Effect of Analysts' Earnings Pressure on Marketing Spending and Stock Market Performance

Abstract

Despite the clearly visible effects in the popular press of analysts' pressures on C-level executives, there is limited evidence on their effects on marketing spending decisions. This study asks two questions. First, how do analysts' pressures affect firms' short-term marketing spending decisions? Based on a sample of 2,706 firms during 1987-2009 compiled from Institutional Brokers Earning System, COMPUSTAT, and CRSP databases we find firms cut marketing spending. Second, more importantly, we ask if firms which remained more committed in the past to marketing spending under analysts' pressures have higher longer-term stock market performance. We find the stock market performance of firms more committed to marketing spending under past periods of analysts' pressures is higher. The findings are replicated for R&D spending, and robust across measures, controls, and methodologies. Consideration of two industry-based moderators, R&D spending and revenue growth, and one firm-based moderator, whether the firm is among the industry's top four market share or other lower share firms, reveals that the findings are stronger for high R&D and growth industries and lower market share firms. One key implication is that top executives respond to analysts' pressures by cutting marketing spending in the short-term, however, if they can resist these pressures, longer-term stock market performance is higher.

Keywords: Marketing Spending; Analysts' Earnings Expectations; Stock Market Return; Value of Marketing

"When all companies are quarterly earnings–obsessed, the market starts punishing companies that aren't yielding an instant return. This not only creates a big incentive for bogus accounting, but also it inhibits the kind of investment that builds economic value." (Turner, 2005)

Introduction

Marketing struggles to justify obtaining resources from the firm, usually being the first to receive cuts when times get tough. This problem becomes harder on the marketing department as CEOs and CFOs experience pressures from analysts to meet earnings expectations. On the one hand, firms must continue to invest in order to meet or exceed customer expectations by providing quality products and services to established and new markets. On the other hand, analysts' earnings expectations are a top priority for C-level executives responsible for mandating cuts in spending, partly because they have performance measures that are closely tied to meeting analysts' expectations. The continuing need for investment in the firm in the presence of analysts' pressures creates a debate on cutting versus maintaining marketing spending, and exacerbating this debate is the lack of knowledge on the extent and timing of market performance for each course of action.

Consequently, this study asks two key unique questions to inform the debate. First, do pressures from analysts' earnings expectations affect firms' marketing spending decisions in the short-term? Analysts' pressure is defined as the gap between the consensus of analysts' earnings forecast and the company's expected earnings. Expected earnings during a period are computed as the sum of earnings in the previous period and the estimated change in earnings during the period. Marketing spending is defined as the difference between the actual and expected marketing spending to sales ratio. Based on I/B/E/S, COMPUSTAT and CRSP data on 2,706 firms during 1987-2009, our *first* finding is that *firms under analysts' pressures cut marketing spending in the short-term*. The result is consistent with the accounting view that marketing is a discretionary expense readily cut under analysts' pressures. The implication is that marketing

spending is not just based on the evolving needs of markets, products, or services over time but the evolving needs of top executives whose primary responsibility is to grow stock price and hence deal with analysts' pressures. An analysis of potential moderating variables, why certain firms or industries are more prone to reduce marketing spending under analysts' pressure reveals that our first finding is driven by industries with higher R&D spending.

Second, we ask if firms with greater past commitment to marketing spending under analysts' pressures have higher stock market performance in the longer-term. This question is important because commitment to marketing spending could be overspending on the firm's part, however overspending on the firm's part should not result in higher stock market performance. We employ a strategic variable; past commitment to marketing spending under pressure from analysts' earnings expectations. Commitment to marketing spending under analysts' pressures is defined based on the extent to which actual marketing spending is greater than expected during each past period when the firm was under analysts' pressures. We focus on past periods of analysts' pressures because these periods are the most difficult and tenuous periods in a firm's history with conflicting demands on spending versus cutting back. Such conflicting demands make it particularly difficult for firms to continue marketing spending to build assets such as brand equity, which can result in higher stock market performance. Our *second* finding is that *firms more committed in the past to marketing spending under analysts' pressures have higher stock market performance in the longer-term*, implying that marketing spending creates brand assets which improve stock market performance. An analysis of potential firm and industry based moderator variables reveals that this second finding is found to be driven by industries with higher R&D and growth, and firms belonging to the industry's lower market share firms.

The key managerial implication of our findings is straightforward – top executives indeed reduce short-term marketing spending in response to analysts' pressures, however, if they can resist these pressures and stay the course, they enjoy higher longer-term stock performance. C-level executives need to be explicitly aware of the longer-term gains that accrue from commitment to marketing spending under analysts' pressure. In many firms, top executives may not be aware of such gains. Our paper is aimed at the gap in awareness. In some firms top executives may be aware of such losses but continue to tradeoff losses for a number of reasons such as short-term incentive-based compensation (Currim et al., 2012), private information (Stein, 1989), Financial Accounting Standards Board's (FASB) Generally Accepted Accounting Principles (GAAP)[1], or executives' limited time horizons. How do such firms ensure that top executives under analysts' pressures do not cut marketing spending in the short-term, a decision which is counter-productive for the firm's longer-term stock performance (Lodish & Mela, 2007)? Why is this important? These questions are addressed under managerial implications in the final section of the paper.

Background

This section briefly reviews background literature in two steps. First, we (a) provide more information on analysts, who they are and what they do and (b) review literature from accounting, finance, and strategy, because a few works in those literatures have directly explored how executives respond to analysts' pressures. Second, we review the marketing literature because that literature has explored a few financial drivers (not analysts' pressure) of marketing spending and the relationship between marketing spending and stock market return. Our main purpose is to clearly outline our contribution relative to other works in both literatures.

[1] GAAP requires marketing spending to be completely expensed in the current period while benefits may be observed much later.

Literature in Accounting, Finance, and Strategy

Financial analysts are specialists, employed by investment banks and brokerage firms, who issue research reports that reflect their understanding of the firm's industry, strategy, and management quality, along with specific stock recommendations and earnings forecasts (Schipper, 1991). There are two findings regarding why analysts' forecasts result in pressure on managers. First, past literature shows an optimism bias in analysts' forecasts and recommendations (Chopra, 1998; Dreman & Berry, 1995), which has been attributed to conflicts of interests, such as incentives to get or maintain underwriting businesses with the covered firm (Dechow et al., 2000; Dugar & Nathan, 1995; Lin & McNichols, 1998; Michaely & Womack, 1999), or to generate sales and trading commission for the brokerage house (Cowen et al., 2006). Second, the optimism bias is exacerbated by a herding bias, due to career and reputation concerns. Inexperienced analysts who deviate from the consensus and miss the forecast are more likely to lose their jobs (Dechow et al., 2000). Consequently, analysts tend to release forecasts close to those previously announced by other analysts, even when this is not supported by their information or judgement (Trueman, 1994). These optimism and herding biases increase the earnings pressure problem for managers (Zhang & Gimeno, 2010).

Past research in accounting, finance, and strategy has explored four ways in which top executives respond to pressures from analysts' earnings expectations; (a) by ignoring it (King, 2004); (b) managing expectations (earnings guidance) by communicating more effectively with capital market agents (Bernhardt & Campello, 2007); (c) engaging in "creative accounting", such as capitalizing rather than expensing some costs (Burgstahler & Eames, 2006; Degeorge et al., 1999) or (d) altering business decisions (e.g., cutting spending) to accommodate analysts'

pressures (Graham et al., 2005). Our study focuses on the fourth type of response to analysts' earnings expectations.

In contrast to our work, other examples of making business decisions to accommodate analysts' pressure have been based on limited samples, in a particular industry, or are limited to a particular product category or shorter time period. For example, in the strategy literature, Zhang and Gimeno (2010) find that analysts' pressures encourage dominant firms in the U.S. electricity generation industry to exercise market power by restricting output and increasing prices to increase short-term earnings even if it undermines longer-term competitiveness. In the accounting literature, Cohen et al. (2010) find that firms reduce advertising spending to avoid losses and decrease in earnings, based on proprietary data on advertising spending gathered during 2001-2006 by monitoring multiple media channels. They classify "firms that are suspected to have managed earnings" as those which reported barely positive earnings, earnings growth, or earnings that just met consensus analysts' forecast, an ex-post measure, in that their measure employs reported earnings subsequent (ex-post) to any business decision to identify suspect firms. Chapman and Steenburgh (2011) find that soup manufacturers expected to manage earnings upwards at year end during 1985-1988 employ more frequent temporary price promotions in two cities and shift promotions away from smaller revenue brands to larger revenue brands, even if it means sacrificing long-term value. In their study, an ex-post measure based on whether earnings targets were met in prior periods is employed. In contrast, our measure of analysts' pressure is ex-ante, based on analysts' pressure prior to the business decision, because we are interested in the effect of analysts' pressure on marketing spending decisions and stock market return without using marketing spending or stock market return to identify suspect firms.

Furthermore, there are a couple articles in the accounting literature on the effect of pressures from analysts' expectations on R&D spending and investment decisions. Bushee (1998) studies the impact of institutional investors (rather than analysts) on R&D spending (rather than marketing spending) to meet short-term (rather than longer-term) earnings goals. Roychowdhury (2006) and Cohen and Zarowin (2010) study earnings management of discretionary expenditures including R&D, to meet earnings targets and operating performance (rather than stock return), respectively. Marketing and R&D are conceptually different variables. In this study the correlation between the two spending variables is -0.06 which suggests that marketing spending is a separate and important variable for the marketing literature, i.e., we need to know managers' behavior and the stock market's reaction to their behavior.

In summary, while there are studies in the accounting, finance, and strategy literatures on the effects of analysts' pressure, there is little literature on the effects of analysts' pressures on business spending decisions (relative to engaging in creative accounting or communicating with capital market agents), and to the best of our knowledge, no literature on the effects of analysts' pressures on marketing spending decisions based on a large number of firms, industries, and time period. Most importantly, no study focuses on whether the stock market performance of a firm with greater past commitment to marketing spending under pressure from analysts' earnings expectations is higher or lower.

Literature in Marketing

Selected works from the Marketing-Finance Interface literature are presented in Table 1.

