# Do Dividends Indicate Honesty?
# The Relation Between Dividends and the Quality of Earnings

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Abstract:
This paper investigates whether dividends provide information about earnings quality. Specifically, we examine whether firms that have lower earnings quality, as measured by an accusation of fraud in a Securities and Exchange Commission Accounting and Auditing Enforcement Release, pay dividends less often (and/or increase dividends less often) than similar firms not accused of accounting fraud. Our results are consistent with the alleged fraud firms being less likely to pay dividends prior to the fraud years. This relation is robust to the inclusion of controls for factors thought to be associated with fraud and dividend policy (e.g., growth, leverage, volatility, age of the firm, and others). We obtain similar, although somewhat weaker, results when we examine the dividends paid during the fraud years and the frequency of dividend increases. Thus, overall the evidence is consistent with dividends indicating earnings quality. However, the data also reveal that the alleged fraud firms pay out a total of over $10.5 billion in dividends, or nearly 3% of their pre-fraud market value, while perpetrating the financial accounting fraud. Thus, while dividends do convey information about earnings quality on average, they do not constitute a preventative measure against financial accounting fraud.

JEL classification: G19, G35, K22, K42, M41

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## 1. Introduction

This paper investigates whether firms that have low earnings quality as measured by an accusation of fraud in a Securities and Exchange Commission (SEC) Accounting and Auditing Enforcement Release (AAER) pay dividends less often (and/or increase dividends less often) than similar firms not accused of accounting fraud. There is a long line of literature in both accounting and finance that investigates whether dividends have information content about current and future earnings (e.g., Miller and Modigliani, 1961). Most recently, Skinner (2004) examines what dividends tell us about earnings quality using the persistence of earnings as the measure of quality. Skinner concludes that the reported earnings of dividend paying firms are more persistent and that the effect is more pronounced for firms with larger dividend payouts, for large firms, and for large firms with larger payouts.

As stated in Dechow and Schrand (2005), "…a high-quality earnings number is one that accurately reflects the company's current operating performance, is a good indicator of future operating performance, and is a useful summary measure for assessing firm value." While persistence is a characteristic of earnings quality, it is not a complete definition. Firms can have low earnings persistence but still have earnings that accurately reflect the company's current operating performance if, for example, the firm experiences a transitory shock to earnings. However, a firm that has fraudulently overstated its earnings likely fails on all three dimensions: its earnings do not accurately reflect current performance, they are not likely sustainable because accounting fraud cannot go on in perpetuity and because fabricated earnings are not a useful summary measure for assessing firm value. Thus, we use firms accused of fraudulent financial

accounting reporting in an SEC Auditing and Accounting Enforcement Release (hereafter, AAER firms, or fraud firms) as another method of testing the relation between earnings quality and dividends in order to contribute to this literature.[1]

Using this sample of firms also allows us to use empirical data to explore recent claims by policymakers, academics, and the media about whether dividends protect investors from corporate accounting fraud (i.e., dividends constrain firms from committing the fraud). For example, Vice President Dick Cheney stated "Abolishing the double-taxation on dividends will…transform corporate behavior in America and encourage responsible practices…" He went on to say "…investors will demand higher cash dividends, and companies will be motivated to share them. This should discourage companies from artificially inflating profits just to cause a temporary spike in stock prices" (Weil, 2003). WorldCom's court appointed monitor Richard Breeden has required that the company pay twenty-five percent of its earnings in dividends under the rationale stated by the University of Delaware's Charles Elson, "If you are going to pay a dividend you have to have hard cash to pay for the dividend, making it harder to play the same accounting games you saw previously. Cash is cash. Either you have it or you don't" (Stern, 2003). Another example is found in the testimony of James Glassman, fellow at the American Enterprise Institute and founder of advocacy group Investors Action, before a Congressional committee. When asked "how to protect investors against another Enron," he advised ending double taxation of dividends so companies would increase their payout. He claimed dividends are the most transparent evidence of profits and said that encouraging dividend payments would be "the most important legislative step that can be taken to protect shareholders" (Glassman, 2005).

[1] We discuss the research design trade-offs of using this sample of firms below. For more information on the SEC AAERs please see Pincus, Holder, and Mock (1988), Feroz et al. (1991) and Dechow et al. (1996).

We test the relation of dividends and earnings quality by investigating whether AAER firms pay dividends less often both before and during the fraud and whether they increase (decrease) dividends less (more) often than a matched sample of firms not accused of fraud (and relative to all firms in the same industries and relative to the AAER firms prior to the fraud period).[2] Overall our results are generally consistent with dividends providing information about earnings quality. In the year prior to the alleged fraud period, 17% of the AAER firms pay a dividend and 23% of the firms not accused of fraud pay a dividend (difference significant at less than 0.04, one-tailed). In a logistic regression including other control variables, the results show that being a dividend payer in the year prior to fraud is negatively associated with the incidence of being accused of financial accounting fraud (significant at less than 0.04, one-tailed). We compute the economic significance and find that holding all other variables constant, a change in the dividend paying indicator variable from a zero, indicating not a dividend payer, to a one, indicating being a dividend payer, decreases the unconditional probability of being accused of fraud by the SEC by roughly 30%.

During the alleged fraud period, the AAER firms pay dividends less often (21% of the time) than the matched sample of firms not accused of financial accounting fraud (26%, difference is (marginally) significant at less than 0.08, one-tailed). In addition, the dividend paying AAER firms increase (decrease) dividends 42% of the time, (17% of the time) during the fraud period, which is significantly less (more) than dividend paying matches who increase dividends 59% of the time (and decrease 9% of the time).

Lintner (1956) and Fama and Babiak (1968) present evidence consistent with current and prior earnings levels being significant predictors for current dividend changes. We investigate the relation for our sample of AAER firms in order to test whether the earnings-dividend relation is

[2] Note that we are using the actual alleged fraud period in our tests. The accusation of fraud by the SEC may occur years later. We do not use the date of the SECs accusation of fraud in any of our tests but rather the time period over which the firm was allegedly fraudulently reporting their earnings.

weaker when earnings are allegedly fraudulently overstated. We find that the relation between dividend changes and current and lagged earnings is not discernibly different for the AAER firms relative to the matched sample of firms (nor relative to all firms in the same industries) not accused of fraud. The data do reveal that relative to the year prior to fraud, the AAER firms have a weaker relation between earnings and dividends during the fraud period indicating the earnings-dividend link is weaker when a firm reports earnings fraudulently. However, because we cannot detect this weaker relation relative to all comparison samples we view these results with caution.

In spite of the evidence that dividends are associated earnings quality, we note that the 32 dividend-paying AAER firms paid out a total of $10.5 billion in ordinary cash dividends while perpetrating the alleged fraud which translates into an average of 2.8% of their pre-fraud market capitalization.[3] Thus, while the payment of dividends decreases the likelihood that the firm is committing accounting fraud, it does not mean with certainty that a firm that pays dividends is not fraudulently overstating earnings.

One caveat is that a potential explanation for our results is that the AAER firms have a higher incidence of incurring a loss relative to non-AAER firms. DeAngelo, DeAngelo, and Skinner (1992) present evidence consistent with loss firms reducing dividends at a much higher rate than firms that do not encounter a loss. While somewhat difficult to disentangle in our sample because of the small number of observations, our data reveal that even though the AAER firm-years do have a higher incidence of incurring a loss than the non-AAER firm-years, the overall difference in dividend paying and dividend increasing characteristics continues to hold for the sub-sample that includes only non-loss firm-years. Thus, our results are not simply driven by AAER firms also being loss firms.

[3] The $10.5 billion figure is from unwinsorized data. The analogous figure from the data in our tables using winsorized data is $10.14 billion ($23 billion total dividends per year * 441 alleged fraud years) (Table 4 Panel B).

The paper proceeds as follows. Section 2 discusses the related prior literature and develops our hypotheses. Section 3 describes the samples, the dividend variable used, and simple univariate tests of dividend policy. Section 4 discusses descriptive statistics, multivariate empirical tests, and results. Section 5 concludes.

## 2. Prior Literature and Hypothesis Development

As mentioned above, there is a large literature that investigates whether managers use dividends to signal the future prospects of their firm—known as the information content of dividends hypothesis. Theoretical models of Bhattacharya (1979) and Miller and Rock (1985) explain that changes in dividend policy convey news about future cash flows and as a result predict a positive relation between dividend changes and the price reaction to the dividend changes.[4] The empirical evidence strongly supports the price reaction prediction (e.g., Asquith and Mullins, 1983; Healy and Palepu, 1988 among others) and has been used to support the theory that dividends signal future changes in cash flows. However, Benartzi, Michaely, and Thaler (1997) test whether dividend changes translate into future earnings changes and find results contrary to the traditional signaling hypothesis (i.e., dividend changes are not positively related to future earnings changes). Grullon et al. (2002) hypothesize and examine whether dividend changes signal changes in a firms' systematic risk rather than a change in future earnings of the same direction and find evidence consistent with this idea but the results are somewhat disputed by Nissim (2004).[5]

[4] Miller and Rock predict that firms with relatively persistent earnings pay relatively high dividends. In their model, the dividend announcement completes investors' information regarding current earnings so that investors have a stronger response to dividend announcements when they expect the earnings to persist. This, in turn, makes the costly dividend signal more valuable to firms with persistent earnings.

[5] For summaries of this research see Allen and Michaely (2002) and Brav et al. (2005). Also we recognize there is one paper that finds a positive association between dividend changes and future earnings changes, Nissim and Ziv (2001) but this paper is disputed by Grullon et al. (2005). In addition, Chen, Shevlin and Tong (2005) add an information risk factor to the model used in Grullon et al. (2005) to investigate whether dividend changes signal a change in information risk (earnings quality) but find that the change in the pricing of information risk occurs well before the dividend change

This lack of evidence regarding costly signaling in the sense of firms increasing dividends to signal a future earnings increase does not mean, however, that dividends do not convey information. Lintner (1956) provides evidence that managers are reluctant to increase dividends to levels that can not be sustained. Indeed, Brav et al. (2005) report that more than two-thirds of the financial executives they survey state that the stability of future earnings is an important factor affecting dividend decisions. Thus, Skinner (2004) moves away from testing dividend changes and tests the relation between dividends and earnings sustainability by investigating whether dividend paying firms have higher earnings persistence than non dividend paying firms. He follows Miller (1987) in motivating the hypothesis by the earnings "persistence parameter" from Miller and Rock (1985). Skinner (2004) finds evidence consistent with reported earnings of dividend paying firms being more persistent in future periods and that this is more pronounced for firms with larger dividend payouts, for large firms, and for large firms with larger payouts.

We follow Skinner (2004) in testing overall dividend paying status rather than dividend changes (or price reactions to dividend changes) and expect that the AAER firms are less likely to pay dividends for two reasons. First, fraudulently reported earnings are likely less persistent than the non-AAER firms' earnings because earnings manipulations tend to reverse.[6] Thus, firms committing fraud have less of an incentive to pay or increase dividends based on the same theory as in Skinner (2004).[7]

Second, in addition to lacking persistence, fraudulent earnings lack cash to support a dividend payment (i.e., the earnings are not an accurate measure of current performance (Dechow

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and thus conclude that the two events are only associated but that the dividend change cannot be signaling a change in earnings quality.

[6] For example, accrual manipulations and round-trip transactions must eventually reverse.

[7] We note, however, that Miller and Rock (1985) do not incorporate the possibility of earnings manipulation. In a dividend signaling model where earnings are assumed to be totally unreliable, Bhattacharya (1979) predicts that firms with high expected future earnings will pay high dividends. In equilibrium, dividends are a costly, credible signal of expected future economic income. This suggests that firms committing fraud will have lower dividends relative to similar firms not reporting earnings fraudulently.

and Schrand, 2005)). While firms typically will not increase ordinary dividends in response to a transitory shock to earnings because the increase may not be sustainable, fraudulent earnings manipulations neither produce cash nor are sustainable. While the firm could borrow to pay dividends, this would increase the scrutiny of their financial statements which they likely want to avoid.[8] Thus, in our setting the prediction of fewer dividends (and fewer dividend increases) is both because of the lower persistence of the earnings, similar to Miller and Rock (1985) and Skinner (2004), and also because fabricated earnings have no associated cash flows. The latter argument is often used in the policy debate about preventing corporate accounting fraud.

There are of course costs (which we discuss further below) involved in using a sample of SEC AAER firms accused of fraud, however the use of these firms does not require researcher estimates of earnings quality (i.e., by virtue of being accused of fraud they are considered to have low quality earnings) and the allegedly fraudulent firms are the firms that are the direct subject of the recent policy debate over dividends and earnings quality. As a result, this sample of firms provides a potentially fruitful setting for contributing to the literature on the relation of earnings quality and dividends. We note that there are many other papers that investigate firms accused of wrongdoing by the SEC or that have restated earnings.[9] None of these papers, to our knowledge, has examined the dividend paying characteristics of these firms. The above discussion leads to our first two hypotheses:

**H1:** Both prior to the fraud and during the fraud period, alleged fraud firms pay dividends less often than otherwise similar firms not accused of fraud.

