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The impact of accounting fraud on the use of dividend smoothing

# **Abstract**

This study examines the hypothesis that accounting fraud and dividend smoothing have a positive correlation. Using the Speed of Adjustment (SOA) as a measure for dividend smoothing, I document that a one standard deviation increase in accounting fraud decreases the Speed of Adjustment (SOA) by approximately 3.27% to 5.18%, indicating a greater propensity for firms engaged in fraud to maintain consistent dividends. My cross-sectional analysis indicates that strong corporate governance (measured by ESG scores) and conservative accounting practices significantly reduce both accounting fraud and dividend smoothing, thus weakening their relationship. These findings suggest that robust governance and conservative financial practices are essential in improving financial transparency and mitigating fraud. This research fills a significant gap in literature by linking accounting fraud with dividend smoothing and provides valuable insights for regulators, auditors and corporate managers who aim to improve governance frameworks and financial reporting standards.

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# **Introduction**

Accounting fraud and dividend smoothing are important subject areas in finance, carrying substantial implications for stakeholders and market perceptions. Accounting fraud involves the manipulation of financial statements, often resulting in negative consequences for both the company and its stakeholders. Despite advancements in regulations and detection technologies, accounting fraud remains a concern as seen through major U.S. scandals such as Enron and WorldCom (Rezaee, 2005; Wuerges & Borba, 2014). Additionally, Dividend smoothing is a method employed by organisations to maintain a consistent dividend distribution over time. This concept was first introduced by Litner (1956) in his seminal work on dividend smoothing being aimed at signalling financial stability and reliability to investors. Further studies (Fama and Babiak, 1968), provided empirical evidence supporting the idea that companies frequently utilise earnings to forecast and maintain dividend payments. This research reinforces the idea that steady dividends are utilised to shape investor expectations and reduce perceived risks. These topics play a significant role in corporate governance and finance due to their impact on investor trust and company valuation. Understanding how fraudulent practices affect dividend decisions can offer insights into reporting standards and ultimately enhance transparency and integrity throughout financial markets.

Despite the extensive literature on accounting fraud and dividend smoothing, there is a notable gap in research connecting these two practices. Studies on accounting fraud primarily focus on detection, impact, and prevention (Skousen et al., 2009), while research on dividend smoothing explores its determinants, benefits, and implications (Fama & Babiak, 1968; Leary & Michaely, 2011; Lintner, 1956). However, the potential linkage between accounting fraud and dividend smoothing remains largely unexplored. Addressing this gap can be beneficial in understanding the environment in which fraud is present, maintaining market and shareholder confidence and establishing detection methods for auditors (Cressy, 1953; Rezaee, 2005; Lou & Wang, 2009). More specifically, it can reveal whether companies involved in fraudulent activities use dividend smoothing as a strategy to present fabricated financial stability. Understanding this relationship could provide valuable insights into corporate behaviour, informing better regulatory practices and improving governance frameworks.

As a result, this study will explore its main question, “Does a company committing accounting fraud increase the use of dividend smoothing?” by examining the reasoning behind the use of dividend smoothing and the subsequent benefits this may have for fraudulent companies. This study will examine fraudulent data and dividend strategies obtained from U.S. firms, as findings reveal that dividend smoothing is more prevalent in large equity markets (Litner, 1956; Rangvid, Schmeling & Schrimpf, 2014). As well as this, the implementation of the Sarbanes-Oxley act following the rise in large U.S. scandals emphasises the importance of understanding the reasonings behind fraud occurrences in the U.S. going undetected (Giroux, 2008; Sorensen & Miller, 2017; Tutino & Merlo, 2019).

The topics of accounting fraud and dividend smoothing are grounded in several theoretical frameworks including the agency theory and the signalling theory. The agency theory (Jensen & Meckling, 1976) explores the conflicts of interest between managers (agents) and shareholders (principals). Research suggests that dividend smoothing is more prevalent in agency conflicts (Leary & Michaely, 2011). Moreover, the signalling theory (Bhattacharya, 1979; Miller & Rock, 1985) suggests that dividends communicate information about a firm's future prospects and financial health to investors, thereby reducing information asymmetry. These concepts are also embedded in the reasoning behind committing accounting fraud (Lou & Wang, 2009; Skousen et al., 2009), providing a link between these two concepts. Further research finds both smoothing practices and fraud to be weakened in the presence of quality corporate governance (Beneish, 1999; Knyazeva and Knyazeva, 2014) and accounting conservatism (Biddle et al., 2022; Harakeh, 2017). Based on these theories and the literature review, I can develop the following hypotheses: the presence of accounting fraud is positively correlated with dividend smoothing practices (H1), effective corporate governance reduces the negative impact of accounting fraud on financial practices (H2), accounting conservatism weakens the association between accounting fraud and the use of dividend smoothing (H3).

My data sample is obtained from Compustat and Bao et al. (2020) including U.S. public corporations for the years 1998 to 2009 and is made up of 2,866 firm-year observations, belonging to 373 unique firms. This study’s empirical findings indicate a notable positive relationship between accounting fraud and dividend smoothing practices. This suggests that firms involved in fraudulent reporting are more likely to smooth their dividends. The relationship suggests that fraudulent companies employ dividend smoothing as a strategy to communicate a healthier financial position to shareholders and investors.

The data analysis utilises Ordinary Least Squares (OLS) regressions to analyse the impact of accounting fraud on SOA (Speed of Adjustment) - which is negatively related to dividend smoothing. The results suggest a significant negative relationship between firms engaging in fraudulent reporting and SOA at the 1% significance level. From an economic perspective, if accounting fraud increases by one standard deviation, the SOA reduces by 3.27%, compared to its average value. This finding remains consistent across several specifications, as the inclusion of industry fixed effects reveals a one standard deviation rise in accounting fraud leads to a 5.18% reduction in the SOA, compared to its average value. This can be translated to an increase in dividend smoothing by 3.27% and 5.18%, respectively. Thus, these results further support the positive correlation between accounting fraud and dividend smoothing.

These regressions also reveal insight into firm characteristics and dividend smoothing. There is a positive association between payout and dividend smoothing, indicating that firms with high payout ratios smooth their dividends more supporting the findings of Leary and Michaely (2011). Moreover, there is a positive correlation between the market-to-book ratio and dividend smoothing, which supports previous research that connects higher growth prospects with the practice of dividend smoothing (Guttman et al., 2010; Javakhadze et al., 2014). Conversely, firms with higher investment opportunities and those investing heavily in capital expenditures tend to engage in less dividend smoothing. This suggests that these companies prioritise reinvesting their profits rather than maintaining a consistent dividend payout. The robustness of these findings is verified through various tests, including firm fixed effects. These test results are consistent with the primary findings, further supporting the hypothesis that firms with accounting fraud are positively related to dividend smoothing (inversely related to SOA). Considering firm fixed effects, I document a one standard deviation rise in accounting fraud leads to a 3% decrease in SOA, emphasising the long-lasting effect of fraud on dividend smoothing methods.

It is imperative to acknowledge that firms make a voluntary decision to engage in accounting deception or dividend smoothing when analysing my results. Consequently, my inferences may be exposed to endogeneity bias, potentially attributable to both observable and unobservable factors. Thus, the entropy balancing technique (introduced by Hainmueller, 2012) is implemented to mitigate these biases. I also employ a cross-sectional analysis to further mitigate concerns about missing correlated variables and to gain a more comprehensive understanding of the correlation between accounting fraud and dividend smoothing. This cross-sectional test reveals both these practices to be more common in the absence of strong corporate governance whereby mechanisms, such as Environmental, Social, and Governance (ESG) scores, significantly reduce the incidence of both accounting fraud and dividend smoothing. Higher ESG scores are linked to decreased levels of fraudulent activities and the use dividend smoothing, suggesting that strong governance might help alleviate the negative effects of fraud. Similarly, accounting conservatism restricts managers' capacity to manipulate earnings, therefore decreasing the probability of accounting fraud and the practice of dividend smoothing. The findings show that firms with conservative accounting practices are less inclined to engage in both fraudulent reporting and dividend smoothing. This relationship appears statistically significant, with conservative accounting methods serving as a deterrent to manipulative practices. The cross-sectional analysis employed in this study offers a detailed review of these links by accounting for potential endogeneity and verifying the reliability of the findings.