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There are two types of studies based on the choice of the dependent variables (DV), (i) when the DV is spending on R&D (value creation) or marketing (value appropriation), and (ii) when the

DV is stock market performance (stock return, idiosyncratic risk, IPO underpricing and trading, firm value, etc.). The first type of study explores the drivers of R&D or marketing spending, while the second type of study explores the relationship between R&D or marketing spending and stock market performance. For example, the first type of study investigates how the equity to bonus ratio of top five executives, past stock returns and volatility, experience of CEOs, and marketing and R&D intensity drive R&D and marketing spending.

To the best of our knowledge there is very little if any work that explicitly considers our two research questions. To the extent that our results are indicative of myopic management of marketing resources, Mizik (2010) and Mizik and Jacobson (2007) address how myopic management of marketing spending, e.g., at the time of a seasoned equity offering (SEO), lowers stock market performance in the long run. Our two important findings contribute to the theory of myopic management by (a) considering a new antecedent variable other than SEO, i.e., analysts' pressure, that is computed before marketing spending is realized, i.e., ex-ante (not ex-post), (b) introducing a new strategic variable, commitment to marketing spending during periods of analysts' pressure, which is found to drive stock market performance, and by (c) including all firms in the empirical analysis, not just firms with negative earnings surprises (Mizik, 2010), or firms embarking on seasoned equity offerings (SEOs) (Mizik & Jacobson, 2007). These differences are important because (i) analysts' pressure is much more pervasive or frequent than SEOs and (ii) the ex-ante variable (relative to the ex-post measure) is not susceptible to marketing spending manipulation during the period. In the additional analyses section, we show that the effect of analysts' pressure on marketing spending is statistically significant even after we control for (i) SEOs and (ii) other ex-post earnings pressure measures.

Hypotheses

In this section, we develop two hypotheses on the effects of (i) analysts' pressures on marketing spending; and (ii) commitment to marketing spending through past periods of analysts' pressures on stock market returns.

Effect of Analysts' Earnings Expectations on Marketing Spending

The hypothesis on the effect of analysts' pressures on marketing spending is based on the simple notion and finding from accounting/finance research that managers are motivated to meet earnings expectations to avoid stock price declines and they may even do this by cutting spending in the short-term in a way that compromises long-term performance. One reason is that the stock-based compensation of top five executives is based more on current/near-term stock prices (Currim et al., 2012).

When analysts' pressures put the stock prices of firms at risk, top executives can employ a variety of cost reduction (e.g., cutting marketing, R&D, overhead maintenance, employee training programs, travel budgets, or overproduction to lower cost of goods sold) or revenue generating (e.g., selling assets or price discounts) strategies (Dechow & Sloan, 1991; Roychowdhury, 2006); all being possible ways to help boost earnings. Cost reduction or revenue generation strategies are important because decreases (increases) in earnings are associated with declines (increases) in price earnings multiples (Barth et al., 1999). In addition, firms that meet or beat current analysts' earnings expectations enjoy a higher return than firms with earnings forecast errors that fail to meet expectations since investors know when analysts' expectations are met (Bartov et al., 2002). However, cost reduction strategies, relative to revenue generation, have more certain short-term impacts. Mizik (2010) refers to this as "inter-temporal borrowing" of earnings or "myopic management" because the manager is increasing earnings in the short-

term by cutting marketing investments shown to have long-term effects (Srinivasan & Hanssens, 2009), without necessarily letting investors know the tradeoff made (Dichev et al., 2012).

H1: An increase in pressure from analysts' earnings expectations will be associated with a current period decrease in firms' marketing spending.

Effect of Commitment to Marketing Spending under Analysts' Pressures on Stock Market Return

The second hypothesis suggests that greater commitment to marketing spending through past periods of pressures from analysts' earnings expectations will be useful to build marketing assets over time and higher longer-term stock market performance. The hypothesis relies on studies in the marketing literature which link marketing assets to stock market returns and provide a rationale to support the effects of greater commitment to marketing spending through past periods of analysts' pressures on future stock market returns. These studies focus on marketing assets such as perceived product quality (Aaker & Jacobson, 1994); brand equity (Barth et al., 1998); brand attitude (Aaker & Jacobson, 2001); customer lifetime value (e.g., Gupta et al., 2004) and customer satisfaction (e.g., see Gupta & Zeithaml, 2006 for a review).

The theory is that these marketing assets protect the firm from price competition created by lower quality brands (Blattberg et al., 1995), because they reduce product substitutability (Mela et al., 1997), lower price sensitivity (Kaul & Wittink, 1995), and increase customers willingness to pay a price premium (Ailawadi et al., 2003). These assets also increase the receptiveness and loyalty of consumers and distributors (Kaufman et al., 2006), help the firm enter new markets (Srivastava et al., 1998), up-sell and cross-sell customers (Kamakura et al., 2003), and protect pioneering firms by enabling a higher level of marketing effectiveness (Bowman & Gatignon, 1996).

Consequently, greater commitment to marketing spending (advertising, customer service, etc.) through past periods of analysts' pressures can create and reinforce marketing assets which can improve financial performance (Barth et al., 1998). In contrast, lower commitment to marketing spending through past periods of analysts' pressures can lead to price discounting (Neslin, 2002) and brand erosion, which lowers reference price (Kalyanaram & Winer, 1995) and future financial performance (Barth et al., 1998). This is a key reason why managers may want to resist cutting marketing spending under analysts' pressures. What makes greater commitment to marketing spending under analysts' pressures special is that it allows continuous reinforcement and maintenance of marketing assets even through the most challenging times during which there is pressure at the highest levels in a firm, i.e. the CEO and CFO, to reduce spending and allow assets to deteriorate, in order to avoid a lower short-term stock market return. Consequently:

H2: Firms' greater commitment to marketing spending through past periods of analysts' pressures will be positively associated with current period stock market returns.

If H2 is found to be true, in order to achieve the higher stock market performance associated with commitment to marketing spending and asset creation (H2), managers will need to resist the short-term motivation to cut marketing spending when under analysts' pressures (H1). In our context, the difference between analysts' forecasts and the firm's expected earnings is observed at the beginning of the year, which influences marketing spending during the year, and consequently affects firm performance at the end of the year (Figure 1). There may be other performance based drivers of spending (H1), such as Market-to-Book, ROA, and liquidity, which will be employed as controls described in the model section to test H1.

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Basically, if H1 and H2 are supported, the story can be summarized as follows: Firms respond to analysts' pressures by cutting short-term marketing spending (H1), however, if they can resist these pressures and stay the course with their marketing investments; they will enjoy higher longer-term stock performance (H2).

Moderation Effects

As indicated earlier we explore firm and industry based moderator variables to determine whether and why certain firms or industries (a) are more prone to reduce marketing spending under analysts' pressure and (b) have higher stock market performance associated with commitment to marketing spending. For example, we explore industries with high versus low (i) R&D spending and (ii) growth. We choose industry R&D spending and growth because industries with high R&D spending (and growth) are innovation oriented, e.g., focused on value creation through new products over value appropriation through marketing spending. Consequently, when under analysts' earnings pressure, firms in these industries are more likely to decrease short-term marketing spending. However, it is also possible that high R&D spending and growth industries need to inform and persuade markets more frequently about their more frequent product introductions which would suggest a greater importance of commitment to marketing spending in the longer-term or association with stock market performance. We also explore firms which belong to an industry's top four market share firms versus other lower market share firms. We choose high versus low market share firms because when under analysts' pressure lower market share firms, because of their follower status, may be more likely to cut short-term marketing spending than leading firms. However, it is also possible that lower market share firms may benefit more in the longer-term by remaining committed to marketing spending, i.e., experience higher stock market performance, because the commitment to marketing

spending builds brand assets in the longer-term, relative to higher market share firms with established brand assets.

Model

We present the model in two steps; (1) the major variables involved in hypothesis testing, i.e., marketing spending, analysts' pressure, commitment to marketing spending under past periods of analysts' pressure, and stock market returns, followed by (2) the models for hypothesis testing.

Marketing Spending

Marketing spending is defined as the difference between firm i's actual marketing spending (M_{it}) and the normal (expected or predicted) marketing spending ($\hat{M}_{it}$) to sales ratio at time t, in order to consider the unexpected marketing spending during the period. This definition allows marketing spending to be benchmarked by what is predicted or expected during the time period based on observations of past spending and returns on assets. Following Anderson and Hsiao (1982), Mizik and Jacobson (2007), and Mizik (2010), the expected marketing spending is estimated using a time-series panel data model with two period lags:

$$\begin{aligned} M_{it} - \overline{M}_t = {} & \delta_{0i} + \delta_1 (M_{it-1} - \overline{M}_{t-1}) + \delta_2 (M_{it-2} - \overline{M}_{t-2}) + \delta_3 (ROA_{it-1} - \overline{ROA}_{t-1}) \\ & + \delta_4 (ROA_{it-2} - \overline{ROA}_{t-2}) + \mu_{it} \end{aligned} \quad (1)$$

where M_{it} = Marketing spending to sales ratio of firm i during year t where marketing spending is defined as SG&A excluding R&D, $\overline{M}_t$ = Mean for the M_{it} series during year t to adjust for the time effect of marketing spending, ROA_{it} = Return on assets of firm i during year t, and $\overline{ROA}_t$ = Mean for the ROA_{it} series during year t. We then predict $\widehat{M}_{it}$ using the estimated coefficients in the model above.

$$\begin{aligned} \widehat{M}_{it} - \overline{M}_t = {} & \hat{\delta}_{0i} + \hat{\delta}_1 (M_{it-1} - \overline{M}_{t-1}) + \hat{\delta}_2 (M_{it-2} - \overline{M}_{t-2}) + \hat{\delta}_3 (ROA_{it-1} - \overline{ROA}_{t-1}) \\ & + \hat{\delta}_4 (ROA_{it-2} - \overline{ROA}_{t-2}) \end{aligned} \quad (2)$$

Finally, we compute $M_{it} - \widehat{M}_{it}$ to determine the unexpected marketing spending to sales ratio or whether the firm increased or decreased marketing spending relative to the expected marketing spending to sales ratio. Although SG&A spending has limitations, two primary advantages over advertising spending are that SG&A spending (i) is reported more frequently than advertising spending and (ii) includes other promotion or commercialization effects, e.g. direct sales, distribution, market research, trade promotions, and related activities, which are important in industries where commercialization is primarily accomplished through means other than advertising (Brower & Mahajan, 2013). Consequently, while the SG&A-R&D measure contains some non-marketing spending, it contains more types of marketing spending than advertising does. Table 1 shows there is precedence in the literature for the use of SG&A–R&D based marketing spending measures.