[8] Related to this, Easterbrook (1984) argues that rather than a simple signaling story, dividends may serve to keep firms under active scrutiny by the capital market. Easterbrook's reasoning for why firms pay dividends yields similar predictions as the signaling theory for our research question -- firms committing financial accounting fraud pay and/or increase dividends less often than firms not committing financial accounting fraud.

[9] For example, see Dechow, Sloan and Sweeney (1996), Beasley (1996), Summers and Sweeney (1998), Beneish (1999), Palmrose and Scholz (2002), Agrawal and Chadha (2003), Richardson, Tuna and Wu (2002), and Erickson et al. (2005).

**H2:** Alleged fraud firms increase (decrease) their dividends during the fraud period less (more) often than otherwise similar firms not accused of fraud.

Results contrary to the above two hypotheses (e.g., AAER firms paying dividends as often as non-AAER firms) would provide evidence inconsistent with dividends providing information about earnings quality but consistent with firms' extreme resistance to decreasing their dividends (Brav et al., 2005). In addition, contrary results could provide evidence consistent with managers believing that investors interpret dividends as an indication of earnings quality and paying cash dividends in order to cover up their allegedly fraudulent activity. This is similar to the arguments in Erickson, Hanlon, and Maydew (2004) which finds evidence consistent with allegedly fraudulent firms paying taxes on the overstated financial accounting earnings in order to conceal the fraud.

We also investigate the relation between current and lagged earnings and dividend changes. Lintner (1956) and Fama and Babiak (1968) predict and find that there is a link between current and lagged earnings and dividend changes. When earnings are fraudulently reported, however, it is possible that this relation differs. We predict that this relation is weaker for firms committing accounting fraud because the earnings of the AAER firms are fraudulently inflated. Our final hypothesis is as follows:

**H3:** The relation between dividends and current and lagged earnings is weaker for alleged fraud firms relative to otherwise similar firms not accused of financial accounting fraud.

## 3. Sample, Dividend Variable, and Univariate Tests of Dividend Policy

### *3.1 Sample*

Our sample consists of firms accused of fraud by the SEC and a matched sample of firms not accused of fraud by the SEC. Similar to Dechow et al. (1996) and other studies that use firms subject to an AAER, we choose to investigate this sample of firms because using AAERs allows us to examine a sample of firms that the SEC alleges to have violated GAAP. As a result, we are not

forced to identify firms engaged in accounting related malfeasance using models that estimate earnings management. Because we also limit our sample to firms accused of fraud by the SEC we attempt to isolate those cases where the manipulation was an intentional violation of GAAP.

One cost of using this sample is that the number of observations is small resulting in potentially low power tests.[10] In addition, we conjecture that because of the conservative nature of the SEC's prosecution practices there is likely a small type I error of incorrectly classifying a firm as having committed fraud when in fact it did not. For similar reasons we suspect there is a potentially higher level of type II error because some frauds are not identified by this proxy (i.e., some firms that commit fraud are probably not caught by the SEC). However, we rely on the assumption that the SEC accused firms have a higher probability of having perpetrated fraud relative to firms not accused. To the extent that our matched sample is contaminated with firms that similarly committed fraud but did not get caught this would likely reduce the power in our tests and lead to there being no significant difference between the two sets of firms.[11]

Table 1 summarizes our sample selection process. We search the Lexis Nexis Academic Database and identify firms from AAERs issued between 1991 and 2004 that contain the words "fraud," "antifraud," "anti-fraud," "fraudulent," or "fraudulently." We further require that the firms have data in the *CRSP*/*Compustat* annual merged database both during the years of the alleged fraud

[10] The loss of power may be partially offset by the relatively large magnitude of earnings manipulation for the accused firms.

[11] On the other hand, we recognize that if the SEC uses dividend payments to identify fraudulent firms, one could argue that any results consistent with dividends conveying information (i.e., AAER firms paying dividends less often) would really be due to SEC detection practices (i.e., a selection problem). We believe this is not the case in our sample for several reasons. First, if the SEC's detection practices were based on dividend payments (and managers knew this) then firms could pay dividends to avoid being accused of fraud. This is not true empirically. Second, there is no evidence that the SEC uses dividends to identify fraud firms. We search the text of all the AAERs in our sample and none of them mention the firm's dividend policy in any way. Third, there are counterexamples of accused firms paying large dividends (e.g., Enron, Dynegy, and others). However, to the extent that the SEC does actually identify and prosecute firms for fraud by looking at their dividend policy then our results could be affected.

and one year prior to the beginning of the alleged fraud. We also require that firms' shares be classified as ordinary common on *CRSP*.

We find 1,075 AAERs that include our search terms. We exclude 141 observations because the accusation of fraud is not against the firm and 83 observations because the allegation is not about an accounting irregularity. We also exclude observations if the firm is not publicly traded and if the manipulation did not affect earnings, yielding a remaining sample of 701 AAERs. We retain only one AAER per firm and exclude all observations for which the necessary data on *Compustat* and *CRSP* cannot be obtained resulting in a final sample of 189 AAER firms. We use this sample for our main tests of H1 and H2. To obtain our dividend payer sample on which we conduct tests of the relation between earnings and dividend changes (H3), we retain only the 39 AAER firms that paid a dividend in the time period ranging from one year prior to fraud to the last year of fraud. We then exclude 7 firms because neither of the firm's matches, which we discuss in the next paragraph, pay a dividend or the firm is missing the necessary data for our regression analysis, leaving 32 dividend paying AAER firms for these tests.

We construct several comparison samples. For our first comparison sample, we select a sample of two match firms for each AAER firm from the *CRSP*/*Compustat* annual merged database based on industry (two digit SIC code), size (assets, *Compustat* data item #6), profitability (return-on-assets, data item#18/avg(#6)), firm age (number of years listed in *CRSP*), and year availability.[12] Our final sample consists of 189 firms accused of fraud by the SEC and 378 match firms not accused of fraud by the SEC (hereafter, the matched sample). For our second comparison sample, we also use all firms in the same industries as the AAER firms. Finally, where appropriate, we

[12] We determine the pool of potential matches using firms with ordinary common shares in the *CRSP*/*Compustat* merged database (share code beginning with one). We exclude firms with CNUMs that end with 'Z' in order to exclude pro-forma and pre-FASB *Compustat* data. We perform all matches in the year prior to the first year of fraud.

compare the AAER fraud years to the year prior to the fraud for the AAER firm, thus using each fraud firm as its own control. We discuss the results for all of these groups below.

In our sample of AAERs, the SEC's most common allegation is the overstatement of revenues (82% of the sample) with the next most common allegation, aside from inflating income by unspecified means, being the understatement of expenses (34% of the sample). Table 1, Panel B compares the industry composition of our AAER sample to the *Compustat*/*CRSP* population of potential match firms. The major differences in industry representation are business services, which contains a relatively high proportion of AAER firms, and financial services, which contains a relatively low proportion of AAER firms. Otherwise, the industry representation of the alleged fraud firms is very similar to that in the *CRSP*/*Compustat* population of firms.

### *3.2 Dividend Variable*

The primary dividend variable that we use to identify dividend payers and changes in dividends equals the split adjusted annual ordinary cash dividends per share on the *CRSP* daily database.[13] The total dividends for a given fiscal year $T$ equal the sum of ordinary cash dividends in dates $t$ in the year $T$ as follows:

$$\text{Total dividends}_T = \sum_{t \in T} \text{Ordinary cash dividends}_t \times \text{Shares outstanding}_t$$

The annual per share dividends equal the sum of per share dividends divided by the *CRSP* share adjustment factors at the date of the *CRSP* dividend observations.

$$\text{Per share dividends}_T = \sum_{t \in T} \frac{\text{Ordinary cash dividends}_t}{\text{Share adjustment factor}_t}$$

[13] *CRSP* designates ordinary cash dividends by distribution codes with a first digit of one, a second digit between zero and four and a third digit other than six, seven or nine.

We use dividends per share rather than the dividend payout ratio for four reasons (although we provide descriptive statistics and univariate tests on the payout ratio and dividend yield as well). First, the survey results in Brav et al. (2005) reveal that 40% of respondents target dividends per share compared to only 28% targeting dividend payout. Second, while providing information on the portion of earnings paid out as dividends, using earnings as a scaler is problematic when earnings are negative in any sample of firms.[14] Third, using earnings as a scaler in our sample is especially problematic because the firms we are interested in have fraudulently reported earnings. Finally, in our regression analysis where we implement the Fama and Babiak (1968) type regressions, the variable of interest is dividends per share. Thus, dividends per share is a common target and it avoids the negative denominator problem present in the payout ratio.

### *3.3 Univariate (Frequency) Tests*

Table 3 presents univariate (frequency) tests for the AAER firms relative to 1) the matched sample of firms, and 2) all other firms in the same industries. To conduct these tests we compare the relative proportion of dividend payers between AAER and non-AAER sub-samples. Next, we test whether the frequency of dividend per share increases (decreases) is different between fraud and non-fraud firms both year-to-year and from before the fraud period to during the fraud period. When we compute dividend increases (decreases) from the year prior to fraud to the fraud period we compare the average dividend per share over the fraud period to the dividend per share amount in the year prior to fraud.

Panel A of Table 3 shows that 17% of the 189 fraud firms pay a dividend in the year prior to fraud compared to 24% of the non-AAER firms, a difference significant at less than 0.04, one-

[14] Skinner (2004) provides descriptive data by resetting payout ratios for loss firms to 100% and 1% and by dropping the observations with negative earnings.

tailed. Further, 21% of the AAER firms pay a dividend at some point during the fraud period as compared to the 26% of the matched sample firms that pay a dividend in those same years (the difference is (marginally) significant at 0.07, one-tailed).[15] If we consider each year during which the fraud occurred as the unit of observation, the data reveal that the AAER firms pay a dividend in only 23% of the years while the non-AAER firms pay a dividend in 30.5% of the years, a difference significant at less than 0.01. Overall, the results are consistent with H1 - the alleged fraud firms pay dividends less often than the matched sample of firms.

With regard to H2, the data reveal that 12.7% of the AAER firms increase their dividend per share from the year prior to the fraud period compared to 18.3% of the non-AAER firms. The difference between these is significant at less than 0.05, one-tailed. In addition, 5.3% of the AAER firms decrease dividends per share compared to 4.2% of the non-AAER firms, but the difference is not statistically significant. If we again consider each year during which the fraud occurred as the unit of observation, the data reveal that the AAER firms increase their dividends per share in only 11.8% of the years while the non-AAER firms increase their dividends per share in 18.9% of the years, a difference significant at less than 0.001, one-tailed. In addition, 4.5% of the AAER firm-years had a decrease in dividends per share as compared to only 3.4% for the non-AAER firms, but this difference is not significant. Overall, the results are consistent with H2 because the alleged fraud firms increase their dividends less often than the matched sample of firms; however, there is no evidence that the AAER firms decrease dividends more often.

Panel B of Table 3 presents the comparison of the AAER firms to all other firms in the same industries, where applicable. In the year prior to fraud the data reveal that 28% of non-AAER firms pay a dividend, a frequency significantly greater than the AAER firms (the 17%; p-value is less than

[15] Seven AAER firms and thirteen match firms paid an ordinary dividend during the alleged fraud period but not in the year prior so that both groups had comparable levels of initiations. Two match firms and no AAER firms failed to pay a dividend in the alleged fraud period but paid a dividend in the year prior.

0.01). In addition, if we again consider each year during which the fraud occurred as the unit of observation, the data reveal that the AAER firms pay dividends much less often with all other firms in the same industries paying a dividend in 31% of the years whereas the AAER firms pay dividends in only 23% (a difference significant at less than 0.001). Non-AAER firms increase dividends in 21% of fraud years versus 12% of AAER firms (significant at less than 0.001).

Because dividend policy is sticky and the evidence on dividend increases above may be inseparable from the dividend paying status of the firm, we provide statistics on only the firms that pay dividends in Panels C – E of Table 3 even though the sample size is small. Panel C of Table 3 examines the differences in the number of dividend-paying firms that increase or decrease their dividends in each of the alleged fraud years. For the 32 dividend paying AAER firms, there are 106 firm-years over which the alleged frauds were committed. AAER firms increased dividends per share in 43% of the 106 firm-years compared to 59% for firms in the matched sample, a difference that is significant at 0.01, one-tailed. In addition, the evidence is consistent with the AAER firms decreasing dividends per share more often than the matched sample of firms. The AAER firms decrease dividends in 17% of the firm-years whereas the matched sample firms decrease dividends in only 9% of the firm-years (difference significant at 0.03, one-tailed). Panels C-E of Table 3 also show dividend changes in years split by whether or not earnings per share (EPS) increased or decreased. The difference in dividend decreasing behavior appears to be concentrated in years of EPS decreases.

