

# **Maintaining a Reputation for Consistently Beating Earnings Expectations and the Slippery Slope to Earnings Manipulation**

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# **Maintaining a Reputation for Consistently Beating Earnings Expectations and the Slippery Slope to Earnings Manipulation**

## **ABSTRACT**

This paper investigates whether maintaining a reputation for consistently beating analysts' earnings expectations can motivate executives to move from "within GAAP" earnings management to "outside of GAAP" earnings manipulation. We analyze firms subject to SEC enforcement actions and find that these firms consistently beat analysts' quarterly earnings forecasts in the three years prior to the manipulation period and continue to do so by smaller "beats" during the manipulation period. We find that manipulating firms beat expectations around 86 percent of the time in the twelve quarters prior to the manipulation period (versus 75 percent for non-AAER firms) and that manipulation often ends with a miss in expectations. We document that executives of manipulating firms face strong stock market and CEO pressure to perform. Prior to the manipulation period, these firms have high analyst optimism, growing institutional interest, and high market valuations, along with powerful CEOs who exhibit evidence of overconfidence and have strong equity incentives. Overall, our results suggest that pressure to maintain a reputation for beating analysts' expectations can encourage aggressive accounting and, ultimately, earnings manipulation.

**Keywords:** earnings manipulation; consecutively beating earnings expectations; market pressure; CEO overconfidence; CEO power; reputation; reference-dependent preferences; analysts' forecasts and recommendation; institutional investors; overvaluation.

**JEL classification:** G12, M41

**Data availability:** All data is available from sources identified in the text.

## I. INTRODUCTION

This study investigates whether maintaining a reputation for consistently beating analysts' earnings per share (EPS) forecasts is an important motivation for executives to engage in earnings manipulation (for simplicity, we use the term "beating" to refer to both meeting or beating analysts' EPS forecasts). We hypothesize that executives can become so focused on beating consensus EPS forecasts that, similar to athletes engaging in competition, they experience "tunnel vision." That is, they lose sight of the big picture and do "whatever it takes" to meet their goal. We hypothesize that when executives build a reputation for consistently beating expectations, they experience growing pressure to maintain their reputation. This intensifying pressure can create an escalating commitment problem that leads executives to initially engage in earnings management using within Generally Accepted Accounting Principles ("within GAAP") techniques, but as expectations rise, executives use increasingly more aggressive techniques. Ultimately, in some firms, executives become so desensitized to their accounting choices that they move "outside of GAAP" to beat earnings expectations.

We test our predictions using a sample of firms that are subject to Securities and Exchange Commission (SEC) enforcement actions summarized in Accounting and Auditing Enforcement Releases (AAERs). For this sample of firms, there is unambiguous evidence that executives have used accounting discretion "outside of GAAP" to manipulate earnings. We document that relative to the population and a propensity-score-matched non-AAER sample, AAER firms are more likely to have consistently beaten analysts' expectations in the three years prior to the manipulation period as well as during the manipulation period. We find that manipulating firms are beating expectations approximately 86 percent of the time in the three years leading up to the manipulation

period (versus 75 percent for non-AAER firms). However, beating expectations becomes increasingly difficult for manipulating firms. Specifically, the average magnitude of the earnings surprise (the difference between reported EPS and consensus EPS) declines as the manipulation period approaches and is smallest during the manipulation period. In addition, manipulation typically ends with the firm missing expectations. This evidence suggests that beating expectations is an important goal for executives who ultimately manipulate earnings.

We hypothesize that pressure on executives to consistently beat expectations can come from two broad sources: (1) *external* pressure from stock market participants and (2) *internal* pressure from the company's leadership. Firms that consistently beat analysts' expectations are likely to have strong economic performance initially. If analysts presume that the strong economic performance will continue, then this results in analysts forecasting high future earnings growth and issuing "strong buy" recommendations. In addition, the strong economic performance is likely to attract institutional ownership which improves market liquidity for the shares. As a consequence, firms that consistently beat expectations are more likely to trade at a valuation premium (e.g., Kasznik and McNichols, 2002 and Bartov et al., 2002). We hypothesize that once the premium is earned, executives face pressure to continue to beat expectations in order to maintain the high valuation and to avoid disappointing investors. Thus, the valuation premium itself can become a source of pressure to manipulate earnings (Jensen, 2005). When managers find that they do not have enough "within GAAP" accounting flexibility to beat expectations, they could turn to "outside of GAAP" accounting techniques to enable them to continue to beat expectations.

The company's *internal* leadership could also create an environment where there is strong pressure on executives to meet expectations. A chief executive officer (CEO) with strong equity

incentives could exert more pressure on other executives to beat expectations, since his or her compensation will be particularly sensitive to stock price declines should those expectations not be met (e.g., Cheng and Warfield, 2005). Feng et al. (2011) provide evidence that CEOs of manipulating firms have higher equity incentives and appear to pressure the chief financial officer (CFO) to engage in earnings manipulation. We extend this line of research by investigating whether the manipulation is aimed at consistently beating analysts' expectations. In addition to equity incentives, overconfidence could also play a role. Overconfident people tend to overestimate their own performance and believe they will perform better than others (Moore and Healy, 2008). Schrand and Zechman (2012) provide evidence that overconfident CEOs are more likely to engage in manipulation. Within our context, an overconfident CEO may consider aggressive accounting as a justifiable tool to beat expectations because he or she believes the firm will perform better in the future. Finally, the CEO must have sufficient power to influence other executives (e.g., Feng et al., 2011; Dechow et al., 1996). Thus, CEOs with stronger equity incentives and who are overconfident and powerful, could put more pressure on executives to engage in manipulation to continue a trend of beating earnings expectations.

Furthermore, we hypothesize that corporate executives are highly competitive and goal-orientated people. Therefore, once the management team feels strong pressure to beat expectations, they will put in effort to achieve this goal and will feel a sense of loss should they miss this goal. In other words, beating expectations could become an innate or *intrinsic* reference point to executives. For example, consider the following quote from Stephen Richards provided by Soltes (2016, p.199):

*“(T)he Wall Street number was pure. It was somebody else independent of me saying, “Stephen, this is what you need to aim for this quarter.” I would judge my success on the ability to make that number. If we achieved that number, it was an endorsement that we*

*were doing the right things. If we missed that number, then it was a reflection that we hadn't performed as well as we should have. My goal was just to get to or over that number – and if I did that, I succeeded.”*

*Stephen Richards, Global Head of Sales at Computer Associates*

If executives have strong reference-dependent preferences and use analysts' expectations as a point of reference, then this could create a dynamic where a move from “within GAAP” to “outside of GAAP” accounting becomes part of an escalating commitment to continuously beat expectations.<sup>1</sup>

We compare manipulating firms to the population of non-AAER firms, and to a propensity-score-matched non-AAER sample. Consistent with manipulating firms facing strong market pressure, we find that in the three years leading up to the manipulation period, these firms have high price-to-earnings (PE) multiples, experience growing institutional ownership, have analysts making optimistic long-term growth forecasts, and have a high proportion of analysts recommending the stock as “buy” and “strong buy.” In addition, consistent with prior research documenting strong CEO pressure, we find that manipulating firms have more powerful CEOs with stronger equity incentives. We find mixed evidence concerning CEO overconfidence. Our results suggest that market pressure and CEO pressure are both important for influencing executives to manipulate earnings to consistently beat analysts' expectations.

Finally, we perform multivariate regression analysis and examine whether a prior reputation for beating analysts' forecasts (the percentage of quarters that firms beat analysts' forecasts in the prior three years) is significant and incrementally important relative to external market and internal CEO pressure proxies for explaining manipulation. We document strong

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<sup>1</sup> Research in behavioral economics suggests that people measure their happiness based on reference points (Tversky and Kahneman, 1991) and will exert effort to meet reference points even when there are no monetary benefits from doing so (e.g., Allen et al., 2016). Note that we do not attempt to determine whether the greater sense of loss stems from the executive's utility function (as suggested by the quote from Stephen Richards), the corporate culture, or contractual incentives.

evidence that this reputation proxy is a significant determinant of manipulation in addition to pressure from the stock market or CEOs. This result is consistent with the notion that firms' executive teams care about maintaining a reputation for beating expectations beyond pressure induced by the stock market or CEOs. This could be because (1) executives have high reference-dependent preferences, (2) executives believe that maintaining a reputation is important for compensation or promotion reasons, or (3) the reputation proxy captures unexplained aspects of market or leadership related pressures. Whatever the ultimate reason, our results suggest that a reputation for consistently beating expectations is an important determinant of "outside of GAAP" manipulation.

Our paper makes four contributions to the accounting literature. First, we extend early research that finds firms that consistently beat benchmarks, such as prior year's earnings and analysts' forecasts, have higher PE multiples than firms that have similar growth in terms of underlying fundamentals but do not consistently beat benchmarks (e.g., Barth et al., 1999; Kasznik and McNichols, 2002). Early research has difficulty explaining this premium. Barth et al. (1999) suggest that investors could prefer less volatile earnings and are willing to pay a premium. However, this preference is difficult to explain when investors hold diversified portfolios. Kasznik and McNichols (2002) hypothesize that investors pay a premium because they believe consistent beaters will have higher future growth opportunities than their matched counterparts. However, they find that consistent beaters do not deliver the high future performance that would justify the current premium. Our evidence suggests that the premium occurs because consistently beating analysts' expectations increases investor attention and recognition. Specifically, we find that analysts hold optimistic expectations and heavily promote these firms, along with institutional investors increasing their holdings in these firms. Thus, our results suggest that the valuation

premium is attributable to improved liquidity of these stocks (e.g., Merton, 1987; Lehavy and Sloan, 2008).

Second, we contribute to research investigating whether firms manage earnings to consistently beat earnings benchmarks. Prior research examining analysts' forecasts has either difficulty disentangling growth from manipulation (e.g., Bartov et al., 2002) or finds results in univariate tests but not in multivariate analysis (e.g., Matsumoto, 2002). The ambiguity and weak results stem from the problem that firms that consistently beat earnings expectations also tend to be growth firms, and discretionary accrual proxies often used to identify manipulation are correlated with earnings growth. In other words, high discretionary accruals could reflect both growth and manipulation. One strength of our research design is that we do not rely on discretionary accrual measures but analyze AAER firms to identify earnings manipulation. There is little ambiguity that AAER firms having indeed manipulated earnings, since the SEC must provide evidence to support its case.

Our paper also builds on work that more generally focuses on whether consistent beaters engage in earnings management. Specifically, Myers et al. (2007) examine a sample of firms that report quarterly earnings per share (EPS) increases for five consecutive years and argue that these firms are managing earnings. However, their conclusion hinges on the validity of their simulations that predict the expected proportion of firms that should exhibit earnings growth for 20 quarters. Our analysis avoids this interpretation difficulty because we can compare the beating behavior of identified manipulators directly to the population of non-AAER firms as well as to a propensity-score-matched non-AAER sample. We focus on analysts' forecasts, rather than continued earnings growth, because analysts' forecasts have become the more relevant benchmark to managers and investors (e.g., Dechow et al., 2003; Brown and Caylor, 2005). In addition, an



implication of our results is that firms with long strings of positive earnings surprises may not engage in upward earnings management in their early years. It is only later in the string when growth slows that manipulation is likely to take place. Thus, the results in our paper suggest that researchers are most likely to detect earnings manipulation in the period immediately before the positive earnings string breaks. This evidence contributes to our understanding of the mixed evidence in the literature because most studies do not consider whether a “beat” occurs at the end of a string of positive earnings surprises. Overall, our paper provides strong evidence that consistently beating analysts’ expectations is a determinant of earnings manipulation.

Third, we build on Jensen’s (2005) theory concerning the agency costs of overvalued equity. Jensen (2005) suggests that one cost of overvalued equity is that managers may feel compelled to maintain the high equity valuation. Our evidence suggests that the initial overvaluation (as reflected in a high PE multiple) is a consequence of firms consistently beating earnings expectations, and that managers manipulate earnings to continue to beat expectations in an effort to maintain their reputations and stock price. Relatedly, we extend Badertscher’s (2011) evidence that once firms are overvalued, they engage in real and accrual management over the next five years. Our results suggest that the plausible underlying managerial motivation for the earnings management documented by Badertscher (2011) is to maintain a reputation for consistently beating analysts’ forecasts.

Finally, we build on research which examines organizational and CEO attributes that influence earnings manipulation. Schrand and Zechman (2012) suggest that CEOs move down the “slippery slope” from accrual management to “outside of GAAP” earnings manipulation because of their overconfidence about future performance. Our results suggest that other internal factors that move firms down the “slippery slope” include (1) the CEOs’ power to influence organizational

goals and the CEOs' financial incentives (e.g., Dechow et al., 1996; Beasley, 1996; Efendi et al., 2007; Feng et al., 2011), and (2) the acquired reputation for consistently beating market expectations. Further, our results provide direct empirical evidence consistent with motives identified in Soltes' (2016) interviews with top executives accused of financial misconduct. Soltes (2016) points out that executives appear to lose perspective and lack awareness of their wrongful actions, often justifying their actions as in the interest of current shareholders and employees. Our evidence is consistent with executives losing perspective when they feel pressure to consistently beat analysts' expectations. Overall, our evidence suggests that consistently beating expectations does not necessarily indicate strong economic growth. Instead, it may be indicative of an executive team that is overly focused on "expectations management" and maintaining the firm's stock valuation premium. These results are informative to investors, analysts, auditors, and regulators.

## II. PREDICTIONS

Exhibit 1 provides the framework for our predictions. Prior research suggests that firms that consistently beat analysts' earnings expectations earn a valuation premium, indicated by a higher PE multiple (e.g., Kasznick and McNichols, 2002; Bartov et al., 2002). In addition, firms with similar economic performance that do not consistently beat expectations do not earn the premium. Thus, both strong economic performance *and* a reputation for consistently beating expectations is required to obtain the valuation premium. In Panel A, we highlight how the premium is likely to be earned. Strong economic performance and the consistent beating of expectations could encourage analysts to follow and promote the stock for investment to clients. In addition, as clients buy the stock, investor recognition increases, thus creating more demand for the stock and encouraging institutional investment. The strong economic performance also helps

build the executive team's reputation for being of high quality and ability. This combination is likely to increase the market value of the executives in labor markets.<sup>2</sup>

Panel B of Exhibit 1 focuses on how a reputation for consistently beating expectations can put pressure on executives to continue beating expectations even when true performance is slowing. The strong prior economic performance can encourage analysts to ratchet up growth expectations for the firm and recommend the stock as a "buy" even when the firm is trading at a high value. Thus, missing expectations could hurt the executive team's reputation with analysts and thereafter induce potential downgrades in stock recommendations. In addition, as institutional investors increase their holdings in the firm, executives could feel pressure to maintain the stock valuation to avoid disappointing these institutions. Greater institutional ownership is associated with lower stock price volatility and higher liquidity (e.g., Bushee and Miller, 2012; Bushee and Noe, 2000). In addition, greater institutional interest makes it easier for firms to issue new equity and debt. Thus, executives could view maintaining institutional investors to be particularly important for the stock's liquidity and price.