Analysts' Pressure

We define analysts' pressure, AP_{it}, following the strategy literature, as the gap between consensus of analysts' earnings forecast and the company's expected earnings (Zhang & Gimeno, 2010). The firm's expected earnings are not a simple extrapolation of past earnings but based on earnings in the past period *as well as* recent stock returns, which includes all new market information such as changes in the external environment (e.g., demand) and internal operations (e.g., new products). Specifically, following Zhang and Gimeno (2010), we estimate the analysts' pressure that firm i faces at the beginning of year t as the difference between a consensus of analysts' earnings per share (EPS hereafter) forecasts for year t, F_{it}, and the estimate of its expected earnings, $E[EPS_{it}]$, standardized by its stock price at the end of year t-1:

$$AP_{it} = (F_{it} - E[EPS_{it}])/\text{Stock Price}_{it-1} \quad (3)$$

We adjust earnings pressure by the firm's stock price at the beginning of the year, following

Skinner and Sloan (2002). The main reason for this adjustment is that, although earnings are comparable across firms, EPS are not comparable because firms vary in the number of shares outstanding. In other words, the number of shares outstanding is decided by each firm because companies differ on their tendency to split stocks to make shares more affordable, hence EPS varies across firms. For example, a $1 EPS gap (between the consensus of analysts' EPS forecast and the company's expected earnings) for Facebook is large (latest EPS = $3.47, outstanding shares = 2.35B), but will be very small for Berkshire Hathaway (latest EPS = $14,155, outstanding shares = 784,669). Dividing by stock price (per share) provides an adjustment to earnings pressure as a percentage of stock price, which enables comparisons across firms. The reason for employing a lagged value of stock price (t-1) instead of a concurrent stock price (t) is as follows. Analysts' pressure at time t is based on expected EPS at time t which in turn is dependent on realized EPS at t-1 and the expected change in EPS from t-1 to t. Therefore, we scale the numerator by Stock Price at t-1 in the denominator. Expected earnings $E[EPS_{it}]$ is calculated as the sum of the firm's earnings in year t-1 and the estimated change of its earnings in year t:

$$E[EPS_{it}] = EPS_{it-1} + E[\Delta EPS_{it}] \quad (4)$$

Our operationalization is identical to Zhang and Gimeno (2010)'s method, adopted from Matsumoto (2002) in the accounting literature, to estimate the change of a firm's earnings in year t. In particular, we use the following regression to estimate the changes of EPS using all other firms in the same industry in the prior year:

$$\Delta EPS_{it}/P_{it-1} = \alpha_{0jt} + \alpha_{1jt}(\Delta EPS_{it-1}/P_{it-2}) + \alpha_{2jt} CRET_{it-1} + \theta_{it} \quad (5)$$

where ΔEPS_{it} = EPS for firm i in year t minus EPS for the same firm in year t-1; P_{it} = price per share for firm i at the end of year t; and $CRET_{it}$ = cumulative daily excess return for firm i in year

t obtained from CRSP. Returns are cumulated from 3 days after the last yearly earnings announcement to 5 days prior to the last round of analysts' earnings forecasts made before year t starts. The specification of the equation above adjusts differential earnings gaps by stock price (high versus low) to allow comparisons of differential earnings gaps across firms (growth versus value). The rationale is that growth firms have higher earnings expectations but also higher stock prices relative to their EPS bases. Subsequently, we use the parameter estimates from the prior firm-year to calculate the expected changes in EPS at the beginning of year t by:

$$E[\Delta EPS_{it}] = [\hat{\alpha}_{0t-1} + \hat{\alpha}_{1t-1}(\Delta EPS_{it-1}/P_{it-2}) + \hat{\alpha}_{2t-1}CRET_{it-1}] \times P_{it-1} \quad (6)$$

This measure of analysts' pressure is different from the one used by Payne and Robb (2000). They use the gap between earnings forecast consensus and pre-managed earnings, where pre-managed earnings are calculated as reported earnings minus discretionary accruals (Jones, 1991), to measure pressure to meet earnings forecast consensus. Although the Payne and Robb (2000) measure is appropriate to identify accounting manipulations to meet earnings expectations, it is less applicable in our context. Our focus is to determine whether and how analysts' pressure at the beginning of the period (i.e., ex-ante) subsequently impacts marketing spending during the period. Their measure can only be calculated after earnings are announced (i.e., ex-post), and only capture analysts' pressure that could not be met through changes in marketing spending or other business decisions. Our measure of analysts' pressure is also different from other ex-post measures employed by Mizik (2010) and Chapman and Steenburgh (2011) to motivate earnings manipulation, i.e., (i) whether and how much EPS_t is lower than analysts' consensus forecast in period t, (ii) whether and how much EPS_{t-1} is lower than EPS_{t-2} and (iii) whether and how much EPS_{t-1} is lower than analysts' consensus forecast in period t-1. The correlation between our and their two measures is about 0.2. In our analysis and additional analysis sections we show that our

results hold when we do not, as well as when we do control for these other pressure measures, respectively.

Commitment to Marketing Spending Under Past Periods of Analysts' Pressures

$MCmt_{it}$ is past commitment to marketing spending under analysts' pressure and defined as follows:

$$MCmt_{it} = \sum_{p=0}^{P} d_{it-p} AP_{it-p} \left(M_{it-p} - \hat{M}_{it-p}\right) e^{-p} \quad (7)$$

$$\text{where } d_{it-p} = \begin{cases} 1 \text{ if } (M_{it-p} - \hat{M}_{it-p}) \geq 0 \text{ and } AP_{it-p} > 0 \\ 0 \text{ otherwise} \end{cases}$$

where p is defined as all past periods in the firm's history during which it demonstrates commitment to marketing spending ($M_{it} - \hat{M}_{it}) \geq 0$ under analysts' pressure ($AP_{it} > 0$)[2]. In such periods, d_{it-p} will take on a value of 1 and 0 otherwise. For each of the past periods during which the firm is under analysts' pressure and actual marketing spending is higher than expected, we consider the magnitude of unexpected marketing spending, i.e., deviation of actual marketing spending from the expected marketing spending to sales ratio (Mizik, 2010; Mizik & Jacobson, 2007), and the magnitude of analysts' pressure (Matsumoto, 2002; Zhang & Gimeno, 2010), and accumulate the resulting commitment over past periods in the firm's history. We take the product of unexpected marketing spending and analysts' pressures because a higher level of marketing spending relative to what is expected during the time period, in the presence of a higher level of

[2] Following the definition, all such periods in the firm's history between 1987 and 2009 are considered. Periods during which the firm does not exhibit commitment to marketing spending when under analysts' pressure or when the firm is not under such pressure are not considered under the summation sign. We conduct analyses related to such periods in the additional analyses section to investigate whether consideration of such periods affects results of hypothesis testing to confirm the robustness of the result.

analysts' pressure represent a higher level of the firm's commitment to marketing spending[3]. We employ discounting because past research has indicated that the benefit of accumulated experience and investments to organizations may decay over time (Argote et al., 1990). We assumed exponential (1/exp(p), where p = 1 to 3, 5, 10, or all past years), linear (1/p), and square discounting ($1/p^2$), however, we note in the results section that the results of testing H2 are not sensitive to different ways and time horizons of discounting[4].

Compounded Unexpected Stock Return

CAR, the dependent variable, is the compounded unexpected stock return defined following Mizik (2010) as follows:

$$CAR_{it} = \log\prod_{m=1}^{12}\left[1+\left\{Ret_{im} - E\left(Ret_{im}\right)\right\}\right] \quad (8)$$

where $E\left(Ret_{im}\right) = \hat{\varsigma}_{1i}\left(Ret_{market,m} - Ret_{risk\text{-}free,m}\right) + \hat{\varsigma}_{2i}SB_m + \hat{\varsigma}_{3i}HL_m + \hat{\varsigma}_{4i}MO_m$.

$\left(Ret_{market,m} - Ret_{risk\text{-}free,m}\right)$ is the risk-free market return; SB_m is the difference between the return on a value-weighted portfolio of small stocks and the return on a value-weighted portfolio of big stocks; HL_m is the difference between a value-weighted portfolio of high book-to-market stocks and the return on a value-weighted portfolio of low book-to-market stocks; MO_m is the momentum factor, the difference between the average return on the two [small and large size]

[3] It is not necessarily that, for example, MCmt in year 10 for firm A will be greater than MCmt in year 5 for firm B, even if an unlimited time frame is employed for the discounting. For example, if firm A had 10 of 10 years during which it did not maintain a commitment to marketing spending to sales ratio under analysts' pressure, then $d_{it\text{-}p}$ in eq. (7) will be 0 and hence MCmt will be zero. In contrast if firm B had 1 year of 5 during which it did maintain a commitment to marketing spending under analysts' pressure $d_{it\text{-}p}$ will be 1 for that 1 year so that MCmt will be higher for firm B relative to firm A. MCmt is also based on the magnitude of unexpected marketing spending. Consequently, two firms which are similar on the number of years during which they are committed to marketing spending under analysts' pressure, one firm can still have a higher MCmt than the other if one firm increases unexpected marketing spending more than the other.