Panel D of Table 3 provides similar comparisons of the 106 firm-years of alleged fraud for the 32 dividend paying firms in the sample but this time relative to all firm-years in the same industry. The results are very similar to, but stronger than, those for the matched sample comparison.

To examine the data further, in Panel E of Table 3 we compare the likelihood of having an increase or decrease in dividends per share from the year prior to the alleged fraud to the fraud period for the AAER firms relative to the matched sample. The evidence is consistent with the AAER firms decreasing the dividend per share from the year prior to the fraud to the fraud period more often than the matched sample of firms (significant at less than 0.03, one-tailed). In addition, the evidence is (marginally) consistent with AAER firms increasing dividends from prior to the fraud to the fraud period less often than non-AAER firms (p-value of less than 0.06, one-tailed). We find insignificant differences between AAER and match firms when EPS increases from prior to the fraud to the fraud years but when EPS decreases, differences in dividend policy are significant with the AAER firms decreasing dividends more often than the non-AAER firms (p-value of 0.02) and increasing dividends (marginally) less often (p-value of less than 0.06).

Overall, the results from Table 3 are consistent with H1 and generally consistent with H2 - AAER firms are less likely to be a dividend payer and are less (more) likely to increase (decrease) dividends than 1) a sample of matched firms not accused of fraud and 2) a sample of all other firms in the same industries. These results, however, are univariate in nature. In the next section we investigate the relation between dividend policy and being accused of fraud by the SEC after controlling for other variables suspected to be associated with fraud and that may also impact dividend policy.

## 4. Descriptive Statistics, Empirical Tests, and Results

### *4.1 Descriptive Statistics*

Table 4 presents descriptive statistics for the 189 AAER firms and the 378 matched sample firms. Panel A presents data for the year immediately preceding the alleged fraud period (one

observation per firm) and Panel B presents data for all the fraud years (one observation for each fraud firm-year). We tested the frequency of dividend paying status in Table 3 and do not do so again here. However, we do provide statistics on alternative measures of dividends (magnitude of dividends) such as *Total dividends per year*, *Dividends per share*, *Payout ratios*, and *Dividend yield*. In Table 3 we report that the AAER firms are less likely to be a dividend payer, however, in Table 4 we see that in terms of magnitude, there is no difference in the average amount of dividends paid in the year prior to fraud measured in total, as dividends per share, or in terms of the payout ratio.[16] Thus, although fewer fraud firms pay a dividend, the dividend paying fraud firms pay a dividend that sufficiently exceeds that of non-AAER firms to yield a statistically similar average for the two groups. The dividend yield in the year prior to fraud is significantly less for the AAER firms relative to the matched sample (significant at less than 0.03, one-tailed).

The samples of firms are not significantly different in terms of Size (measured as *Total assets* (data item #6), *Market value of equity* (data #199 × data #25), or *Net sales* (data item #12)), *Return on assets* (#18/avg(#6)), or *Age of firm*, indicating that our matching procedure was successful. We include growth and ex ante financing needs as controls because high growth firms may be more likely to commit fraud and less likely to pay a dividend and these firms may also need more external financing from the capital market. The AAER firms appear to be higher growth firms as they have a significantly lower *Book-to-market* ratio (#60/(#199×#25)). We calculate firms' *Ex ante financing* needs as an indicator variable set equal to one if the firm's free cash (computed as $(\#308_{T}\text{-avg}_{T\ldots T\text{-}2}\#128)/\#4_{T\text{-}1}$) is less than -0.5, and zero otherwise similar to Dechow et al. (1996).[17]

[16] In this sample, 62 of the 189 AAER firms have earnings that are less than or equal to zero and thus have a dividend payout ratio reset to the 99th percentile of the dividend payout distribution for the sample. If we exclude firms with zero earnings or a loss (the 62 AAER firms and 123 of the 378 firms for the matched sample), then the AAER firms have a lower payout ratio relative to the corresponding matched sample of firms. We discuss the effect of loss firms on our overall results below.

[17] If three years of data are not available to compute the capital expenditure average, we use the data in the years available.

The data show that the AAER firms are more likely to need external financing (difference significant at 0.03, two-tailed). The data show that the AAER firms have similar levels of *Leverage* (total debt/total assets, (#9+#34)/#6) as the non-AAER firms. We include *Volatility* because more volatile firms may be more likely to commit fraud and less likely to pay a dividend, which could affect our results. We compute *Volatility* as the standard deviation of log returns excluding dividends and find that the AAER firms have a significantly higher *Volatility* of returns than non-AAER firms.[18] We include *M&A* (indicator that equals 1 if sales from acquired companies (data item #249) is greater than zero during one of the alleged fraud years) because of the possibility that the fraud is undertaken to manage earnings upward to boost stock price prior to a merger or acquisition (Erickson and Wang, 1999). This variable is not statistically different between the AAER and non-AAER firms in Table 4.

In untabulated data we also investigate whether AAER firms repurchase more stock as a substitute for paying dividends. (We compute repurchases as data #115 and scale by the lagged Market value of equity, data #199×#25.) The data show that the AAER firms do not repurchase more stock than the matched sample of firms (p-value of 0.25, two-tailed). In terms of net repurchases, the value of repurchases less the value of stock issued (computed as #115-#108 and scaled by lagged Market value of equity), the data show that the AAER firms are net issuers of stock more so than the matched sample of firms (p-value of 0.012, two-tailed), consistent with the AAER firms needing an infusion of cash. Thus, it does not appear that the AAER firms substitute repurchases for dividends.

Panel B of Table 4 presents selected data for the years the fraud firms allegedly inflated earnings for both the AAER firms and their matches. In terms of the dividend variables, the data

[18] See Hull (2000), for an example of the computation. Specifically, we annualize the standard deviation of the logarithm of one plus the CRSP monthly returns excluding dividends.

reveal that during the fraud years, the AAER firms have a significantly lower average *Dividends per share* and *Dividend yield,* but a similar level of *Payout ratio*. Thus, in terms of magnitude of dividends, the AAER firms appear to pay a lower dividend during the fraud period relative to non-AAER firms, consistent with the AAER firms increasing dividends per share less and/or decreasing dividends per share more often.[19] In terms of the control variables during the fraud years, the AAER firms have a lower *Return on assets* measure and higher *Volatility*. In untabulated data, we find that the AAER firms repurchase less stock, issue more shares, and take on more debt (all differences significant at conventional levels) during the fraud years.

To investigate the dividend magnitude differences further, we plot the average *Dividend per share* for the two samples in Figure 1. For these graphs, we use split adjusted dividends per share with the base year for split adjusting being the year prior to fraud.[20] In Figure 1A, we include all firms in the sample and their two matches regardless of how long the alleged fraud lasts. The number of observations declines the more years we present, as a result we only present data for the first 3 years of alleged fraud in order to include data for a substantial number of firms (i.e. avoid years that contain only one AAER firm and its two matches). For example, in the year prior to fraud and the first year of fraud there are 189 firms in the sample, only 123 firms were accused of fraud lasting 2 years or longer, 66 firms were accused of fraud lasting 3 years or longer and the sample drops to 33 firms that have a fraud lasting 4 years or more. Thus we present only the first three

[19] We recognize that the sub-samples have similar levels of payout ratios, but again this is difficult to interpret. In this sample, 191 of the 441 AAER firm-years have earnings which are less than or equal to zero and thus have a dividend payout ratio reset to the 99th percentile of the dividend payout distribution for the sample. If we exclude firm-years with zero earnings or a loss (the 191 firm-years for the AAER firms and 276 of the 882 firm-years for the matched sample), then the AAER firms have a lower payout ratio relative to the corresponding matched sample of firms. We discuss the effect of loss firms on our overall results below.

[20] We utilize the year prior to fraud as the base year in the graphs for illustrative purposes. The graphs would be similar if we used the same 2004 base year as our other dividend variables, which is the end of *CRSP* data in our sample.

years of the alleged fraud thereby retaining at least 66 firm observations for each year.[21] The graph reveals that the AAER firms pay an average dividend per share that is lower (although not statically lower) than the non-AAER firms in the year prior to the alleged fraud and that this difference grows during the years in which the firm is allegedly committing fraud.

Although we present data for only 3 years, Figure 1A could be affected by firms with longer frauds being less likely to pay a dividend because the sample declines over the years presented. As a result, in Figure 1B, we present data for only those firms that have an alleged fraud period of at least three years (i.e., the sample of 66 firms and their two matches), thus the sample size is constant. Again, we present the data for only the first three years of fraud. The results are consistent with Figure 1A – the AAER firms pay a lower dividend per share in every year and the difference between the fraud firms and non-fraud firms grows during the alleged fraud period.

### *4.2 Logistic Regressions*

In order to investigate whether the dividend policies of the AAER firms are different from the matched sample of firms after controlling for other factors known or suspected to be associated with fraud, we estimate logistic regressions and include controls for these other factors. We include the independent variables described above as measured in the year prior to the alleged fraud to control for incentives to engage in the fraud that may also affect the firm's dividend policy. The model we estimate is:

[21] As expected, if we present all years of the alleged frauds the graphs appear more extreme because the firm that committed the longest alleged fraud was not a dividend payer and its two match firms paid dividends thus comparing zero with these two match firms' dividend amounts.

$$AAER_t = \alpha + \beta_1 Dividend\ indicator(s) + \beta_2 log\ Total\ assets_{t-1} + \beta_3\ Return\ on\ assets_{t-1} + \beta_4\ Age\ of\ firm_{t-1} + \beta_5\ Book\text{-}to\text{-}market\ ratio_{t-1} + \beta_6\ Ex\ ante\ financing_{t-1} + \beta_7\ Missing\ ex\ ante\ financing_{t-1} + \beta_8\ Leverage_{t-1} + \beta_9\ Volatility_{t-1} + \beta_{10}\ Missing\ Volatility_{t-1} + \beta_{11}\ M\&A_{t-1} + \beta_{12}\ Missing\ M\&A_{t-1} + e_t \quad (1)$$

where the variables are defined as follows. *AAER* is an indicator variable set equal to 1 when the firm has an AAER against it that alleges fraudulent accounting and zero otherwise. Each regression specification uses one of three *Dividend indicators*. The first indicator equals one if the firm paid a dividend in the year preceding the alleged fraud and zero otherwise. The second equals one if the firm paid a dividend during the alleged fraud period, and zero otherwise. Finally, the third set of *Dividend indicators* consists of two indicators that denote whether or not the average annual per share dividend during the alleged fraud period increased or decreased relative to the per share dividend in the year preceding alleged fraud. We use the matched sample of firms and dividend indicator variables in our main analyses. However, we also examine a *Dividend per share* continuous variable as well as the regressions comparing the AAER firms to all other firms in the same industries. We discuss the results of these tests in the text or footnotes below. The remaining variables are as defined above and in Table 2. [22]

Table 5 presents the results. Column (1) reveals that after controlling for other factors suspected to be associated with the incidence of fraud and that may be related to dividend policy, the data are consistent with the firms paying a dividend in the year prior to fraud being less likely to be an AAER firm (p-value of less than 0.04, one-tailed). We interpret that as evidence consistent

[22] Despite assertions that high stock option compensation firms pay fewer dividends (Fenn and Liang, 2001) and speculation that high stock option compensation firms are more likely to commit accounting fraud, we do not include compensation variables in our regression for several reasons. First, including only AAER firms and match firms that have available compensation and equity holdings data would reduce our sample of firms by at least 60% (e.g., the sample size in Erickson et al. (2005) is 50 AAER firms and 20 of those had hand collected compensation data). Second, Brav et al. (2005) report no support for the idea that companies repurchase rather than use dividends because employee stock options are not dividend protected. Finally, Erickson et al. (2005) report that there is no consistent evidence of a positive relation between equity holdings and the incidence of fraud. Thus, because the evidence on the relation between both dividend policy and compensation is mixed and because it would result in a severe reduction in our sample size we do not include a control variable for compensation in our tests.

with dividends being an indicator of future earnings quality and acting, to some extent, as a constraint preventing firms from committing fraud. The coefficients for *log Total assets*, *Return on assets*, and *Firm age* are not significant, again indicating the matching procedure is successful. The coefficient for *Book-to-market* is significantly negative while the coefficients on *Leverage* and *Volatility* are positive and significant indicating that the AAER firms are higher growth and more volatile firms.[23] Because Dechow et al. (1996) present evidence consistent with firms subject to an AAER needing more external financing, we include the *Ex Ante Financing* variable, as defined earlier, used in their analysis. Because the *Ex Ante Financing* variable is not available for 19 of our AAER firms and 46 of the matches, we include an indicator variable when it is missing and the *Ex Ante Financing* variable when it is available. In our sample, we find evidence that *Ex Ante Financing* is a significant predictor (p-value of 0.02, one-tailed) of being an AAER firm.[24] We also find that the fraud firms are more likely to engage in M&A during the alleged fraud years, consistent with them committing fraud prior to merger and acquisition activity.