When the firm's performance begins to slow and executives are apprehensive about missing earnings expectations there are a number of financial reporting tools that they could use to meet expectations. The first tool they are likely to use is to downgrade guidance (e.g., Matsumoto, 2002). However, firms may be unable to consistently beat market expectations using management guidance alone. First, managers may be unable to repeatedly revise guidance downwards to lower analysts' expectations. Expectations management tends to lead to forecast errors when the actual earnings are announced. Thus, a reputation for biased guidance reduces the

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<sup>2</sup> Graham et al.'s (2005) survey evidence suggests that meeting expectations is viewed as an indicator of managerial ability by executives. Likewise, missing expectations is viewed as costly to career mobility.

effectiveness of future management guidance because investors will discount the guidance and adjust their expectations to take into account the bias (e.g., Williams, 1996; Rogers and Stocken, 2005). Second, analysts' expectations can become more difficult to beat over time. Prior research finds that analysts' forecasts become more accurate over time as analysts gain firm-specific experience, suggesting analysts react to forecast errors by adjusting the level of their future forecasts (e.g., Mikhail et al., 1999). Thus, beating analysts' forecasts through guidance could become increasingly more difficult as an earnings string lengthens.

A second tool that managers could use to beat expectations is “within GAAP” earnings management, either through accrual management or the structuring of transactions.<sup>3</sup> The use of “within GAAP” earnings management also has limitations because accruals tend to reverse in subsequent periods. If managers manipulate earnings upward in a year using positive accruals, the negative reversals in future years will lead to even larger future earnings gaps (e.g., DeFond and Park, 2001; Allen et al., 2013). This property of accruals makes continued upward earnings manipulation more costly and difficult in the subsequent periods. A third tool managers could use is to focus on and disclose non-GAAP earnings (Black et al., 2017). However, a growing difference between GAAP and non-GAAP earnings could also raise red flags with investors. Thus, when the firm reaches a point where these “within GAAP” tools are no longer sufficient to beat ever-growing expectations, managers could turn to “outside of GAAP” earnings manipulation to boost earnings. Thus, similar to professional athletes who justify the use of performance-enhancing drugs to avoid disappointing fans and sponsors, executives could justify the use of earnings

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<sup>3</sup> Earnings management tools occur along a continuum, initially being within GAAP but becoming increasingly aggressive until eventually the firm moves to intentional manipulation and outside of GAAP misstatements (see, for example, Figure 1 in Christensen et al., 2017, or Figure 1 in Dechow and Skinner, 2000).

manipulation as a tool for beating expectations to avoid disappointing analysts, investors, and the firm's leadership.

We have three predictions based on this discussion:

- P1:** *During the manipulation period, executives engage in “outside of GAAP” earnings manipulation to consistently beat analysts’ quarterly earnings expectations.*
- P2:** *Prior to the manipulation period, executives that engage in “outside of GAAP” earnings manipulation have built reputations for consistently beating analysts’ quarterly earnings expectations.*
- P3:** *Executives that engage in “outside of GAAP” earnings manipulation face strong market pressure to perform.*

Panel B of Exhibit 1 highlights that the executive team could also face pressure generated from within the firm (specifically, from the CEO) to continue to beat expectations. If true earnings performance falls short of expectations, *overconfident* CEOs may view aggressive accounting as appropriate because of their strong belief that the firms’ future performance will improve (Schrand and Zechman, 2012).<sup>4</sup> Thus, overconfident CEOs could push their executive teams to make accounting choices that fall “outside of GAAP” to beat expectations.<sup>5</sup> We measure overconfidence using the proxy identified by Malmendier and Tate (2005) and employed by Schrand and Zechman (2012).<sup>6</sup> *Powerful* CEOs facing insufficient monitoring from the board are better able to influence other employees within the organization to adjust accounting procedures and thereafter engage in

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<sup>4</sup> Overconfidence is described by Moore and Healy (2008) in three distinct ways: 1) overestimation of one’s actual performance, 2) believing one will perform better than others, and 3) excessive precision in one’s beliefs. Applying this description to our setting, an overconfident CEO could believe that their firm should: 1) always be able to beat analysts’ expectations, 2) be able to beat expectations more than other firms, and 3) be able to produce earnings to meet an exact earnings forecast.

<sup>5</sup> For example, an overconfident CEO could believe the firm’s product will result in no returns and all customers will pay (no bad debt allowances) even though a neutral party (the SEC or auditor) would not believe this based on past and current information.

<sup>6</sup> Malmendier and Tate (2005) argue that an overconfident CEO will hold in-the-money options for too long. They document that stock prices do not increase relatively more for CEOs who delay exercising in-the-money options, consistent with their metric capturing an aspect of “overconfidence.”

earnings manipulation (e.g., Dechow et al., 1996; Bebhuk et al., 2011). CEOs could also face personal financial incentives from their compensation contracts to beat expectations. *Stock-based compensation*, in particular, align the CEO's personal financial interests closely to the firm's stock performance and therefore could lead to incentives to manipulate financial statements to maintain or inflate the stock price (e.g., Dechow et al., 1996; Cheng and Warfield, 2005; Jiang et al., 2010; Feng et al., 2011).

Note that a pattern of *consistently* beating expectations is likely to reflect both strong economic performance *and* a strategic decision on the part of the top executive team to make beating expectations an organization goal. If employees accept and act on this goal, competitive, goal-orientated executives could begin to judge their own self-worth and value to the organization in terms of their ability to beat expectations.<sup>7</sup> For example, Liu (2016) suggests that senior managers' corruptive cultural biases affect their individual behavior which in turn increases the likelihood of accounting fraud. Thus, after controlling for market pressure as well as CEO overconfidence, power and compensation incentives, a reputation for consistently beating expectations could also be a determinant of earnings manipulation.

### III. SAMPLE SELECTION

Panel A of Table 1 summarizes the process for selecting the AAER sample. We use firms identified by the SEC as having manipulated annual earnings (i.e., firms subject to Accounting and Auditing Enforcement Releases, or AAER firms). We define the "manipulation period" as fiscal

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<sup>7</sup> Soltes' (2016) interviews suggest that some of the manipulating executives evaluated themselves based on the achievement of goals. For example, on page 189, Jones of Symbol states "...*We never grew up with someone saying you can't do it and therefore you are not going to hit a number. We always tried to come up with a solution whether it was for hitting a number or whether it was a solution for making a computer work right. We always came up with solutions... Whatever it took, you did it and got success from it.*"

years in which the SEC identifies misstated annual earnings. Thus, if a firm manipulates one quarter's earnings but annual earnings is correctly stated, then such a firm is not included in our sample. We begin with a total of 3,323 observations of AAERs issued between May 1982 and September 2013. We exclude redundant AAERs related to the same firm and incident, AAERs unrelated to financial statement fraud that would not affect reported earnings, and AAERs for which we cannot find Compustat or IBES identifiers. We require quarterly earnings data and annual financial data for each manipulation year identified by the SEC. This procedure results in a final sample of 392 AAER firm-year observations for 136 unique AAER firms from 1985 to 2010.

Table 1, Panel B summarizes the sample selection process for the non-AAER population. We use the population of all other non-AAER firms for comparison of results with the AAER firms (the "population"). Our population consists of U.S. firms on IBES from 1985 to 2010, excluding all AAER firms identified by the SEC from May 1982 to September 2013. We begin with 52,724 firm-year observations with IBES coverage. After the exclusion of AAER firms and the requirement of financial data, our final non-AAER sample consists of 43,939 non-AAER firm-year observations.

We also compare AAER firms to a sample of propensity-score-matched non-AAER firms. We match each AAER firm-year observation to one observation from the population sample based on their propensity to beat analysts' forecasts in all four quarters of a given fiscal year (we term this an *all-one string* described in more detail subsequently). The matching process enables us to control for possible correlated-omitted variables (i.e. strong economic performance rather than earnings manipulation) that may explain firms' positive earnings strings. Therefore, in the first stage of propensity score estimation, we model a firm's likelihood of achieving an all-one string

using variables that capture economic fundamentals. We find that firms of larger size (*SIZE*), higher growth in profitability ( $\Delta ROA$ ), lower book-to-market (*BTM*), and lower leverage (*LEV*), are more likely to achieve all-one strings. In the second stage, to control for the economic fundamentals, we match AAER firms with population firms that have the closest propensity score for achieving a string of positive earnings estimated using the four variables identified in the first stage. Table 1, Panel C evaluates the effectiveness of the matching procedure. The AAER sample is not significantly different from the one-to-one propensity-score-matched non-AAER sample with respect to innate firm characteristics.<sup>8</sup>

Exhibit 2 illustrates the construction of earnings strings for AAER firms in Panel A and for non-AAER firms in Panel B. We construct earnings strings based on quarterly earnings surprises. We measure earnings surprise as the difference between the actual EPS and the most recent analysts' median consensus EPS forecast prior to earnings announcements from the IBES summary file. A firm-quarter observation receives a "1" for beating the consensus forecast and a "0" for missing. A four-quarter string observation consists of a series of ones and zeros based on whether the firm beats consensus forecasts from fiscal Q1 to Q4 during the fiscal year. Panel A illustrates string formation using Coca-Cola Company, Ltd as an example. Coca-Cola manipulated earnings from fiscal year 1997 through to 1999 (see Appendix A for a discussion of AAER No. 2232). Throughout this three-year period, Coca-Cola managed to consistently beat consensus forecasts for each quarter. Each four-quarter string begins in Q1 and ends in Q4 to facilitate the comparison with the population sample. For example, over its alleged manipulation period, Coca-

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<sup>8</sup> Note that we do not match AAER firms and non-AAER firms exactly on years. Instead, we require that the sample period of the propensity score matched non-AAER sample covers the same period from 1985 to 2010 as the AAER sample.



Cola contributes three string observations to the AAER sample and all three of them are all-one strings. Panel B of Exhibit 2 illustrates the construction of strings for the population sample. Each fiscal year with analyst data for all four quarters is classified as one string observation. Each string begins in Q1 and ends in Q4. Note that we avoid overlapping quarters in string construction so that it is easier to determine the size of the population sample and the proportion of firm-year observations with all-one strings. Avoiding overlapping quarters also facilitates the measurement and the inclusion of CEO characteristic variables, as well as some F-score generating variables that are only reported on an annual basis. In unreported robustness analysis we allow overlapping strings (so the strings do not have to start in Q1) and results are qualitatively similar.

In our empirical analyses, we utilize two key variables that measure consistent beating behavior. The first is *all-one string* that as described previously, equals one when a firm beats analysts' consensus EPS forecasts in all four quarters of a year, and zero otherwise. We use the term *AAER all-one strings* to describe AAER firm-year observations that beat analysts' forecasts in all four quarters during a manipulation year. *BEATPCT* measures the proportion of quarters the AAER firm beats analysts' consensus EPS forecasts for a specific period of time.

One concern with using firms identified by the SEC for manipulating earnings is that the SEC could use a string of consecutive earnings beats as a screen for identifying potential fraud firms. We therefore perform a news search of all AAER firms in our sample to determine the event that triggered the SEC investigation. Table 2 reports the number and the proportion of AAER firms for ten different triggers for the SEC investigation identified in news articles. We find that the SEC appears to be more reactive than proactive. Specifically, 58 percent of AAERs (54 percent for all-one string AAER firms) are triggered by financial restatements and for another 13 percent of the AAER sample, the SEC investigations are triggered by shareholder lawsuits. None of the SEC

investigations are triggered by the firm reporting consecutive positive earnings surprises before or during the manipulation period. In addition, the SEC's Division of Economic Risk Analysis (DERA) was established in 2009. Our conversations with SEC staffers suggest that there was little use of systematic screening techniques to identify potential fraud firms during our sample period. Therefore, the SEC screening firms with a string of positive earnings surprises does not appear to be a major concern for selection bias in our study.

## IV. EMPIRICAL RESULTS

### 4.1 *Analysis of beating quarterly expectations during manipulation years*

Table 3 tests our prediction *P1*. The table reports results on a firm-year basis, and details how many quarters AAER firms are able to beat expectations during any given manipulation year. For a four-quarter string, there are sixteen possible permutations and Table 3 compares the distribution of these sixteen string permutations across the AAER sample, the population, and the propensity-score-matched non-AAER sample.<sup>9</sup> We categorize strings on the basis of whether the firm beats expectations in only one quarter, two quarters, three quarters, or all four quarters of the fiscal year. The results indicate that the *all-one string* (1, 1, 1, 1) is the most dominant pattern out of the sixteen possible permutations. Indeed, 54.85 percent of AAER firms achieve all-one strings during manipulation years, compared to 42.99 percent for the population and 46.94 percent for the matched sample. Table 3 also indicates that both the distribution of all-one strings and the overall distribution of the AAER sample is significantly different from that of the population and the

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<sup>9</sup> We focus on four-quarter strings since the number of possible permutations increases exponentially for strings longer than four quarters. For example, there are 256 different permutations for a string of eight quarters, compared to 16 permutations for a string of four quarters.

matched sample. Note that if we relax the definition of an earnings string to “the firm must beat earnings in at least three quarters”, then approximately 77.81 percent AAER firm-years beat this requirement (22.96% + 54.85%) versus 65.46 percent for the population and 67.86 percent for the matched sample. Untabulated results indicate that these differences are also statistically significant. In summary, Table 3 indicates that AAER firms are more likely than non-AAER firms to beat expectations during their manipulation years, which is consistent with our prediction *PI* that AAER firms appear to manipulate earnings to beat expectations.

Table 4 provides analysis at the firm level and investigates whether consistently beating analysts’ forecasts is related to the length of the manipulation period. Specifically, if an objective of manipulating earnings is to beat analysts’ forecasts, then we expect to observe more consistent beating behavior for firms that manipulate earnings for longer periods of time. Panel A of Table 4 groups firms into categories based on whether they manipulate earnings for one year, two to three years, four to five years, or over six years. The results reported in Panel A indicate that firms that manipulate for only one year have a lower proportion of all-one strings (31.91 percent) compared to firms that manipulate for two to three years (54.71 percent), four to five years (55.67 percent), or six years or longer (61.63 percent). Panel A also reports the average number of quarters that firms beat expectations for each manipulation length category. The results indicate that firms that manipulate for one year have a lower proportion of beats (61.70 percent) than firms that manipulate for two to three years (80.53 percent), four to five years (82.42 percent), or six years or longer (82.59 percent). These results indicate that the higher proportion of all-one strings for AAER firms reported in Table 3 is primarily attributable to firms manipulating for more than one year (where a manipulation year is one where *annual* earnings are misstated).