[4] p is the time period which is variable across firms and comprises the entire history of the firm. If the history is 10 years p is 10. In addition to the entire history of the firm which varies over firms, we empirically tried several fixed values of p, 1-3, 5, and 10 years, to test whether the corresponding results are robust with respect to the statistically significant positive effect of commitment to marketing spending under analysts' pressure on stock market performance (H2) reported in the paper.

high-prior-return portfolios and the average return on the two [small and large size] low-prior-return portfolios computed in month m; which are available from Kenneth French's data library posted on his Web site. ς_{1i}, ς_{2i}, ς_{3i}, and ς_{4i} are generated from estimating the Fama and French three-factor model (Fama & French, 1992, 1996) augmented with the momentum factor as in the Carhart model (Carhart, 1997) for each firm i:

$$\mathrm{Ret}_{im} - \mathrm{Ret}_{\text{risk-free,m}} = \varsigma_{0i} + \varsigma_{1i}\left(\mathrm{Ret}_{\text{market,m}} - \mathrm{Ret}_{\text{risk-free,m}}\right) + \varsigma_{2i}\mathrm{SB}_{m} + \varsigma_{3i}\mathrm{HL}_{m} + \varsigma_{4i}\mathrm{MO}_{m} + \varphi_{im}$$

CAR_{it} at t=0 or CAR_0 is defined as current period abnormal returns, i.e., summed over months within a year. As a robustness check, we use (i) compounded or total stock returns in the current year (TSR_0) (Mizik, 2010; Mizik & Jacobson, 2007) and (ii) unexpected stock returns suggested by Barber and Lyon (1997)[5], $CTSR_0$ in the current year. This measure employs, for each sample firm, a control firm in the same industry with close market values and book-to-market ratios, enabling the computation of unexpected returns based on the difference between the stock returns for the sample firm versus the matched firm (Mizik & Jacobson, 2007). Note that TSR are raw returns in the current year hence firm and time fixed effects are included when testing H2 while CTSR are returns relative to matched firms in the same year consequently time effects are not included. Firm effects are included to allow for imperfections in matching. If matching is perfect firm effects will be insignificant.

Model to Test H1

The model to test H1 is:

[5] The measure proposed by Barber and Lyon (1997) requires choosing a control firm for each sample firm, from all firms in the same time period and two-digit standard industrial classification (SIC), with a market value of equity between 70% and 130% of that of the sample firm, and book-to-market ratio closest to that of the sample firm. We then calculate the unexpected return measure as the difference between the compounded stock market returns of the sample and matched firms.

$$M_{it} - \hat{M}_{it} = \beta_0 + \beta_1 AP_{it-1} + \beta_2 MTB_{it-1} + \beta_3 SLACK_{it-1} + \beta_4 ROA_{it-1} + \beta_{5t} YEAR_t + \varepsilon_{it} \quad (9)$$

For H1 to be supported, $\beta_1 < 0$. Earlier we provided details on the definition and estimation of the main dependent and independent variables, marketing spending ($M_{it} - \hat{M}_{it}$) and analysts' pressure (AP_{it-1}), respectively. Note that marketing spending is defined as actual marketing spending relative to predicted spending in a period. We looked at several finance/accounting and marketing papers to decide on the main controls. Consequently, while controls selected have precedence in the literatures, their inclusion is also supported by the following qualitative reasoning. When attempting to determine the effect of analysts' pressure on unexpected or abnormal marketing spending, one must control for other factors that may drive unexpected marketing spending. One such factor is the firm's resources measured either by previous period returns, e.g., ROA in the financial market (Hubbard, 1998) or firm liquidity or cash on hand, e.g., SLACK (Hubbard, 1998). Another factor which can drive unexpected marketing spending is the growth opportunity of the firm, e.g., Market to Book (MTB) (Kaplan & Zingales, 1997). Finally we include time fixed effects (YEAR) which control for other variables related to time such as the economy, competition, etc. MTB is calculated as the firm's market value divided by total book value of assets. SLACK is calculated as 1 minus the ratio of the firm's total book value of long-term debt-to-equity. ROA is calculated as the firm's net income divided by total book value of assets. These three control variables are lagged by one period because decisions in the current period are based on outcomes and opportunities observed in the prior period.

Model to Test H2

The model to test H2 is:

$$CAR_{it} = \beta_0^{'} + \beta_1^{'} MCmt_{it} + \beta_2^{'} \sum_{p=1}^{P} AP_{it-p} + \beta_3^{'} \sum_{p=1}^{P} \left(M_{it-p} - \hat{M}_{it-p}\right) + \beta_{4t}^{'} YEAR_t + \varepsilon_{it}^{'} \quad (10)$$

For H2 to be supported, $\beta_1^{'} > 0$ where $\beta_1^{'}$ is higher performance (if $\beta_1^{'} > 0$) or lower performance (if $\beta_1^{'} < 0$) for commitment to marketing spending. Note that CAR defined in eq. (8) is relative to the firm's predicted return in the period (not observed return in the previous period) which accounts for firm but not time fixed effects. Therefore, time fixed effects (YEAR) were included in eq. (10). MCmt defined in eq. (7) involves an interaction effect of abnormal marketing spending and analyst pressure accumulated over time. Consequently, the corresponding main effects of analyst pressure accumulated over time, $\sum_{p=1}^{P} AP_{it-p}$, and marketing spending accumulated over time, $\sum_{p=1}^{P} \left(M_{it-p} - \hat{M}_{it-p}\right)$, are included in eq. (10). Hence, market spending levels are included as differenced from predicted spending in the main and interaction explanatory variables in eq. (10).

Empirical Test

Sample

Our sample was compiled from Institutional Brokers Earning System (I/B/E/S), COMPUSTAT, and CRSP databases. The I/B/E/S database provides institutional analysts' expectations of several financial performance variables for U.S. publicly traded companies and summary statistics (e.g., mean, median, standard deviation) of institutional analysts' annual expectations for each company. Standard & Poor's COMPUSTAT database comprises financial information for all U.S. publicly traded companies, including marketing spending. CRSP's database maintains the stock price, return, and volume data for the NYSE, AMEX and NASDAQ stock markets. We combined the I/B/E/S, COMPUSTAT, and CRSP databases by year employing the

CUSIP/GVKEY match assigned to each firm. We combine the databases by year because firm budgetary decisions including marketing budgets are decided annually (Mizik, 2010; Mizik & Jacobson, 2007), although we test the hypotheses employing quarterly data as well to check the robustness of the results under the additional analysis section[6]. We build our sample from all companies that were in the COMPUSTAT database during the period of 1987-2009. We begin with 1987 because of the sparse observations in the I/B/E/S database before 1987. For each period or year in the annual data sets from COMPUSTAT we consider the analysts' pressure closest to the beginning of the year.

Results

Descriptive statistics of our sample are presented in Table 2. In Panel A, 1987-2009, we observe that on average, 58% of firms are under analysts' pressures, and 29% of firms cut marketing spending when under analysts' pressures. These observations reveal that analysts' pressure is a pervasive phenomenon, and that there is good variance in the sample on firm marketing spending behavior when firms are under analysts' pressures[7]. In Panel B, we provide the definitions, means and standard deviations for our dependent and independent variables including the sources of the variables. A frequency distribution of the number of firm-year observations employed for the prediction of unexpected marketing spending is provided in Online Appendix Table 1. Eq. (1) on unexpected marketing spending is estimated in order to test H1. That estimation involved 17,969 observations from 2,415 firms, with a mean number of 6 observations per firm. A correlation matrix of all variables employed in the corresponding

[6] Another reason we aggregate to the year is because there are more missing values of marketing spending data at the quarterly level. In the additional analysis section, we conducted an analysis at the quarterly level based on quarterly earnings pressure and found that the results on H1 and H2 are robust relative to aggregation to the year.

[7] The data in Table 2 are purely descriptive. In other words, in Table 2 we compute the percentage of firms under earnings pressure during a certain period which cut marketing spending from the previous period. This computation does not employ the corresponding model or the associated control variables to determine marketing spending.

models is provided in Online Appendix Table 2. The correlation between AP and control variables in model 9 to test H1 was found to be less than 0.2. The correlation between MCmt and other independent variables in model 10 to test H2 was found to be less than 0.2.

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Place Table 2 about here
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Next, we describe results of models testing H1 (eq. 9) and H2 (eq. 10). When estimating each of the two models to test H1 and H2, we dropped missing values. In other words, we estimated models based on the maximum sample available to maximize the quality of the parameter estimates employed to test H1 and H2. First, we describe results of testing H1 (Table 3). As hypothesized in H1, an increase in pressure from analysts' earnings expectations is found to be associated with a current year decrease in marketing spending relative to the expected marketing spending ($p<.01$). Consequently, H1 is supported[8]. Regarding the effect size, Online Appendix Figure 1 Panel A shows that when the average earnings pressure doubles from 0.03 to 0.06, unexpected marketing spending declines from -6.4% to -6.8% of total sales, or from -27.8% to -29.5% of total marketing spending. H1 is supported when we consider the marketing spending to asset ratio as well as the marketing spending to sales ratio. Regarding controls utilized, a firm's MTB ratio, SLACK, and ROA are found to be positively associated with unexpected marketing spending (all $p<.01$), indicating that its growth potential as judged by the capital market, its ability to spend as measured by its cash position, and its financial returns, all result in a higher than expected marketing spending to sales ratio.

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Place Table 3 about here

[8] The correlation between predicted and actual marketing spending is 0.70 showing the predictive power of the marketing spending model. The correlation matrix (Table 2, Panel C) indicates that the highest correlation between analysts' pressure and other explanatory variables considered in eq. (9) is 0.17 consequently collinearity concerns are mitigated. In addition, the errors of eq. (9) are found to be uncorrelated with the explanatory variables (correlations are less than 0.01).

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Second, to test H2, we report results in Table 4 for compounded unexpected stock return CAR_t (eq. 10) for t = 0. The model is estimated using a panel regression approach. In addition, we report results for total stock return, TSR_t, t = 0, and unexpected stock return (Barber & Lyon, 1997), $CTSR_t$, t = 0, to test whether the finding based on CAR_t is robust to different measures of stock market return. As hypothesized in H2, commitment to marketing spending through past periods of pressure from analysts' earnings expectations is found to be positively associated with stock market returns in the current period. Consequently H2 is supported[9]. Regarding the effect size, Online Appendix Figure 1 Panel B shows that when average marketing commitment doubles from 0.03 to 0.06, compounded abnormal return increases from -4.68% to -4.65%. We used the Hausman-Wu endogeneity test (Baum et al., 2003), to test whether marketing commitment is independent from remaining contemporaneous errors. We implemented the test using instruments that are lagged one period beyond the error term. The F-statistic was not significant ($F_{1,13113} = 1.76$, $p > 0.1$). This indicates that marketing commitment is not correlated with remaining contemporaneous errors, and consequently, we do not need instruments to control for endogeneity.