In column (2), we test whether AAER firms are less likely to pay a dividend at any time during the fraud (the *Dividend indicator* equals one if the firm paid a dividend during the fraud period). The coefficient on the *Dividend payer* variable in this specification is negative but insignificant. The same control variables are significant as in column (1).[25]

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[23] We note that the *Volatility* variable is missing (i.e., there is not a sufficient time series of observations over which to compute return volatility) for 9 firms in the AAER sample and for 13 of the matches. As a result we include a *Missing volatility* variable that is set equal to one when *Volatility* is missing and we then replace the missing value in the continuous volatility variable with the mean for the sample. In sensitivity analyses, we estimate the regression over the reduced sample that only has data for *Volatility* and find similar inferences except for the results on the dividend payer during the fraud and dividend increase variables are more significant with p-values at 0.065 and 0.04, one-tailed, respectively.

[24] We also estimate this regression using the continuous variable *Dividends per share* rather than the *Dividend indicator* variable. We find that the coefficient on this variable is insignificant (p=0.21, one-tailed), consistent with the descriptive statistics shown in Table 4. Again the fraud firms pay less often prior to the fraud but the firms that are paying dividends are paying large dividends relative to the matched sample of firms.

[25] Again, we test the continuous variable dividends per share using the average dividend per share of the firm over the fraud period (one observation per firm). The coefficient on dividends per share is negative and significant (p-value of less than 0.05, one-tailed).

In column (3) we examine whether firms that increase (decrease) dividends from the year prior to the fraud to the fraud years are less (more) likely to be AAER firms. The evidence is consistent with firms that increase dividends being marginally less likely to be accused of fraud (p-value of 0.07, one-tailed) and that decreasing dividends on average is not an indicator of fraud. Again, the same control variables are significant.

In columns (4) and (5), we estimate the same regression considering every firm-year during the fraud period as the unit of observation (N=1,323; AAER N=441 and Non-AAER N=882). Because the errors are not independent when every fraud year is used as an observation, we cluster by firm to address serial within firm dependence. In this specification the data reveal that paying a dividend during the fraud is negatively associated with the likelihood of being accused of fraud (p-value of 0.05, one-tailed). In addition, we find that increasing a dividend during the year is also negatively associated with fraud (p-value of 0.04).[26]

In addition to the matched sample comparison, we estimate the same regressions using all the firms in the same industries as the AAER firms as the comparison sample. We present these results in columns (6) - (8). The data reveal that paying and increasing dividends both prior to and during the fraud period are significantly negatively associated with the likelihood of being an AAER firm (one-tailed p-values of 0.03 for dividend payers prior to the alleged fraud, 0.01 for dividend payers during the alleged fraud and less than 0.01 for dividend increases during the alleged fraud).[27]

[26] We also estimate this regression using *Dividends per share* rather than the *Dividend indicator* variable. We find that the coefficient is negative and significant (at $p < 0.01$) indicating that higher dividend per share firm-years have a lower likelihood of committing financial accounting fraud, consistent with the descriptive statistics in Table 4.

[27] We also estimate regressions analogous to Table 5 columns 3, 4, and 5 for our sub-sample of dividend paying firms only in an attempt to parse out dividend changes from dividend paying status more completely. This reduces the sample size significantly to only 64 firm observations and 212 firm-year observations. We find that relative to the matched sample, the dividend increasing and dividend decreasing indicator variables are not significant predictors of fraud. Relative to all firms in the same industries, however, the results are similar to those in Table 5—the coefficient on the

Overall the results are consistent with dividends being an indicator of earnings quality because dividend payers and dividend increasers have a lower likelihood of committing financial accounting fraud. Thus, the evidence appears to be consistent with the payment of dividends providing some constraint on management from perpetrating financial accounting fraud.

### *4.3 Estimates of Economic Significance*

In this section we provide a sense of the economic importance of dividend policy in the probability of accounting fraud. We note that the unconditional probability of accounting fraud by any given firm in any given year is quite low, at least as measured by the SEC enforcement actions. For example, we find 189 firms (with available data) accused of fraud by the SEC. In comparison, using the year prior to fraud as the unit of analysis in order to obtain one firm-year observation per fraud firm, there are 26,647 firms not accused of fraud that exist (with available data) in the same industries in those same years making the unconditional probability of fraud 0.7%.[28] In our matched sample, by construction the sample contains 33.3% fraud firms and 66.6% non-fraud firms.

To assess the marginal effects of a firm's dividend policy we use the regression specifications from Table 5 and set all of the explanatory variables, including the dividend indicators, to their sample means (or modal value for indicator variables). We then calculate the change in probability of fraud from changing the *Dividend indicator* from a zero to a one, while holding all control variables constant. We find that in the matched sample, changing the dividend indicator from non-dividend payer status in the year prior to fraud to dividend payer status

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dividend increasing variable is significantly negatively associated with the likelihood of being accused of fraud and the coefficient on the dividend decreasing variable is insignificant.

[28] To further clarify, say that our AAER sample of 189 firms includes observations where the year prior to fraud is 1989, 1992, and 1995 only. We select all firms in the same industries that exist in 1989, 1992, and 1995 as the comparison group. Thus some firms may be included more than one time but no firm-year is included more than once and no years' data are included if there is no fraud firm in that industry for that year. We note that even this unconditional probability is likely overstated because we restrict the sample to those firms in the same industry as the AAER firms.

decreases the probability of being accused of fraud by the SEC by 10.7% (constituting a 30% decrease in the 33% probability of fraud in the matched sample). Similarly, in the matched sample, a change from a non-dividend payer during the fraud period to dividend payer, decreases the likelihood of being accused of fraud by the SEC by 6.8% (constituting a 20% decrease in the probability of fraud in the matched sample) and changing the indicator for dividend increase to a zero from a one decreases the likelihood of being accused of fraud by 8.5% (constituting a 26% decrease in the probability of fraud in the matched sample).

Examining the economic effects in the sample where the comparison group is all firms from the same industries may be more informative because the unconditional probability is not set by construction. When we conduct the same analysis over the larger sample (i.e., the 189 vs. the 26,647), we find that a change in the *Dividend indicator* representing dividend payer in the year prior to fraud from a zero to a one decreases the probability of being accused of fraud by the SEC by 0.2%. In absolute terms this seems small, however given that the unconditional probability is 0.7% this represents a decrease in the likelihood of fraud of 29%, similar to the results for the matched sample. We consider all of these changes to be economically meaningful.

However, we note that dividends do not have the greatest economic significance of all of our independent variables. For example, we find that a change in *M&A* from a zero to a one increases the probability of being accused of fraud by the SEC by 0.5% and a change in the ex ante financing variable from a zero to a one increases the likelihood of being accused of fraud by the SEC by 0.5% or nearly three times as much as changing the firm's dividend policy. Thus, while dividend policy is important in indicating earnings quality, other factors are associated with a firm's decision to commit fraud to a greater extent.

*4.4 Dividend Paying Sample*

***4.4.a Descriptive Statistics***

Table 6 reports descriptive statistics for the dividend paying firms only. We investigate this sub-sample primarily to examine the earnings-dividend relation for the AAER firms relative to non-AAER firms using Fama-Babiak (1968) style regressions. The dividend paying AAER firms and their matches are not significantly different in the year prior to the alleged fraud on any dimension except *Volatility* (see Table 6 Panel A).[29] In the years during the alleged fraud (Panel B), however, the AAER firms have a lower average *Dividend per share* (p-value of less than 0.01, one-tailed) and a lower *Dividend yield* (p-value of less than 0.01, one-tailed), consistent with results for the overall sample. The AAER firms maintain a lower level of *Payout ratio* but again this is difficult to interpret because of the negative denominator problem.[30]

***4.4.b Fama-Babiak Regressions***

In order to examine the predictive ability of earnings for dividend changes for the AAER firms (H3), we estimate a regression similar to that in Fama-Babiak (1968). Fama and Babiak (1968) start with Lintner's (1956) 'partial adjustment model' in their examination of the determinants of dividend payments by individual firms. They begin by providing that for any year *t* the target dividends ($D_{it}^{*}$) for firm *i* are related to profits ($E_{it}$) according to

$$D_{it}^{*} = r_i E_{it} \qquad (1)$$

[29] Recall that in Table 4 we noted that in the year prior to fraud the frequency of AAER firms paying a dividend was less than the frequency of non-AAER firms but the magnitude variables were similar indicating that the dividend paying AAER firms paid large dividends.

[30] In this sample, 38/212 firm-years reported a loss or zero earnings and thus the payout ratio was reset to the 99$^{th}$ percentile for these firm-years. If we exclude those firm-years, then mean and median payout ratios are not significantly different at conventional levels between the two groups.

Where $r_i$ is the firm's target ratio of dividends to profits. In any given year the firm will only partially adjust to the target dividend level, so that the change in dividend payments from year *t*-1 to year *t* is assumed to be

$$\Delta D_{it} = D_{it} - D_{i,t-1} = \alpha_i + c_i\left(D_{it}^{*} - D_{i,t-1}\right) + u_{it} \qquad (2)$$

Where $c_i$ is the "speed-of-adjustment coefficient" and $u_{it}$ is an error term. Substitution of (1) into (2) yields

$$\Delta D_{it} = \alpha_i - c_i D_{i,t-1} + c_i r_i EPS_{it} + u_{it} \qquad (3)$$

Through regressions using firm data and simulations, Fama and Babiak (1968) demonstrate that the model performs best by deleting the constant term and adding the lagged profits variable, $E_{i,t-1}$ as follows:

$$\Delta D_{it} = \gamma_1 D_{i,t-1} + \gamma_2 EPS_{it} + \gamma_3 EPS_{i,t-1} + u_{it}$$

where $D_{it}$ is dividends per share and EPS is earnings per share.[31] The per share variables are in terms of the shares outstanding at the end of the year.[32] We estimate the regression over both our sample groups of firms pooled and include interaction terms in the regression to determine the differential effect on the earnings-dividend relation for AAER firms as compared to non-AAER firms. As a result, we include an intercept in our specification. We also estimate the regressions separately over the AAER firms and the non-AAER firms (untabulated) and find similar inferences to those discussed below. Our model including the interaction terms is:

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[31] The development of this specification assumes that earnings follow the autoregressive process $E_{it} = (1+\lambda_i)E_{i,t-1}+v_{it}$ and dividends fully adjust to expected earnings changes. This gives $\gamma_1=-c_i<0$, $\gamma_2=c_i r_i >0$and $\gamma_3=r_i \lambda_i(1-c_i)>0$ when earnings tend to increase over time and dividends partially adjust. ($\lambda_i > 0$, $0 < c_i < 1$)

[32] Specifically, we estimate the model by measuring dividends per share as the dividends per adjusted share variable described earlier multiplied by the CRSP share adjustment factor at the end of the year so dividends per share and earnings per share are each measured based on year *T* shares outstanding in each year of the regression:

$$D_{iT} = CFACSHR_T \sum_{t \in T} \frac{DIVAMT_t}{CFACSHR_t} \quad D_{i,T-1} = CFACSHR_T \sum_{t \in T-1} \frac{DIVAMT_t}{CFACSHR_t} \quad \Delta D_{i,T} = D_{iT} - D_{i,T-1}$$

Earnings per share is basic EPS excluding extraordinary items (#58) and lagged earnings per share is split adjusted:

$$EPS_{T-1} = \#58_{T-1} \times {}^{\#27_T}\!\!\diagup\!\!_{\#27_{T-1}}$$

$$\Delta D_{it} = \alpha + \beta_1 AAER_i + \beta_2 D_{i,t-1} + \beta_3 D_{i,t-1} \times AAER_i + \beta_4 EPS_{it} + \beta_5 EPS_{it} \times AAER_i$$

$$+ \beta_6 EPS_{i,t-1} + \beta_7 EPS_{i,t-1} \times AAER_i + e_{it}$$

We first estimate the regression with no interaction terms to obtain baseline results for the Fama-Babiak (1968) model. We then estimate the regressions using the indicator variables for the AAER firms. Two caveats to our tests here are that 1) we have a small sample size (firms that pay a dividend and commit fraud) that limits the power of our tests and makes it harder to reject the null hypothesis and 2) Brav et al. (2005) find that the earnings-dividend relation is weaker in recent years. Nevertheless, our H3 predicts significant negative coefficients for $\beta_5$ and $\beta_7$. We predict this result because the AAER firms have fraudulently reported earnings and thus their relation to dividend changes should be weaker.