Panel B of Table 4 reports the proportion of beats and misses in each quarter for firms that manipulate for just one year. The results indicate that in the first quarter 68.09 percent of firms beat expectations but by the fourth quarter only 51.06 percent of firms beat expectations. Thus, the lower proportion of beats for firms that manipulate for one year is due to misses at the end of the year. This evidence suggests that upward earnings manipulation done earlier in the year starts reversing by the fourth quarter and firms are unable to engage in earnings manipulation that is sufficiently large to beat expectations. Thus, the end of the manipulation period coincides with almost half of the firms missing quarterly expectations. Panel C analyzes firms that manipulate for more than one year and reports the proportion of beats in the first manipulation year, the last manipulation year, and the middle years. The average proportion of beats is 88.20% in the first year versus 75.84% in the last year, suggesting that the end of the manipulation period coincides with the firm being more likely to miss expectations.

Panel D of Table 4 investigates the magnitude of the earnings surprises during the manipulation period. We report two measures of the earnings surprise. *SURPRISE1*, which is the difference between firms' reported EPS and the most recent median consensus of analysts' EPS forecast. *SURPRISE1* is unscaled and provides evidence on whether firms are just beating expectations by a penny. *SURPRISE2* is equal to *SURPRISE1* scaled by the absolute value of reported EPS. This measure provides insights into the magnitude of the beats as a percentage of earnings. We report the median value of earnings surprises to mitigate the impact of outliers. The results indicate that firms that manipulate for only one year have lower median beats (0.00) than firms that manipulate for two to three years (1 cent), four to five years (two cents), or six years or longer (8 cents). We observe a similar trend for *SURPRISE2*. In addition, the results are consistent when we use means instead of medians (not reported) of the earnings surprise measures. These

results suggest that firms that are able to manipulate for longer periods of time are better able to beat expectations.

We next provide evidence for Prediction *P2* and analyze whether AAER firms have built reputations for beating expectations prior to the manipulation period. Panel A of Figure 1 provides a graphical representation of beating frequency for the AAER sample and the population. The observations are organized by event time, where the event is the first quarter of the *first* manipulation year (*MI*). We then report the proportion of AAER firms that beat expectations in each of the twelve quarters before the first manipulation year (years *Pre3* to *Pre1*) and in each of the twelve quarters after the last manipulation year (years *Post1* to *Post3*). Note that if a firm manipulates for more than one year, the remaining manipulation years are not reflected in the graph. However, the plot is similar when we take average values across the manipulation years. Panel A of Figure 1 indicates that AAER firms beat analysts' forecasts between 80 to 90 percent of the time in the three years leading up to the first manipulation year. The proportion of beats remains high in the first manipulation year (*MI*) but we see a decline in the proportion in the third and fourth quarter, consistent with the one-year manipulators reducing these average percentages (see Panel B of Table 4). The plot also indicates a large decline in beats in the year immediately after manipulation stops (*Post1*), consistent with the end of manipulation coinciding with a greater likelihood of missing expectations. The plot is consistent with AAER firms having stronger reputations for beating analysts' expectations than the population before resorting to "outside of GAAP" manipulation.

Panel B of Figure 1 compares AAER firms that achieve an all-one string at least once during the manipulation period (termed as *all-one string AAER firms*) to the population of firms that have also achieved all-one strings during the fiscal year matched with AAER firms' year *MI*.

We provide this comparison since we expect AAER firms that have beaten expectations in all four quarters of a given year to be particularly likely to be manipulating for this purpose and therefore have strong prior reputations. The plot in Panel B indicates that for AAER firms, the proportion of firm-quarters beating analysts' forecasts prior to the manipulation period is slightly higher, but becomes similar to that of the population as the first manipulation year approaches. However, in the three years following the manipulation period, AAER firms are far less likely to beat expectations than the non-AAER all-one string population. Thus, the end of the manipulation period coincides with a significant and long break in beating expectations and this break is not experienced by other firms achieving all-one strings. In summary, both Panel A and B of Figure 1 suggest that AAER firms have strong reputations for beating expectations but that the end of the manipulation period coincides with AAER firms losing their reputations for consistently beating expectations as the manipulation unravels.

Table 5 provides a more formal investigation of the AAER firms' reputation for consistently beating analysts' forecasts. Panel A reports the average percentage of quarters with positive earnings surprises in the three years prior to the manipulation period. The average AAER firm beats expectations 86.37 percent of the time in the three years (twelve quarters) leading up to the manipulation period, compared to 75.15 percent for the population and 78.02 percent for the matched non-AAER sample. These differences are statistically significant (t-statistic of 5.24 and 3.24 respectively), consistent with AAER firms having strong reputations for beating expectations.<sup>10</sup> Panel A also reports the median magnitude of the earnings surprise. The results

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<sup>10</sup> Note that we do not have three years of quarterly forecasts before the manipulation period for all AAER firms. There are 24 firms where analysts provide only annual EPS forecasts and we find that for these firms there are only two cases where the firm missed expectations. In addition, there are 38 firms where manipulation coincided closely with the initiation of analyst coverage. Consistent with beating expectations being a motivation for the manipulation, we find that this subset of firms beat expectations over 85 percent of the time.

indicate that *SURPRISE1* is largest three years prior to the manipulation period (0.21 in *Pre3*) and is smallest the year prior to the manipulation period (0.07 in *Pre1*). This decline is significant and suggests that AAER firms find it to be increasingly more difficult to beat expectations as the manipulation period approaches. We then split observations into two groups: observations that beat (positive surprises) and observations that miss analysts' forecasts (negative surprises). Positive beats decline from 0.26 in *Pre3* to 0.11 in *Pre1*, providing further evidence that AAER firms are finding it more difficult to beat expectations just prior to the first manipulation year. In contrast, the small sample of misses does not demonstrate a clear pattern. Panel B of Table 5 reports the same set of analysis as Panel A, but for *SURPRISE2*. The results indicate that AAER firms have large earnings surprises as a percentage of earnings prior to the manipulation period, but there is a decline in the size of the surprise as the manipulation period approaches.

In summary, the results in Figure 1 and Table 5 indicate that prior to the manipulation period AAER firms are consistently beating expectations. This evidence is consistent with prediction *P2*. We also document that the magnitude of the earnings surprise declines as the manipulation period approaches, suggesting that firms could face more difficulty beating expectations. Consistent with prediction *P1*, firms that manipulate for more than one year continue to beat expectations consistently during the manipulation period. However, we find that firms that manipulate for one year falter and miss expectations with greater frequency towards the end of the year. This evidence suggests that by the end of the one year manipulation period, these firms have likely utilized all of their "non-GAAP" accounting flexibility and are beginning to take write-offs, constraining their ability to manipulate earnings upwards to beat expectations.

We next provide evidence consistent with the notion that AAER firms first use their "within GAAP" accounting flexibility to boost earnings before turning to "outside of GAAP"

techniques. Figure 2 reports the average working capital accruals and average total accruals over time for non-financial AAER firms and the population.<sup>11</sup> Figure 2 indicates that AAER firms have both higher working capital accruals (Panel A) and total accruals (Panel B) than population firms in the three years prior to the manipulation and that these measures peak during the manipulation period and then appear to reverse after the manipulation ends. Similarly, the subset of AAER firms that report all-one strings (those that we believe are more likely to be manipulating to beat analysts' forecasts) have higher levels of working capital and total accruals than those of population firms with all-one strings. These accrual patterns suggest that AAER firms appear to be capitalizing costs (e.g., growing inventory, receivables, property plant and equipment, etc.) and that reversals of earlier reported accruals (e.g., depreciation and inventory write-downs) are likely to limit their discretion to beat expectations by growing accruals even larger. The end of the manipulation period is likely to coincide with the time when managers allow the reversal of the previously overstated accruals.

#### ***4.2 Market pressure from analysts and investors***

Figure 3 provides the time-series patterns of variables that we hypothesize reflect market pressure from analysts. We predict that executives face more pressure to beat expectations when analysts are optimistic about the firm. We measure analyst optimism along three dimensions: long-term growth forecasts, the proportion of analysts following the firm that have recommended the

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<sup>11</sup>Prior studies indicate that AAER firms have high accruals before the manipulation period (e.g., Dechow et al., 2011). Our sample differs from Dechow et al.'s (2011) sample in that our sample focuses only on firms with analyst coverage. Analysts tend to cover larger and more successful companies and prior research argues that firms that consistently beat expectations appear to do so via guidance rather than earnings management (e.g., Matsumoto, 2002). Therefore, it is not necessarily the case that AAER firms with analysts' forecasts will have unusual accruals prior to the manipulation period.



stock as “buy” and “strong buy,” and the consensus recommendation score ranging from one (strong sell) to five (strong buy). We plot the time-series of these variables where the measurement is at the beginning of each year. The graphs are set up in a way similar to Figure 2. We present the average values for the three years before the first year of manipulation (*Pre3* to *Pre1*), the first manipulation year (*MI*), and the three years after the manipulation period (*Post1* to *Post3*). If a firm manipulates for more than one year, the remaining manipulation years are not reflected in the figures. We provide two comparisons in each panel: (1) AAER firms to the population, and (2) all-one string AAER firms to population firms that achieve an all-one string in the year identified as *MI*.

Panel A of Figure 3 reports the average long-term growth expectations. The results indicate that for up to three years prior to and during the manipulation period, analysts make higher long-term growth forecasts for AAER firms than for both the comparison groups. After the manipulation ends, long-term growth forecasts become similar to that of the population. Panel B presents the proportion of analysts with “buy” and “strong buy” recommendations. The plot indicates that for all-one string AAER firms, the proportion of analysts recommending “buy” peaks in the year prior to manipulation and remains high in the first manipulation year (at around 70 percent). This proportion is higher than the population’s (around 60 percent). Finally, Panel C reports the average recommendation score (where five indicates strong buy and one indicates strong sell). The average recommendation score is over “4” for AAER firms and it declines after the manipulation stops. Taken together, the plots suggest that prior to the manipulation period analysts are placing considerable pressure on the firms to show growth and to maintain or increase the stock price. This evidence is consistent with our prediction *P3*.

We next investigate proxies that are likely to be indicative of greater pressure to perform from investors. Panel A of Figure 4 reports average forward price-to-earnings (*PE*) ratio. The plots indicate that for up to three years prior to and during the manipulation period, AAER firms have higher forward *PE* ratios. However, after the manipulation period ends, these firms have similar *PE* ratios to the population. The second proxy is the proportion of shares held by institutional investors (Panel B). In the three years prior to the manipulation period, institutional holdings are lower than the population. Institutional ownership, however, is increasing in the three years beforehand and indicates a fairly large increase at the start of the manipulation period. As manipulation ends, the increasing trend in institutional holdings also stops. The patterns in these plots suggest that manipulating executives are under pressure to deliver earnings to maintain a high valuation as reflected in the *PE* ratio. In addition, the patterns also suggest that executives face pressure to attract and retain institutional investors.

To keep the figures easy to view and parsimonious we do not report whether differences between AAER firms and the control samples are significant, nor do we plot comparisons with the propensity-score-matched sample. Instead, we provide more formal statistical comparisons that include all manipulation years in Table 6. In particular, we provide the following three comparisons: Panel A compares AAER firms to the population, Panel B compares AAER all-one strings to the population all-one strings, and Panel C compares AAER firms to the propensity-score-matched non-AAER firms. Since results are similar across all panels, we only provide a detailed discussion of Panel A.

Panel A of Table 6 provides univariate comparisons of analyst and investor pressure proxies between AAER and population firm-year observations at the beginning of each year during the manipulation period. The average analyst forecast long-term growth of 19.59 percent for the

AAER sample is significantly higher than 16.84 percent for the population (t-statistic of 6.06). The average percentage of buy and strong buy recommendations is 67.37 percent and is significantly higher than 56.64 percent for the population. The average recommendation score for the AAER sample is also significantly higher than that of the population. For the investor pressure variables, we find that AAER firms' forward *PE* ratio in the prior year is significantly higher than that of the population (40.05 versus 30.78; t-statistic for the difference is 2.70). In addition, the AAER sample has significantly higher average percentage of institutional ownership than the population (59.22 percent versus 49.36 percent; t-statistic for the difference is 7.08). Results are similar for Panels B and C, consistent with our prediction *P3* that manipulating firms are under pressure to perform from investors.

Figure 5 provides corollary evidence related to investor pressure. Skinner and Sloan (2002) document that relative to positive earnings surprises, negative earnings surprises have larger negative stock price reactions for growth firms. Thus, AAER firms that have high PE multiples could suffer more negative stock price consequences for a miss in expectations. Panel A of Figure 5 plots the three-day stock price reaction to the announcement of the manipulated quarterly earnings of AAER all-one strings. For comparison purposes, we provide the stock returns for the population of firms that also beat in all four quarters during a fiscal year. The results indicate that AAER all-one strings, like population firms, earn positive returns at each quarterly earnings announcement of between 0.6 percent to around two percent. Panel B of Figure 5 then reports the stock price reaction when the AAER all-one string firms first miss expectations. For comparative purposes, we also plot the cumulative returns earned during the beating four quarters reported in Panel A for each group. Panel B indicates that the twelve-day (the three-day returns over four quarters) cumulative returns are 5.32 percent for AAER firms versus 5.22 percent for the

population (the difference is not statistically significant). In contrast, we find that when the string of positive surprises breaks, AAER firms have an average negative three-day announcement return of -7.13 percent that is significantly more negative than return of -3.67 percent for the population (t-statistic of the difference is 1.97). These results suggest that the manipulation delayed a negative stock price shock, which is consistent with our hypothesis that managers feel pressure to manipulate earnings to keep beating expectations so as not to disappoint investors.

### ***4.3 Internal pressure from the CEO***

We next investigate whether executives of AAER firms are under strong internal pressure from the CEO to beat expectations. Similar to Table 6, all variables in Table 7 are measured at the beginning of the fiscal year (details are provided in Appendix B). The first internal pressure variable is CEO overconfidence. *OVERCONFIDENT* is an indicator variable that equals one if the CEO is overconfident, and zero otherwise. Following Schrand and Zechman (2012), managerial overconfidence is identified if the log of the sum of in-the-money unexercised but exercisable options held by the CEO (*opt\_unex\_exer\_est\_val* + 0.01 from Execucomp) is greater than the SIC three-digit industry median, and zero otherwise. Results suggest that 58.9 percent of CEOs in AAER firms appear to delay the exercise of stock options relative to industry counterparts compared to an average of 47.54 percent for the population. The difference is statistically significant with a t-statistic of 2.92 and is consistent with Schrand and Zechman (2012).<sup>12</sup>

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<sup>12</sup> Our sample of AAER firms includes a few companies that were identified by the SEC as having backdated stock options. Backdating stock options is likely to lead mechanically to higher values of *OVERCONFIDENT*. When we exclude stock option back-dating firms from our analysis of overconfidence, results are weaker but remain statistically significant in Table 7.