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Place Table 4 about here

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Moderation Effects

We explored the following industry based moderation effects that might strengthen or weaken the relationships we find in our analysis, (i) high versus low R&D industries (based on a median cut on R&D spending as a ratio of sales across industries), which reveals that our results on H1 (the short-term effect of analysts' pressure on marketing spending) and H2 (the longer-

[9] The correlation matrix (Table 2, Panel C) indicates that the correlation between the commitment variable and other explanatory variables employed in eq. (10) are less than 0.17 consequently collinearity concerns are mitigated.

term effect of commitment to marketing spending under analysts' pressure on stock market performance) are found to be driven by high R&D industries (Tables 5[10] and 6 respectively), and

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Place Tables 5 and 6 about here
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(ii) high versus low industry growth (based on a median split of 5 year compounded industry revenue growth), which reveals that while our results on H1 is observed for both high and low growth industries (Table 7), our results on H2 is driven by high growth industries (TSR and CTSR, Table 8). We also explored

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Place Tables 7 and 8 about here
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a firm-based moderator, whether the firm belongs to the industry's top four market share (based on the four-digit industry SIC code) or other lower market share firms, and found that while H1 is supported for both types of firms (Table 9[11]), the results on H2 are driven by lower market share firms (Table 10).

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Place Tables 9 and 10 about here
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Additional Analyses

We conducted a number of additional analyses aimed at testing the robustness of the results described in Tables 3 and 4 earlier. First, a commonly used approach in long-run event-studies is the calendar time portfolio (CTP) approach developed by Jaffe (1974) and Mandelker (1974), and recommended by Fama (1998). For each calendar year we compute the return of an equally-weighted portfolio of companies that have positive accumulated marketing commitment in the

[10] In Table 5,-.171 is statistically significantly different from 0 ($p<.01$) while -.03 is not statistically significantly different from 0.

[11] In Table 9 the coefficients for the effects of analysts' pressure on marketing spending (for top four market share firms in an industry versus other firms) are statistically significantly different ($p<.001$).

last year. The return of this "commitment portfolio" is denoted Ret_{um}, where u indicates that the portfolio consists of companies with positive accumulated marketing commitment and m denotes the calendar month. The Fama-French-Carhart four factor model (Carhart, 1997; Fama & French, 1992, 1996), is used to compute the unexpected return of this portfolio:

$$\text{Ret}_{\text{um}} - \text{Ret}_{\text{risk-free,m}} = \varsigma_{0u}^{'} + \varsigma_{1u}^{'}\left(\text{Ret}_{\text{market,m}} - \text{Ret}_{\text{risk-free,m}}\right) + \varsigma_{2u}^{'}\text{SB}_{\text{m}} + \varsigma_{3u}^{'}\text{HL}_{\text{m}} + \varsigma_{4u}^{'}\text{MO}_{\text{m}} + \varphi_{\text{um}}^{'}$$

where definitions of all independent variables are identical to those in the earlier section on Compounded Unexpected Stock Return. Assuming that the broad-market return and the Fama-French-Carhart four factors adequately describe average returns, the parameter of interest, $\varsigma_{0u}^{'}$, can be interpreted as the average unexpected return associated with holding this simulated portfolio. The results show that for the following 12 month, the average monthly unexpected return, $\varsigma_{0u}^{'}$, turns out as 0.2% ($p<0.001$). This suggests that the positive effects of the marketing commitment variable found in Table 4 are also robust with the alternative approach of calendar time portfolio returns.

Second, while the main results for H1 and H2 are for the marketing spending to sales ratio, we conducted similar tests for H1 and H2 employing the marketing spending to assets ratio (Mizik, 2010; Mizik & Jacobson, 2007). H1 is supported ($p<.05$); H2 is supported for CAR, TSR, and CTSR (each $p<.01$).

Third, we tested H1 and H2 for the R&D spending to sales ratio. R&D spending is another important decision, a commitment to which can lead to assets such as innovative products, brand building and stock market return. H1 is supported ($p<.01$); H2 is supported for CAR and TSR ($p<.01$).

Fourth, in addition to commitment to marketing spending under analysts' pressures there are three other strategic options, (i) commitment when not under pressure, (ii) lack of

commitment under pressure, and (iii) lack of commitment when not under pressure. We construct one variable for each of these three additional options in the model to test for the robustness of the H2 result and assess the effect of each additional option on stock return. The coefficients of the four commitment options indicate that greater commitment under pressure generates the largest positive returns for CAR and TSR ($p<.01$). Greater commitment under no pressure generates lower CAR and TSR ($p<.01$). Finally, a lack of commitment when not under pressure results in negative CAR ($p<.01$).

Fifth, we repeated the model estimations for testing H2 (Table 4) using additional controls for whether earnings were met or not. This is accomplished by adding three control variables, (i) earnings met with marketing spending cuts, (ii) earnings met without marketing spending cuts, and (iii) earnings not met with marketing spending cuts, all relative to the base level of earnings not met without a marketing spending cut. The results of testing H2 including the additional three controls are consistent with those reported in Table 4 without the three controls. Consequently, employing additional controls for whether earnings are met or not is found to reinforce the results described in the previous section.

Sixth, we computed the commitment measure employing an initialization period comprising 20% of the data. This initialization period is intended to overcome a potential weakness in measuring the commitment variable in earlier periods when there are not enough observations to compute the variable. The corresponding results when compared to Table 4 in the paper are remarkably similar, i.e., the coefficients of marketing commitment for CAR, TSR, and CTSR are positive ($p<.05$).

Seventh, we re-estimated models for quarterly data and found that H1 is also supported for quarterly data, i.e., the coefficient of AP_{it} is negative ($p<.01$). The results for H2 are similar for CAR ($p<.05$). Basically, there is overlap between the results of annual and quarterly data.

Eight, since R&D spending has been shown to be influenced by analysts' pressures we re-estimated the models controlling for R&D spending and found that the results of H2 are similar to those reported in Table 4 for CAR and TSR (both $p<.05$). Consequently, controlling for R&D spending reinforces the results described earlier which did not control for R&D spending.

Ninth, to investigate whether the results on H1 and H2 would be affected by error in the models on (i) marketing spending and (ii) analysts' pressures, we re-estimated the models to classify marketing spending (consensus of analysts' EPS expectation) as being increased over predicted spending (the estimate of expected earnings) when marketing spending (consensus earnings expectation) was not just greater than predicted spending (estimate of expected earnings) but one standard deviation greater than predicted spending (estimate of expected earnings). The results of H1 are similar to those reported in Table 3, i.e., the coefficient of AP is negative ($p<.01$). The results on H2 are similar to those reported in Table 4, i.e., the coefficient of MCmt for CAR is positive ($p<.05$). These results indicate that small differences between actual and predicted marketing spending or between consensus of analysts' earnings estimates and estimates of expected earnings are not driving the results reported earlier.

Tenth, we tested the robustness of our result on H1 controlling for (i) SEOs (Mizik & Jacobson, 2007) and (ii) other measures of earnings pressures in the literature, such as the measures employed by Mizik (2010) and Chapman and Steenburgh (2011); (a) whether and how much EPS_t is lower than analysts' consensus forecast in period t, (b) whether and how much

EPS_{t-1} is lower than EPS_{t-2} and (c) whether and how much EPS_{t-1} is lower than analysts' consensus forecast in period t-1. The results on H1 reported earlier in Table 3 hold when we control for SEOs and these other measures of earnings pressures[12].

Finally, we checked the results of H1 and H2 reported in Tables 3 and 4 respectively using (i) clustered standard errors by firm, and (ii) (1) estimating Newey–West standard errors with first-order autocorrelation error structure for coefficients estimated by OLS (for CAR0) and (2) cross-sectional time-series regression models with first-order autoregressive disturbance terms (for TSR0 and CTSR0). We found that the results reported in Tables 3 and 4 are robust. The coefficient of analyst pressure is negative and significant ($p<.01$) which supports H1 for both tests. The coefficient of marketing commitment for CAR, TSR, and CTSR is positive and significant at $p<.1$, $p<.01$, and $p<.05$, respectively, which supports H2 for TSR and CTSR for clustered errors and $p<.1$ for all measures employing the autocorrelation correction.

Discussion

This study makes two theoretical contributions which have significant implications for top executives. First, we consider a new antecedent variable, pressure from analysts' earnings expectations, which potentially drives firms' marketing spending. Not a day goes by without stories in the popular financial press about differences between firms' realized earnings and analysts' expectations, with CEOs or CFOs commenting on the differences. While there is (a) accounting and financial theory which is equivocal about whether or not analysts' earnings expectations drive general management decisions (Brown & Caylor, 2005; Jensen, 2005; Porter,

[12]We checked whether the effect of commitment is curvilinear in Table 4 by adding the square term of the commitment variable in the regression, and found its coefficient estimates are mostly statistically insignificant, or significant with a turning point outside the data range, suggesting a positive effect of commitment within the sample range of the commitment variable.

1992; Stein, 1989), (b) substantial anecdotal and some experimental or survey based evidence that analysts' pressures impact top executive decisions (Graham et al., 2005), (c) some empirical literature in accounting, finance, and strategy on the effects of analysts' pressures on general management and R&D decisions based on data on few firms in an industry over a limited time period (reviewed in the background section), and (d) limited empirical evidence about the effect of earnings pressures (e.g., from SEOs) on marketing spending (also reviewed in the background section), our main goal is to investigate and establish the short-term effect of analysts' pressures on firms' marketing spending decisions based on data on a large number of firms, industries, and time period. While earnings pressures from SEOs are important, analysts' pressures resulting from earnings expectations are felt more frequently by larger number of firms across industries. We find that pressures from analysts' earnings expectations are pervasive across the sample we study and, based on empirical models with extensive controls, are able to establish that marketing spending in the current year is negatively impacted by analysts' pressures (H1). This effect is consistent with the view that marketing is viewed by top executives as a discretionary expense which may create intangible assets, but readily cut in times of earnings pressure (Currim et al., 2012). An analysis of firm and industry based moderator variables reveals that this result is driven by high R&D industries.