Table 7, Panel A, presents the results of our analysis.[33] Consistent with predictions, in our baseline model (column (1)) where the regression is estimated over the pooled sample (all firm years), the coefficients on $EPS_{it}$ and $EPS_{i,t-1}$ are significantly positive indicating that earnings are a significant predictor of dividend policy. We then estimate the regression over the pooled sample and include the AAER indicator variable and its interactions with the earnings variables. Column (2) presents the results. The earnings-dividend link is no different between the fraud firms and the non-fraud firms –all interaction term coefficients are insignificant. We then estimate the regressions separately over years where there is an earnings per share increase and then where there is an earnings per share decrease to examine whether maintaining a similar earnings-dividend relation is

[33] Sample size in the table is 212, which consists of the 106 AAER firm-years (for dividend paying AAER firms, N=32) and 106 firm-years of the matched firms (one match per AAER firm because we require the matches to be dividend payers as well).

more difficult for the AAER firms when earnings per share is increasing. Again, there appears to be no difference between the two groups of firms.[34]

To further investigate this relation, we compare the AAER firms to our other two comparison samples—all the non-fraud firms in the same industries and to the AAER firms themselves prior to the commencement of fraud. We find (in untabulated results) that the dividend changes of AAER firms during the alleged fraud years are less associated with lagged earnings per share than non-AAER firms in the same industries, but no other significant differences between AAER firms and non-AAER firms in the same industries exist. We do find limited evidence of a difference in the AAER firms during the fraud period relative to the AAER firms prior to the fraud period. We present these results in Table 7, Panel B. Column (1) reveals that the baseline model yields the predicted results as above. In years where there is an earnings per share increase (column (3)) the coefficient on current earnings interacted with the indicator variable for the AAER fraud period is significantly negative (p-value of 0.05, one-tailed). In addition, the coefficient on lagged earnings interacted with the AAER fraud year indicator is negative and significant at 0.03, one-tailed. Thus, in fraud years with an earnings per share increase the earnings-dividend relation is weaker during the fraud period relative to the year prior to the fraud indicating that when earnings increases are fabricated paying dividends from those earnings increases is less likely. However, in years with earnings per share declines, there is no discernible difference between the fraud period and the year prior to the fraud. Thus, overall, we find limited evidence to support our Hypothesis 3 -- the earnings-dividend link is not generally weaker for fraud firms relative to non-fraud firms,

[34] The coefficient on *lagged Dividends* interaction term is marginally significant (p-value 0.08, one-tailed) in years of EPS decreases, providing some evidence that AAER firms who pay large dividends are more likely than matches to either decrease or fail to increase dividends. This relationship does not hold in the AAER vs. Industry and prior year regressions.

although during the fraud period the fraud firms' earnings-dividend relation is weaker than in the year prior to the fraud.

### *4.5 Analysis of the Effect of Losses and Special Items*

A caveat to our general inference that dividends are an indicator of earnings quality is that an alternative explanation could be that fraud firms have a higher incidence of incurring a loss relative to non-fraud firms and loss firms decrease dividends more often. DeAngelo, DeAngelo, and Skinner (1992) examine the relation between loss firms and dividends using a sample of firms that experience a loss following a long string of profits. DeAngelo et al. (1992) provide evidence that loss firms reduce dividends at a much higher rate than firms that do not encounter a loss (50% vs. 1%). While somewhat difficult to disentangle in our sample because of the small number of observations, our data reveal that fraud firm-years do indeed have a higher incidence of incurring a loss than the non-fraud firm-years (43% vs. 31% of the years over which the AAER firm was accused of fraud). This is also true in the sub-sample of dividend paying firms (32% of the AAER firm-years incur a loss vs. 4% of the non-AAER firm years). However, we also find that the fraud firms have a higher level of negative special items indicating that their losses are more transitory and thus less likely to impact the dividend policy decisions of the firm.

To investigate the effect of losses we examine the sub-sample of firm-years that are *non-loss* firm-years to see if our overall results still hold. For this sub-sample, the data reveal that relative to the matched sample of firms both prior to and during the fraud, the AAER firms still pay dividends less often (24% of the firms vs. 34% and 29% of the firm-years vs. 41%, respectively, both differences significant at less than 0.05, one-tailed). In addition, comparing non-loss AAER firm-years to the non-loss firm-years from the matched sample, we find that the non-loss AAER firm-

years have a significantly lower dividend per share, dividend payout ratio, and dividend yield during the fraud period. Relative to all non-loss firm-years in the same industries as the non-loss AAER firms, the non-loss AAER firms pay dividends less often prior to and during the alleged fraud period (24% of the firm-years vs. 42% and 29% of the firm-years vs. 43%, respectively, both differences significant at less than 0.01, one-tailed). Looking at dividend paying firms only, the non-loss AAER firms increase dividends less often than all firms in the same industries not accused of fraud (50% of the years vs. 69% of the years).[35] The rate of dividend decreases is not significantly different between the AAER firms and the non-AAER firms in non-loss years indicating that at least part of the higher dividend decrease rate for AAER firms that we document is due to a higher incidence of losses among AAER firms. However, overall the results support our general interpretation of the data: dividends are an indicator of earnings quality because fraud firms pay dividends less often and increase dividends less often relative to firms not accused of financial accounting fraud.

## 5. Conclusions

This paper investigates whether there is an association between dividend policy and earnings quality by examining the dividend policies of firms that have lower earnings quality as measured by an accusation of fraud in an SEC AAER. Overall, the evidence is consistent with dividends being a statistically and economically significant indicator of earnings quality because AAER firms are less likely to be a dividend payer and, if they are a dividend payer, they are less likely to increase the dividend during the fraud period relative to a matched sample of firms not accused of fraud (and relative to all other firms in the same industries). We also estimate regressions that test the link

[35] Comparison to the matched sample after restricting to dividend payers and then splitting the sample into loss and profit years yields sample sizes too small to conduct meaningful analyses.

between earnings and dividend changes but find that earnings of AAER firms relative to the earnings of a matched sample of firms (and relative the earnings of all firms in the same industries) are not a weaker predictor of dividend changes even though their earnings are fraudulently overstated. We find some evidence that the AAER firms have a weaker earnings-dividend relation during the fraud relative to prior to the fraud consistent with fraudulent earnings not being as good of a predictor of dividend policy as non-fraudulent earnings.

In spite of this evidence, we note that roughly 21% of the firms accused of fraud pay dividends and that in 43% of the years over which earnings were fraudulently reported these firms increased their dividend per share amount. In total, the AAER firms paid out $10.5 billion in dividends while simultaneously perpetrating accounting fraud. Thus, while on average, dividends indicate higher earnings quality, a dividend payment does not provide reliable insurance against financial accounting fraud.

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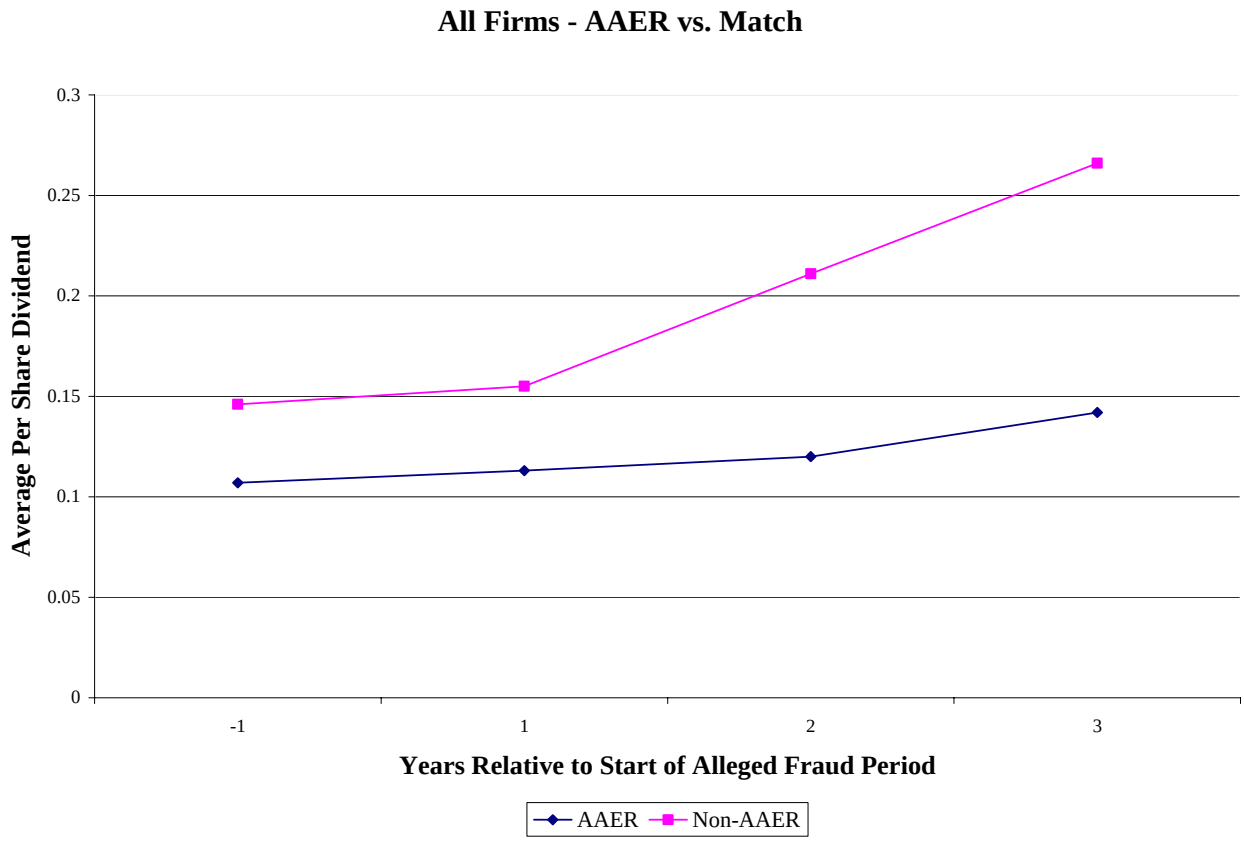
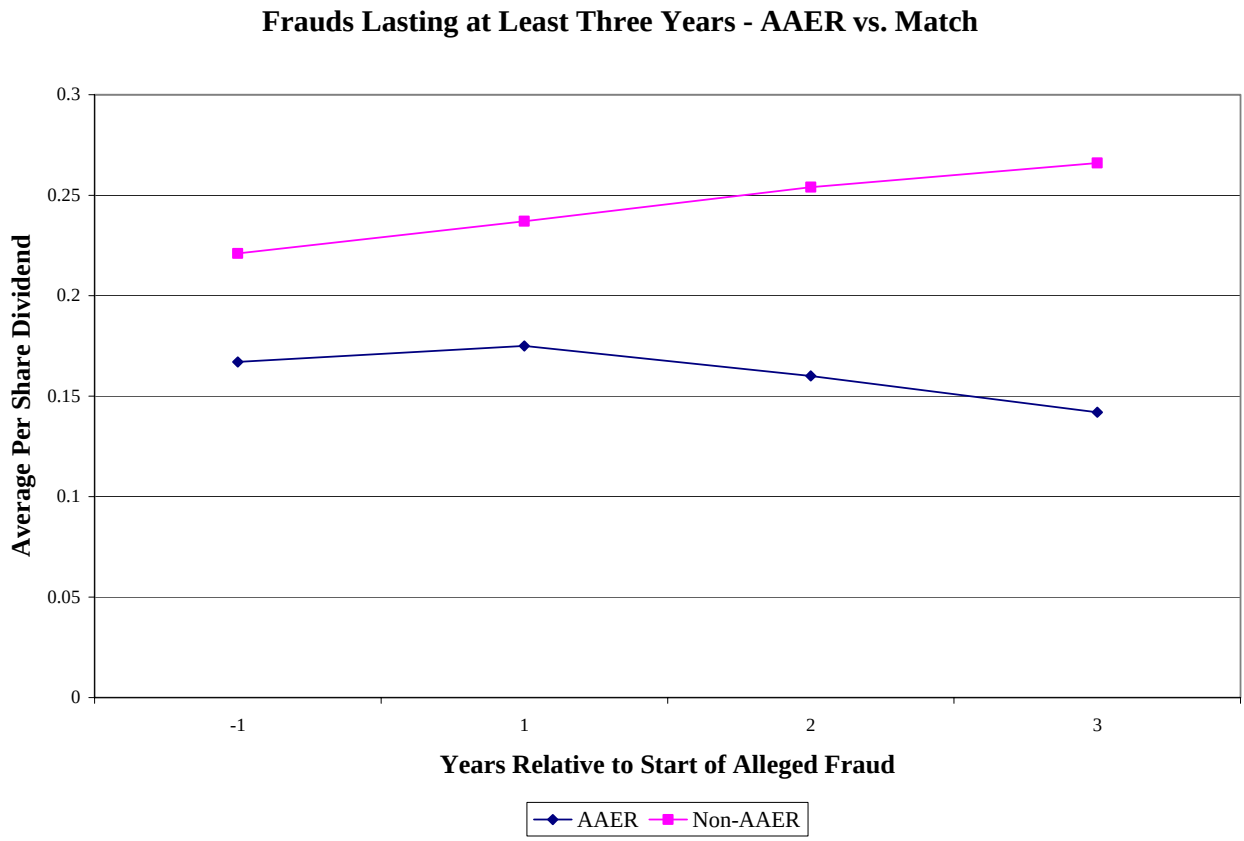
**Figure 1A: Graph of Average Dividends Per Share for AAER Firms and Their Matches—All Firms Included**




This figure plots the average dividends per share for the 189 AAER firms and 378 match firms. The years are relative to the beginning of the alleged fraud so that year -1 denotes the year prior to the alleged fraud, year 1 denotes the first year of the alleged fraud and so on. Years -1 and 1 include all of the firms. Years 2 and 3 include only firms and matches for alleged frauds that persisted for at least 2 and 3 years, respectively. We computed dividends per share on the basis of shares outstanding as of the end of the year prior to the alleged fraud. For example, if a firm's alleged fraud occurred during 1994 - 1996, we report the dividends per share for that firm and its matches on the basis of shares outstanding at the end of 1993. We adjust 1994 - 1996 dividends for stock splits and dividends that occurred between the end of 1993 and the dividend payment.