We next examine CEOs' personal financial incentives. The first measure is *PAYSLICE* defined as the ratio of CEO's total compensation as a percentage of the total compensation to the top five executives (e.g., Bebchuk et al., 2011). A greater pay slice could indicate a greedier, or more narcissistic CEO, who believes he or she is more valuable to the company than other executives. This type of CEO is likely to be more concerned about beating expectations and avoiding a stock price decline. The results indicate that AAER firms' CEOs have a significantly higher average pay slice of 46.51 percent compared to 40.85 percent for the population (t-statistic of 4.75). Our next variable is CEOs' pay-for-performance sensitivity (*SENSITIVITY*) measure based on CEO's stock-based compensation following Feng et al. (2011). A CEO with equity compensation more sensitive to stock price changes is more likely to be particularly concerned with stock price declines. Consistent with Feng et al. (2011), we find that CEO pay-for-performance sensitivity is 39.10 percent for an average AAER firm, compared to 29.84 percent for an average population firm (t-statistic of 5.34).

CEOs further need sufficient power to influence other executives. We examine two proxies for CEO power. The first measure of CEO power is the prevalence of independent directors as a percentage of the total number of directors (*INDBOARD*). The average level of board independence for AAER firm-years is significantly lower than that of the population (75.75 percent versus 80.32 percent; t-statistic of -4.76). Our second proxy for CEO power is an indicator variable that equals one when the CEO is also the chairman of the board and zero otherwise (*CEOCHAIR*). AAER firm-years have an average of 76.69 percent incidence of CEO duality

compared to 60.93 percent for the population. The difference is statistically significant with a t-statistic of 4.71.<sup>13</sup>

Panel B of Table 7 compares the CEO innate characteristic proxies for AAER all-one strings and the population all-one strings. Results are similar to those reported in Panel A. In Panel C, we compare AAER firms to the propensity-score-matched non-AAER firms. We find that the difference in *OVERCONFIDENT* is no longer significant and the difference in *SENSITIVITY* becomes weakly significant. This evidence suggests that CEO equity compensation is similar to matched firms, which is generally in line with the mixed results reported in prior research and highlights the importance of propensity matching (Armstrong et al., 2010). Overall, the results reported in Table 7 generally confirm that the evidence related to CEO characteristics from prior research hold for our sample.

#### **4.4 Multivariate analysis**

One contribution of our paper is to provide evidence that market pressure from analysts and investors on firms to beat earnings expectations appears to be an important factor in explaining manipulation. In our multivariate analysis, we seek to better understand whether market pressure is incremental to the internal pressure CEOs exert on executives. In addition, we investigate whether a reputation for beating expectations is subsumed by external market pressure and internal CEO pressure or whether it appears to be an independent determinant of manipulation.

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<sup>13</sup> In unreported tests we investigate the extent to which the CEO is involved in the manipulation and whether the manipulation takes place only at the divisional level by manually checking the original AAER reports. Out of 136 unique AAERs in our sample, only four AAER firms have earnings manipulation confined at the subsidiary level. In most cases, CEOs are directly involved in the manipulation. Since the proportion of subsidiary-confined AAERs is small, we do not distinguish these cases. In addition, even though the CEO may not be aware of subsidiary-level manipulation, they may still put pressure on subsidiaries to perform.

Table 8 reports results of stepwise regressions examining the different sets of motivating factors in predicting “outside of GAAP” earnings manipulation. Panel A compares AAER firms to the population, and Panel B compares AAER firms to the propensity-score-matched non-AAER firms. We do not tabulate results focusing on AAER all-one strings but these results give similar inferences. In Panel A, Regression (1) focuses on the external market pressure variables. Consistent with results in Table 6, results suggest that higher pressure from analysts in the form of high long-term growth forecasts and stock recommendations in the prior year increases the odds of manipulation in the following year. In addition, having a higher valuation premium (as reflected in having a forward *PE* ratio in the highest annual quintile), along with greater institutional holdings, increases the odds of being a manipulation firm. The pressure variables are incrementally significant over the firms’ use of flexibility within the accounting system (as measured by the F-score rank *RANKFSCORE*) and other firm characteristics including size, leverage, and profitability improvement (*SIZE*, *LEV*, and  $\Delta ROA$ ). Regression (2) of Panel A reports results related to CEO overconfidence, compensation and power. In the multivariate regression, the CEO variables are all statistically significant in the predicted direction with the exception that the coefficient on CEO overconfidence is statistically negative. We find that *OVERCONFIDENT* is highly correlated with *SENSITIVITY* with a 30 percent correlation coefficient and that *OVERCONFIDENT* loads with the correct sign only when *SENSITIVITY* is excluded from the regression. Thus, our results suggest that the sensitivity of a CEO’s equity compensation to the stock price is more important than overconfidence in explaining manipulation.

Regression (3) of Panel A examines whether a reputation for consistently beating expectations (*BEATPCT<sub>Prior3Y</sub>*) is incrementally significant over control variables in explaining “outside of GAAP” earnings manipulation. We find that after controlling for the use of accounting

flexibility and firm characteristics, the coefficient for  $BEATPCT_{Prior3Y}$  is significantly positive at 2.992 (z-statistic of 5.61). Regression (4) combines the market pressure and internal pressure variables along with the reputation for beating expectations. The results indicate that CEO power and compensation related incentives remain important for explaining earnings manipulation. The coefficient for the CEO overconfidence proxy continues to have the incorrect sign. More importantly, we document that  $BEATPCT_{Prior3Y}$  is incrementally important (coefficient of 3.133, z-statistic of 4.02) in the presence of both external and internal pressure variables.<sup>14</sup> This evidence is consistent with the executive team caring about their reputation for beating expectations and is in addition to pressure placed on them by the CEO and the stock market.

Panel B of Table 8 reports the multivariate logistic regression results based on AAER firms and the propensity-score-matched non-AAER firms. The results reported for Regressions (1) and (2) are similar to those reported in Panel A with the exception of the insignificant coefficient for the *OVERCONFIDENT* proxy. Thus, after better matching and including other CEO characteristics, overconfidence appears less important for explaining manipulation. The results for Regressions (3) and (4) are similar to Panel A and we again find that a reputation for consistently beating expectations is significant and incremental to market and CEO pressure proxies.

## V. CONCLUSION

This study examines whether maintaining a reputation for consistently beating analysts' expectations motivates executives to move from "within GAAP" earnings management to "outside of GAAP" earnings manipulation. We use a sample of firms subject to SEC enforcement actions.

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<sup>14</sup> In untabulated tests we replaced  $BEATPCT_{Prior3Y}$  with  $BEATPCT_{Rolling3Y}$ , which measured the percentage of beats over the past three years including manipulation years if applicable. Results are very similar to those reported in Table 8.



The benefit of this sample is that we are confident that manipulation did indeed take place, but a limitation of the sample is that the sample size is small and these firms were “caught” by the SEC and therefore may differ from other firms that engage in manipulation.

We document that manipulating firms are more likely to have consistently beaten analysts’ forecasts in the three years prior to the manipulation period. We investigate factors that could motivate executives to manipulate earnings to consistently beat analysts’ forecasts. We predict and find that manipulating firms face strong *external* market pressure to continue the trend of consistently beating expectations. We document that manipulating firms have high PE ratios consistent with their valuations reflecting a “premium.” Meanwhile, institutional investors are increasing their holdings in these firms, and analysts are making optimistic long-term growth forecasts and predominantly promoting these firms as “buys” and “strong buys.” We hypothesize that manipulating firms also face *internal* pressure from CEOs to deliver performance. Specifically, we investigate proxies for CEO overconfidence, compensation incentives and power. Our empirical results provide weak and conflicting evidence for the role of CEO overconfidence in explaining earnings manipulation. This result could be attributable to noise in our proxy which is based on CEOs’ not exercising options in an optimal manner or because the close correlation between our CEO overconfidence measure and CEO equity-based compensation measures. We also find that manipulating CEOs have more equity-based compensation and pay themselves a larger slice of the compensation pool, consistent with CEOs being particularly concerned with their pay in general and with their equity pay in particular. Consistent with prior research, we find that AAER firms have less independent board representation and their CEOs are more likely to be the chairman of the board, suggesting that manipulating CEOs have more power over their boards

to set the strategic direction of the company and potentially lead the firms to be overly focused on beating analysts' expectations.

Overall, our results suggest that when an executive team with a reputation for consistently beating analysts' expectations faces a situation where they have exhausted much of their "within GAAP" accounting discretion, there is a greater likelihood that the executive team will push the accounting system to its limit and go down the "slippery slope" and engage in earnings manipulation. Factors that are likely to contribute or place additional pressure on firms to engage in manipulation include market pressure from analysts to beat high expectations and an internal governance system where the board has fewer independent directors and the CEO's compensation package is large and highly sensitive to stock price movement.

Our study raises opportunities for future research. We document that manipulating firms consistently beat analysts' expectations prior to manipulation. One avenue for future research is to examine how companies deal with missing analysts' forecasts. For instance, do firms with better governance miss analysts' forecasts more frequently and avoid playing the "expectations" game altogether? Are managers penalized less for missing earnings expectations in better governed firms or does consistently beating earnings expectations reap strong personal benefits to top executives? We hope that future research will endeavor to answer some of these questions.

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## APPENDIX A

### Coca Cola and its Incentive to Report Positive Earnings Surprises

The discussion below is extracted from SEC's Accounting and Auditing Enforcement Release (No. 2232) for Coca Cola.

“From 1990 through 1996, Coca-Cola consistently met or exceeded earnings expectations while achieving a compound annual earnings per share growth rate of 18.3 percent – more than twice the average growth rate of the S&P 500. Coca-Cola's superior earnings performance resulted in its common stock trading at a price to earnings multiple (“P/E Ratio”) of 38.1 by the end of 1996, as compared to the S&P 500's P/E Ratio of 20.8.

In the mid-1990s, Coca-Cola began experiencing increased competition and more difficult economic environments. Nevertheless, Coca-Cola publicly maintained between 1996 and 1999 that it expected its earnings per share to continue to grow between 15 percent and 20 percent annually. At or near the end of each reporting period between 1997 and 1999, Coca-Cola, through its officers and employees implemented a “channel stuffing” practice in Japan known as “gallon pushing.” In connection with this practice, CCJC asked bottlers in Japan to make additional purchases of concentrate for the purpose of generating revenue to meet both annual business plan and earnings targets. The income generated by gallon pushing in Japan was the difference between Coca-Cola meeting or missing analysts' consensus or modified consensus earnings estimates for 8 out of 12 quarters from 1997 through 1999.”

The Coca Cola channel-stuffing example nicely illustrates the incentives and possible implementation of financial misstatement in the service of beating earnings benchmarks. Our empirical tests examine whether the incentive to manipulate earnings for this motive is prevalent among AAER firms.

**APPENDIX B**  
**Variable Definitions**

Variables	Definition
$AAER_{it}$	Indicator variable equals one if the string observation is an AAER firm, and zero otherwise.
<u>Reputation for consistently beating analysts' expectations</u>	
$BEATPCT_{Prior3Y}$	Percentage of quarters beating (just meeting or beating) analysts' EPS forecasts in the three years prior to the manipulation period.
$BEATPCT_{During}$	Percentage of quarters beating (just meeting or beating) analysts' EPS forecasts during the manipulation period.
<i>all-one string</i>	Indicator variable equals one if the firm beats (meets or beats) analysts' EPS forecasts in all four quarters of a fiscal year, and zero otherwise.
<u>Market pressure from analysts</u>	
$LTG_{it-1}$	Analysts' median consensus long-term growth forecast. We take the most recent consensus forecast made after the end of fiscal year $t-1$ and before the first earnings announcement of fiscal year $t$ .
$HIGHLTG_{it-1}$	Indicator variable equals one if analysts' long-term growth forecast is in the highest annual quintile, and zero otherwise.
$BUYPCT_{it-1}$	Percentage of analysts giving buy and strong buy recommendations measured as of the most recent IBES summary date after the end of fiscal year $t-1$ and before the first earnings announcement of fiscal year $t$ .
$HIGHBUYPCT_{it-1}$	Indicator variable equals one if the percentage of analysts giving buy and strong buy recommendations is in the highest annual quintile, and zero otherwise.
$RECMD_{it-1}$	Analysts' median consensus stock recommendation which ranges from one to five with a rank of one representing a strong sell recommendation and a rank of five representing a strong buy recommendation. We take the most recent consensus recommendation made after the end of fiscal year $t-1$ and before the first earnings announcement of fiscal year $t$ .
$STRONGBUY_{it-1}$	Indicator variable equals one if analysts give consensus strong buy stock recommendation, and zero otherwise.
$SURPRISE1$	The difference between actual quarterly EPS and analysts' median consensus quarterly EPS forecast. We take the most recent consensus forecast made before each quarterly earnings announcement.
$SURPRISE2$	The difference between actual quarterly EPS and analysts' median consensus quarterly EPS forecast, scaled by the absolute value of actual quarterly EPS. We take the most recent consensus forecast made before each quarterly earnings announcement.
<u>Market pressure from investors</u>	
$PE_{it-1}$	Forward price-to-earnings ratio measured as the stock price at the end of fiscal year $t-1$ divided by the first annual EPS median consensus forecast for fiscal year $t$ made following the annual earnings announcement.
$HIGHPE_{it-1}$	Indicator variable equals one if the $PE$ ratio is in the highest annual quintile, and zero otherwise.