Second, we investigate whether firms' past commitment to marketing spending under analysts' pressures, a strategic variable, is associated with longer-term stock market performance. Based on an empirical model and multiple measures of stock market return, we are able to establish that the stock market performance of firms with greater past commitment to marketing spending under analysts' pressures is higher (H2). In contrast to the first result, this second result demonstrates the longer-term financial value of commitment to marketing spending

under analysts' pressure, an important step in establishing marketing's accountability, in particular for CEOs and CFOs accustomed to thinking about marketing spending as discretionary and cutting marketing spending under analysts' pressure. An analysis of firm and industry based moderator variables reveals that this result is driven by lower market share firms and high R&D and growth industries.

Managerial Implications

There has been considerable concern about marketing's decreasing influence in the firm (Feng et al., 2015; Homburg et al., 2015; Reibstein et al., 2009; Rust et al., 2004), in the boardroom (Webster et al., 2005), and at the corporate strategy level (McGovern et al., 2004). Marketing is increasingly viewed as a cost and not as an investment (Morgan & Rego, 2009). Strategically important aspects of marketing have moved to other functions in the organization (Sheth & Sisodia, 2005) and the roles of financial managers have become more important than marketing managers (Nath & Mahajan, 2008). One main reason identified for this decline in marketing's influence is its lack of accountability (Lehmann, 2004; Verhoef & Leeflang, 2009). Further, global competition, recessions, and stock market pressures have only increased the demands for marketing accountability (Lehmann & Reibstein, 2006).

Consequently, one main question is how the accountability of marketing spending can be established in a firm. Scholars have suggested that there is a gap in communication at the highest management levels, and have suggested staffing solutions, i.e., appointing a Chief Marketing Officer (CMO) to the top management team, who can communicate marketing's accountability to CEOs and CFOs (Germann et al., 2015). However, Moorman (2013) reports that demonstrating marketing's value remains a challenge, even for CMOs. As a result, a key

question is how CMOs can demonstrate the value of marketing spending to CEOs and CFOs, who consider marketing spending as discretionary, i.e., readily cut under analysts' pressure.

The answer, in our view, is that CMOs employ a clear two-step empirical demonstration, (i) showing that firms like theirs and/or firms which operate in the industry in which their firm operates, do cut marketing spending under analysts' pressure (as we have established in H1), and (ii) showing the value of commitment to marketing spending under analysts' pressure, for the purpose of achieving better financial or stock market performance (as we have established in H2). Our analysis of firm and industry based moderator variables reveals that the commitment result is driven by lower market share firms and high R&D and growth industries. One potential explanation is that high R&D and growth industries are associated with frequent innovations which require customers be informed frequently, resulting in the importance of commitment to marketing spending. Another potential explanation is that lower market share firms have built less brand assets relative to top four market share firms, hence commitment to marketing spending under analysts' pressure is more important for the positive financial performance of lower market share firms. Another staffing solution is a CEO with a background in marketing. However, the number of CEOs with marketing backgrounds has decreased (Verhoef & Leeflang, 2009). Consequently, the two-step empirical demonstration remains a key priority for the CMO or the top marketing executive in the firm. Finally, what if CEOs and CFOs continue to cut marketing spending under analysts' pressure despite demonstration of the value of commitment to marketing spending under analysts' pressure? In such firms, the boards of directors will need to provide the correct advice for dealing with analysts' pressures, and compensation committees will need to develop longer-term incentives for top executives (e.g., increasing the equity to bonus ratio), so that top executives under analysts' pressures do not cut marketing spending in

the short-term, a decision which is counter-productive for firms' longer-term financial performance.

It would be interesting for future research to focus on the following issues. First, our original analysis of H1, i.e., the effect of analysts' pressure on marketing spending, considers the entire continuum of analysts' pressure, i.e., when it is positive and negative. Future research can conduct separate analyses for positive and negative analysts' pressures. Second, it would be useful to conduct a qualitative and quantitative study to investigate the mechanism through which firms withstand the pressure and improve long-term performance. Third, while we employed the Hausman-Wu endogeneity test to determine whether marketing commitment is independent from remaining contemporaneous errors, future research can investigate whether there are potential endogeneity concerns resulting from the CEO's background, the presence of a CMO, or compensation. Fourth, there are studies showing that some analysts (e.g., star analysts) may have a more salient impact on firm stock performance (e.g., Loh & Stulz, 2009). However, to the best of our knowledge, I/B/E/S has stopped providing the identities of individual analyst forecast data, most likely because revelation of identity could cause legal risks for analysts. Consequently, while differences in analysts and their impact on firm decisions is an interesting question to consider, it is not feasible, because of data reasons, to examine the influence of specific individual analysts on firm decisions. Perhaps future research can investigate the differences between star and other analysts, and the herding and optimism biases noted in the introduction of this article based on a survey. We hope others will investigate these issues in order to build on our work in academic and commercial settings.

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Table 1. Selected Works from the Marketing-Finance Interface Literature

Authors	Journal*	Main Research Findings	Main DV(s)	Main IVs	Main theory	Adopted Marketing Spending	Sample Characteristics
Dutta et al. (1999)	Mar Sci	Marketing, R&D, and operations capabilities, along with interactions among these capabilities, are determinants of relative financial performance	Sales, quality-adjusted technological output, cost of goods sold, and relative profitability	Base of technological know-how, stock of marketing expenditure, advertising stock, installed customer base, receivables, accumulated R&D expenditure, output, cost of capital, unit labor cost, relative R&D capability, relative marketing capability, relative operations capability	Resource-based view	$\frac{(SG\&A - R\&D)}{Total\ Assets}$	92 firms in SIC 3674 during 1985-1994
Mizik and Jacobson (2003)	JM	Stock market reacts favorably when a firm increases its emphasis on value appropriation relative to value creation	Abnormal stock return**	Strategic emphasis defined as the difference between advertising and R&D expenditures relative to assets	Value creation versus value appropriation	Advertising from COMPUSTAT	3480 observations from 566 different firms during 1980 – 98
Mizik and Jacobson (2007)	Mar Sci	Firms engage in myopic marketing management practices at the time of a seasoned equity offering (SEO) have inferior stock market performance in the long run	Abnormal stock return**	Categorical variables that indicate a firm's grouping in terms of abnormal Return On Asset (ROA) and abnormal marketing expenditure during an SEO	Theory of myopic management; Market signaling	$\frac{(SG\&A - R\&D)}{Total\ Assets}$	2,238 SEO-year events
McAlister et	JM	Advertising and R&D	Systematic	Advertising and	Creation of	Advertising	3198

al. (2007)		scaled by sales lowers a firm's systematic risk	risk	R&D scaled by sales	intangible assets by advertising and R&D	from COMPUSTAT	observations from 644 firms
Luo (2008)	JM	Firms' pre-Initial Public Offering (IPO) marketing spending helps reduce IPO underpricing and boost IPO trading in the stock market	IPO underpricing and IPO trading	Marketing spending and its moderation with cost reduction efficiency and number of historical IPOs	Market-based assets and customer equity	$\frac{(SG\&A - R\&D)}{Total\ Assets}$	1981 IPOs during 1996 – 2005
Mizik (2010)	JMR	Real myopic management activities have greater negative impact on future financial performance than the accounting accruals-based earnings inflation	Abnormal stock return**	A categorical variable that indicates whether a firm is myopic or not; A subset of myopic firms not engaging in aggressive accruals inflation	Hidden action model; Hidden information model (signaling, lemons problem, and information neglect)	$\frac{(SG\&A - R\&D)}{Total\ Assets}$	76,875 firm-year observations for 6,642 unique firms during 1986 - 2005.
Srinivasan et al. (2011)	JM	Effects of changes in firms' R&D and advertising spending in recessions on profits and stock returns are contingent on their market share, financial leverage, and product-market profile	Profit and stock return	R&D, advertising, size, market share, financial leverage, and recession dummy	Contingency theory	Advertising from COMPUSTAT	5,145 during 1969 – 2008
Steenkamp and Fang (2011)	Mar Sci	Increasing advertising (and R&D) share in contractions has a stronger effect on profit and market share than increasing	Market Share and profits	R&D share, advertising share, magnitude of economic contraction	Supply- and demand-side effects of economic contraction	Advertising from COMPUSTAT	1,175 firms during 1971 – 2005

		advertising share in expansions (albeit only in subsequent years). Advertising effectiveness in contractions is systematically moderated by the degree of cyclicality of the industry					
Kim and McAlister (2011)	JM	Unexpected growth in sales force expenditures leads to negative firm value. However, the relationship between advertising and firm value is contingent on whether the unexpected growth in advertising expenditure for firms that advertise below (above) the advertising response threshold is negatively (positively) related to firm value	Compounded abnormal stock returns (CAR) and unexpected change in the analysts' forecasts of firm value	Fundamental signals of advertising and sales force, which are calculated by the differences in annual percentage changes between advertising (or sales force) and sales	Interpreting unexpected increase in operational variables as a signal of loss of control; advertising's persistence effect; advertising threshold effect	A signal of marketing which includes advertising and sales force	17,077 firm-year observations
Chakravarty and Grewal (2011)	Mgmt Sci	Past behavior of firm stock returns and volatility may create investor expectations of short-term financial performance, which drives managers to modify either R&D or marketing budgets or	Unanticipated R&D and marketing budgets, past stock returns, past stock volatility, R&D, and marketing as endogenous variables in a Vector-Autoregressive with Exogenous variables (VARX hereafter) model.		Managerial myopia	Advertising from TNS Media Intelligence	8,915 observations of an unbalanced panel of 309 firms from four high-technology manufacturing industry