**Figure 1B : Graph of Average Dividends Per Share for AAER Firms and Their Matches – Only Firms with an Alleged Fraud Period of at Least Three Years are Included**




This figure plots the average dividends per share for the 66 AAER firms alleged to have fraudulently manipulated earnings for at least three years and their 132 match firms. The years are relative to the beginning of the alleged fraud so that year -1 denotes the year prior to the alleged fraud, year 1 denotes the first year of the alleged fraud and so on. We computed dividends per share on the basis of shares outstanding as of the end of the year prior to the alleged fraud. For example, if a firm's alleged fraud occurred during 1994 - 1996, we report the dividends per share for that firm and its matches on the basis of shares outstanding at the end of 1993. We adjust 1994 -1995 dividends for stock splits and dividends that occurred between the end of 1993 and the dividend payment.

# Table 1
# Sample Selection and Industry Composition

**Panel A: Sample Selection**

| | Firms |
|---|---|
| Number of AAERs containing keywords | 1,075 |
| No action against firm | -141 |
| Not regarding accounting irregularity | -83 |
| Not publicly traded | -7 |
| Manipulation did not affect earnings | -86 |
| Fraud pertained only to forward looking statements | -47 |
| Failure to classify transactions as related party | -10 |
| Total from AAERs | 701 |
| | |
| Multiple AAERs per firm | -377 |
| No GVKEY match for Compustat | -38 |
| No data in CRSP/Compustat for ordinary common shares | -36 |
| Firm does not have both pre- and during AAER data | -61 |
| Total | 189 |
| | |
| Non-dividend payers | -150 |
| No match firm pays dividend | -4 |
| Missing variables for Fama and Babiak (1968) regressions | -3 |
| Matched dividend payers | 32 |

**Panel B: Industry Composition (2-digit SIC Codes)**

| | *AAER* | | *CRSP/Compustat* | |
|---|---|---|---|---|
| Agriculture, forestry and fishing (01-09) | 1 | 0.5% | 67 | 0.4% |
| Mining (10-14) | 2 | 1.1% | 995 | 5.7% |
| Construction (15-17) | 3 | 1.6% | 218 | 1.3% |
| Other manufacturing (20-39) | 34 | 18.0% | 3,572 | 20.6% |
| Industrial Machinery And Computer Equipment (35) | 13 | 6.9% | 1,033 | 6.0% |
| Electronic Equipment, Except Computer Equipment (36) | 16 | 8.5% | 1,076 | 6.2% |
| Instruments; Photographic, Medical And Clocks (38) | 14 | 7.4% | 937 | 5.4% |
| Transportation, Communications, Utilities And Sanitary (40-49) | 11 | 5.8% | 1,314 | 7.6% |
| Wholesale trade (50-51) | 10 | 5.3% | 689 | 4.0% |
| Retail trade (52-59) | 15 | 7.9% | 1,171 | 6.8% |
| Finance, Insurance, And Real Estate (60-67) | 15 | 7.9% | 3,010 | 17.4% |
| Other services (70-89) | 16 | 8.5% | 1,261 | 7.3% |
| Business Services (73) | 34 | 18.0% | 1,887 | 10.9% |
| Nonclassifiable Establishments (99) | 5 | 2.6% | 110 | 0.6% |
| Total | 189 | 100.0% | 17,340 | 100.0% |

## Table 2
## Variable Definitions

| Variable | Description | Definition/data item[a] |
|---|---|---|
| *Dividend payer* | Equals one if firm paid ordinary dividend during fraud period or preceding year | |
| *DIVAMT* | Per share dividend (*CRSP* daily) | |
| *SHROUT* | Shares outstanding (*CRSP*) | |
| *CFACSHR* | Share adjustment factor (*CRSP*) | |
| *PRC* | Share price (*CRSP*) | |
| *Total dividends per year* | Total ordinary cash dividends (*CRSP* monthly) | $\sum_{t\in T} DIVAMT_t \times SHROUT_t$ |
| *Dividends per share* | Per share ordinary cash dividends adjusted for splits | $\sum_{t\in T} DIVAMT_t \times CFACSHR_t$ |
| *Payout ratio* | Total ordinary cash dividends/NIBE[b] | Total dividends/#18 |
| *Dividend yield* | Dividends per share/price | Dividends per share/*PRC* |
| *Total assets* | Year-end total assets | #6 |
| *Market value of equity* | | #199×#25 |
| *Net sales* | | #12 |
| *NIBE* | Net income before extraordinary items | #18 |
| *EPS* | Basic NIBE per share | #58 |
| *Return on assets* | NIBE/Avg. total assets | $\#18_T/\text{avg}(\#6_T,\#6_{T-1})$ |
| *Age of firm* | Current fiscal year-end date less start date of first CRSP PERMNO (in years) | |
| *Book-to-market ratio* | Book value of common equity/market value | $\#60_T/(\#25_T \times \#199_T)$ |
| *FreeC* | 1/Years' financing in working capital | $[\#308_T - \text{avg}(\#128_{T-1},\ldots,\#128_{T-3})]/\#4_{T-1}$ |
| *Ex ante financing* | Equals 1 if FreeC ≤ -1/2, 0 else | |
| *Leverage* | Total debt/Total assets | (#9+#34)/#6 |
| *Volatility* | | |
| *M&A* | Equals 1 for firm/years where the sales contribution from acquisitions is greater than | #249 |

[a] $\#X_T$ refers to a data item from the *Compustat* annual file for fiscal year $T$. Capitalized variables refer to variables from the *CRSP*

[b] The payout ratio is set to the 99th percentile of payout ratios if the firm paid a dividend and had negative earnings.

# Table 3
# Univariate Tests of Dividend Policy for AAER Firms Relative to Non-AAER Firms

**Panel A: AAER Firms vs. Matched Sample**

| | AAER | Match | p-value |
|---|---|---|---|
| *Dividend payer* | | | |
| Year prior to fraud (-) | 0.169 | 0.235 | 0.035 |
| Fraud period (-) | 0.206 | 0.262 | 0.073 |
| Fraud period + prior year (-) | 0.206 | 0.269 | 0.057 |
| *Dividend changes* | | | |
| Dividend increases (-) | 0.127 | 0.183 | 0.046 |
| Dividend decreases (+) | 0.053 | 0.042 | 0.285 |
| Firms | 189 | 378 | |
| *Dividend payer (-)* | 0.231 | 0.305 | 0.003 |
| *Dividend changes* | | | |
| Dividend increases (-) | 0.118 | 0.189 | 0.001 |
| Dividend decreases (+) | 0.045 | 0.034 | 0.154 |
| Firm years | 441 | 882 | |

**Panel B: AAER Firms vs. Non-AAER in Same Industies**

| | AAER | Non-AAER | p-value |
|---|---|---|---|
| *Dividend payer* | | | |
| Year prior to fraud (-) | 0.169 | 0.276 | 0.001 |
| Firms | 189 | 26,647 | |
| *Dividend payer (-)* | 0.231 | 0.315 | 0.000 |
| *Dividend changes* | | | |
| Dividend increases (-) | 0.118 | 0.209 | 0.000 |
| Dividend decreases (+) | 0.045 | 0.036 | 0.148 |
| Firm years | 441 | 43,173 | |

**Panel C: Dividend Paying Firms Only - AAER Firms vs. Matched Sample**

| | AAER | Match | p-value |
|---|---|---|---|
| *All AAER Years* | | | |
| Dividend increase (-) | 0.425 | 0.585 | 0.010 |
| Dividend decrease (+) | 0.170 | 0.085 | 0.032 |
| Firm years | 106 | 106 | |
| *EPS increases during AAER period* | | | |
| Dividend increase (-) | 0.479 | 0.597 | 0.110 |
| Dividend decrease (+) | 0.104 | 0.097 | 0.449 |
| Firm years | 48 | 62 | |
| *EPS decreases during AAER period* | | | |
| Dividend increase (-) | 0.379 | 0.568 | 0.029 |
| Dividend decrease (+) | 0.224 | 0.068 | 0.016 |
| Firm years | 58 | 44 | |

**Panel D: Dividend Paying Firms Only - AAER Firms vs. Non-AAER in Same Industries**

| | AAER | Non-AAER | p-value |
|---|---|---|---|
| *All AAER Years* | | | |
| Dividend increase (-) | 0.425 | 0.658 | 0.001 |
| Dividend decrease (+) | 0.170 | 0.080 | 0.001 |
| Firm years | 106 | 5,645 | |
| *EPS increases during AAER period* | | | |
| Dividend increase (-) | 0.479 | 0.704 | 0.001 |
| Dividend decrease (+) | 0.104 | 0.057 | 0.083 |
| Firm years | 48 | 3,447 | |
| *EPS decreases during AAER period* | | | |
| Dividend increase (-) | 0.379 | 0.590 | 0.001 |
| Dividend decrease (+) | 0.224 | 0.116 | 0.005 |
| Firm years | 58 | 2,074 | |

**Panel E: Dividend Paying AAER Firms vs. Matched Sample Prior to Fraud to Fraud Period**

| | AAER | Match | p-value |
|---|---|---|---|
| *Dividend payers* | | | |
| Dividend increase (-) | 0.594 | 0.781 | 0.053 |
| Dividend decrease (+) | 0.281 | 0.094 | 0.028 |
| Firm years | 32 | 32 | |
| *EPS increases from prior to AAER period* | | | |
| Dividend increase (-) | 0.800 | 0.800 | 0.500 |
| Dividend decrease (+) | 0.000 | 0.100 | 0.232 |
| Firm years | 5 | 10 | |

| | AAER | Match | p-value |
|---|---|---|---|
| *EPS decreases from prior to AAER period* | | | |
| Dividend increase (-) | 0.556 | 0.773 | 0.056 |
| Dividend decrease (+) | 0.333 | 0.091 | 0.022 |
| Firm years | 27 | 22 | |

This table reports frequency counts (percentages) of how many AAER firms and firm-years are dividend payers, dividend increasers and dividend decreasers. We use dividends per share (defined in Table 2) as the measure of dividends. We also report the same statistics for 1) a matched sample of firms (two matches per fraud firm, matched on size, industry, return on assets, firm age and year availability) and 2) all non-fraud firms in the same two digit industries. Fraud period in the dividend payer tests indicates how many firms paid a dividend at any time during the fraud period (all years over which the alleged fraud was perpetrated). Dividend increase (decrease) when the unit of analysis is the firm-year means an increase (decrease) in dividends per share relative to the prior year. One-tailed p-values are based on chi squared tests of frequency counts.