Overall, this study has important practical and academic implications. Practically, it offers valuable insights for regulators and policymakers who are looking to enhance corporate governance frameworks and improve financial transparency among financial markets. Understanding the connection between fraud and dividend smoothing can benefit corporate managers and auditors in detecting and preventing fraudulent activities by monitoring a company’s business practices more closely if smoothing is detected. In the academic field, this study contributes to earlier literature by filling the gap between accounting fraud and dividend smoothing. It provides new insights into the impact of fraudulent behaviours on dividend policies, improving the discussion on corporate finance and governance.

# **Literature review**

This literature review aims to examine companies engaging in accounting fraud and how it influences their use of dividend smoothing. The primary goal of this research is to delve into topics such as accounting fraud, dividend smoothing techniques, the role of governance and the effects of accounting conservatism. Through synthesising the literature on these themes, this review intends to shed light on how fraudulent behaviours impact dividend decisions, ultimately enhancing our understanding of financial disclosure practices.

This topic was chosen due to a gap identified in existing research that connects the ideas of accounting fraud and smoothing dividends together. Despite investigations on each topic, the overlap between these ideas remains largely unexplored alongside the relationship between their broader themes facing further discrepancies. This overview aims to offer a background on these topics and this study’s main research question; "Does a company committing accounting fraud increase the use of dividend smoothing?". Additionally, the impacts of corporate governance and accounting conservatism on the association between fraud and dividend smoothing will also be explored; by linking these themes, the review aims to bridge this gap for future research.

Accounting fraud is defined by the AICPA (2002) as “an intentional act that results in a material misstatement in financial statements that are subject of an audit”, identifying misstatements that result from the misappropriation of assets and fraudulent reporting. Although new regulations and technologies have improved the detection and deterrence of accounting fraud, it remains a persistent issue (Rezaee, 2005; Skousen et al., 2009; Wuerges & Borba, 2014). Some of the biggest company accounting scandals in the US, such as the Enron and Lehman Brothers scandals, were left undetected for an extended period which highlights its importance. Understanding a fraudulent company’s practices is important in all respects, especially their reporting practices. Guttman, Kadan & Kandel (2007) describe ‘Dividend smoothing’ as “keeping dividends per-share constant over two or more consecutive years” expanding on Litner’s (1956) first documented idea. The relationship between accounting fraud and dividend smoothing can be explored through varying themes and theories.

*Dividend Decisions and Concealing Financial Weakness*

Lintner (1956) was the first to introduce the concept of dividend smoothing suggesting that managers prioritise maintaining a steady stream of dividends to reassure investors. This foundational idea, however, focuses on historical and qualitative data. Nonetheless, Linter’s idea is further confirmed empirically by Fama and Babiak (1968). They applied Lintners partial adjustment model to individual firms, reaching the same conclusion and confirming that companies often use earnings to predict dividend payouts. As a result, fraudulent companies, irrespective of their financial health, may aim for dividends to appear steady as their main concern to avoid suspicion, linking to the ‘rationalisation’ element on the fraud triangle communicated by Lou & Wang (2009) and Cressy (1953).

Beneish (1999) supports this idea by developing a model that detects earnings manipulation in companies based on ratios; identifying key indicators like increases in receivables and decreasing margins, which could indicate manipulation. His research emphasises that companies often manipulate their earnings to show a position, masking underlying financial instability. The focus of the study, however, is primarily on detecting fraud through overstatements. This manipulation can be used strategically to maintain dividend payments aligning with studies by Lintner (1956) and Fama and Babiak (1968) who suggest companies use earnings to decide on dividends. Therefore, businesses might adjust their earnings to ensure dividends remain consistent and thus hide any financial weaknesses.

In contrast, Miller and Modigliani’s (1961) dividend irrelevance theory argues that dividend policies have no impact on a company’s share value in a perfect market. Easterbrook (1984) expanded on this idea by emphasising shareholder’s ability to “home brew their own dividends”, casting doubt on the effectiveness of smoothing dividends in concealing accounting fraud. Nevertheless, the assumptions of perfect markets and rational behaviour in these theories are unrealistic in real world scenarios, where market imperfections and behavioural biases are prevalent. Overall, based on the practical applications in financial practices, the relationship between dividend smoothing and accounting fraud suggests that companies committing fraud may increase the use of dividend smoothing to present stability and cover up financial weaknesses.

*Shareholder Expectations and Maintaining Investor Confidence*

Jensen and Meckling (1976) explain the agency theory as the “divergence between the agent’s decisions and those decisions which would maximise the welfare of the principal”. This is consistent with Leary and Michaely (2011), who show that firms subject to agency conflicts tend to smooth dividends more, a practice especially relevant in the context of fraudulent activities. The concept of agency theory also extends to the presence of asymmetric information, Bhattacharya’s (1979) and Miller and Rock’s (1985) signalling theories suggest that smoothing dividends helps address information asymmetries in markets, although this requires empirical confirmation. It can therefore be suggested that through dividend smoothing, firms can signal their financial stability and ultimately boost confidence among shareholders and investors.

Contrastingly, Li and Zhao (2008) and Leary and Michaely (2011) critique further this link by presenting empirical evidence that firms involved in information asymmetry smooth dividends the least. Yet, these studies are both limited to U.S. firms and may not reflect global practices as a whole. Later studies by Guttman et al. (2010) build on Miller and Rock’s work, emphasising adverse selection as a determinant of dividend stickiness, thereby establishing a positive relationship. This relationship remains crucial for maintaining investor confidence, as consistent dividend payouts are perceived as signs of financial stability and good governance, mitigating the negative effects of agency conflicts. Further insights provided by Guttman et al. (2007) highlight how firms may smooth dividends to meet shareholder expectations, thereby maintaining their reputation and avoiding negative market reactions. Skousen et al. (2009) supports this perspective through highlighting that pressures, such as meeting goals and external demands, can push managers towards unethical practices like financial fraud. This fraud can take various forms, including manipulating earnings to support dividend distributions.

In summary, the interaction between the agency theory and presence of asymmetric information demonstrates the complex dynamics where dividend smoothing serves as a strategic tool for firms. By aligning decisions with shareholder expectations and reducing information gaps, businesses can ensure investor trust for their perceived stability and ongoing financial health. This strategic approach to dividend strategies emphasises the significant role of reporting methods in managing relationships with both external stakeholders amidst potential fraud risks.

*Corporate Governance*

Gerety and Lehn (1997) discovered that companies engaging in fraudulent actives typically face impacts on their stock prices once the fraud is revealed. This highlights the importance of having governance and concentrated ownership to lower the risk of fraud. Their research supports what Fama and Babiak (1968) and Beneish (1999) have also shown; firms may employ dividend smoothing to mask their financial status. Its success depends on the effectiveness of governance structures. However, both studies are limited to historical data and a focus of PLC’s, respectively. Moreover Dyck et al. (2010) discovered that good internal governance and external whistle-blowers play a role in catching fraud. When governance is weak, companies can easily manipulate financial statements and utilise dividend smoothing to make themselves seem financially stable when they are not. This emphasises how important strong corporate governance is in mitigating the risk of fraud and its association with dividend smoothing.