		both. Specifically, an increase in past stock returns and volatility tends to decrease in the unanticipated R&D budget and increase in the unanticipated marketing budget					groups during 1995-2009
Currim et al. (2012)	JM	An increase in the equity to bonus compensation ratio is positively associated with an increase in advertising and R&D spending as a share of sales. Advertising and R&D share of sales mediates the effect of equity to bonus ratio on stock market return	Advertising and R&D share of sales, and stock return	Equity to bonus ratio and controls	Myopic management of resources; motivational role of equity-based compensation	Advertising from COMPUSTAT	842 companies during 1993–2005.
Sridhar et al. (2014)	JAMS	Advertising spending and inventory holding increase sales. Advertising and R&D spending increase firm value. Firm spending in advertising, R&D, and inventory holding is positively affected by sales, but negatively by firm value	Advertising, R&D, inventory, sales, and firm value as endogenous variables in VARX		Spending decisions as adaptive learning; various past literature on the relationship among endogenous variables.	Advertising from COMPUSTAT	6,815 observations of 903 firms in high technology sector during 1990-2011
Feng et al. (2015)	JM	A powerful marketing department enhances firms' longer-term future total	Return on Asset, and Total Stock Return	Marketing department power, Market Based Asset (MBA)-building and	Resource attraction, inter-functional	SG&A to sales ratio, advertising to sales ratio, and	612 public firms in the U.S. during 1993-2008

		shareholder returns beyond its positive effect on firms' short-term ROA. Long-run Market Based Asset (MBA) building and short-run market based asset (MBA) leveraging mediate the relationship.		Market Based Asset (MBA)-leveraging capabilities	coordination, and top management team (TMT) attention based on the organization theory	the number of trademarks owned	
Gao et al. (2015)	JM	Boosting advertising spending before a recall announcement softens the stock price loss when the recall involves a newly introduced product with a minor hazard, but sharpens the loss when the recalled product is an established model with a major hazard. Cutting pre-recall advertising worsens the stock price loss when the recall involves a new product, regardless of the hazard.	Abnormal stock return	An increase and a decrease in pre-recall advertising for recalled products, and dummy variables to indicate the product newness and major hazard.	Signaling effect and expectation effect	Advertising from Kantar Media	110 automobile safety recalls
Lee et al. (2015)	Mar Sci	A corporate-level customer-centric structure leads to greater customer satisfaction, but simultaneously	Tobin's q	Customer-centric organizational structure	Market orientation	SG&A to capture the coordinating cost	1,241 observations representing 137 firms during1998 - 2010

		adds higher coordinating costs. However, the benefits of increased customer satisfaction diminish (1) as competitors have already adopted customer-centric structures, (2) in fragmented markets where competitors leave few unique customer needs unaddressed, and (3) in less profitable industries					
Chakravarty and Grewal (2016)	JMR	Bonus versus equity proportion of CEO compensation and throughput experience of CEOs enhance the likelihood of managers reacting to analyst forecasts with unanticipated decreases in advertising and R&D budgets. In contrast, output experience of CEOs and increasing marketing and R&D intensity decreases this likelihood. Unanticipated adjustments in advertising and R&D	Unanticipated quarterly advertising and R&D budgets	Bonus versus equity proportion in CEO compensation, analyst forecast dispersion, output and throughput experience of CEOs, and marketing and R&D intensity.	Agency theoretic monitoring and bonding costs	$\frac{SG\&A}{Total\ Assets}$	Quarterly data of 515 firms during 2001-2009 with SIC codes 3570-3695.

		budgets adversely affect long-term firm returns and risk.					
Hsu et al. (2016)	JAMS	Sub-branding is associated with higher abnormal returns and risks than the branded house strategy; endorsed branding is associated with lower idiosyncratic risk than sub-branding; the hybrid branding is associated with lower idiosyncratic risk than the branded house strategy	Abnormal stock return, systematic risk, and idiosyncratic risk	Five dummy variables to indicate branding strategies (branded house, sub-branding, endorsed branding, house-of-brands, and hybrid)	Brand architecture strategy and firm performance	Advertising to total asset ratio	302 firms
Mishra and Modi (2016)	JM	Effects of overall CSR efforts on stock returns and idiosyncratic risk are not significant on their own but only become so in the presence of marketing capability. Marketing capability has positive interaction effects with verifiable CSR effort, but no significant interaction effects with community-based efforts	Stock return and idiosyncratic risk	Relative marketing capability and CSR	Agency theory versus stakeholder theory	SG&A, accounts payable, and technological know-how reflected in patent stock for input resources.	1,725 firms during 2000-2009
This paper	JAMS	An increase in analysts' pressure is associated with a decrease in firms'	Marketing Spending, Abnormal,Stock Return	Analysts' pressure for marketing spending and commitment to	Myopic management	$\frac{(SG\&A - R\&D)}{Total\ Assets}$	2,706 firms during 1987-2009

		marketing spending. However, firms' greater commitment to marketing spending through past periods of analysts' pressures will be positively associated with current period stock market returns.		marketing spending through past periods of analysts' pressure for stock return			

* JAMS: *Journal of Academy of Marketing Science*, JBE: *Journal of Business Ethics*, JM: *Journal of Marketing*, JMR: *Journal of Marketing Research*, Mar Sci: *Marketing Science*, Mgmt Sci: *Management Science*
**Abnormal stock return: the difference between the actual and expected return, given the market and firm risk characteristics

Table 2. Descriptive Statistics

Panel A. Number of firms included by year

Year	Mean	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Number of Firms		318	383	453	494	522	586	665	725	740	759	835
% of firms under analysts' pressure	58.1	69.5	72.6	66.0	63.2	66.9	63.0	68.4	62.2	63.1	55.6	60.5
% of firms under earnings pressure cutting marketing spending	29.5	11.6	9.7	10.4	8.1	13.0	25.4	22.9	21.1	32.2	37.7	52.6
Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Number of Firms	883	851	838	853	876	917	1047	1129	1116	1064	953	958
% of firms under analysts' pressure	60.5	62.2	56.6	59.3	55.5	55.9	49.4	43.8	53.0	50.2	56.7	61.2
% of firms under earnings pressure cutting marketing spending	25.4	62.0	31.4	57.7	27.3	7.5	34.7	19.8	52.7	46.2	51.3	48.5

Panel B. Means and Standard Deviations

Variables		Definition	Number of observations[13]	M	SD	Source
Main Independent variables	$Mktg_{it}$	Actual – Expected marketing spending/sales	17,426	-0.064	0.251	COMPUSTAT
	AP_{it}	Pressure from Analysts' Earnings Expectations	17,426	0.029	0.085	IBES
	$MCmt_{it}$	Marketing Commitment Under Analysts' Pressure	17,969	0.027	0.969	COMPUSTAT
Dependent Variables	CAR_0	Compounded Unexpected Risk-adjusted Stock Returns for the current period	16, 619	-0.042	0.554	CRSP
	TSR_0	Total Stock Market Returns for the current period	17, 969	0.122	0.519	CRSP
	$CTSR_0$	Barber and Lyon's Control-Adjusted Unexpected Stock Returns for the current period	16,670	-0.022	0.755	CRSP
Controls	MTB	Market-to-Book Ratio	17,426	1.455	1.268	COMPUSTAT
	SLACK	Liquidity	17,426	1.022	0.266	COMPUSTAT
	ROA	Return on assets	17,426	0.026	0.151	COMPUSTAT

[13] To test the two hypotheses we employ the maximum sample available in order to achieve the highest quality parameter estimates. The results of testing H1 presented in Table 3 are based on 17,426 observations for marketing spending (MKTG), analysts' pressure (AP), and three controls (MTB, SLACK, and ROA). The results of H2 presented in Table 4 for CAR, TSR, and CTSR are based on 16,619, 17,969, and 16,670 observations respectively.

Table 3. Effect of Pressure from Analysts' Earnings Expectations on Marketing Spending to Sales Ratio Decisions

	$M_{it} - \hat{M}_{it}$ Unexpected Marketing Spending to Sales Ratio (Actual −Predicted)
Main Independent Variable	
AP_{it}	-0.139*** (0.014)
Control Variables	
MTB	0.020*** (0.001)
SLACK	0.102*** (0.005)
ROA	0.609*** (0.011)
Intercept and Dummies	
Intercept	-0.018** (0.008)
Year Fixed Effects	Included
Number of Observations	17,426
Number of Firm Dummies	2,706
Adj. R^2	0.682

* p<.1, ** p <.05, *** p<.01, respectively, in a two-tailed test. Pressure from analysts' earnings expectations is a continuous variable. Control Variables enter in lagged form. The result on the effect of pressure on marketing spending also holds if we use the marketing spending to asset ratio.

Table 4. Relationship between Commitment to Marketing Spending to Sales Ratio Under Analysts' Earnings Pressures and Stock Market Return

Main Independent Variables	CAR_0	TSR_0	$CTSR_0$
$MCmt_{it}$	0.010**	0.014***	0.018**
	(0.005)	(0.005)	(0.008)
$\sum_{p=1}^{P} AP_{it-p}$	0.015***	-0.000	0.005
	(0.004)	(0.004)	(0.007)
$\sum_{p=1}^{P}(M_{it-p} - \hat{M}_{it-p})$	0.005	0.001	0.001
	(0.005)	(0.005)	(0.008)
Intercept and Dummy Variables			
Intercept	0.055*	0.185***	-0.020***
	(0.033)	(0.025)	(0.006)
Year Dummies	Included	Included	Not included
Firm Dummies	Not included	Included	Included
Number of Observations[14]	16,619	17,969	16,670
Number of Firms	2,383	2,415	2,387
Adj. R^2	0.03	0.18	0.00

* p<.1, ** p <.05, *** p<.01, respectively, in a two-tailed test. $MCmt_{it}$ is commitment to marketing spending under analyst pressure. $\sum_{p=1}^{P} AP_{it-p}$ is cumulated earnings pressure. $\sum_{p=1}^{P}(M_{it-p} - \hat{M}_{it-p})$ is cumulated unexpected marketing spending to sales ratio. CAR is compounded risk-adjusted unexpected stock return. TSR is total stock return. CTSR is unexpected stock return (Barber and Lyon 1997). The results above also hold for (i) the marketing spending to asset ratio and (ii) whether or not controls (ROA, Sales) are employed (corresponding Tables are available from authors).

[14] The sample employed in Table 4 is different from that in Tables 2 Panel B and Table 3 because of missing values. In addition, the samples employed for CAR, TSR, and CTSR in this table vary because of missing values. We employed the maximum available sample for each regression to achieve the best quality parameter estimates.