# Table 4
# Descriptive Statistics – AAER Firms vs. Matched Sample

**Panel A: Year Prior to Fraud**

| | AAER | | | | | | Match | | | | | | Difference in | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Variable** | **N** | **Mean** | **Std. dev.** | **25%** | **Median** | **75%** | **N** | **Mean** | **Std. dev.** | **25%** | **Median** | **75%** | **Mean t-stat (p val)** | **Median Chi Sq. (p val)** |
| *Total dividends per year* | 189 | 16 | 70 | 0 | 0 | 0 | 378 | 16 | 70 | 0 | 0 | 0 | 0.138 | 2.901 |
| | | | | | | | | | | | | | (0.891) † | (0.089) † |
| *Dividends per share* | 189 | 0.105 | 0.345 | 0.000 | 0.000 | 0.000 | 378 | 0.146 | 0.384 | 0.000 | 0.000 | 0.000 | -1.238 | 2.901 |
| | | | | | | | | | | | | | (0.216) † | (0.089) † |
| *Payout ratio* | 189 | 0.068 | 0.242 | 0.000 | 0.000 | 0.000 | 378 | 0.095 | 0.262 | 0.000 | 0.000 | 0.000 | -1.178 | 2.901 |
| | | | | | | | | | | | | | (0.239) † | (0.089) † |
| *Dividend yield* | 189 | 0.003 | 0.009 | 0.000 | 0.000 | 0.000 | 378 | 0.006 | 0.014 | 0.000 | 0.000 | 0.000 | -2.254 | 2.901 |
| | | | | | | | | | | | | | (0.025) † | (0.089) † |
| *Total assets* | 189 | 1,784 | 6,586 | 23 | 78 | 301 | 378 | 1,550 | 6,131 | 23 | 81 | 322 | 0.417 | 0.107 |
| | | | | | | | | | | | | | (0.677) | (0.744) |
| *Market value of equity* | 189 | 1,769 | 6,107 | 27 | 118 | 670 | 378 | 1,690 | 6,270 | 21 | 86 | 462 | 0.142 | 0.847 |
| | | | | | | | | | | | | | (0.887) | (0.357) |
| *Net sales* | 188 | 1243 | 4067 | 19 | 68 | 313 | 378 | 974 | 3283 | 16 | 82 | 329 | 0.846 | 0.645 |
| | | | | | | | | | | | | | (0.398) | (0.422) |
| *NIBE* | 189 | 57 | 265 | -1 | 2 | 17 | 378 | 71 | 314 | -1 | 2 | 14 | -0.527 | 0.107 |
| | | | | | | | | | | | | | (0.598) | (0.744) |
| *Return on assets* | 189 | -0.029 | 0.253 | -0.068 | 0.044 | 0.094 | 378 | -0.021 | 0.215 | -0.032 | 0.036 | 0.075 | -0.413 | 0.551 |
| | | | | | | | | | | | | | (0.680) | (0.458) |
| *Age of firm* | 189 | 8.3 | 9.6 | 1.4 | 4.0 | 11.8 | 378 | 8.7 | 9.3 | 2.2 | 4.9 | 11.9 | -0.538 | 1.482 |
| | | | | | | | | | | | | | (0.591) | (0.223) |
| *Book-to-market ratio* | 189 | 0.413 | 0.402 | 0.153 | 0.322 | 0.598 | 378 | 0.602 | 0.549 | 0.232 | 0.468 | 0.791 | -4.205 | 13.779 |
| | | | | | | | | | | | | | (0.000) | (0.000) |
| *Ex-ante financing* | 170 | 0.159 | 0.367 | 0.000 | 0.000 | 0.000 | 332 | 0.090 | 0.287 | 0.000 | 0.000 | 0.000 | 2.296 | 4.577 |
| | | | | | | | | | | | | | (0.022) | (0.032) |
| *Leverage* | 189 | 0.238 | 0.213 | 0.036 | 0.208 | 0.374 | 378 | 0.217 | 0.209 | 0.027 | 0.166 | 0.351 | 1.166 | 1.207 |
| | | | | | | | | | | | | | (0.244) | (0.272) |
| *Volatility* | 180 | 0.589 | 0.310 | 0.370 | 0.511 | 0.772 | 365 | 0.533 | 0.297 | 0.326 | 0.463 | 0.681 | 2.019 | 2.491 |
| | | | | | | | | | | | | | (0.044) | (0.114) |
| *M&A* | 189 | 0.217 | 0.413 | 0.000 | 0.000 | 0.000 | 378 | 0.167 | 0.373 | 0.000 | 0.000 | 0.000 | 1.458 | 1.803 |
| | | | | | | | | | | | | | (0.145) | (0.179) |

This table presents descriptive statistics for our AAER sample of firms and firm-years and the matched sample of firms (two per fraud firm, matched on size, industry, return on assets, firm age and year availability). Panel A presents statistics for the year immediately prior to the commencement of the alleged fraud for each AAER firm and its closest two matches (thus one observation per firm). All variables are defined in Table 2. Panel B reports statistics for the years of the alleged fraud for each AAER firm and its closest two matches (so each fraud-year is included yielding multiple observations per firm). The payout ratio is reset to the 99% of the distribution for observations where the denominator, earnings, is zero or negative. If we exclude these observations in Panel A, the mean payout ratios for AAER and non-AAER firms are 0.076 and 0.122, respectively. The median payout ratios are zero and the differences in means and medians are significant at 0.10. In Panel B, if we exclude non-positive earnings firm-years, the mean payout ratios for AAER and non-AAER firms are 0.125 and 0.180, respectively, and the difference is significant at 5%. The median payout ratios are zero and the median test is significant at less than 1%. The differences tests report one-tailed p-values (in parentheses) for the dividend variables (denoted by †) and two-tailed p-values for all other variables.

# Table 4 (continued)
# Descriptive Statistics – AAER Firms vs. Matched Sample

**Panel B: Fraud Years**

| | AAER | | | | | | Match | | | | | | Difference in | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Variable** | **N** | **Mean** | **Std. dev.** | **25%** | **Median** | **75%** | **N** | **Mean** | **Std. dev.** | **25%** | **Median** | **75%** | **Mean t-stat (p val)** | **Median Chi Sq. (p val)** |
| *Total dividends per year* | 441 | 23 | 80 | 0 | 0 | 0 | 882 | 25 | 92 | 0 | 0 | 2 | -0.443 | 7.552 |
| | | | | | | | | | | | | | (0.658) † | (0.006) † |
| *Dividends per share* | 441 | 0.103 | 0.307 | 0 | 0 | 0 | 882 | 0.189 | 0.425 | 0 | 0 | 0.14 | -3.795 | 7.552 |
| | | | | | | | | | | | | | (0.000) † | (0.006) † |
| *Payout ratio* | 441 | 0.179 | 0.462 | 0 | 0 | 0 | 882 | 0.159 | 0.368 | 0 | 0 | 0.123 | 0.861 | 7.552 |
| | | | | | | | | | | | | | (0.390) † | (0.006) † |
| *Dividend yield* | 441 | 0.004 | 0.01 | 0 | 0 | 0 | 882 | 0.007 | 0.016 | 0 | 0 | 0.006 | -4.266 | 7.552 |
| | | | | | | | | | | | | | (0.000) † | (0.006) † |
| *Net sales* | 438 | 1866 | 4974 | 34 | 159 | 680 | 882 | 1372 | 3936 | 25 | 138 | 625 | 1.964 | 0.769 |
| | | | | | | | | | | | | | (0.050) | (0.381) |
| *NIBE* | 441 | 15 | 328 | -11 | 1 | 13 | 882 | 89 | 377 | -1 | 3 | 27 | -3.519 | 6.486 |
| | | | | | | | | | | | | | (0.000) | (0.011) |
| *Return on assets* | 441 | -0.089 | 0.298 | -0.101 | 0.009 | 0.054 | 882 | -0.025 | 0.226 | -0.028 | 0.032 | 0.080 | -4.342 | 14.667 |
| | | | | | | | | | | | | | (0.000) | (0.000) |
| *Volatility* | 441 | 0.643 | 0.338 | 0.388 | 0.573 | 0.817 | 881 | 0.540 | 0.315 | 0.313 | 0.482 | 0.672 | 5.477 | 16.673 |
| | | | | | | | | | | | | | (0.000) | (0.000) |

## Table 5
## Logistic Regressions on AAER on Dividend Policy and Controls

| Variable (predicted sign) | Pre-Fraud | During fraud | Inc/Dec | During fraud | Inc/Dec | vs. Indusry | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| *Dividends in the year prior to fraud* (-) | -0.579 | | | | | -0.467 | | |
| | (0.035) † | | | | | (0.027) † | | |
| *Dividends paid in fraud period* (-) | | -0.350 | | -0.498 | | | -0.582 | |
| | | (0.111) † | | (0.049) † | | | (0.009) † | |
| *Dividend increase* (-) | | | -0.458 | | -0.529 | | | -0.742 |
| | | | (0.071) † | | (0.041) † | | | (0.002) † |
| *Dividend decrease* (+) | | | 0.287 | | 0.089 | | | 0.062 |
| | | | (0.263) † | | (0.403) † | | | (0.412) † |
| *log Total assets* (match variable) | 0.060 | 0.046 | 0.039 | 0.105 | 0.090 | 0.080 | 0.200 | 0.192 |
| | (0.324) | (0.440) | (0.501) | (0.068) | (0.102) | (0.080) | (0.000) | (0.000) |
| *Return on assets* (match variable) | 0.763 | 0.773 | 0.794 | -0.332 | -0.308 | 1.082 | -0.144 | -0.136 |
| | (0.128) | (0.123) | (0.114) | (0.370) | (0.404) | (0.003) | (0.258) | (0.296) |
| *Age of firm prior to fraud* (match variable) | 0.018 | 0.014 | 0.013 | 0.000 | -0.002 | -0.037 | -0.005 | -0.009 |
| | (0.187) | (0.294) | (0.303) | (0.997) | (0.866) | (0.000) | (0.515) | (0.276) |
| *Book-to-market ratio* (+/-) | -0.772 | -0.769 | -0.788 | -0.261 | -0.275 | -0.006 | -0.001 | -0.002 |
| | (0.001) | (0.001) | (0.001) | (0.115) | (0.102) | (0.551) | (0.753) | (0.559) |
| *Ex ante financing* (+) | 0.744 | 0.731 | 0.747 | 0.224 | 0.227 | 0.674 | 0.198 | 0.200 |
| | (0.020) † | (0.022) † | (0.020) † | (0.225) † | (0.223) † | (0.003) † | (0.164) † | (0.162) † |
| *Missing ex-ante financing* (+/-) | 0.101 | 0.093 | 0.122 | 0.072 | 0.086 | -0.247 | -0.823 | -0.798 |
| | (0.746) | (0.766) | (0.698) | (0.838) | (0.803) | (0.346) | (0.009) | (0.010) |
| *Leverage* (+) | 0.700 | 0.725 | 0.727 | 1.445 | 1.420 | 0.375 | 0.203 | 0.199 |
| | (0.059) † | (0.052) † | (0.052) † | (0.002) † | (0.002) † | (0.031) † | (0.001) † | (0.001) † |
| *Volatility* (+) | 0.798 | 0.841 | 0.885 | 0.755 | 0.798 | 0.057 | 0.558 | 0.577 |
| | (0.015) † | (0.012) † | (0.008) † | (0.006) † | (0.004) † | (0.413) † | (0.001) † | (0.000) † |
| *Missing volatility* (+/-) | 0.696 | 0.722 | 0.761 | Dropped | Dropped | 3.282 | Dropped | Dropped |
| | (0.188) | (0.173) | (0.151) | | | (0.000) | | |
| *M&A* (+) | 0.646 | 0.639 | 0.639 | 0.630 | 0.624 | 0.632 | 0.464 | 0.476 |
| | (0.002) † | (0.002) † | (0.002) † | (0.001) † | (0.001) † | (0.001) † | (0.002) † | (0.001) † |
| *Missing M&A* | -0.371 | -0.364 | -0.354 | 0.389 | 0.389 | 0.338 | 0.350 | 0.361 |
| | (0.256) | (0.265) | (0.280) | (0.046) | (0.047) | (0.100) | (0.029) | (0.022) |
| Intercept | -1.429 | -1.394 | -1.407 | -1.992 | -1.954 | -5.197 | -5.872 | -5.846 |
| | (0.001) | (0.001) | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| N | 567 | 567 | 567 | 1,323 | 1,323 | 26,836 | 43,614 | 43,614 |
| Pseudo $R^2$ | 0.063 | 0.060 | 0.062 | 0.067 | 0.067 | 0.043 | 0.031 | 0.032 |
| Chi Squared | 45.2 *** | 43.3 *** | 45.0 *** | 43.6 *** | 44.7 ** | 97.5 *** | 75.9 *** | 76.8 *** |

This table presents the results of logistic regressions where an AAER indicator is the dependent variable. The variable *Dividends in the year prior to fraud* indicates whether or not the firm paid a dividend in the year prior to the alleged fraud, *Dividends paid in fraud period* indicates whether or not the firm paid dividends at any time during the fraud period, and the dividend change variables indicate whether or not the average split adjusted per-share dividend increased or decreased during the fraud period versus the year prior. In columns (1) - (4) the control variables are measured in the year prior to the fraud period (and are defined in Table 2). In columns (4)-(5) and (7)-(8) each firm-year is the unit of observation and control variables are measured in each year. We check for influential observations using visual inspection as in figure 5.6 of Hosmer and Lemeshow (1989) but find none. Variable coefficients are presented and p-values (one-tailed and denoted by † where we have a prediction, two-tailed otherwise) are in parentheses. The 567 observations in columns (1)-(3) correspond to the top portion of Table 3, Panel A and the 1323 in columns (4) and (5) correspond to the bottom of Table 3, Panel A. The 26,836 observations in column (6) correspond to the top portion of Table 3, Panel B and the 43,614 in columns (7) and (8) correspond to the bottom portion of Table 3, Panel B. Errors are clustered by firm in columns (4), (5), (7), and (8) to address serial within firm dependence.