Leary and Michaely (2011) found that in situations where governance is weak, companies are more inclined to engage in dividend smoothing. This concept is expanded upon by Knyazeva and Knyazeva (2014), who provide empirical evidence showing that firms with weak governance are twice as likely to issue dividends and use dividend smoothing techniques. The study however mainly focused on U.S. Companies so its findings may not be universally applicable. This relationship is also evident in many fraudulent cases, exemplified by Enron's display of weak governance, as discussed by Huu Cuong (2011). This aligns with the ‘opportunity/ineffective controls’ element on the fraud triangle communicated by Lou and Wang (2009) and Cressey (1953). This reveals a positive relationship between accounting fraud and dividend smoothing in that they are both present in the absence of effective corporate governance. However, research conducted by Adjaoud and Ben Amar (2010) on the relationship between governance and dividends was inconclusive, possibly due to their focus on a single aspect of corporate governance. Later research by Tutino and Merlo (2019) emphasised the importance of forensic accounting in uncovering fraudulent activities, emphasising that robust governance mechanisms are crucial for preventing and detecting fraud. Their findings suggest that improved governance can significantly reduce reporting and prevent the misuse of dividend policies to conceal financial instability.

In summary, the interaction between dividend smoothing and financial manipulation underscores the significance of internal controls and governance practices.  
The connection between smoothing dividends and committing fraud is implied by weak corporate governance mechanisms, therefore it is crucial to have an understanding of governance and the reasons behind these strategies.

*Accounting conservatism*

Accounting conservatism plays a pivotal role in shaping the connection between fraud and dividend smoothing. This concept, which involves recognising losses and liabilities before gains (Basu, 1997), serves as a method to prevent manipulation of earnings and deceptive financial reporting. According to Biddle et al. (2022), conservative accounting practices restrict managers’ ability to manipulate earnings thereby reducing the likelihood of fraudulent reporting. Yet, this research primarily focuses on bankruptcy risk and thus may not encompass the effects of dividend smoothing. Harakeh (2017) supports this idea through his findings that firms with conservative accounting practices are less likely to engage in dividend smoothing as a cover-up for poor financial performance. Nevertheless, Harakeh’s study primarily addresses the effects of IFRS on dividend policies in code-law countries, which may limit the generalisability of these findings to other contexts. By applying conservative principles, financial statements present a more accurate and realistic image of a company’s financial health, thereby discouraging the use of dividends to mislead investors.

Research by Beasley (1996) indicates that companies implementing controls and conservative accounting methods are less likely to experience financial statement fraud. This implies that conservatism not only acts as a deterrent to fraud but also decreases the use of dividend smoothing as a tactic, consistent with the research of Rezaee (2005). Later studies such as Armstrong et al. (2010) emphasises that conservative accounting can enhance the credibility of financial reports, thereby increasing investor trust which is important as investors heavily rely on data to guide their decision-making process. These findings align with Widiatmoko et al. (2023) research showing that firms emphasising accounting conservatism tend to avoid smoothing dividends indicating a reluctance to manipulate earnings for meeting dividend expectations. The collective body of literature highlights the role of accounting conservatism, in promoting transparency and mitigating the risks associated with accounting fraud and manipulative dividend smoothing practices

This literature review has explored the relationship accounting fraud and dividend smoothing, delving into various themes of dividend decisions, concealing financial weakness, shareholder expectations, maintaining investor confidence, corporate governance, and accounting conservatism. Notable mentions include the seminal work of Lintner (1956) and Fama and Babiak (1968) on dividend smoothing, the implications of agency theory and information asymmetry as discussed by Jensen and Meckling (1976) and Bhattacharya (1979) and the critical role of corporate governance in mitigating fraud risks as highlighted by Leary and Michaely (2011) and Knyazeva and Knyazeva (2014). This review also emphasises how accounting conservatism acts as a deterrent to fraudulent practices, supported by Basu (1997) and Biddle et al. (2022).

This research is pivotal for filling the identifies gap in literature that links accounting fraud with dividend smoothing. While past studies have looked at these concepts separately, their connection remains largely unexplored. By examining how fraudulent behaviours impact dividend tactics concerning governance practices and conservative accounting methods, this study aims to provide a comprehensive insight into financial reporting practices and provide valuable insights, for regulators, auditors and corporate managers seeking to improve transparency and mitigate fraud.

The following stages of this study will involve creating hypotheses that will be used to test the link between accounting fraud and dividend smoothing. Methodologically, quantitative data will be obtained from a range of U.S. companies. By combining real world evidence with frameworks, this study aims to clarify how accounting fraud impacts dividend practices.

# **Hypotheses Development**

This section outlines the development of hypotheses based on the literature review. The hypotheses aim to explore the correlation between accounting fraud and dividend smoothing, the influence of corporate governance, and the impact of accounting conservatism. These hypotheses are empirically tested to prove or disprove my assumptions.

## 3.1 Accounting Fraud and Dividend Smoothing

Prior literature, (Fama and Babiak,1968; Lintner, 1956), has established that firms often smooth dividends to reassure investors of their financial stability. Similarly, fraudulent firms may manipulate earnings to present a stable dividend payout, masking underlying financial instability (Beneish, 1999; Cressey, 1953; Lou and Wang, 2009). Given this context, I create my first hypothesis:

**H1:** The presence of accounting fraud is positively correlated with dividend smoothing practices.

## 3.2 Corporate Governance, Fraud and Dividend Smoothing

Corporate governance plays a crucial role in mitigating fraudulent activities and ensuring transparent financial practices. Prior Studies (Gerety and Lehn, 1997; Leary and Michaely, 2011) highlight that firms with weak governance structures are more likely to engage in dividend smoothing and engage in fraudulent activities. Conversely, strong governance mechanisms (Dyck, Morse, and Zingales, 2010; Tutino and Merlo, 2019) are effective in detecting and preventing fraud. These insights lead to the second hypothesis:

**H2:** Effective corporate governance reduces the negative impact of accounting fraud on financial practices.

## 3.3 Accounting Conservatism, Fraud and Dividend Smoothing

Accounting conservatism is seen to limit managers' ability to manipulate earnings and thus reduce the propensity for fraudulent activities (Biddle et al., 2022). Moreover, firms with conservative accounting practices are less likely to engage in dividend smoothing as a cover-up for poor financial performance (Beasley, 1996; Harakeh, 2017; Rezaee, 2005). As a result, the third hypothesis is as follows:

**H3:** Accounting conservatism weakens the association between accounting fraud and the use of dividend smoothing.

The formulation of these hypotheses is based on existing literature and seeks to answer the aforementioned research questions. This objective of this study is to enhance our understanding of financial disclosure practices and the forces that influence them by looking into the relationships between accounting fraud, dividend smoothing, corporate governance, and accounting conservatism.

# **Sample Selection Procedure and Methodology**

## 4.1 Sample Selection

My sample selection is obtained from Compustat including U.S. public corporations for the years 1998 to 2009. Due to the need to develop rolling windows for evaluating the speed of adjustment (SOA), the actual estimating period begins in 1988. I remove financial organisations (SIC codes 6000-6999) and regulated utilities (SIC codes 4900-4999) from my sample, as well as firms with missing observations on my dependent and independent variables, in accordance with previous research (Dangl and Wu, 2016; Mellado-Cid et al., 2018). In accordance with Leary and Michaely (2011) for the firm-level ten-year rolling window SOA calculations, I first limit the analysis to firms with ten non-missing observations and one positive dividend observation in each rolling window, then reduce the influence of outliers by cutting the sample for SOA values less than zero and greater than one. My final sample is overall made up of 2,866 firm-year observations, belonging to 373 unique firms, consistent with prior research (Bao et al., 2020).