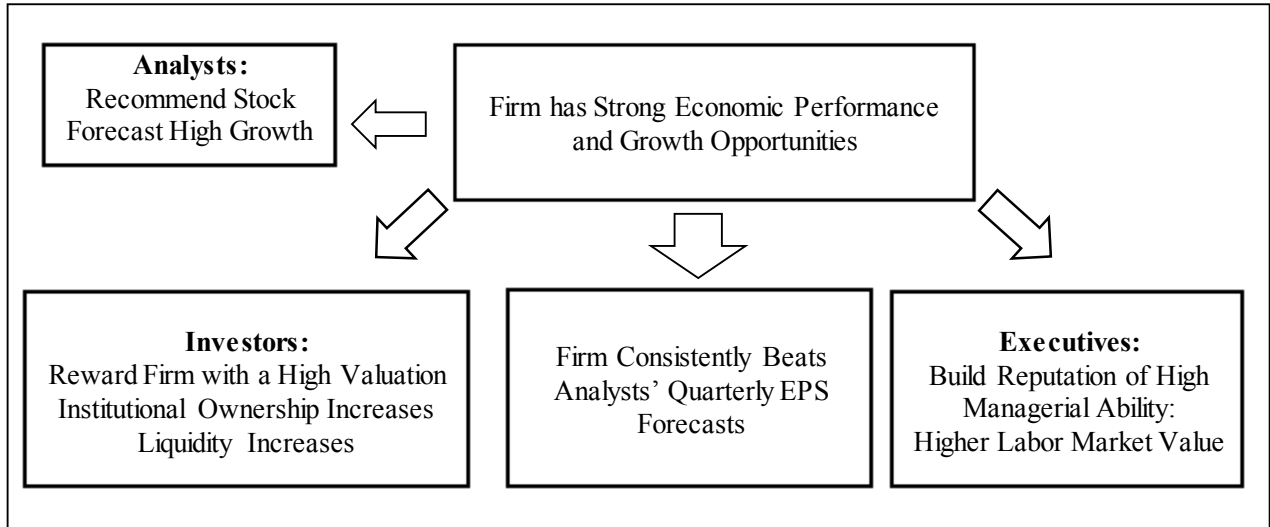
<i>IHELD</i> <sub><i>it-1</i></sub>	Percentage of institutional holdings measured as the number of shares held by 13-F institutional investors as a percentage of the total shares outstanding as of the latest report date before the end of fiscal year <i>t-1</i> .
<i>RANKIHELD</i> <sub><i>it-1</i></sub>	Annual quintile rank based on <i>IHELD</i> <sub><i>it-1</i></sub> .
<u><i>CEO overconfidence</i></u>	
<i>OVERCONFIDENT</i> <sub><i>it-1</i></sub>	Indicator variable equals one if the CEO is overconfident, and zero otherwise. Managerial overconfidence is identified if the log of the sum of in-the-money unexercised exercisable options held by the CEO ( <i>opt_unex_exer_est_val</i> + 0.01 from ExecuComp) is greater than the SIC three-digit industry median, and zero otherwise.
<u><i>CEO compensation</i></u>	
<i>PAYSLICE</i> <sub><i>it-1</i></sub>	Pay slice of CEO's total compensation as a percentage of the total compensation to the top five executives.
<i>SENSITIVITY</i> <sub><i>it-1</i></sub>	CEO's pay-for-performance sensitivity following Feng et al. (2011).
<u><i>CEO power</i></u>	
<i>INDBOARD</i> <sub><i>it-1</i></sub>	Percentage of independent directors from RiskMetrics.
<i>RANKINDBOARD</i> <sub><i>it-1</i></sub>	Annual quintile rank based on <i>INDBOARD</i> <sub><i>it-1</i></sub> .
<i>CEOCHAIR</i> <sub><i>it-1</i></sub>	Indicator variable equals one if the CEO also serves as the chairman of the board, and zero otherwise.
<u><i>Accounting flexibility</i></u>	
<i>RANKFSCORE</i> <sub><i>it</i></sub>	Annual decile rank of F-score calculated following Dechow et al. (2011).
<i>WCACC</i> <sub><i>it</i></sub>	Working capital accruals measured as the change in non-cash current assets minus the change in current liabilities net of short-term debt scaled by beginning total assets.
<i>TACC</i> <sub><i>it</i></sub>	Total accruals measured as earnings before extraordinary items and discontinued operations taken from the statement of cash flow minus operating cash flows minus investing cash flows scaled by beginning total assets.
<u><i>Other firm characteristics</i></u>	
<i>SIZE</i> <sub><i>it-1</i></sub>	Firm size measured as the natural log of total assets.
<i>BTM</i> <sub><i>it-1</i></sub>	Book-to-market ratio measured as common equity divided by market value of equity.
<i>LEV</i> <sub><i>it-1</i></sub>	Leverage measured as total liabilities over total assets.
$\Delta$ <i>ROA</i> <sub><i>it-1</i></sub>	Change in return-on-assets measured as the increase in the ratio of income before extraordinary items to average total assets.

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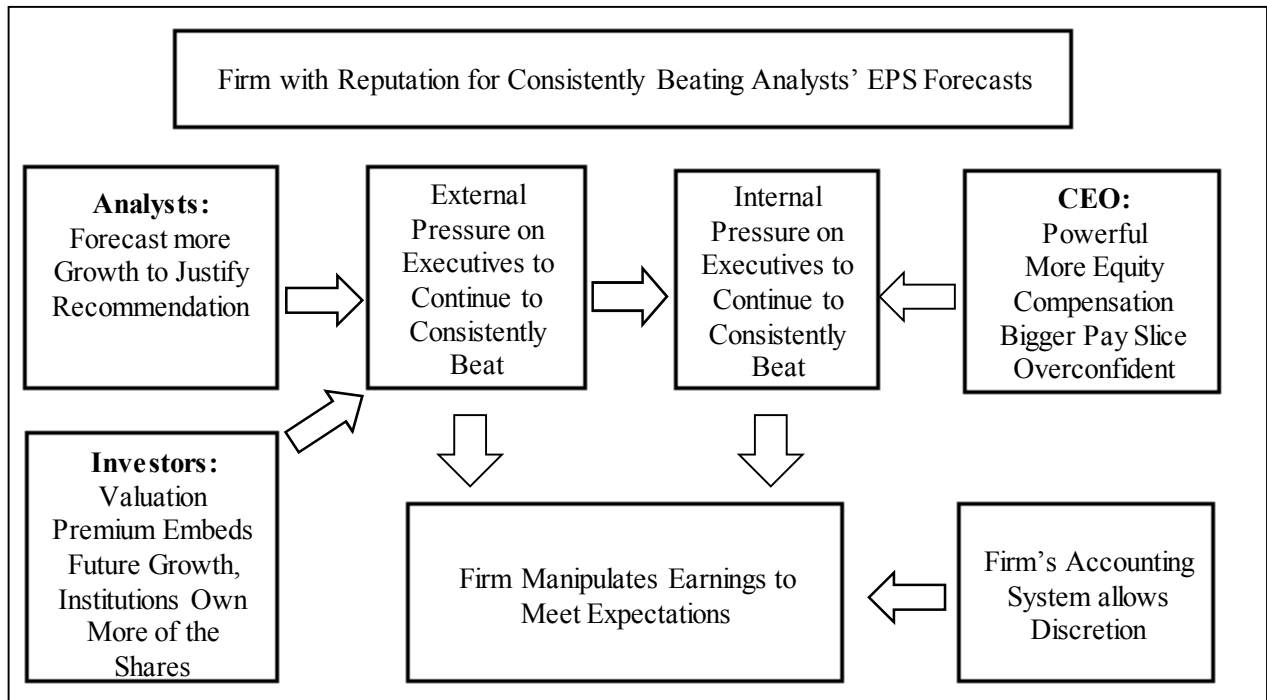
**EXHIBIT 1**

**Framework of Consistently Beating Analysts' EPS Forecasts and earnings manipulation**

**Panel A: Economic growth and consistently beating analysts' EPS forecasts.**



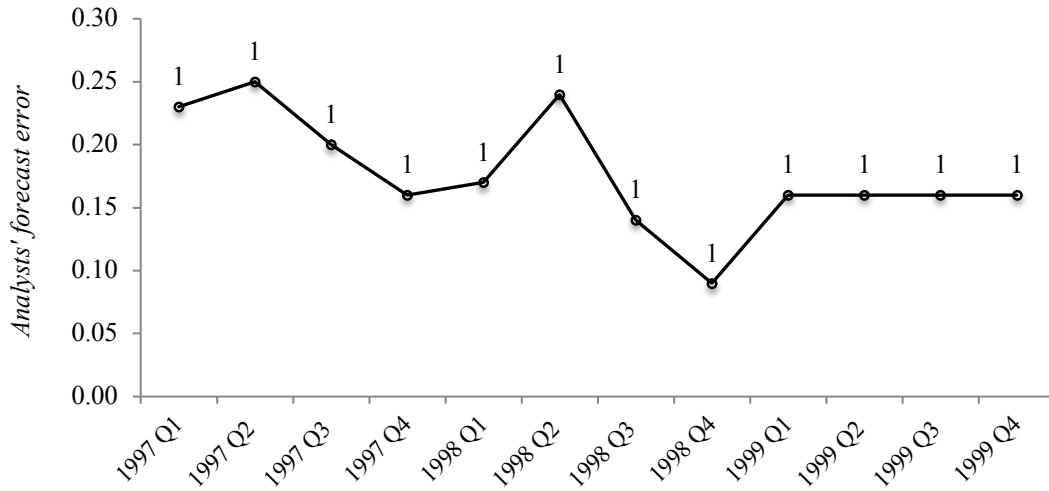
**Panel B: Impact of market pressure and CEO pressure on incentive to manipulate earnings.**



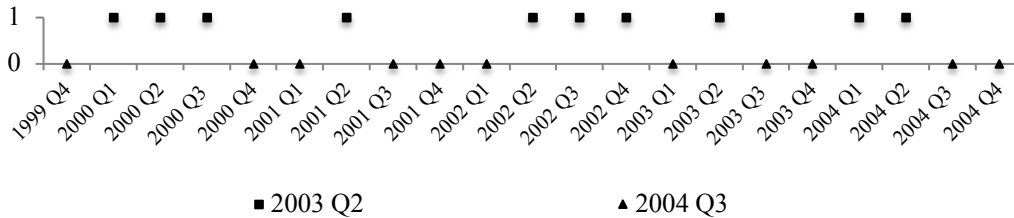


**EXHIBIT 2**  
**String Construction**

**Panel A: String example of AAER firm *Coca-Cola Company, Ltd.***



**Panel B: String example for a hypothetical population firm.**



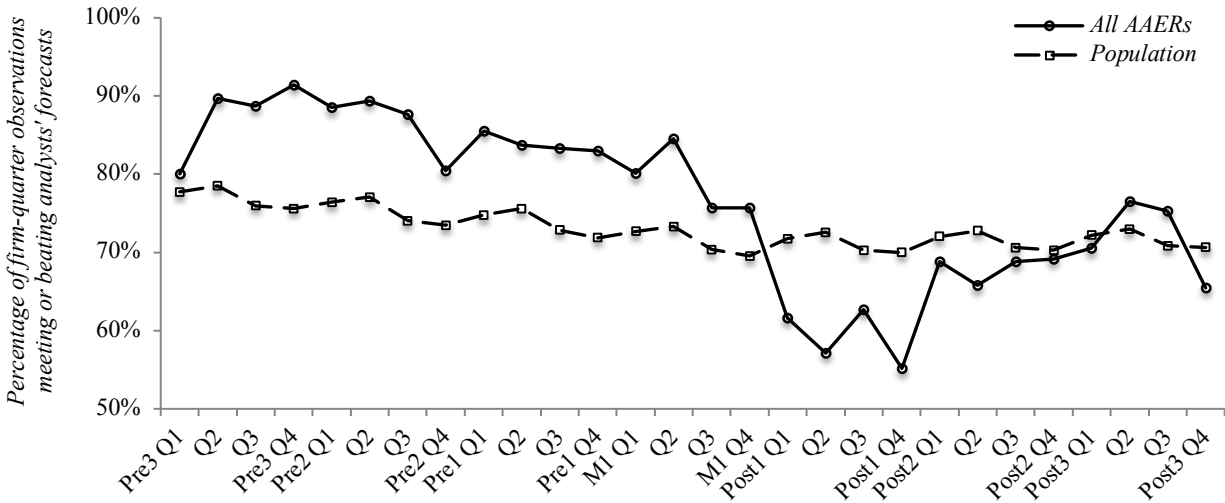
**Panel C: Construction of string observations without overlapping quarters.**

	Time periods and string permutations				
String observations	2000 Q1 - 2000 Q4	2001 Q1 - 2001 Q4	2002 Q1 - 2002 Q4	2003 Q1 - 2003 Q4	2004 Q1 - 2004 Q4
	(1, 1, 1, 0)	(0, 1, 0, 0)	(0, 1, 1, 1)	(0, 1, 0, 0)	(1, 1, 0, 0)

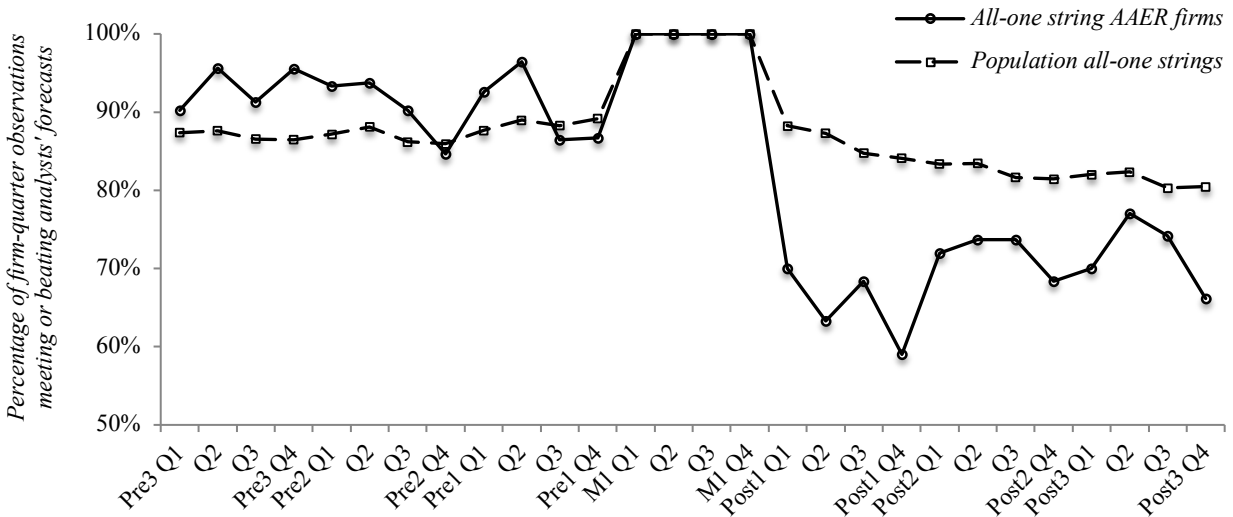
Panel A presents Coca-Cola's earnings strings during the manipulation period from 1997 to 1999. A fiscal quarter receives a "1" for meeting or beating analysts' forecasts and a "0" for missing analysts' forecasts. Analysts' forecast error is calculated as the difference between actual EPS and the most recent median consensus EPS forecast before earnings announcements from IBES. Coca-Cola's alleged manipulation period from 1997 to 1999 contributes three string observations to our AAER sample. Panel B presents the earnings string for a hypothetical firm from 1999 to 2004. Panel C illustrates our construction of string observations for the hypothetical firm.

