

Criminal employees and financial reporting

Abstract: The literature provides mounting evidence that top managers are associated with financial reporting outcomes. In this paper, I predict and find that traits of rank-and-file employees explain these outcomes. Controlling for the CEO's criminal record, firms with more employees with criminal records (relative to other firms) have higher discretionary accruals when they raise new finance, report earnings that are less informative about future earnings and cash flows, and have lower accruals quality. I find some, although less robust, evidence that these firms are less likely to recognize timely losses. My results suggest that employees, incremental to top managers, are associated with firm outcomes.

Keywords: Corporate culture; earnings management; employees; employee traits

JEL: E24; G41; M12; M41; M54

1. Introduction

Corporate culture, commonly defined as the shared values and beliefs of employees (Van den Steen 2010; Liu 2016), is an important determinant of opportunistic firm outcomes. Anecdotal evidence suggests that unethical culture contributes to opportunistic firm outcomes, and that such outcomes require the cooperation of many employees. For example, the employees of HealthSouth were told to generate fictitious entries lower than \$5,000 per time to avoid attention from auditors, and to move expenses to capital accounts. Overstating income of \$2.7 billion arguably required the participation of many employees and a certain corporate culture.¹ Survey and interview evidence in Graham et al. (2021) indicate that executives believe that corporate culture influences corporate ethics and financial reporting outcomes. Specifically, they report that 85% of their respondents believe that poor culture increases the likelihood that employees act unethically, and 69% indicate that that culture has a moderate or big effect on the financial reporting quality.

Despite the importance of corporate culture for firm outcomes, empirical research on the topic within the areas of accounting and finance is limited, likely because culture is difficult to quantify. The literature attempts to solve this problem in several ways. Some researchers use traits of firm executives (e.g., Biggerstaff et al. 2015; Liu 2016) presuming that rank-and-file employees share values and beliefs with top managers.² Others use demographic proxies such as the level of education (Call et al. 2017) or religiosity (McGuire et al. 2012; Dyreng et al. 2012) at the firms' proximity, to proxy for the characteristics of a firm's employees.

¹ See case description at stakeholder11.wordpress.com

² As explicitly stated by Liu (2016) 'it is reasonable to assume that lower level employees have similar values as their leaders.' (p 310)

In this paper, I proxy for corporate culture by directly measuring the traits of a firm's employees, which has several advantages to prior approaches. Specifically, I access comprehensive criminal registers from Denmark covering each employee's full criminal, including convictions and investigations for crimes that led to case dismissals or acquittals. The criminal records include legal infractions and criminal offences, hence both serious and petty crimes, committed in Denmark since 1980.³ Through employment spells provided by Statistics Denmark, I link individual employees and their criminal records to their employer firms, and finally the financial reports of these firms. I then examine whether financial reporting outcomes are associated with traits of both CEOs *and* rank-and-file employees (incremental to each other), as measured by their criminal records. This approach enables me to quantify actual attributes of a firm's workforce, and hence test whether corporate culture is associated with firms' financial reporting more accurately, and in a broader setting than has been done in prior research.

Theory on criminality asserts that a lack of self-control drives crime, independent of the type of crime, and that individuals lacking self-control are characterized as impulsive, insensitive, risk-taking, and short-sighted (Gottfredson and Hirschi 1990), characteristics that are closely related to opportunism and short-termism inherent in opportunistic reporting. Consistent with this view, Davidson et al. (2015) find that firms with executives with criminal records (not their employees) are more likely to misreport.

Executives' beliefs are important determinants of corporate culture because executives tend to employ employees who share their beliefs through screening and self-sorting mechanisms (Van den Steen 2010). However, this sorting is not 1-1, in the sense that managers do not always hire

³ This dataset is also used by Regenburg and Seitz (2021).

employees who share their beliefs, and when they do, employee beliefs are never exactly similar to manager beliefs. On corporate culture, O'Reilly (1989) notes that top management beliefs capture how things are ought to be, whereas employee beliefs define how things actually are, and therefore employee beliefs represent an important aspect of corporate culture not reflected by the top management's beliefs.