## 4.2 Fixed Effects and Clustered Standard Errors

To account for potential unobserved heterogeneity that may exist across firms, I employ fixed effects into my research. This method is effective in accounting for differences in the quality of management or specific market conditions distinctive to each firm (Dehaan, 2021). By including fixed effects, I mitigate potential bias caused by omitted variables which may be correlated with my independent variable and outcome of interest (Brüderl and Ludwig, 2015). My model’s robustness and accuracy of estimates are improved as a result and allows the observation of the impact accounting fraud on dividend smoothing to be isolated for unobserved firm-specific characteristics.

Moreover, I clustered the standard errors at the firm level in my research to reduce potential biases from correlated residuals within firms. The traditional assumptions of Ordinary Least Squares (OLS) require homoscedasticity among regression residuals and ensure they are not correlated with each other. This assumption is usually disregarded in panel data due to observations within the same firm being likely related; this is corrected by clustering standard errors by modifying the standard error estimates to account for within-firm correlation (Dehaan, 2021). This provides more accurate and reliable statistical inferences and reduces Type I errors which ensures accuracy in my hypothesis tests on the correlation between accounting fraud and dividend smoothing (Dehaan, 2021).

## 4.3 Entropy balancing

Endogeneity is a significant concern in examining the relationship between accounting fraud and dividend smoothing. This refers to uncontrolled factors which may affect managerial behaviours and thus, these missing variables could potentially affect fraud (Roberts and Whited, 2013). This form of misrepresentation arises due to disparities in observable attributes among firms exhibiting high and low levels of fraudulent activity. Therefore, I acknowledge that there might be certain reporting organisations that engage in fraud who could differ significantly from those that report less fraudulently in terms of their core characteristics. This imbalance may introduce bias whereby it is crucial to prevent these behaviours from influencing my results (Abdallah et al. 2015).

Thus, to achieve covariate balance, I employ the entropy balancing method to assign equal weights to each observation ensuring the treatment and control samples’ properties are the same (Chen et al., 2023; Hainmueller, 2012; Quyang et al., 2024). This will ensure comparability between firms with high and low levels of accounting fraud as the treatment and control group, respectively. This reweighting ensures the disparities in control variables between the two groups do not bias my inferences and enhance my model efficiency.

# **Research Design**

## 5.1 Measurement of Dividend Smoothing

I use Lintner's (1956) partial adjustment model as a measure for dividend smoothing, building on previous research (Fama and Babiak, 1968; Guttman et al., 2010; García-Feijoo et al., 2021). A firm's target dividend 𝐷𝑃𝑆 is defined by its long-term payout target and earnings as described in Equation (1):

Annually, firms make minor changes to reach their goal dividend payout. Equation (2) represents the change in dividend (ΔDPS):

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| --- |
|  |

where is a constant, is the speed-of-adjustment (SOA) coefficient, is the actual change in dividends, is the planned change in dividends and is the disturbance term. Combining equations (1) and (2), yields Equation (3):

According to Lintner's (1956) study, SOA equals and represents the calculation of the degree of dividend smoothing. Overall, greater SOA represents significant dividend payout volatility, whereas a lower SOA indicates high dividend smoothing.

## 5.2 Measurement of Accounting Fraud

I obtain accounting fraud data from Bao et al. (2020) who developed a sophisticated fraud prediction model using a machine learning approach, which leverages domain knowledge and raw accounting data. The ‘Fraud’ variable represents accounting misstatements amongst firms with 1 and 0 representing misstatements and no misstatements, respectively. This binary classification allows for precise quantification of fraud’s impacts on financial metrics.

## 5.3 Empirical Model

The main goal of this study is to investigate the relationship between accounting fraud and dividend smoothing. My OLS regression is as follows:

Where the speed of adjustment *(SOA)* is my dependent variable (defined in section 5.1) and my main independent variable of interest is Accounting Fraud *(Fraud)* (defined in section 5.2). represents the intercept term, is the coefficient for the fraud variable showing the effect on SOA,is the error term and the control variables are defined below.

I account for various firm characteristics that previous research has identified as potential causes of cross-sectional variation in dividend smoothing. Deangelo et al. (2006) and Leary and Michaely (2011) discovered that larger and older firms smooth more than younger and smaller firms. As a result, to represent size and information asymmetry, I employ the natural logarithm of market value (*Size*), firm age (*Firm Age*), and firm tangibility (*Tangibility)*. As well as this, I employ the market to book ratio (MB) and sales growth (Sales Growth) to adjust for growth opportunities following previous literature (Abogun et al., 2021; Chen et al., 2022). Higher profitability and earnings are associated with reduced dividend smoothing as seen in previous studies, thus, use *EBITDA* to control for profitability and the AR(1) earnings model (*EarningsAR1*) autoregressive parameter to account for consistent earnings. In addition, I include leverage (*Leverage*), tangibility (*Tangibility*), and dividends payout (*Payout*) to reflect the firm's financial flexibility and dividend payment level, following prior research (Garmaise and Natividad, 2021; Leary and Michaely, 2011). In order to account for firm investment and risk, I employ the ratios of research and development expenses (R&D Expenses) and capital expenditures to total assets (Capex). Additionally, by incorporating Cash Holdings into the model, I anticipate that companies with substantial cash liquidity may be more inclined to smooth their dividends.

According to Javakhadze et al. (2014), dividend smoothing is reduced as a result of improved governance quality and increased industry competition, generally speaking as the industry information environment becomes less transparent and investors seek resolution of this uncertainty, firms will engage in more smoothing. Thus, I use the Herfindahl-Hirschman Index (*HHI*) to represent competition and institutional ownership (*Institutional Ownership*) to control corporate governance quality as the final control variables in my model. This is because the ownership structure is crucial for a variety of corporate policies, specifically dividends (Al-Najjar and Kilincarslan, 2016; Javakhasde et al., 2014). To account for unobservable firm-level variations and time-invariant unobservable effects, in all regressions, I include both year and firm-fixed effects. The standard errors in this study are grouped at the firm level following prior research (Rangvid, Schmeling & Schrimpf, 2014; Leary and Michaely, 2011). In addition, I winorize all continuous control variables at the 1st and 99th percentiles of their distributions to reduce the impact of outliers. All variables are identified and defined in Appendix A.

# **Results and Empirical analysis**

## 6.1 Overview of data

### 6.1.1 Descriptive Statistics

*Yearly Distribution*

The data from Panel A show that the year 2008 has the highest number of observations (9.58%), while year 2000 has the lowest number (7.28%). Notably, 2008 also presents the lowest fraud rate of 0.004 and the lowest value of SOA of 0.464, suggesting the highest presence of dividend smoothing. In contrast, the presence of fraud reached its peak in 1998 at 0.048, while the highest level of SOA (lowest smoothing level) was seen in 2002 at 0.612. I can infer from the findings that fraud was more widespread in earlier years, while dividend smoothing became most present in later years. This supports my theory that firms are more likely to implement dividend smoothing as a strategy to demonstrate financial stability, particularly in times of economic uncertainty such as the 2007 financial crisis.

*Industry Distribution*

Panel B’s results indicate that the machinery industry has the largest number of observations (331), whilst the construction industry has the lowest (2). The candy and soda industry records the highest fraud rate at 0.167) and the computer software industry has the highest SOA value recorded at 0.824, indicating the lowest dividend smoothing value. Conversely, the electrical equipment industry has the lowest recorded fraud value at 0.009, other than industries whose observations returned zero presence of fraud. Additionally, the agriculture industry exhibits the lowest value of SOA (-0.23), suggesting the maximum degree of dividend smoothing. These industry-specific trends demonstrate the diverse levels of financial manipulation and stability presentation across sectors. This compliments my investigation into how the characteristics of industries affect the relationship between fraud and dividend smoothing.

