Panel B: Matched-sample approach			
	Event firms - Matching firms		
	Obs	Mean	Median
$AD_t - AD_{t-2}$	821	8.50%***	5.86%**
$AD_t - AD_{t-1}$	1179	2.44%*	1.98%*
$AD_t - AD_{t+1}$	1018	5.79%**	3.93%**
$AD_t - AD_{t+2}$	674	4.58%**	1.22%

Panel C: Panel regression of AD_t			
	[1]	[2]	[3]
$PreEvent_t$	0.020	0.029	0.029
	[0.019]	[0.022]	[0.022]
$Event_t$	0.019*	0.007	0.007
	[0.010]	[0.013]	[0.013]
$PostEvent_t$	-0.028	-0.031	-0.028
	[0.018]	[0.022]	[0.021]
$PreEvent_t \times AMT$	0.873**	0.524	0.524
	[0.354]	[0.345]	[0.335]
$Event_t \times AMT$	0.744***	0.911***	0.880***
	[0.213]	[0.306]	[0.300]
$PostEvent_t \times AMT$	-0.634**	-1.245**	-1.282**
	[0.270]	[0.588]	[0.579]
$SALES_{t-1}$	0.030***	0.198***	-0.658***
	[0.004]	[0.012]	[0.012]
$ASSETS_{t-1}$	0.006	0.496***	0.397***
	[0.005]	[0.015]	[0.015]
AD_{t-1}	0.939***		
	[0.003]		
Other Controls	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	No	Yes	Yes
Adj-R^2	0.95	0.94	0.80
No Obs	27232	29306	29306

Table VII: An Instrument: Restricted Shares Vesting

This table reports analyses of advertising spending around vesting of restricted shares. The sample period is from 2006 to 2010 (firms are required to report vesting of restricted shares for their top executives starting in year 2006). The dependent variable in columns 1 and 2 is the logarithm of advertising spending (AD) in year t, and in column 3, it is the advertising spending to sales ratio. The independent variables of interest are three event-related dummies. A year is labelled an event year if the amount of restricted shares vesting (AMT) is above the 25th percentile of the sample distribution, where AMT is defined as the total number of shares vesting across all top executives as reported by the S&P Executive Compensation database in year t scaled by shares outstanding of the firm. $PreEvent$, $Event$, and $PostEvent$ are indicator variables, which equal to 1 if the following year, the current year, and the previous year are an event year, respectively, and 0 otherwise. $ASSETS$ and $SALES$ are the logarithm of total assets and sales, respectively. Other control variables include cumulative stock returns at various horizons, the return volatility, firm size, the market-to-book ratio, firm age, average monthly turnover in the fiscal year, and Kaplan-Zingales index. Year fixed effects are included in column 1, and both year and firm fixed effects are included in columns 2 and 3. Standard errors, shown in brackets, are clustered at the firm level. *, **, *** denote significance at the 90%, 95%, and 99% level, respectively.

Advertising spending around restricted shares vesting			
	[1]	[2]	[3]
$PreEvent_t$	0.013	0.022	0.022
	[0.013]	[0.015]	[0.015]
$Event_t$	0.031*	0.034**	0.036**
	[0.016]	[0.015]	[0.016]
$PostEvent_t$	-0.014	0.004	0.006
	[0.019]	[0.022]	[0.022]
$SALES_{t-1}$	0.010	0.127***	-0.700***
	[0.007]	[0.023]	[0.023]
$ASSETS_{t-1}$	0.016**	0.414***	0.309***
	[0.007]	[0.029]	[0.029]
AD_{t-1}	0.949***		
	[0.004]		
Other Controls	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	No	Yes	Yes
Adj-R^2	0.96	0.94	0.81
No Obs	7344	7698	7698

Table VIII: The Sensitivity of Sales to Advertising Spending

This table reports analyses of the sensitivity of sales to advertising spending. The sample period is from 1986 to 2010. The dependent variable in all columns is the percentage change in annual sales ($\Delta SALES$) in year t. The independent variable of interest is the lagged percentage change in advertising spending (ΔAD). A year is labelled an event year if the amount of insider sales (AMT) is above the 25th percentile of the sample distribution, where AMT is defined as the total number of shares sold by all top-level directors and offices in a year scaled by shares outstanding of the firm. $Event$ is an indicator variable, which equal to 1 if the year in question is an event year, and 0 otherwise. $\Delta ASSETS$ and $\Delta SALES$ are the percentage change in total assets and sales, respectively. Other control variables include cumulative stock returns at various horizons, the return volatility, firm size, the market-to-book ratio, firm age, average monthly turnover in the fiscal year, and Kaplan-Zingales index. Year fixed effects are included in all regression specifications. Standard errors, shown in brackets, are clustered at the firm level. *, **, *** denote significance at the 90%, 95%, and 99% level, respectively.