# Table 6
# Descriptive Statistics – Dividend Paying Sample – AAER vs. Match Sample

**Panel A: Year Prior to Fraud**

| | AAER | | | | | | Match | | | | | | Difference in | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Variable** | **N** | **Mean** | **Std. dev.** | **25%** | **Median** | **75%** | **N** | **Mean** | **Std. dev.** | **25%** | **Median** | **75%** | **Mean t-stat (p val)** | **Median Chi Sq. (p val)** |
| *Total dividends per year* | 32 | 113 | 210 | 2 | 20 | 140 | 32 | 145 | 290 | 8 | 26 | 105 | -0.511 (0.611) † | 0.063 (0.803) † |
| *Dividends per share* | 32 | 0.611 | 0.667 | 0.053 | 0.420 | 0.971 | 32 | 0.675 | 0.595 | 0.230 | 0.440 | 0.990 | -0.403 (0.688) † | 0.063 (0.802) † |
| *Payout ratio* | 32 | 0.204 | 0.623 | 0.055 | 0.186 | 0.429 | 32 | 0.314 | 0.212 | 0.168 | 0.278 | 0.406 | -0.946 (0.348) † | 0.563 (0.453) † |
| *Dividend yield* | 32 | 0.016 | 0.016 | 0.002 | 0.011 | 0.024 | 32 | 0.022 | 0.018 | 0.009 | 0.014 | 0.031 | -1.246 (0.218) † | 0.063 (0.803) † |
| *Total assets* | 32 | 9538 | 15784 | 365 | 2380 | 14017 | 32 | 10680 | 20916 | 430 | 2360 | 10249 | -0.247 (0.806) | 0.063 (0.803) |
| *Market value of equity* | 32 | 8569 | 18117 | 430 | 1721 | 10318 | 32 | 9168 | 19129 | 502 | 1539 | 7734 | -0.129 (0.898) | 0.063 (0.803) |
| *Net sales* | 31 | 5991 | 8784 | 466 | 2298 | 7623 | 32 | 5437 | 8646 | 592 | 1677 | 6151 | 0.252 (0.802) | 0.015 (0.901) |
| *NIBE* | 32 | 357 | 688 | 20 | 60 | 434 | 32 | 514 | 928 | 31 | 109 | 491 | -0.767 (0.446) | 0.063 (0.803) |
| *Return on assets* | 32 | 0.056 | 0.033 | 0.034 | 0.053 | 0.080 | 32 | 0.069 | 0.040 | 0.038 | 0.063 | 0.098 | -1.372 (0.175) | 0.063 (0.803) |
| *Age of firm* | 32 | 20.0 | 11.4 | 11.5 | 20.6 | 29.4 | 32 | 20.5 | 11.2 | 10.7 | 22.0 | 30.4 | -0.179 (0.858) | 0.063 (0.803) |
| *Book-to-market ratio* | 32 | 0.449 | 0.275 | 0.258 | 0.398 | 0.615 | 32 | 0.477 | 0.230 | 0.280 | 0.494 | 0.601 | -0.451 (0.653) | 0.563 (0.453) |
| *Ex-ante financing* | 27 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 26 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 (1.000) | 0.000 (1.000) |
| *Leverage* | 32 | 0.247 | 0.151 | 0.156 | 0.223 | 0.358 | 32 | 0.220 | 0.173 | 0.095 | 0.204 | 0.301 | 0.652 (0.517) | 0.063 (0.803) |
| *Volatility* | 32 | 0.342 | 0.140 | 0.244 | 0.330 | 0.404 | 32 | 0.273 | 0.142 | 0.199 | 0.237 | 0.309 | 1.944 (0.056) | 5.063 (0.024) |
| *M&A* | 32 | 0.188 | 0.397 | 0.000 | 0.000 | 0.000 | 32 | 0.219 | 0.420 | 0.000 | 0.000 | 0.000 | -0.306 (0.761) | 0.000 (1.000) |

This table presents descriptive statistics for the dividend paying AAER firms and firm-years and their dividend paying matches (matched on size, industry, return on assets, firm age and year availability). We exclude non-dividend paying matches and AAER firms without a dividend paying match. Panel A presents statistics for the year immediately prior to the commencement of the alleged fraud for each AAER firm and its match (thus one observation per firm). All variables are defined in Table 2. Panel B reports statistics for the years of the alleged fraud for each AAER firm and its match (so each fraud-year is included yielding multiple observations per firm). As in Table 4, the payout ratio is reset to the 99% value of the distribution if the observation has non-positive earnings. If we exclude these observations from Panel A, the mean (median) payout ratios for AAER firms and non-AAER firms are 0.296 and 0.314 (0.212 and 0.278), respectively (not significantly different). If we exclude the non-positive denominator observations from Panel B, the mean (median) payout ratios for AAER firm years and non-AAER firm-years are 0.463 and 0.496 (0.241 and 0.321), respectively (neither difference is significant). P-values are in parentheses and are one-tailed and denoted by † for the dividend variables and two-tailed otherwise.

## Table 6 (continued)
## Descriptive Statistics – Dividend Paying Sample – AAER vs. Match Sample

**Panel B: Fraud years**

| | AAER | | | | | | Match | | | | | | Difference in | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Variable** | **N** | **Mean** | **Std. dev.** | **25%** | **Median** | **75%** | **N** | **Mean** | **Std. dev.** | **25%** | **Median** | **75%** | **Mean t-stat (p val)** | **Median Chi Sq. (p val)** |
| *Total dividends per year* | 106 | 99 | 166 | 1 | 27 | 120 | 106 | 166 | 324 | 5 | 18 | 131 | -1.896 | 0.019 |
| | | | | | | | | | | | | | (0.059) † | (0.891) † |
| *Dividends per share* | 106 | 0.417 | 0.516 | 0.050 | 0.120 | 0.619 | 106 | 0.662 | 0.545 | 0.240 | 0.500 | 1.080 | -3.363 | 9.133 |
| | | | | | | | | | | | | | (0.001) † | (0.003) † |
| *Payout ratio* | 106 | 0.217 | 0.779 | 0.000 | 0.059 | 0.370 | 106 | 0.426 | 0.707 | 0.182 | 0.313 | 0.581 | -2.047 | 18.132 |
| | | | | | | | | | | | | | (0.042) † | (0.000) † |
| *Dividend yield* | 106 | 0.014 | 0.017 | 0.001 | 0.009 | 0.024 | 106 | 0.024 | 0.019 | 0.009 | 0.020 | 0.031 | -3.695 | 13.755 |
| | | | | | | | | | | | | | (0.000) † | (0.000) † |
| *Change in dividends* | 106 | -0.022 | 0.135 | 0.000 | 0.000 | 0.030 | 106 | 0.024 | 0.105 | 0.000 | 0.020 | 0.080 | -2.719 | 5.453 |
| | | | | | | | | | | | | | (0.007) † | (0.020) † |
| *Lagged DPS* | 106 | 0.439 | 0.514 | 0.050 | 0.127 | 0.700 | 106 | 0.632 | 0.530 | 0.220 | 0.460 | 1.040 | -2.688 | 4.245 |
| | | | | | | | | | | | | | (0.008) | (0.039) |
| *Earnings per share* | 106 | 0.202 | 2.354 | -0.450 | 0.880 | 1.590 | 106 | 1.628 | 1.052 | 0.880 | 1.475 | 2.280 | -5.692 | 9.981 |
| | | | | | | | | | | | | | (0.000) | (0.002) |
| *Lagged EPS* | 106 | 1.013 | 1.342 | 0.530 | 1.015 | 1.820 | 106 | 1.637 | 1.043 | 0.910 | 1.420 | 2.240 | -3.776 | 8.321 |
| | | | | | | | | | | | | | (0.000) | (0.004) |
| *Net sales* | 104 | 7244 | 10438 | 484 | 2051 | 9612 | 106 | 5892 | 10096 | 400 | 1444 | 6604 | 0.954 | 0.476 |
| | | | | | | | | | | | | | (0.341) | (0.490) |
| *NIBE* | 106 | 129 | 892 | -24 | 26 | 219 | 106 | 441 | 901 | 16 | 89 | 319 | -2.527 | 5.453 |
| | | | | | | | | | | | | | (0.012) | (0.020) |
| *Return on assets* | 106 | 0.008 | 0.093 | -0.020 | 0.026 | 0.062 | 106 | 0.061 | 0.041 | 0.029 | 0.054 | 0.091 | -5.375 | 5.453 |
| | | | | | | | | | | | | | (0.000) | (0.020) |
| *Volatility* | 106 | 0.468 | 0.258 | 0.281 | 0.389 | 0.576 | 106 | 0.314 | 0.146 | 0.204 | 0.287 | 0.383 | 5.324 | 11.792 |
| | | | | | | | | | | | | | (0.000) | (0.001) |

# Table 7
# Fama-Babiak Regressions of Dividend Changes on Earnings

**Panel A: AAER firms vs. Matched Sample Non-AAER Firms**

| Variable (predicted sign) | All years | All years | EPS increase | EPS decrease |
|---|---|---|---|---|
| *AAER firm* | | -0.005 | -0.022 | -0.022 |
| | | (0.849) | (0.330) | (0.690) |
| *Lagged dividends per share* (-) | -0.067 | -0.039 | 0.000 | -0.004 |
| | (0.000) † | (0.061) † | (0.498) † | (0.461) † |
| *AAER ×Lagged DPS* (+) | | -0.011 | 0.005 | -0.083 |
| | | (0.376) † | (0.445) † | (0.075) † |
| *Earnings per share* (+) | 0.015 | 0.016 | 0.017 | 0.023 |
| | (0.001) † | (0.144) † | (0.232) † | (0.191) † |
| *AAER ×EPS* (-) | | -0.001 | 0.002 | -0.014 |
| | | (0.474) † | (0.474) † | (0.305) † |
| *Lagged EPS* (+) | 0.032 | 0.024 | 0.005 | 0.012 |
| | (0.000) † | (0.051) † | (0.411) † | (0.322) † |
| *AAER ×Lagged EPS* (-) | | -0.004 | 0.009 | 0.025 |
| | | (0.412) † | (0.361) † | (0.208) † |
| Intercept | -0.019 | -0.012 | -0.006 | -0.010 |
| | (0.120) | (0.558) | (0.735) | (0.817) |
| N | 212 | 186 | 92 | 94 |
| Deletions | 0 | 26 | 18 | 8 |
| AAER firm years/non-AAER firm years | 106/106 | 93/106 | 40/48 | 54/58 |
| Adj. $R^2$ | 0.170 | 0.148 | 0.196 | 0.151 |
| F | 15.4 *** | 5.6 *** | 4.2 *** | 3.4 *** |

* Observations = 106 fraud firm years for fraud firms, giving 212 total firm years including match years

**Panel B: AAER Fraud Years vs. Year Prior to Fraud**

| Variable (predicted sign) | All years | All years | EPS increase | EPS decrease |
|---|---|---|---|---|
| *AAER year* | | -0.001 | 0.057 | 0.005 |
| | | (0.976) | (0.028) | (0.949) |
| *Lagged dividends per share* (-) | -0.057 | -0.013 | -0.057 | -0.049 |
| | (0.003) † | (0.371) † | (0.018) † | (0.277) † |
| *AAER ×Lagged DPS* (+) | | -0.062 | 0.093 | -0.030 |
| | | (0.097) † | (0.003) † | (0.370) † |
| *Earnings per share* (+) | 0.012 | 0.003 | 0.040 | -0.002 |
| | (0.007) † | (0.446) † | (0.025) † | (0.480) † |
| *AAER ×EPS* (-) | | 0.007 | -0.038 | 0.010 |
| | | (0.383) † | (0.051) † | (0.421) † |
| *Lagged EPS* (+) | 0.035 | 0.039 | 0.035 | 0.066 |
| | (0.000) † | (0.033) † | (0.002) † | (0.160) † |
| *AAER ×Lagged EPS* (-) | | -0.004 | -0.029 | -0.030 |
| | | (0.434) † | (0.030) † | (0.330) † |
| Intercept | -0.029 | -0.025 | -0.055 | -0.043 |
| | (0.041) | (0.510) | (0.019) | (0.578) |
| N | 138 | 138 | 55 | 73 |
| Deletions | 0 | 0 | 10 | 0 |
| AAER firm years/non-AAER firm years | 106/106 | 106/106 | 39/48 | 58/58 |
| Adj. $R^2$ | 0.183 | 0.180 | 0.363 | 0.151 |
| F | 11.2 *** | 5.3 *** | 5.4 *** | 2.8 ** |

This table estimates regressions as in Fama and Babiak (1968) where the dependent variable is the change in dividends per share. We interact AAER firm (Panel A) or AAER year (Panel B) with the coefficients. Panel A reports the AAER and match firm years during alleged fraud. Panel B reports the AAER and non-AAER firm years during alleged fraud as compared to the year prior to fraud. The reported results exclude observations for which a firm or its match has a DFFITS statistic greater than two in absolute value. *N* reports observations included in the reported results and *Deletions* reports the observations deleted due to DFFITS. P-values are in parentheses and are one-tailed and denoted by † where we have a predicted sign.