Overall, I can observe that the highest levels of fraud occurred in 1998 and within the candy and soda industry, while the highest levels of dividend smoothing were noted in 2008 within the agriculture sector. These findings do not necessarily show any positive correlation between fraud and dividend smoothing which does not contribute to my hypothesis, however, this may be a result of outside contexts throughout the years and an overall imperfect market. The diverse trends across industries also match a study by Adjaoud and Ben Amar (2010) who’s findings were inconclusive on the relationship between governance quality and dividend policies, indicating that these connections can vary significantly depending on sectors and circumstances.

### 6.1.2 Summary Statistics & Subsample Analysis

Panel A of Table 2 represents the summary statistics of firm-year observations between 1998 and 2009 used in my model, with all continuous variables are winsorised at the 1st and 99th percentiles. Consistent with earlier studies (Leary and Michaely, 2011; Bao et al, 2020), the average value of SOA and Misstate is 0.55 and 0.02 respectively, implying low levels of both fraud and dividend smoothing for the average firm. The common firm age is around 37 years, with a leverage of 29% and size of 7.4 (comparable across markets). The sample firms typically allocate 3% and 4% of their total assets to R&D and capital expenditure investments, respectively. Moreover, tangible assets account for almost 25% of total assets for the average firm in the sample, followed by EBITDA at 16% and cash holdings at 12%, giving insight into the firm’s investment and liquidity positions. The Market-to-Book ratio averages a ratio of 2.01 showing that the chosen firm’s market valuations could be up to twice their equity book value, with moderately low sales growth on average (3%). The average Earnings AR(1) of -0.25 highlights that the average firm experiences periods of high earnings followed by periods of earnings moving in the opposite direction and vice versa. Lastly, the Herfindahl-Hirschman Index score averages 0.17 across the sample, indicating firms have low levels of market concentration on average which is consistent with diversified industry competition. These summary statistics and their analysis provide a foundational understanding of the sample firms' financial dynamics, setting the stage for more detailed investigations into the specific factors influencing dividend smoothing and fraud.

Table 2,Panel B, presents the subsample analysis, showing the distinction between companies that have committed accounting fraud and those that have not. A number of intriguing patterns, particularly those involving statistically significant factors as indicated by their p-values, surface from this sample partitioning. I infer that companies with a history of accounting fraud (misstate=1) typically have lower SOA levels (0.41), indicating greater dividend smoothing. Moreover, firms with accounting fraud tend to be larger and older with higher leverage, however, they have lower Earnings (AR) consistent with previous literature (Gerety and Lehn, 1997; Skousen et al., 2009). As well as this, in firms engaging in accounting fraud, tangible assets as a fraction of overall assets are less common. These results support my hypothesis that accounting fraud is positively correlated with dividend smoothing. Established, mature companies with greater debt and less consistent profitability may employ dividend smoothing as a tactic to mask their financial vulnerability and project an image of stability to investors. This is especially pertinent in companies engaged in accounting fraud, as the practice of smoothing dividends can serve as a strategy to uphold investor trust and reduce the likelihood of financial investigation.

## 6.2 Main analysis and Regressions

### 6.2.1 The Impact of Accounting Fraud on Dividend Smoothing

Table 3 analyses the impact of accounting fraud on the Speed of Adjustment (SOA), using Ordinary Least Squares (OLS) regressions which allows for clear interpretations and resilience in estimating the correlations between the dependent and independent variables. This regression includes industry fixed effects, adjusted for heteroscedasticity. This methodology aligns with previous investigations (Bao et al., 2020; Leary and Michaely, 2011).

Based on the results shown in table 3, I find that firms with accounting fraud are strongly and negatively (positively) related to the speed-of-adjustment (dividend smoothing), at the 1% level. In economic terms, a one standard deviation increase of accounting fraud decreases SOA by 3.27% ((0.15 x 0.12) / 0.55) relative to its mean and including industry fixed effects, a one standard deviation increase on accounting fraud decreases SOA by 5.18% ((0.15 x 0.19) / 0.55) relative to its mean.

The results of the control variables are also interesting. In line with the findings of Leary and Michaely (2011), I find a positive relationship between payout and dividend smoothing whereby firms with high payout practices prefer to engage in dividend smoothing more. Additionally, a positive association between market to book and dividend smoothing consistent with prior literature (Javakhadze et al., 2014; Guttman et al. 2010). Conversely, firms with higher investment opportunities and firms that invest in capital expenditure tend to engage in dividend smoothing less, both are negatively (positively) related to dividend smoothing (SOA). Overall, the findings of the control variables are in line with those of the prior literature. The findings from the regression analysis strongly support the hypothesis that there is a positive relationship between accounting fraud and dividend smoothing (H1). The significant and negative relationship between fraud and SOA suggests that firms engaged in fraudulent activities are more likely to smooth their dividends. This relationship is reinforced by the behaviour of various control variables and is consistent with previous studies in literature.

### 6.2.2 Robustness Test

Table 4 represents a robustness test using firm fixed effects, improving the reliability of the results. Consistent with table 3, the results in table 4 further support the primary findings and I document that firms with accounting fraud are positively related to dividend smoothing (inversely to SOA). Economically speaking, a one standard deviation increase of accounting fraud decreases SOA by 1.36% ((0.15 x 0.05) / 0.55) relative to its mean and including firm fixed effects, a one standard deviation increase on accounting fraud decreases SOA by 3% ((0.15 x 0.11) / 0.55) relative to its mean. The control variables here are also valuable. Again, consistent with previous literature, I find a positive relationship between market-to-book ratio and dividend smoothing. Moreover, I interpret that firms with high EBITDA levels, strong operational profitability, levels smooth more. These findings also support my hypothesis, although they are less statistically significant.

## 6.3 Additional Tests

Table 5, Panel B, compares the difference-in-difference mean values of the control variables for highly fraudulent firms (treated) in comparison to lower fraudulent firms (control) post-entropy balancing. The results reveal a successful creation of two subsamples (high fraud firms in comparison to low fraud) whereby the difference-in-difference mean values are shown to be statistically insignificant after the method was utilised. Finally, I include the weights created via entropy balancing and re-tested my baseline regression. Panel C communicates my results to support my original conclusions with a statistically significant coefficient of accounting fraud is -0.19, further verifying the positive correlation between accounting fraud and dividend smoothing.

## 6.4 Cross-sectional variations in fraud

Based on my previous analysis, I document a positive associated between fraud and dividend smoothing which may be a result of dividend smoothing being the outcome of agency problems. Prior literature (Lafond & Roychowdhury, 2008; Chi et al 2009; Xu et al 2012) has shown that accounting conservatism reduces agency problems. Moreover, other studies (Tang 2022; Liu et al 2023; Alves & Meneses 2024) found that agency problems were reduced through corporate governance mechanisms (ESG scores). Based on this prior literature, by incorporating both of these variables in a cross-sectional analysis, the positive association between fraud and dividend smoothing will be less pronounced. Consistent with my conjectures, my results show that the positive effect of accounting fraud on dividend smoothing is weakened among firms with better governance quality and fewer agency problems.

The coefficient for Fraud in model (1) is 0.15, yet this coefficient is not statistically significant. Thus, this shows there is no positive association between accounting fraud and dividend smoothing without incorporating ESG scores or accounting conservatism. In model (2), the coefficient for Fraud is -0.18 and is significant at the 1% level. This suggests a significant negative association between accounting fraud and SOA (a positive association with dividend smoothing) when considering both ESG scores and accounting conservatism. The ESG Score fraud coefficient is 0.20, and the Accounting Conservatism fraud coefficient is 0.03, both statistically significant at the 10% level. These findings indicate that having better ESG ratings can help lessen the connection between fraud and dividend smoothing consistent with prior research on corporate governance (Knyazeva and Knyazeva, 2014; Leary and Michaely, 2011). This implies that strong company governance, as assessed by ESG, can reduce the impact of accounting fraud. Moreover, this indicates that the implementation of accounting conservatism weakens the correlation between accounting fraud and dividend smoothing, suggesting that conservative accounting methods can mitigate the inclination of deceitful companies to manipulate dividend payments, aligning with previous studies on accounting conservatism (Rezaee, 2005; Harakeh, 2017).