Table 5. Moderation Effect of High versus Low Industry R&D Spending to Sales Ratio on H1 Effect of Analysts' Pressure on Marketing Spending to Sales Ratio Decisions

	Abnormal Marketing Spending to Sales Ratio (Observed-Predicted)	
	High Industry R&D[1]	Low Industry R&D
Pressure from Analysts' Earnings Expectations	-0.171*** (0.017)	-0.030 (0.022)
Control Variables		
Market-to-Book	0.018*** (0.001)	0.029*** (0.002)
Slack	0.103*** (0.006)	0.081*** (0.009)
ROA	0.587*** (0.013)	0.730*** (0.032)
Intercept and Dummies		
Intercept	-0.007 (0.011)	-0.018 (0.013)
Year Fixed Effects	Included	Included
Firm Fixed Effects	Not Included	Not Included
Number of Observations[15]	12,917	4,509
Adj. R^2	0.658	0.777

* p<.1, ** p <.05, *** p<.01, respectively, in a two-tailed test. Pressure from analysts' earnings expectations is a continuous variable. Control Variables enter in lagged form. [1] is based on a median split on R&D spending as a ratio of sales across industries.

[15] The median split is by industry therefore the number of observations in high and low groups is different.

Table 6. Moderation Effect of High versus Low Industry R&D Spending to Sales Ratio on H2 Relationship between Commitment to Marketing Spending to Sales Ratio Under Analysts' Pressures and Stock Market Return

	CAR_0		TSR_0		$CTSR_0$	
	High R&D	Low R&D	High R&D	Low R&D	High R&D	Low R&D
Main Variables						
$MCmt_{it}$	0.012**	-0.010	0.013**	0.017	0.019*	0.028
	(0.005)	(0.012)	(0.006)	(0.013)	(0.010)	(0.020)
$\sum_{p=0 \text{ or } 1}^{P} AP_{it-p}$	0.018***	0.012	-0.001	-0.008	0.008	-0.007
	(0.005)	(0.009)	(0.005)	(0.009)	(0.009)	(0.013)
$\sum_{p=0 \text{ or } 1}^{P} (M_{it-p} - \hat{M}_{it-p})$	0.005	0.001	-0.000	-0.021*	0.002	-0.011
	(0.005)	(0.010)	(0.006)	(0.011)	(0.009)	(0.015)
Intercept and Dummy Variables						
Intercept	0.062	0.038	0.991***	1.207***	-0.023***	-0.009
	(0.040)	(0.056)	(0.312)	(0.045)	(0.007)	(0.009)
Year Dummies	Included	Included	Included	Included	Not Included	Not Included
Firm Dummies	Not Included	Not Included	Included	Included	Included	Included
Number of Observations[16]	12,210	4,409	13,251	4,718	12,252	4,418
Number of Firms	1,934	731	1,961	746	1,937	733
Adj. R^2	0.042	0.043	0.196	0.195	0.000	0.001

* p<.1, ** p <.05, *** p<.01, respectively, in a two-tailed test. $MCmt_{it}$ is commitment to marketing spending under analyst pressure. $\sum_{p=0 \text{ or } 1}^{P} AP_{it-p}$ is cumulated earnings pressure. $\sum_{p=0 \text{ or } 1}^{P} (M_{it-p} - \hat{M}_{it-p})$ is cumulated unexpected marketing spending to sales ratio. CAR is compounded risk-adjusted unexpected stock return. TSR is total stock return. CTSR is unexpected stock return suggested by Barber and Lyon (1997).

[16] The median split is by industry therefore the number of observations in high and low groups is different.

Table 7 Moderation Effect of High versus Low Industry Growth on H1 Effect of Analysts' Pressure on Marketing Spending to Sales Ratio Decisions

	Abnormal Marketing Spending to Sales Ratio (Observed-Predicted)	
	High Industry growth[1]	Low Industry growth
Pressure from Analysts' Earnings Expectations	-0.166*** (0.018)	-0.098*** (0.020)
Control Variables		
Market-to-Book	0.018*** (0.001)	0.024*** (0.002)
Slack	0.111*** (0.006)	0.088*** (0.007)
ROA	0.603*** (0.015)	0.608*** (0.017)
Intercept and Dummies		
Intercept	-0.008 (0.013)	-0.020* (0.012)
Year Fixed Effects	Included	Included
Firm Fixed Effects	Not Included	Not Included
Number of Observations[17]	9,862	7,535
Number of Firm Dummies		
Adj. R^2	0.682	0.690

* p<.1, ** p <.05, *** p<.01, respectively, in a two-tailed test. Pressure from analysts' earnings expectations is a continuous variable. Control Variables enter in lagged form. [1] is based on a median split of 5 year compounded industry revenue growth.

[17] The median split is by industry therefore the number of observations in high and low groups is different.

Table 8 Moderation Effect of High versus Low Industry Growth on H2 Relationship between Commitment to Marketing Spending to Sales Ratio Under Analysts' Pressures and Stock Market Return

	CAR_0		TSR_0		$CTSR_0$	
	High Growth	Low Growth	High Growth	Low Growth	High Growth	Low Growth
Main Variables						
$MCmt_{it}$	0.011*	0.017*	0.020***	0.008	0.021**	0.021
	(0.006)	(0.009)	(0.007)	(0.009)	(0.011)	(0.018)
$\sum_{p=0 \text{ or } 1}^{P} AP_{it-p}$	0.021***	0.007	-0.001	-0.005	-0.001	0.002
	(0.007)	(0.006)	(0.007)	(0.006)	(0.012)	(0.010)
$\sum_{p=0 \text{ or } 1}^{P} (M_{it-p} - \hat{M}_{it-p})$	0.007	0.001	-0.001	0.004	0.010	0.003
	(0.006)	(0.007)	(0.007)	(0.008)	(0.011)	(0.013)
Intercept and Dummy Variables						
Intercept	-0.018	0.079*	1.183***	1.193***	-0.025***	-0.014*
	(0.044)	(0.043)	(0.040)	(0.034)	(0.008)	(0.008)
Year Dummies	Included	Included	Included	Included	Not Included	Not Included
Firm Dummies	Not Included	Not Included	Included	Included	Included	Included
Number of Observations[18]	9,245	7,356	10,014	7,935	9,271	7,381
Number of Firms	1,975	1,778	2,017	1,822	1,980	1,783
Adj. R^2	0.043	0.023	0.165	0.217	0.001	0.000

* p<.1, ** p <.05, *** p<.01, respectively, in a two-tailed test. $MCmt_{it}$ is commitment to marketing spending under analyst pressure. $\sum_{p=0 \text{ or } 1}^{P} AP_{it-p}$ is cumulated earnings pressure. $\sum_{p=0 \text{ or } 1}^{P} (M_{it-p} - \hat{M}_{it-p})$ is cumulated unexpected marketing spending to sales ratio. CAR is compounded risk-adjusted unexpected stock return. TSR is total stock return. CTSR is unexpected stock return suggested by Barber and Lyon (1997).

[18] The median split is by industry therefore the number of observations in high and low groups is different.

Table 9. Moderation Effect of Top 4 Market Share vs. Lower Market Share Firms in the Industry on H1 Effect of Pressure from Analysts' Earnings Expectations on Marketing Spending to Sales Ratio Decisions

	$M_{it} - \hat{M}_{it}$ Unexpected Marketing Spending to Sales Ratio (Actual −Predicted)	
	Top four Market Share Firms	Lower Market Share firms
Main Independent Variable		
AP_{it}	-0.092***	-0.158***
	(0.021)	(0.018)
Control Variables		
MTB	0.035***	0.013***
	(0.002)	(0.001)
SLACK	0.022***	0.116***
	(0.007)	(0.006)
ROA	0.734***	0.593***
	(0.022)	(0.014)
Intercept and Dummies		
Intercept	0.023**	-0.009
	(0.010)	(0.013)
Year Fixed Effects	Yes	
Number of Observations	6,955	10,471
Number of Firm Dummies	934	2,089
Adj. R^2	0.791	0.633

* p<.1, ** p <.05, *** p<.01, respectively, in a two-tailed test. Pressure from analysts' earnings expectations is a continuous variable. Control Variables enter in lagged form.

Table 10. Moderation Effect of Top 4 Market Share vs. Lower Market Share Firms in an Industry on H2 Relationship between Commitment to Marketing Spending to Sales Ratio Under Analysts' Earnings Pressures and Stock Market Return

Independent Variables	CAR_0		TSR_0		$CTSR_0$	
	Top 4	Lower	Top 4	Lower	Top 4	Lower
$MCmt_{it}$	0.007	0.012**	0.013	0.015**	0.001	0.022**
	(0.013)	(0.006)	(0.013)	(0.006)	(0.024)	(0.010)
$\sum_{p=1}^{P} AP_{it-p}$	0.019**	0.014**	-0.010	0.002	0.007	0.006
	(0.008)	(0.006)	(0.008)	(0.006)	(0.013)	(0.009)
$\sum_{p=1}^{P}(M_{it-p} - \hat{M}_{it-p})$	-0.000	0.008	-0.011	0.001	0.003	0.004
	(0.007)	(0.006)	(0.008)	(0.007)	(0.012)	(0.011)
Intercept and Dummy Variables						
Intercept	0.122	0.046	0.890**	1.219***	-0.014*	-0.025***
	(0.457)	(0.060)	(0.420)	(0.044)	(0.008)	(0.008)
Year Dummies	Included	Included	Included	Included	Not included	Not included
Firm Dummies	Not included	Not included	Included	Included	Included	Included
Number of Observations	6,898	9,721	7,281	10,688	6,919	9,751
Number of Firms	865	1819	875	1,853	866	1,822
Adj. R^2	0.035	0.037	0.189	0.188	0.000	0.001

* p<.1, ** p <.05, *** p<.01, respectively, in a two-tailed test. $MCmt_{it}$ is commitment to marketing spending under analyst pressure. $\sum_{p=1}^{P} AP_{it-p}$ is cumulated earnings pressure. $\sum_{p=1}^{P}(M_{it-p} - \hat{M}_{it-p})$ is cumulated unexpected marketing spending to sales ratio. CAR is compounded risk-adjusted unexpected stock return. TSR is total stock return. CTSR is unexpected stock return (Barber and Lyon 1997).

Figure 1 The Timeline of the Events