**FIGURE 1**  
**Time-series Comparison of Beating Patterns between AAER Firms and the Population**

**Panel A: Proportion of beats for the AAER sample and the population.**



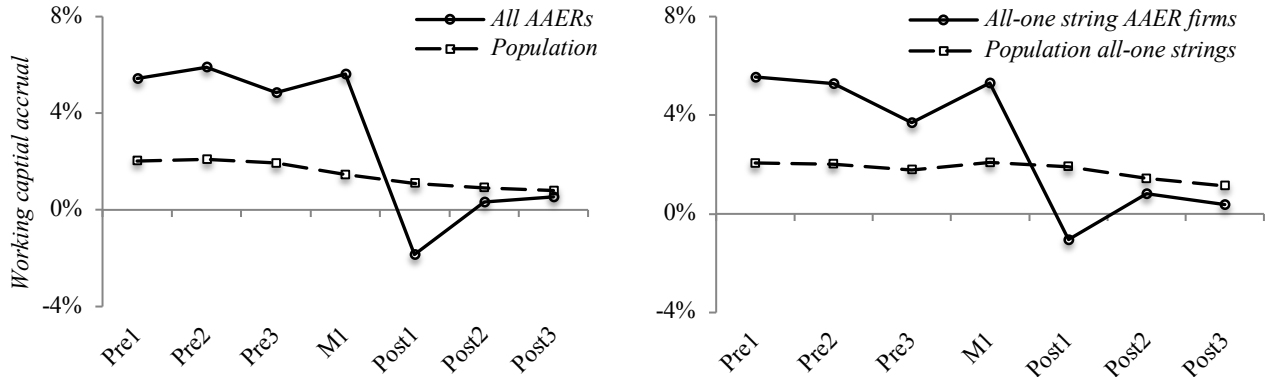
**Panel B: Proportion of beats for all-one string AAER firms and the population all-one strings.**



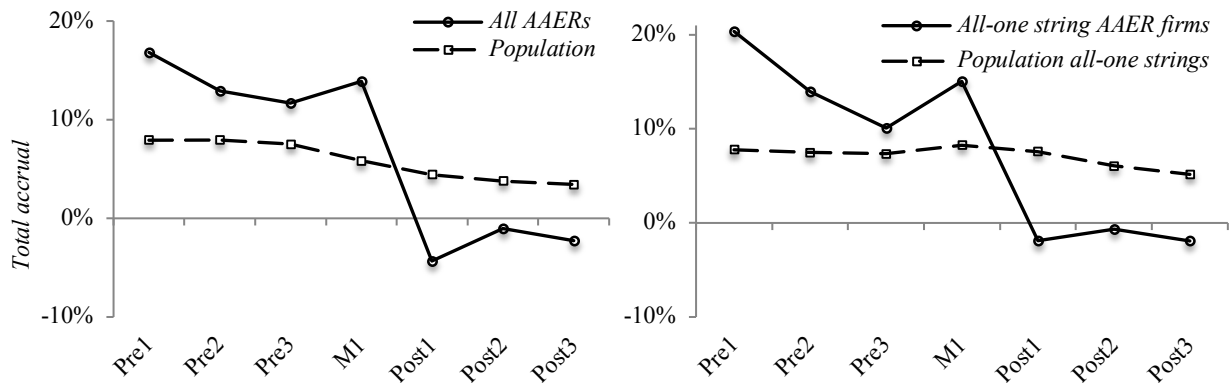
Panel A of this figure presents the time-series proportions of firm-quarter observations meeting or beating analysts' forecasts for the 136 AAER firms and the population. Panel B focuses on the subsample sample of 85 all-one string AAER firms (i.e., AAER firms with at least one all-one string during the manipulation period) and the population all-one strings. Year *M1* is the first fiscal year of manipulation for Panel A. Year *M1* is the first fiscal year that the AAER firm achieves an all-one string during the manipulation period for Panel B. Year *Pre1*, *Pre2*, and *Pre3* are the three years immediately prior to the manipulation period. Year *Post1*, *Post2* and *Post3* are the three years immediately following the manipulation period. We determine the timeline of variable measurement for the population as follows. Assuming that an AAER firm's first manipulation year is 2000, we use all non-AAER firms as of year 2000 as the AAER firm's year-matched population. We then move three years backwards from 2000 to determine the year *Pre1*, year *Pre2*, and year *Pre3*, and move three years forward from 2000 to determine the year *Post1*, year *Post2*, and year *Post3* for the population.

**FIGURE 2**  
**Time-series Comparison of Accruals as a Proxy for Accounting Flexibility between AAER Firms and the Population**

**Panel A: Working capital accruals.**



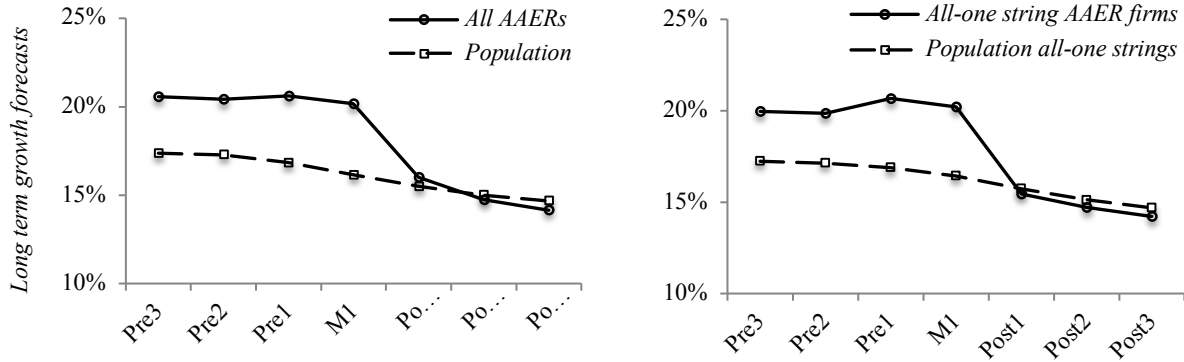
**Panel B: Total accruals.**



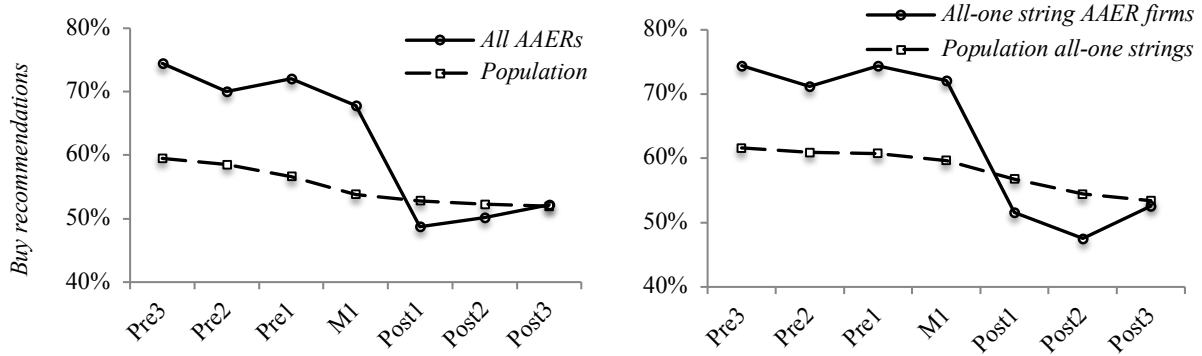
This figure presents the time-series comparison of accruals as a proxy for accounting flexibility between 119 non-financial AAER firms and the population, and between the subsample of 80 non-financial all-one string AAER firms (i.e., AAER firms with at least one all-one string during the manipulation period) and the population all-one strings. Panel A plots the average working capital accruals (*WCACC*). Panel B plots the average total accruals (*TACC*). Year *M1* is the first fiscal year of manipulation for the left plot for each panel, and Year *M1* is the first fiscal year that an AAER firm achieves an all-one string during the manipulation period for the right plot for each panel. Year *Pre1*, *Pre2*, and *Pre3* are the three years immediately prior to the manipulation period. Year *Post1*, *Post2* and *Post3* are the three years immediately following the manipulation period. We determine the timeline of variable measurement for the population as follows. Assuming that an AAER firm's first manipulation year is 2000, we use all non-AAER firms as of year 2000 as the AAER firm's year-matched population. We then move three years backwards from 2000 to determine the year *Pre1*, year *Pre2*, and year *Pre3*, and move three years forward from 2000 to determine the year *Post1*, year *Post2*, and year *Post3* for the population.

**FIGURE 3**  
**Time-series Comparison of Market Pressure from Analysts between AAER Firms and the Population**

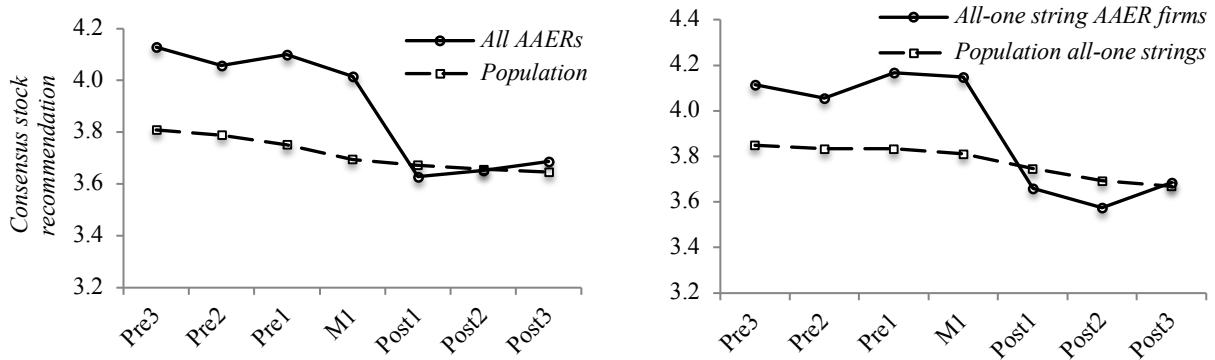
**Panel A: Analysts' long-term growth forecasts.**



**Panel B: Percentage of analysts giving buy and strong buy recommendations.**



**Panel C: Consensus stock recommendation.**

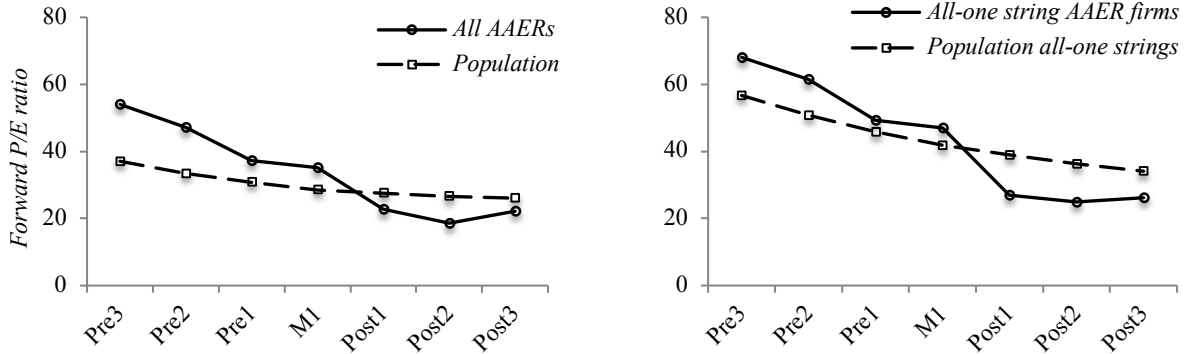


### FIGURE 3 (continued)

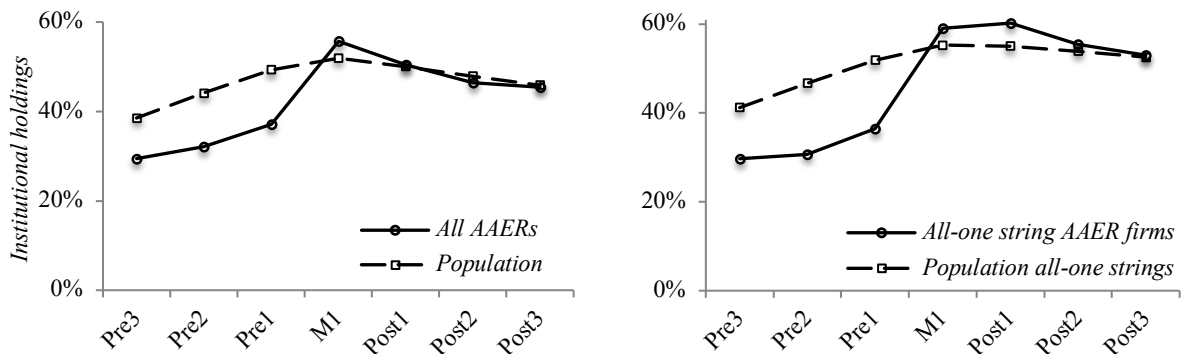
This figure presents the time-series comparison of market pressure from analysts between the 136 AAER firms and the population, and between the subsample of 85 all-one string AAER firms (i.e., AAER firms with at least one all-one string during the manipulation period) and the population all-one strings. Panel A plots the average analysts' long-term growth forecasts (*LTG*). Panel B plots the average percentage of analysts giving buy and strong buy recommendations (*BUYPCT*). Panel C plots the average consensus stock recommendation (*RECMD*). Year *MI* is the first fiscal year of manipulation for the left plot for each panel, and Year *MI* is the first fiscal year that an AAER firm achieves an all-one string during the manipulation period for the right plot for each panel. Year *Pre1*, *Pre2*, and *Pre3* are the three years immediately prior to the manipulation period. Year *Post1*, *Post2* and *Post3* are the three years immediately following the manipulation period. We determine the timeline of variable measurement for the population as follows. Assuming that an AAER firm's first manipulation year is 2000, we use all non-AAER firms as of year 2000 as the AAER firm's year-matched population. We then move three years backwards from 2000 to determine the year *Pre1*, year *Pre2*, and year *Pre3*, and move three years forward from 2000 to determine the year *Post1*, year *Post2*, and year *Post3* for the population.