The cross-sectional analysis findings are consistent with the hypotheses 2 and 3, indicating that both ESG scores and accounting conservatism are key factors in reducing the connection between accounting fraud and dividend smoothing consistent with prior literature. These findings highlight the significance of robust corporate governance and cautious accounting processes in improving financial transparency and mitigating manipulative dividend practices.

# **Conclusion**

Companies can utilise many methods in concealing accounting fraud. This study explores the relationship between accounting fraud and the practice of smoothing dividends as a means for dividend stability. My findings suggest that companies engaging in fraudulent reporting also smooth their dividends. The positive relationship is reinforced by dividend practices being used to communicate a healthier financial position for shareholders and investors. Moreover, the practices of both dividend smoothing and accounting fraud are more prevalent in the absence of strong corporate governance. As well as this, accounting conservatism reduces managers’ ability to manipulate earnings through practices such as smoothing thereby reducing the likelihood of accounting fraud. My empirical study demonstrates these ideas with the presence of both corporate governance mechanisms and accounting conservatism reducing fraudulent practices and smoothing techniques amongst companies in the sample.

In summary, this study emphasises the significance of understanding how fraudulent activities impact dividend strategies, with Lintner (1956) and Fama and Babiak (1968) playing a key role in shaping the notion of dividend smoothing. In addition, the agency theory proposed by Jensen and Meckling (1976) and the signalling theory developed by Bhattacharya (1979) provide a basis for exploring the impact of fraud on practices. Subsequent research can further investigate the lasting impacts of dividend smoothing on both corporate performance and market perceptions, thereby enhancing our understanding of dividend strategies.

# **Limitations and Suggestions for Future Research**

Despite the comprehensive approach of this study, several limitations need to be acknowledged. This study analyses firm-year data retrieved from Compustat ranges from 1998 to 2009. This does not take recent data into account and is confined to a specific period which may not capture long-term trends and potential regulatory referments post-2009. Moreover, the data captures U.S. public corporations which although robust, is limited to publicly available financial information and excludes private firms which may impact the results found. Further, the limit to U.S. companies may result in the findings not proving true in other countries with different regulatory and legal environments, corporate governance practices and cultural attitudes towards both fraud and dividend smoothing. The data collected is secondary data extracted from both Compustat and Bao et al. (2020) and specific proxies are used for variables such as dividend smoothing being measured as per Litner et al (1956) and Leary and Michaely (2011) and thus may not capture the full complexities of these variables and overall topics. Furthermore, empirical data is analysed in this study and therefore qualitative additions are not accounted for which may have enhanced the sample. Lastly, although entropy balancing and robustness tests are in place, there are still risks of endogeneity whereby unobserved factors might still influence both accounting fraud and dividend smoothing, potentially biasing the results.

To build on this study and address its limitations, future studies could incorporate more recent data post-2009 which would provide insights into how regulatory environments shape corporate behaviours. Moreover, expanding this study to analyse company's internationally and private firms as well as publicly available data will provide a more comprehensive analysis of the diverse environments, cultural differences and practices which may enhance the relationship between accounting fraud and dividend smoothing. Incorporating qualitative methods, such as interviews with corporate executives and auditors could provide deeper insights into the motivations and mechanisms behind dividend smoothing and accounting fraud, complementing the empirical findings. As well as this, future research could explore alternative proxies and measurement for accounting fraud and dividend smoothing such as utilising machine learning algorithms to obtain more comprehensive datasets. Moreover, utilising this technology, non-linear relationships could be further explored to uncover more complex dynamics between the variables not captured by linear models. By addressing these limitations and exploring these future research directions, the understanding of the correlation between accounting fraud and dividend smoothing will be enhanced, thereby contributing to more effective corporate governance and financial reporting practices.

# **Appendix A (Definition of Variables)**

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|  | |
| **Variable** | **Definition** |
| SOA | The speed of adjustment measurement is calculated using Lintner’s (1956) model of partial adjustment (explained in section 5.1) |
| Fraud | Accounting Fraud is measured in accordance with Bao et al. (2020) (explained in section 5.2) |
| SOALM | Speed of adjustment measurement is calculated in accordance with Leary and Michaely (2011). |
| Size | The natural logarithm of market value. |
| Firm Age | The duration of the company’s listing on CRSP. In the regressions, I use the natural logarithm of the firm’s age plus one. |
| MB | The sum of the market value of equity and total assets, minus the book value of equity, multiplied by total assets. |
| EBITDA | EBITDA is scaled by total assets. |
| EarningsAR | The estimated autoregressive parameter for an AR(1) model of earnings. |
| Sales Growth | The annual increase in total sales as a percentage. |
| Leverage | The total assets divided by the book value of all liabilities over the fiscal year. |
| Tangibility | The ratio of total assets to property, plant, and equipment (PPE) expenses over the fiscal year. |
| Payout | Cash dividends to net income |
| Cash Holdings | The proportion of total assets to cash and cash equivalents. |
| R&D Expenses | The proportion of total assets to research and development. |
| Capex | The proportion of total assets to capital expenditures. |
| HHI | The Herfindahl-Hirschman index of market concentration, based on the sales of industries with a four-digit SIC code. |
| M/B | The process of dividing the book value of assets by the market value of assets. |
| D | Represents the amount of dividends paid. |

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# **Tables**

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| **Table 1**: Industry and Yearly Distribution |
| This table illustrates the distribution of firm-year observations in my sample along with the average values of SOA and fraud across industries. Panel A reports the yearly distribution. Panel B displays the distribution of the sample across industries. All variables are identified and defined in Appendix A. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Panel A**: Yearly Distribution | | | | |
| **Year** | **Obs.** | **%** | **SOA** | **Misstate** |
| 1998 | 231 | 7.82 | 0.55 | 0.05 |
| 1999 | 223 | 7.55 | 0.57 | 0.04 |
| 2000 | 215 | 7.28 | 0.59 | 0.04 |
| 2001 | 227 | 7.69 | 0.61 | 0.04 |
| 2002 | 236 | 7.99 | 0.61 | 0.02 |
| 2003 | 245 | 8.30 | 0.61 | 0.02 |
| 2004 | 249 | 8.43 | 0.59 | 0.02 |
| 2005 | 253 | 8.57 | 0.55 | 0.02 |
| 2006 | 270 | 9.14 | 0.51 | 0.02 |
| 2007 | 274 | 9.28 | 0.49 | 0.01 |
| 2008 | 283 | 9.58 | 0.46 | 0.00 |
| 2009 | 247 | 8.36 | 0.48 | 0.00 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Panel B**: Industry Distribution | | | | | | | | | |
| **Industry** | **Obs.** | **%** | **SOA** | **Misstate** | **Industry** | **Obs.** | **%** | **SOA** | **Misstate** |
| Agriculture | 10 | 0.34 | -0.23 | 0 | Fabricated Products | 29 | 0.98 | 0.24 | 0 |
| Aircraft | 63 | 2.13 | 0.52 | 0 | Food Products | 160 | 5.42 | 0.63 | 0.04 |
| Almost Nothing | 36 | 1.22 | 0.39 | 0.06 | Healthcare | 14 | 0.47 | 0.42 | 0 |
| Apparel | 34 | 1.15 | 0.60 | 0 | Machinery | 331 | 11.21 | 0.57 | 0.02 |
| Automobiles | 99 | 3.35 | 0.51 | 0.04 | Measuring and Co | 147 | 4.98 | 0.54 | 0 |
| Beer & Liquor | 12 | 0.41 | 0.53 | 0 | Medical Equipment | 152 | 5.15 | 0.57 | 0.04 |
| Business Service | 51 | 1.73 | 0.44 | 0 | Non-Metallic and | 29 | 0.98 | 0.45 | 0 |
| Business Supplies | 101 | 3.42 | 0.51 | 0.01 | Petroleum and Na | 103 | 3.49 | 0.68 | 0.01 |
| Candy & Soda | 12 | 0.41 | 0.52 | 0.17 | Pharmaceutical P | 151 | 5.11 | 0.62 | 0.02 |
| Chemicals | 172 | 5.82 | 0.54 | 0.02 | Precious Metals | 9 | 0.30 | 0.45 | 0 |
| Coal | 12 | 0.41 | -0.09 | 0 | Printing and Pub | 57 | 1.93 | 0.43 | 0 |
| Communication | 22 | 0.75 | 0.31 | 0 | Recreation | 60 | 2.03 | 0.50 | 0.08 |
| Computer Hardware | 84 | 2.84 | 0.50 | 0.10 | Restaurants, Hot | 3 | 0.10 | 0.01 | 0 |
| Computer Software | 110 | 3.73 | 0.82 | 0.01 | Retail | 12 | 0.41 | 0.42 | 0 |
| Construction | 2 | 0.07 | 0.70 | 0 | Rubber and Plast | 44 | 1.49 | 0.54 | 0 |
| Construction Mat | 155 | 5.25 | 0.52 | 0 | Shipping Contain | 19 | 0.64 | 0.58 | 0 |
| Consumer Goods | 145 | 4.91 | 0.57 | 0 | Steel Works Etc | 55 | 1.86 | 0.43 | 0 |
| Defense | 13 | 0.44 | 0.60 | 0 | Textiles | 11 | 0.37 | 0.59 | 0 |
| Electrical Equip | 116 | 3.93 | 0.47 | 0.01 | Tobacco Products | 10 | 0.34 | 0.81 | 0 |
| Electronic Equip | 233 | 7.89 | 0.57 | 0.05 | Transportation | 4 | 0.14 | 0.55 | 0 |
| Entertainment | 6 | 0.20 | 0.64 | 0 | Wholesale | 65 | 2.20 | 0.53 | 0.02 |