Panel regression of $\Delta SALES_t$				
	[1]	[2]	[3]	[4]
ΔAD_{t-1}	0.085***	0.091***	0.027***	0.032***
	[0.005]	[0.005]	[0.005]	[0.006]
$Event_{t-1}$		-0.063***		-0.069***
		[0.006]		[0.006]
$\Delta AD_{t-1} \times Event_{t-1}$		-0.057***		-0.051***
		[0.017]		[0.017]
$\Delta SALES_{t-1}$			0.115***	0.116***
			[0.015]	[0.015]
$\Delta ASSETS_{t-1}$			0.262***	0.262***
			[0.011]	[0.011]
Other Controls	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Firm Fixed Effects	No	No	No	No
Adj-R^2	0.07	0.08	0.20	0.21
No Obs	28059	28059	28059	28059

Table IX: Other Corporate Events

This table reports analyses of advertising spending around various types of corporate events, equity and debt issues in Panel A, and stock- and cash-financed acquisitions in Panel B (only acquirers are considered). The sample period of Panel A is from 1974 to 2010 and that in Panel B is from 1980 to 2010. The dependent variable in all columns of both panels is the logarithm of advertising spending (AD) in year t. The independent variables of interest are three event-related dummies. A year is labelled an event year if there is at least one transaction of the particular type under consideration. In Panel A, AMT is defined as the total proceeds from equity issues (columns 1 and 2) and debt issues (columns 3 and 4) in year t scaled by the market capitalization of the firm. In Panel B, AMT is defined as the total transaction value of stock-financed acquisitions (columns 1 and 2) and cash-financed acquisitions (columns 3 and 4) in year t scaled by the market capitalization of the firm. $PreEvent$, $Event$, and $PostEvent$ are indicator variables, which equal to 1 if the following year, the current year, and the previous year are an event year, respectively, and 0 otherwise. $ASSETS$ and $SALES$ are the logarithm of total assets and sales, respectively. Other control variables include cumulative stock returns at various horizons, the return volatility, firm size, the market-to-book ratio, firm age, average monthly turnover in the fiscal year, and Kaplan-Zingales index. Both year and firm fixed effects are included in all columns. Standard errors, shown in brackets, are clustered at the firm level. *, **, *** denote significance at the 90%, 95%, and 99% level, respectively.

Panel A: Advertising spending around equity issues and debt issues

	[1]	[2]	[3]	[4]
$PreEvent_t$	0.038**	0.019	0.012	0.004
	[0.017]	[0.023]	[0.016]	[0.020]
$Event_t$	0.077***	0.041**	0.025	0.016
	[0.014]	[0.019]	[0.017]	[0.015]
$PostEvent_t$	0.008	0.021	0.023	0.027
	[0.015]	[0.021]	[0.014]	[0.018]
$PreEvent_t \times AMT$		0.205**		0.032
		[0.100]		[0.047]
$Event_t \times AMT$		0.330***		0.033
		[0.080]		[0.036]
$PostEvent_t \times AMT$		-0.160*		-0.015
		[0.083]		[0.041]
$SALES_{t-1}$	0.266***	0.266***	0.296***	0.296***
	[0.012]	[0.012]	[0.013]	[0.013]
$ASSETS_{t-1}$	0.457***	0.457***	0.402***	0.403***
	[0.015]	[0.015]	[0.015]	[0.015]
Other Controls	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Adj-R^2	0.95	0.95	0.94	0.94
No Obs	26111	26111	23381	23381

Panel B: Advertising spending around stock- and cash-financed mergers				
	[1]	[2]	[3]	[4]
$PreEvent_t$	0.037	0.017	0.003	0.009
	[0.050]	[0.062]	[0.019]	[0.025]
$Event_t$	0.140***	0.098*	-0.017	-0.030
	[0.042]	[0.052]	[0.016]	[0.020]
$PostEvent_t$	0.025	0.023	0.014	0.024
	[0.044]	[0.056]	[0.020]	[0.026]
$PreEvent_t \times AMT$		0.048		-0.047
		[0.051]		[0.126]
$Event_t \times AMT$		0.104**		0.104
		[0.053]		[0.092]
$PostEvent_t \times AMT$		0.003		-0.069
		[0.042]		[0.125]
$SALES_{t-1}$	0.208***	0.208***	0.274***	0.274***
	[0.030]	[0.030]	[0.017]	[0.017]
$ASSETS_{t-1}$	0.414***	0.412***	0.447***	0.447***
	[0.040]	[0.040]	[0.021]	[0.021]
Other Controls	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Adj-R^2	0.94	0.94	0.96	0.96
No Obs	4446	4446	15806	15806