**FIGURE 4**  
**Time-series Comparison of Market Pressure from Investors between AAER Firms and the Population**

**Panel A: Forward P/E ratio.**



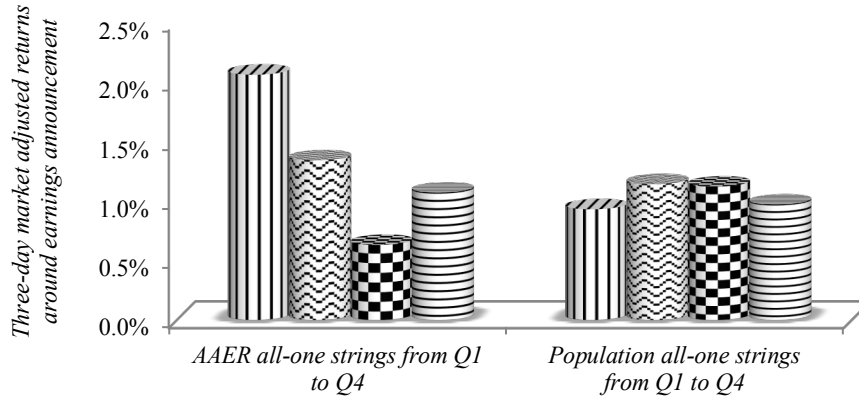
**Panel B: Percentage of institutional holdings.**



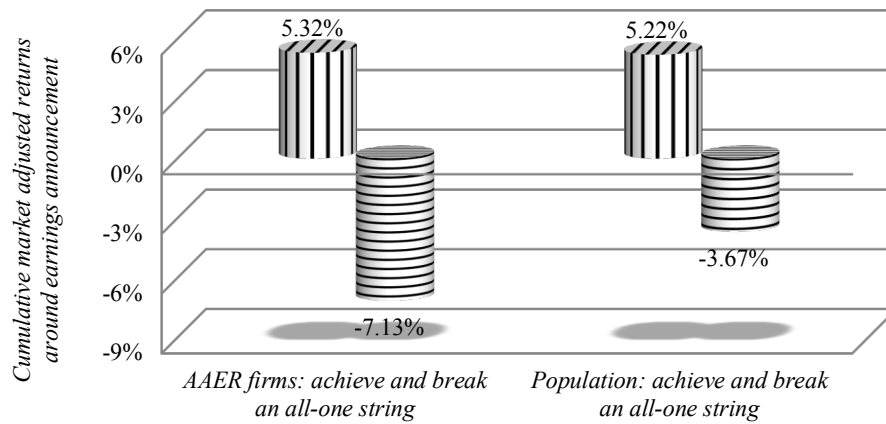
This figure presents the time-series comparison of market pressure from investors between the 136 AAER firms and the population, and between the subsample of 85 all-one string AAER firms (i.e., AAER firms with at least one all-one string during the manipulation period) and the population all-one strings. Panel A plots the average forward price-to-earnings ratio ( $PE$ ). Panel B plots the average percentage of institutional holdings ( $IHELD$ ). Year  $M1$  is the first fiscal year of manipulation for the left plot for each panel, and Year  $M1$  is the first fiscal year that an AAER firm achieves an all-one string during the manipulation period for the right plot for each panel. Year  $Pre1$ ,  $Pre2$ , and  $Pre3$  are the three years immediately prior to the manipulation period. Year  $Post1$ ,  $Post2$  and  $Post3$  are the three years immediately following the manipulation period. We determine the timeline of variable measurement for the population as follows. Assuming that an AAER firm's first manipulation year is 2000, we use all non-AAER firms as of year 2000 as the AAER firm's year-matched population. We then move three years backwards from 2000 to determine the year  $Pre1$ , year  $Pre2$ , and year  $Pre3$ , and move three years forward from 2000 to determine the year  $Post1$ , year  $Post2$ , and year  $Post3$  for the population.

**FIGURE 5**  
**Stock Market Response to Earnings String and its Break around Earnings Announcements**

**Panel A: Stock market response to quarterly earnings beats.**



**Panel B: Cumulative stock market response to earnings strings and its break.**



This figure presents the positive stock market response to achieving all-one strings and the negative stock market response to breaking all-one strings. Panel A reports the three-day market adjusted return measured as the raw return less the CRSP value-weighted index around the earnings announcements for each quarter during the four-quarter string period. We measure the string-achievement response in Panel B by cumulating the four three-day returns over the fiscal period (12-day cumulative return). We measure string-break response as the three-day market adjusted earnings announcement return of the first quarter when the all-one string breaks. Panel B compares the string-achievement response to the string-break response. The t-tests suggest that (1) the string-achievement and the string-break responses are both significantly different from zero, and (2) the string-break response of AAER firms is significantly lower than that of the population.

**TABLE 1**  
**Sample Selection**

**Panel A: AAER sample.**

	# AAERs
AAERs issued from May 1982 to September 2013 involving specific firms	3,323
<i>Less:</i>	
Redundant AAERs related to the same firm and incident	(1,985)
AAERs unrelated to financial statement fraud, such as audit failure, bribes, and disclosure issues	(401)
AAERs with no Compustat identifier gvkey	(193)
AAERs with no IBES coverage during the manipulation period	(423)
Unique AAER firms	321
	# firm-year observations
AAER firm-year observations with IBES coverage	954
<i>Less:</i>	
Observations without a complete four-quarter fiscal year of misstatement	(334)
Observations with missing financial data	(228)
Final sample of AAER firm-year observations from 1985 to 2010	392
Final sample of unique AAER firms	136

**Panel B: Population sample.**

	# firm-year observations
Firm-year observations with IBES coverage from 1985 to 2010	52,724
<i>Less:</i>	
Firms receiving SEC AAERs	(3,034)
Observations with missing financial data	(5,751)
Final population sample from 1985 to 2010	43,939



TABLE 1 (*continued*)

**Panel C: Comparison between AAER sample and the propensity-score-matched non-AAER sample.**

	AAER sample (N = 392)		One-to-one propensity- score-matched non- AAER (N = 392)		AAER – Matched Non- AAER	
	Mean	Median	Mean	Median	Mean diff.	t-statistic
$SIZE_{it-1}$	7.04	6.65	6.91	6.81	0.13	0.92
$BTM_{it-1}$	0.45	0.35	0.45	0.36	0.00	-0.12
$LEV_{it-1}$	0.50	0.50	0.47	0.45	0.03	1.65
$\Delta ROA_{it-1}$	0.00	0.00	0.00	0.00	-0.01	-0.71

This table presents the sample selection process for the AAER sample in Panel A and the population in Panel B. We require the population to have the same sample period of the final AAER sample. Panel C compares the differences in mean values of firm characteristics between the AAER sample and the propensity-score-matched non-AAER sample. We generate the propensity-score-matched sample by first estimating the logistic model of all-one strings (*all-one string<sub>t</sub>*) on size, book-to-market ratio, leverage, and change in return-on-assets ( $SIZE_{it-1}$ ,  $BTM_{it-1}$ ,  $LEV_{it-1}$ , and  $\Delta ROA_{it-1}$ ) using the sample of AAER and the population. We then match each AAER string observation to one string observation in the population based on the estimated propensity score from the first stage regression without replacement under caliper level of three percent. Our final sample includes 392 AAER firm-year observations for 136 unique AAER firms, 43,939 non-AAER firm-year observations, and 392 propensity-score-matched non-AAER observations from 1985 to 2010.

**TABLE 2**  
**Triggers for SEC Investigation**

Triggers for SEC investigation	All AAERs (N=136)		All-one string AAER firms (N=85)	
	N	%	N	%
Financial restatements	79	58%	46	54%
SEC-initiated investigations triggered by third-party transactions and asset write-offs, etc.	22	16%	17	20%
Shareholder class-action / M&A lawsuits	18	13%	10	12%
Other government agencies (e.g., FBI and Justice department)	7	5%	5	6%
Press-initiated	4	3%	3	4%
Whistle-blower	2	1%	2	2%
Short-seller initiated	2	1%	0	0%
Analyst-initiated	1	1%	1	1%
Other / unclear	1	1%	1	1%
SEC-initiated after observing positive earnings strings	0	0%	0	0%

This exhibit presents the reasons triggering the SEC investigation for our full sample of 136 unique AAERs and for the sample of 85 AAERs with at least one all-one string during the manipulation period. We obtain this information by searching for news and press releases on Factiva and Google. We confirm that there are no cases where a string of consecutive earnings beats was stated by the SEC as a motivation for investigation.

**TABLE 3**  
**Comparison of Permutations of a Four-Quarter String during Manipulation Years across the**  
**AAER Sample and the Population and a Matched Non-AAER Sample: A Fiscal Quarter**  
**Observation Equals Zero for a Miss and One for a Beat of Analyst Forecasts**

String permutations	AAER sample		Population		Matched sample	
	N	Percent	N	Percent	N	Percent
<b><i>Miss all (0, 0, 0, 0)</i></b>	<b>10</b>	<b>2.55%</b>	<b>2,391</b>	<b>5.44%</b>	<b>20</b>	<b>5.10%</b>
(1, 0, 0, 0)	7	1.79%	1,500	3.41%	14	3.57%
(0, 1, 0, 0)	12	3.06%	1,204	2.74%	11	2.81%
(0, 0, 1, 0)	4	1.02%	1,012	2.30%	5	1.28%
(0, 0, 0, 1)	8	2.04%	1,393	3.17%	13	3.32%
<b><i>Beat one quarter</i></b>	<b>31</b>	<b>7.91%</b>	<b>5,109</b>	<b>11.63%</b>	<b>43</b>	<b>10.97%</b>
(1, 1, 0, 0)	14	3.57%	1,900	4.32%	12	3.06%
(1, 0, 1, 0)	5	1.28%	994	2.26%	11	2.81%
(1, 0, 0, 1)	7	1.79%	1,241	2.82%	10	2.55%
(0, 1, 1, 0)	7	1.79%	1,133	2.58%	12	3.06%
(0, 1, 0, 1)	5	1.28%	1,057	2.41%	8	2.04%
(0, 0, 1, 1)	8	2.04%	1,353	3.08%	10	2.55%
<b><i>Beat two quarters</i></b>	<b>46</b>	<b>11.73%</b>	<b>7,678</b>	<b>17.47%</b>	<b>63</b>	<b>16.07%</b>
(0, 1, 1, 1)	17	4.34%	2,453	5.58%	17	4.34%
(1, 0, 1, 1)	18	4.59%	1,841	4.19%	18	4.59%
(1, 1, 0, 1)	25	6.38%	2,329	5.30%	17	4.34%
(1, 1, 1, 0)	30	7.65%	3,248	7.39%	30	7.65%
<b><i>Beat three quarters</i></b>	<b>90</b>	<b>22.96%</b>	<b>9,871</b>	<b>22.47%</b>	<b>82</b>	<b>20.92%</b>
<b><i>All-one string (1, 1, 1, 1)</i></b>	<b>215</b>	<b>54.85%</b>	<b>18,890</b>	<b>42.99%</b>	<b>184</b>	<b>46.94%</b>
Total	392	100%	43,939	100%	392	100%
<b><i>Chi-square test</i></b>			<b><i>All permutations</i></b>	<b><i>Permutation of (1, 1, 1, 1)</i></b>		
<i>(1) AAER versus population</i>						
Chi-square statistic (p-value)			36.38*** (0.00)	22.27*** (0.00)		
<i>(2) AAER versus propensity-score-matched non-AAER sample</i>						
Chi-square statistic (p-value)			16.11 (0.37)	4.90** (0.03)		

This table presents the distribution of four-quarter string permutations across the AAER sample, the population, and the propensity-score-matched non-AAER sample. Our final sample includes 392 AAER firm-year observations for 136 unique AAER firms, 43,939 non-AAER firm-year observations, and 392 propensity-score-matched non-AAER observations from 1985 to 2010. \*\*\*, \*\*, \* represent statistical significance at the 1%, 5%, 10% levels, respectively, based on two-tailed tests. See Exhibit 2 for string construction.

**TABLE 4**  
**Analysis of AAER Firms' Ability to Beat Analysts' Expectations and the Magnitude of Earnings Surprises during the Manipulation Period**

**Panel A: Percentage of beats and all-one strings conditional on the manipulation length.**

Manipulation period	Number of AAER Firms	Proportion of all-one string	Average $BEATPCT_{During}$
One year	47	31.91%	61.70%
2 - 3 years	46	54.71%	80.53%
4 - 5 years	30	55.67%	82.42%
≥ 6 years	13	61.63%	82.59%
<i>All AAER firms</i>	<i>136</i>	<i>54.85%</i>	<i>74.63%</i>

**Panel B: The quarterly beating behavior of firms that manipulate for one year.**

Manipulation period	AAER Firms	Beat	Miss
First Quarter: Q1	47	68.09%	31.91%
Second Quarter: Q2	47	70.21%	29.79%
Third Quarter: Q3	47	57.45%	42.55%
Fourth Quarter: Q4	47	51.06%	48.94%

**Panel C: The beating behavior of firms that manipulate for more than one year.**

Manipulation period	AAER Firms	First Year	Last Year	Middle Years
2 - 3 years	46	87.50%	73.37%	82.35%
4 - 5 years	30	87.50%	82.50%	79.86%
≥ 6 years	13	92.31%	69.23%	82.93%
<i>AAER firms</i>	<i>89</i>	<i>88.20%</i>	<i>75.84%</i>	<i>81.23%</i>

**Panel D: The median magnitude of earnings surprise conditional on the manipulation length.**

Manipulation period	AAER Firms	$SURPRISE1 = \frac{EPS - Forecast\ EPS}{Abs\ (EPS)}$	$SURPRISE2 = \frac{EPS - Forecast\ EPS}{Abs\ (EPS)}$
One year	47	0.00	0.01
2 - 3 years	46	0.01	0.03
4 - 5 years	30	0.02	0.11
≥ 6 years	13	0.08	0.26
<i>All AAER firms</i>	<i>136</i>	<i>0.01</i>	<i>0.05</i>

This table examines AAER firms' beating behavior during the manipulation period. Panel A reports the proportion of firms that meet or beat earnings in all four quarters of a given fiscal year (achieve an all-one string), and the average percentage of quarters that beat analysts' forecasts across AAER firms with various manipulation lengths during the manipulation period. All-one string is calculated on the AAER firm basis.  $BEATPCT_{During}$  is calculated as the percentage of quarters that beat analysts' consensus forecasts during the manipulation period, where the manipulation period can vary in length across AAERs. Panel B reports the percentage of firms that beat (meet or beat) and miss analysts' forecasts in each quarter of the manipulation year for firms that manipulate for only one year. Panel C provides the percentage of quarters that firms meet or beat categorized by the manipulation length and also be whether the manipulation is occurring in the first year, last year or middle years. Panel D reports the median magnitude of earnings surprise for AAER firms during the manipulation period.  $SURPRISE1$  is defined as the difference between reported EPS and analysts' consensus forecast of EPS, and  $SURPRISE2$  is defined as the difference between reported EPS and analysts' consensus forecast of EPS scaled by the absolute value of reported EPS. See Appendix B for variable definitions.