|  |
| --- |
| **Table 2**: Summary Statistics and Subsample Analysis |
| This table illustrates the summary statistics and analysis of firm-year observations from 1998 to 2009. All continuous variables are winsorised at the 1st and 99th percentiles. All variables are identified and defined in Appendix A. |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Panel A –** Summary Statistics | | | | | | | |
| **Variables** | **Mean** | **SD** | **Min** | **Max** | **P25** | **P50** | **P75** |
| Speed of Adjustment (SOA) | 0.55 | 0.45 | -0.79 | 1.62 | 0.20 | 0 .54 | 0.99 |
| Misstate | 0.02 | 0.15 | 0 | 1 | 0 | 0 | 0 |
| EBITDA | 0.16 | 0.08 | -0.29 | 0.42 | 0.12 | 0.15 | 0.20 |
| Asset tangibility | 0.25 | 0.15 | 0.00 | 0.86 | 0.14 | 0.22 | 0.33 |
| Market-to-Book ratio | 2.01 | 1.29 | 0.63 | 10.50 | 1.24 | 1.62 | 2.34 |
| Size | 7.37 | 2.29 | 1.22 | 11.93 | 5.85 | 7.40 | 9.02 |
| Capital Expenditure | 0.04 | 0.04 | 0 | 0 .33 | 0.02 | 0.03 | 0.06 |
| R&D Expenditure | 0.03 | 0.04 | 0 | 0.30 | 0.00 | 0.02 | 0.04 |
| Cash Holdings | 0.12 | 0.14 | 0.00 | 0.83 | 0.03 | 0.07 | 0.16 |
| Earnings AR(1) | -0.25 | 0.29 | -1.08 | 0.62 | -0.43 | -0.28 | -0.08 |
| Herfindahl-Hirschman Index | 0.17 | 0.13 | 0.05 | 1 | 0.09 | 0.14 | 0.22 |
| Sales Growth | 3.16 | 6.21 | 0.02 | 42.25 | 0.78 | 1.27 | 2.70 |
| Leverage | 0.29 | 0.41 | 0 | 3.96 | 0.04 | 0.17 | 0.35 |
| Firm Age | 37.94 | 13.68 | 11.01 | 59.79 | 26.93 | 39.11 | 49.45 |

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| --- | --- | --- | --- |
| **Panel B –** Subsample Analysis | | | |
|  | **Firms without Misstatements** | **Firms with Misstatements** | **Difference** |
| **Variables** | **Mean** | **Mean** | **p-value** |
| Speed of Adjustment | 0.55 | 0.41 | 0.01 |
| Misstate | 0 | 1 | - |
| EBITDA | 0.16 | 0.14 | 0.21 |
| Asset tangibility | 0.25 | 0.20 | 0.01 |
| Market-to-Book ratio | 2.01 | 2.16 | 0.34 |
| Size | 7.35 | 8.19 | 0.00 |
| Capital Expenditure | 0.04 | 0.04 | 0.09 |
| R&D Expenditure | 0.03 | 0.04 | 0.22 |
| Cash Holdings | 0.12 | 0.13 | 0.47 |
| Earnings AR(1) | -0.25 | -0.35 | 0.01 |
| Herfindahl-Hirschman Index | 0.17 | 0.19 | 0.27 |
| Sales Growth | 3.16 | 3.23 | 0.93 |
| Leverage | 0.28 | 0.40 | 0.02 |
| Firm Age | 37.87 | 41.47 | 0.04 |

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| **Table 3:** The Impact of Accounting Fraud on Dividend Smoothing | | |
| Using Ordinary Least Square (OLS) regressions, this table examined the impact of Accounting Fraud on the Speed of Adjustment (SOA), inversely related to dividend smoothing. T-statistics are robust standard errors clustered by industry fixed effects and are adjusted for heteroscedasticity (presented in brackets). The significance is indicated at the 1%, 5% and 10% levels represented by \*\*\*,\*\* and \* respectively. All variables are identified and defined in Appendix A. | | |
| **Variables** | **(1)** | **(2)** |
| Fraud | -0.12\*\*  (-2.37) | -0.19\*\*\*  (-3.05) |
| Payout |  | -0.11\*\*  (-2.41) |
| EBITDA |  | -0.02  (-1.24) |
| Asset tangibility |  | -0.00  (-0.15) |
| Market-to-Book ratio |  | 0.07\*\*  (2.52) |
| Size |  | -0.02  (-0.55) |
| Capital Expenditure |  | 0.12\*\*\*  (2.92) |
| R&D Expenditure |  | 0.02  (0.72) |
| Cash Holdings |  | -0.02  (-0.56) |
| Earnings AR(1) |  | 0.01  (0.21) |
| HHI |  | -0.04  (-1.11) |
| Sales Growth |  | 0.02  (0.32) |
| Leverage |  | 0.03  (1.46) |
| Firm Age |  | 0.00  (0.08) |
| Year FE | Y | Y |
| Industry FE | Y | Y |
| Adjusted R2 | 0.0284 | 0.0795 |
| Number of Obs. | 9,166 | 2,866 |