Employees can influence the financial reporting in several ways. First, employees can influence the financial reporting through their participating role in the generation of financial reporting data, as the accounting data originate far from the C-suite (Call et al. 2017). Through this channel, employees can choose to (1) submit (or not) opportunistic sub-reports, and (2) succumb (or not) to pressure from opportunistic managers (e.g., Feng et al. 2011). Second, employees have an important governance role (Dyck et al. 2010) and may (or may not) take corrective action and report intentional financial misreporting,⁴ which could discipline opportunistic managers ex ante. I expect the corporate culture to influence these choices, because individuals seek to conform to group norms and learn behaviors from their peers (Akers 1973; O'Reilly 1989; Hackman 1992).

I investigate whether the criminal records CEOs (indicates whether a CEO has a criminal record) and employees (the percentage of employees with criminal records) are associated with several reporting outcomes: Discretionary accruals when firms raise new finance, asymmetric loss recognition, informativeness of current earnings about future earnings and future cash flows, and accruals quality. Across most estimations, the empirical evidence suggests that firms with CEOs and more employees with criminal records are more likely to report opportunistically.

⁴ For example, in the case of HealthSouth an employee was one of the first to inform the firm's auditors about 'severe accounting problems in the Accounting Department.'

I first review the results about discretionary accruals. I examine signed discretionary accruals when firms raise new finance, a setting with prior beliefs about the incentives to increase earnings strategically (e.g., Godsell et al. 2017). Specifically, I estimate accruals in a one-step procedure (Chen et al. 2018) controlling for accrual estimation variables (stimulated by Larson et al. 2018) and other firm-specific variables used in the earnings management literature. I find that firms with a CEO with a criminal record, and more employees with criminal records (incremental to CEOs), have higher discretionary accruals during the issuance of new finance, than do other firms. The findings are robust to controlling for firm fixed effects.

I then examine whether these results vary with the type of crime on individuals' criminal records. In general, I find strikingly consistent results across several types of crime, consistent with the notion that crime is an observable outcome of an inherent trait (Gottfredson and Hirschi 1990). However, I do find that firms with more employees with fraud cases and recent crimes (within the last three years) on their records have higher discretionary accruals than do firms with employees with other crimes on their records, although I do not find similar results for CEOs. I also conduct several subsample tests, which indicate that (1) board independence attenuates the opportunistic behavior of CEOs, but not employees, and (2) the association between discretionary accruals and the CEO's criminal record is stronger for large firms, while the association with employees' criminal records is stronger for small firms.

I then test whether the criminal records of CEOs and employees are associated with reporting attributes in indications other than discretionary accruals. First, I investigate whether firms with CEOs and employees with criminal records are less likely to recognize transitory losses, that is, are less likely to be forthcoming with bad news in the financial reporting. I estimate two asymmetric loss regressions as implemented by Ball and Shivakumar (2005). In one of two

specifications, both the criminal records of CEOs and employees are associated with less timely recognition of bad news. Second, I investigate whether criminal records moderate the informativeness of earnings, a measure conventionally used as a proxy for earnings quality (e.g., Minnis 2011; Li 2019). Specifically, I regress future earnings and future cash flows (one at a time) on current earnings. Informativeness refers to the slope on current earnings. Criminal records of both CEOs and employees attenuate the slope on current earnings, indicating that they are associated with lower quality earnings. Finally, I examine whether the criminal records are associated with accruals quality, as measured by the standard deviation of discretionary accruals (Call et al. 2017), and find that the accruals quality decreases when a firm's CEO has a criminal record, and when more of its employees have criminal records.