**TABLE 5**  
**Analysis of AAER Firms' Ability to Beat Analysts' Expectations and the Magnitude of Earnings Surprises before the Manipulation Period**

**Panel A: Percentage of beats and median magnitude of unscaled earnings surprise.**

	Average <i>BEATPCT</i>	<i>SURPRISE1 = (EPS - Forecast EPS)</i>		
		<i>All</i>	<i>Positive</i>	<i>Negative</i>
AAER in year <i>Pre1</i>	85.14%	0.07	0.11	-0.07
AAER in year <i>Pre2</i>	86.64%	0.11	0.14	-0.03
AAER in year <i>Pre3</i>	86.26%	0.21	0.26	-0.03
<i>AAER in three prior years</i>	<i>86.37%</i>	<i>0.11</i>	<i>0.14</i>	<i>-0.04</i>
Population in three prior years	75.15%	0.02	0.06	-0.05
Matched sample in three prior years	78.02%	0.02	0.06	-0.04

**Panel B: Percentage of beats and median magnitude of scaled earnings surprises.**

	Average <i>BEATPCT</i>	<i>SURPRISE2 = (EPS - Forecast EPS) / Abs(EPS)</i>		
		<i>All</i>	<i>Positive</i>	<i>Negative</i>
AAER in year <i>Pre1</i>	85.14%	0.38	0.48	-0.39
AAER in year <i>Pre2</i>	86.64%	0.50	0.53	-0.20
AAER in year <i>Pre3</i>	86.26%	0.62	0.66	-0.36
<i>AAER in three prior years</i>	<i>86.37%</i>	<i>0.50</i>	<i>0.53</i>	<i>-0.33</i>
Population in three prior years	75.15%	0.08	0.25	-0.32
Matched sample in three prior years	78.02%	0.08	0.25	-0.22

This table reports the average percentage of quarters that beat analysts' forecasts and the median magnitude of earnings surprise for firm-quarter observations from the population sample, the propensity-score-matched non-AAER sample, and the AAER sample in the three years prior to manipulation. Year *Pre1*, *Pre2*, and *Pre3* are the three years immediately prior to the manipulation period. We determine the timeline of variable measurement for the population as follows. Assuming that an AAER firm's first manipulation year is 2000, we use all non-AAER firms as of year 2000 as the AAER firm's year-matched population. We then move three years backwards from 2000 to determine the year *Pre1*, year *Pre2*, and year *Pre3* for the population. We report the average *BEATPCT* for the AAER sample, the population sample, and the propensity-score-matched sample in the last three rows under the average *BEATPCT* column in each panel. *BEATPCT* is calculated as the percentage of quarters that beat analysts' consensus forecasts in either each of the three years or over the three years prior to the manipulation period. *BEATPCT* is calculated on the AAER firm basis. *SURPRISE1* is defined as the difference between actual EPS and analysts' consensus EPS forecast. *SURPRISE2* is defined as the difference between actual EPS and analysts' consensus EPS forecast scaled by the absolute value of actual EPS. *SURPRISE* observations are split into positive (i.e., meeting and beating analysts' forecasts) and negative (i.e., missing analysts' forecasts). *SURPRISE1* and *SURPRISE2* are calculated on the firm-quarter basis, and we report the median values for *SURPRISE1* and *SURPRISE2*. See Appendix B for variable definitions.

**TABLE 6**

**Market Pressure Proxies for AAER Firms and Non-AAER Firms During the Manipulation Period**

**Panel A: Comparison between the full sample of AAER firm-years and the population.**

Variable	AAER sample (N=392)	Population (N=43,939)	t-test: AAER minus population	
			Mean diff.	t-statistic
<i>Market pressure from analysts</i>				
$LTG_{it-1}$	19.59%	16.84%	2.75%***	6.06
$BUYPCT_{it-1}$	67.37%	56.64%	10.73%***	7.44
$RECMD_{it-1}$	4.01	3.75	0.26**	7.35
<i>Market pressure from investors</i>				
$PE_{it-1}$	40.05	30.78	9.27***	2.70
$IHELD_{it-1}$	59.22%	49.36%	9.86%***	7.08

**Panel B: Comparison for all-one strings between AAER firm-years and the population.**

Variable	AAER all-one strings (N=215)	Population all-one strings (N=18,890)	t-test: AAER minus population	
			Mean diff.	t-statistic
<i>Market pressure from analysts</i>				
$LTG_{it-1}$	20.22%	16.93%	3.29%***	5.30
$BUYPCT_{it-1}$	69.66%	60.79%	8.87%***	4.66
$RECMD_{it-1}$	4.05	3.83	0.22***	4.56
<i>Market pressure from investors</i>				
$PE_{it-1}$	54.41	44.95	9.46*	1.86
$IHELD_{it-1}$	58.43%	51.90%	6.53%***	3.57

**Panel C: Comparison between the full sample of AAER firm-years and the matched non-AAER firms.**

Variable	AAER sample (N=392)	Matched non-AAER (N=392)	t-test: AAER minus Non-AAER	
			Mean diff.	t-statistic
<i>Market pressure from analysts</i>				
$LTG_{it-1}$	19.59%	16.80%	2.79%***	4.10
$BUYPCT_{it-1}$	67.37%	59.78%	7.59%***	3.52
$RECMD_{it-1}$	4.01	3.79	0.22***	4.52
<i>Market pressure from investors</i>				
$PE_{it-1}$	40.05	32.54	7.51	1.58
$IHELD_{it-1}$	59.22%	50.42%	8.80%***	4.45

Notes: Panel A compares between the full sample of AAER strings and the population. Panel B compares between AAER all-one strings and the population of all-one strings. Panel C compares between the full sample of AAER strings and the propensity-score-matched non-AAER strings. We report the number of observations for each sample based on the variable binding the sample least. All-one string is a requirement that the firm meets or beats analysts' forecasts in all four quarters of the year. \*\*\*, \*\*, \* represent statistical significance at the 1%, 5%, 10% levels, respectively, based on two-tailed tests. See Exhibit 2 for string construction and Appendix B for variable definitions.

**TABLE 7**  
**CEO Pressure Proxies for AAER Firms and Non-AAER Firms During the Manipulation Period**

**Panel A: Comparison between the full sample of AAER firms and the population.**

Variable	AAER sample (N=212)	Population (N=17,373)	t-test: AAER minus population	
			Mean diff.	t-statistic
<i>CEO overconfidence</i>				
<i>OVERCONFIDENT</i> <sub>it-1</sub>	58.90%	47.54%	11.36%***	2.92
<i>CEO compensation</i>				
<i>PAYSLICE</i> <sub>it-1</sub>	46.51%	40.85%	5.66%***	4.75
<i>SENSITIVITY</i> <sub>it-1</sub>	39.10%	29.84%	9.26%***	5.34
<i>CEO power</i>				
<i>INDBOARD</i> <sub>it-1</sub>	75.75%	80.32%	-4.57%***	-4.76
<i>CEOCHAIR</i> <sub>it-1</sub>	76.69%	60.93%	15.76%***	4.71

**Panel B: Comparison for all-one strings between AAER firms and the population.**

Variable	AAER all-one strings (N=124)	Population all-one strings (N=8,608)	t-test: AAER minus population	
			Mean diff.	t-statistic
<i>CEO overconfidence</i>				
<i>OVERCONFIDENT</i> <sub>it-1</sub>	63.54%	52.91%	10.63%**	2.14
<i>CEO compensation</i>				
<i>PAYSLICE</i> <sub>it-1</sub>	46.51%	40.85%	5.66%***	4.41
<i>SENSITIVITY</i> <sub>it-1</sub>	39.10%	29.84%	9.26%***	4.47
<i>CEO power</i>				
<i>INDBOARD</i> <sub>it-1</sub>	74.31%	79.86%	-5.55%***	-3.90
<i>CEOCHAIR</i> <sub>it-1</sub>	73.96%	63.23%	10.73%**	2.36

**Panel C: Comparison between the full sample of AAER firms and the matched non-AAER firms.**

Variable	AAER sample (N=188)	Matched non- AAER (N=188)	t-test: AAER minus Non-AAER	
			Mean diff.	t-statistic
<i>CEO overconfidence</i>				
<i>OVERCONFIDENT</i> <sub>it-1</sub>	57.39%	54.42%	2.97%	0.79
<i>CEO compensation</i>				
<i>PAYSLICE</i> <sub>it-1</sub>	45.67%	41.25%	4.42%***	3.16
<i>SENSITIVITY</i> <sub>it-1</sub>	36.78%	32.16%	4.62%*	1.92
<i>CEO power</i>				
<i>INDBOARD</i> <sub>it-1</sub>	78.17%	80.77%	-2.60%***	-4.02
<i>CEOCHAIR</i> <sub>it-1</sub>	79.13%	60.54%	18.59%***	3.08



**TABLE 7 (continued)**

This table compares CEO characteristics between AAER firms and non-AAER firms. Panel A compares between the full sample of AAER strings and the population. Panel B compares between AAER all-one strings and the population of all-one strings. Panel C compares between the full sample of AAER strings and the propensity-score-matched non-AAER strings. We report the number of observations for each sample based on the variable binding the sample least. Our sample size decreases as CEO related variables are only available for 50 percent of both the AAER sample and the population since the data sources, ExecuComp and RiskMetrics, have limited coverage. All-one string is a requirement that the firm meets or beats analysts' forecasts in all four quarters of the year. \*\*\*, \*\*, \* represent statistical significance at the 1%, 5%, 10% levels, respectively, based on two-tailed tests. See Exhibit 2 for string construction and Appendix B for variable definitions.

**TABLE 8**  
**Logistic Regression Analyzing whether Market Pressure and CEO Characteristics Impact the Likelihood that a Firms Manipulates Earnings**

**Panel A: Regressions based on AAER firms and the population.**

Variables	Predicted sign	Dependent variable = $AAER_{it}$			
		(1)	(2)	(3)	(4)
<i>INTERCEPT</i>		-8.784*** (-16.52)	-10.666*** (-10.58)	-10.840*** (-18.97)	- 14.763*** (-17.82)
<i>Market pressure from analysts</i>					
<i>HIGHTG</i> <sub>it-1</sub>	(+)	0.582*** (4.04)			0.502** (2.27)
<i>HIGHBUY</i> <sub>it-1</sub>	(+)	-0.181 (-0.90)			0.421* (1.68)
<i>STRONGBUY</i> <sub>it-1</sub>	(+)	0.564*** (3.03)			1.019*** (3.60)
<i>Market pressure from investors</i>					
<i>HIGHPE</i> <sub>it-1</sub>	(+)	0.308** (2.35)			0.281 (1.36)
<i>RANKIHELD</i> <sub>it-1</sub>	(+)	0.199*** (4.29)			0.330*** (3.84)
<i>CEO overconfidence, compensation and power</i>					
<i>OVERCONFIDENT</i> <sub>it-1</sub>	(+)		-0.339** (-2.38)		-0.543*** (-2.99)
<i>PAYSLICE</i> <sub>it-1</sub>	(+)		0.318*** (5.05)		0.249*** (3.97)
<i>SENSITIVITY</i> <sub>it-1</sub>	(+)		0.373*** (5.17)		0.278*** (5.49)
<i>RANKINDBOARD</i> <sub>it-1</sub>	(-)		-0.260*** (-6.74)		-0.178*** (-3.84)
<i>CEOCHAIR</i> <sub>it-1</sub>	(+)		0.467** (2.28)		0.529** (2.05)
<i>Reputation for beating expectations</i>					
<i>BEATPCT</i> <sub>Prior3Y</sub>	(+)			2.992*** (5.61)	3.133*** (4.02)
<i>Accounting flexibility and other firm characteristics</i>					
<i>RANKFSCORE</i> <sub>it</sub>	(+)	0.211*** (8.78)	0.143*** (4.21)	0.196*** (7.49)	0.071** (2.05)
<i>SIZE</i> <sub>it-1</sub>	(?)	0.265*** (5.45)	0.345*** (4.72)	0.281*** (5.86)	0.418*** (9.56)
<i>LEV</i> <sub>it-1</sub>	(?)	-0.858*** (-4.21)	-0.708* (-1.84)	-0.393** (-2.19)	0.552 (0.95)
$\Delta ROA$ <sub>it-1</sub>	(?)	-1.102 (-1.32)	1.795 (0.75)	-1.915** (-2.13)	-1.078 (-0.79)
Year and industry fixed effects		Yes	Yes	Yes	Yes
Number of AAER-years		371	118	219	93
Number of non AAER-years		39,634	9,175	32,997	8,455
Pseudo R <sup>2</sup>		9.81%	15.67%	10.12%	19.88%

TABLE 8 (continued)

Panel B: Regressions based on AAER firms and the matched non-AAER firms.

Variables	Predicted sign	Dependent variable = $AAER_{it}$			
		(1)	(2)	(3)	(4)
<i>INTERCEPT</i>		-3.005*** (-3.67)	-5.622*** (-4.12)	-5.241*** (-5.47)	-18.951*** (-5.50)
<u>Market pressure from analysts</u>					
<i>HIGHTG</i> <sub>it-1</sub>	(+)	0.535** (2.02)			2.161*** (4.20)
<i>HIGHBUYPCT</i> <sub>it-1</sub>	(+)	-0.531** (-2.05)			1.844*** (3.68)
<i>STRONGBUY</i> <sub>it-1</sub>	(+)	0.759*** (2.93)			4.324*** (3.48)
<u>Market pressure from investors</u>					
<i>HIGHPE</i> <sub>it-1</sub>	(+)	0.404** (2.05)			-0.002 (-0.00)
<i>RANKIHELD</i> <sub>it-1</sub>	(+)	0.258*** (3.78)			0.772*** (3.09)
<u>CEO overconfidence, compensation and power</u>					
<i>OVERCONFIDENT</i> <sub>it-1</sub>	(+)		0.329 (0.80)		1.091* (1.86)
<i>PAYSLICE</i> <sub>it-1</sub>	(+)		6.217*** (3.22)		4.304 (1.50)
<i>SENSITIVITY</i> <sub>it-1</sub>	(+)		2.536*** (2.69)		3.890*** (2.87)
<i>RANKINDBOARD</i> <sub>it-1</sub>	(-)		-0.353*** (-3.41)		-0.290* (-1.69)
<i>CEOCHAIR</i> <sub>it-1</sub>	(+)		1.380*** (2.59)		1.635*** (2.67)
<u>Reputation for beating expectations</u>					
<i>BEATPCT</i> <sub>Prior3Y</sub>	(+)			3.327*** (5.34)	9.167*** (3.74)
<u>Accounting flexibility and other firm characteristics</u>					
<i>RANKFSCORE</i> <sub>it</sub>	(+)	0.234*** (7.38)	0.166*** (2.62)	0.207*** (4.36)	0.476*** (3.26)
<i>SIZE</i> <sub>it-1</sub>	(?)	-0.061 (-0.88)	-0.152 (-1.06)	-0.078 (-0.98)	0.045 (0.19)
<i>LEV</i> <sub>it-1</sub>	(?)	0.955** (2.38)	1.356** (2.06)	1.515*** (2.74)	2.857** (2.34)
$\Delta ROA$ <sub>it-1</sub>	(?)	-0.574 (-0.68)	5.685*** (3.05)	-0.976 (-1.00)	2.704 (0.74)
Year and industry fixed effects		Yes	Yes	Yes	Yes
Number of AAER-years		371	118	219	93
Number of matched non-AAER years		371	118	219	93
Pseudo R <sup>2</sup>		17.71%	29.68%	18.55%	44.84%

**TABLE 8 (continued)**

This table reports the results from logistic regressions of financial misstatement (AAER = 1 for a manipulation year, zero otherwise) on motivating variables (e.g., market pressure and CEO characteristics), along with a wide array of control variables. Panel A is based on AAER firms and the population, and Panel B is based on AAER firms and the propensity-score-matched non-AAER firms. All-one string is a requirement that the firm meets or beats analysts' forecasts in all four quarters of the year. Industry fixed effects are based on the Fama and French (1997) 12-industry classification. Standard errors are clustered by year. \*\*\*, \*\*, \* represent statistical significance at the 1%, 5%, 10% levels, respectively, based on two-tailed tests. The z-statistics are reported in parentheses. See Exhibit 2 for string construction and Appendix B for variable definitions.