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| **Table 4:** Robustness Test - The Impact of Accounting Fraud on Dividend Smoothing | | |
| Using Ordinary Least Square (OLS) regressions, this table examined the impact of Accounting Fraud on the Speed of Adjustment (SOA), inversely related to dividend smoothing. T-statistics are robust standard errors clustered by firm fixed effects and are adjusted for heteroscedasticity (presented in brackets). The significance is indicated at the 1%, 5% and 10% levels represented by \*\*\*,\*\* and \* respectively. All variables are identified and defined in Appendix A. | | |
| Variables | (1) | (2) |
| Fraud | -0.05  (-1.01) | -0.11\*  (-1.70) |
| Payout |  | -0.08  (-1.35) |
| EBITDA |  | -0.06\*\*\*  (-2.66) |
| Asset tangibility |  | -0.04  (-0.91) |
| Market-to-Book ratio |  | 0.08\*\*  (2.19) |
| Size |  | 0.03  (0.58) |
| Capital Expenditure |  | 0.07  (1.28) |
| R&D Expenditure |  | 0.05  (1.56) |
| Cash Holdings |  | -0.01  (-0.33) |
| Earnings AR(1) |  | -0.04  (1.34) |
| HHI |  | -0.03  (-0.84) |
| Sales Growth |  | 0.00  (0.03) |
| Leverage |  | -0.01  (-0.31) |
| Firm Age |  | -0.33  (-0.90) |
| Year FE | Y | Y |
| Firm FE | Y | Y |
| Adjusted R2 | 0.3228 | 0.3983 |
| Number of Obs. | 9,117 | 2,847 |

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| **Table 5:** Entropy Balancing |
| This table displays the outcomes of my entropy balancing matching estimation. The method aims to enhance the covariate balance between the treatment group and the control group, representing high accounting Fraud and low Accounting Fraud, respectively. This is executed by assigning weights to observations in such a way whereby the mean and variance of the treated and control samples are equal after weighting along the estimation. The descriptive statistics before employing the balance method are displayed in Panel A, whilst the post-balance method descriptive statistics are presented in Panel B. The effect of Accounting Fraud on SOA after Hainmueller’s (2012), the entropy balancing (Hainmueller, 2012), are displayed in Panel C. The significance is indicated at the 1%, 5% and 10% levels represented by \*\*\*,\*\* and \* respectively. All variables are identified and defined in Appendix A. |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Panel A**: Differences in Observables (covariates) Pre-Entropy Balancing | | | | | | | | | |
|  | Mean | Mean | Diff. | Variance | Variance | Diff. | Skewness | Skewness | Diff. |
| Covariates | Treated | Control | Treated | Control | Treated | Control |
| Size | 7.96 | 7.16 | 0.80 | 3.48 | 4.95 | -1.47 | 0.05 | -0.06 | 0.11 |
| Firm Age | 3.61 | 3.49 | 0.12 | 0.14 | 0.19 | -0.05 | -1.14 | -0.57 | -0.57 |
| MB | 1.92 | 1.87 | 0.05 | 2.89 | 1.34 | 1.55 | 3.43 | 2.90 | 0.53 |
| EBITDA | 0.13 | 0.16 | -0.03 | 0.01 | 0.01 | 0.00 | 1.07 | 0.36 | 0.71 |
| EarningsAR | -0.31 | -0.24 | -0.07 | 0.10 | 0.09 | 0.01 | 0.25 | 0.30 | -0.05 |
| Sales Growth | 3.00 | 3.36 | -0.36 | 31.12 | 42.45 | -11.33 | 5.35 | 4.35 | 1.00 |
| Leverage | 0.51 | 0.33 | 0.18 | 0.44 | 0.26 | 0.18 | 2.64 | 3.76 | -1.12 |
| Tangibility | 0.26 | 0.31 | -0.05 | 0.05 | 0.05 | 0.00 | 1.30 | 0.98 | 0.32 |
| Payout | 0.36 | 0.27 | 0.09 | 0.75 | 0.35 | 0.4 | 0.87 | 2.38 | -1.51 |
| Cash Holdings | 0.12 | 0.12 | 0.00 | 0.02 | 0.02 | 0.00 | 2.20 | 2.14 | 0.06 |
| R&D Expenses | 0.03 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 | 1.80 | 2.96 | -1.16 |
| Capex | 0.04 | 0.06 | -0.02 | 0.00 | 0.00 | 0.00 | 2.30 | 2.39 | -0.09 |
| HHI | 0.17 | 0.16 | 0.01 | 0.02 | 0.01 | 0.01 | 2.63 | 3.69 | -1.06 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Panel B**: Differences in Observables (covariates) Post-Entropy Balancing | | | | | | | | | |
|  | Mean | Mean | Diff. | Variance | Variance | Diff. | Skewness | Skewness | Diff. |
| Covariates | Treated | Control | Treated | Control | Treated | Control |
| Size | 7.96 | 7.96 | 0.00 | 3.48 | 4.88 | -1.4 | 0.05 | -0.27 | 0.32 |
| Firm Age | 3.61 | 3.61 | 0.00 | 0.14 | 0.18 | -0.04 | -1.14 | -0.90 | -0.24 |
| MB | 1.92 | 1.92 | 0.00 | 2.89 | 1.76 | 1.13 | 3.53 | 3.06 | 0.47 |
| EBITDA | 0.13 | 0.13 | 0.00 | 0.01 | 0.01 | 0.00 | 1.07 | -0.03 | 1.10 |
| EarningsAR | -0.31 | -0.31 | 0.00 | 0.10 | 0.09 | 0.01 | 0.25 | 0.17 | 0.08 |
| Sales Growth | 3.00 | 3.00 | 0.00 | 31.12 | 31.39 | -0.27 | 5.35 | 4.90 | 0.45 |
| Leverage | 0.51 | 0.51 | 0.00 | 0.44 | 0.64 | -0.2 | 2.64 | 2.78 | -0.14 |
| Tangibility | 0.26 | 0.26 | 0.00 | 0.05 | 0.04 | 0.01 | 1.30 | 1.26 | 0.04 |
| Payout | 0.36 | 0.36 | 0.00 | 0.75 | 0.56 | 0.19 | 0.87 | 2.50 | -1.63 |
| Cash Holdings | 0.12 | 0.12 | 0.00 | 0.02 | 0.02 | 0.00 | 2.20 | 2.19 | 0.01 |
| R&D Expenses | 0.03 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 1.80 | 2.34 | -0.54 |
| Capex | 0.04 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 2.30 | 2.35 | -0.05 |
| HHI | 0.17 | 0.17 | 0.00 | 0.02 | 0.02 | 0.00 | 2.63 | 3.27 | -0.64 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Panel C**: The Relationship between Accounting Fraud and Dividend Smoothing Post-Entropy Balancing | | | | | | | | | | |
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|  |
| Misstate (Fraud) |  |  |  |  |  |  |  |  | -0.19\*\*\*  (-5.12) | |
| Control Variables |  |  |  |  |  |  |  |  | Y | |
| Year FE |  |  |  |  |  |  |  |  | Y | |
| Firm FE |  |  |  |  |  |  |  |  | Y | |
| Adjusted R |  |  |  |  |  |  |  |  | 0.2306 | |
| Number of Obs. |  |  |  |  |  |  |  |  | 2,755 | |

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| **Table 6:** Cross-Sectional Analysis | | |
| Using Ordinary Least Square (OLS) regressions, this table examines the impact of ESG score and accounting conservatism on the association between Accounting Fraud and dividend smoothing. T-statistics are robust standard errors clustered by industry fixed effects and are adjusted for heteroscedasticity (presented in brackets). The significance is indicated at the 1%, 5% and 10% levels represented by \*\*\*, \*\* and \* respectively. All variables are identified and defined in Appendix A. | | |
| **Variables** | **(1)** | **(2)** |
| Fraud | 0.15  (0.56) | -0.18\*\*\*  (-2.66) |
| ESG Score | -0.01  (-0.30) |  |
| Fraud × ESG Score | 0.20\*  (1.82) |  |
| Accounting Conservatism |  | 0.02  (1.40) |
| Fraud × Accounting Conservatism |  | 0.03\*  (1.68) |
| Control Variables | Y | Y |
| Year FE | Y | Y |
| Industry FE | Y | Y |
| Adjusted R2 | 0.1184 | 0.0766 |
| Number of Obs. | 1,365 | 2,765 |