The theoretical literature has predictions about the channels through which corporate culture influences opportunistic behavior. Consistent with screening and self-sorting (Van den Steen 2010) I document that criminal executives tend to employ criminal employees. The proportion of employees with criminal records is about 37% higher in firms with record-holder CEOs, compared to firms without such CEOs. However, I observe substantial variation in this relation,⁵ highlighting the importance of assessing both top managers and employees when investigating corporate culture. Consistent with social norm theory asserting that individuals seek to conform to group norms, using a comparable dataset Regensburg and Seitz (2021) find that individuals are more likely to commit new crime when they start working in a firm with more

⁵ The standard deviation of the proportion of employees with criminal records for firms with (without) a record-holder CEO corresponds to 69% (71%) of the mean of the variable. When a firm's CEO has a criminal record, about 20% of the employees have records.

employees with criminal records. This is true for both new employees with a record prior to the employment and for new employees who had never committed crime before.

The results of this study are subject to several caveats. First, the sample comprises private firms, which prevents me from using common earnings management and reporting quality indicators, such as restatements and regulatory enforcements (say, AAERs). Second, I do not identify individuals who actually influence reported statements, such as individuals working in the accounting/finance department. However, according to social norm theory, the general culture in the firm shapes the decisions of these individuals, because they respond to group norms. Other departments can also influence the financial reporting because they have budgets and can game these budgets (e.g., Libby and Lindsay 2010). In spite of this limitation, the design in this paper measures *actual* attributes of a firm's employees, measuring employee traits more accurately than the geographical proxies used in the literature. Third, I cannot determine the direction of causality between reporting outcomes and employee traits. Employees could influence reporting decisions, or endogenously sort into firms (or both). However, I find that (1) employers who hire employees with criminal records that were not available to the employer at hiring still engage in more earnings management⁶ and (2) the results are robust to controlling for firm fixed effects, indicating that the results are not an outcome of certain (opportunistic) firms hiring certain (criminal) employees.

⁶ In Denmark, the institutional setting, prior crimes are removed from the certificate of criminal records (issued by the police and used by employers to screen potential employees) after 2-5 years, depending on the severity of the crime. (Comparable to sealing in the US, although it happens automatically in Denmark.) Crimes older than this period appear in my proprietary dataset but are not available to employers.

With these caveats in mind, the findings contribute to the literature on corporate culture and firm outcomes. The results complement research that relies on executive traits to capture corporate culture (e.g., Biggerstaff et al. 2015; Liu 2016), and research that relates criminal records of top executives to firm outcomes (Davidson et al. 2015; Kallunki et al. 2018; Davidson et al. 2020), by documenting that traits of rank-and-file employees capture an aspect of corporate culture not explained by executive traits. Future research could benefit from looking beyond executive traits when examining corporate culture and financial reporting. This also applies to research settings in which data availability is not as comprehensive as in this study. For example, researchers have recently started to extract data from LinkedIn on for example executives (Nguyen 2016; Hope et al. 2019) and loan officers (Campbell et al. 2019), and a similar approach could be used to extract data on rank-and-file employees.

The remainder of this paper proceeds as follows. Section 2 discusses related research and develops hypotheses. Section 3 describes the sample and the key measures. Section 4 presents the research design and the results. Section 5 concludes.

2. Background and Hypothesis Development

2.1 Criminal Records

The criminology literature suggests that crime is an observable outcome of a certain inherent personal trait. Gottfredson and Hirschi (1990) argue that a lack of self-control is the essential element of crime, independent of the nature of the crime, and argue that crime provides easily

accomplished, immediate gratification.⁷ As documented by Blickle et al. (2006), these motivations for crime extend to white-collar crime. Individuals lacking self-control are characterized as impulsive, insensitive, risk-taking, and shortsighted, all characteristics that closely relate to opportunism and short-termism inherent in earnings management. Accounting and finance research empirically associates criminal records of executives to firm outcomes (Davidson et al. 2015; Kallunki et al. 2018; Davidson et al. 2020), and document that opportunistic behavior is rather a sticky trait than a domain specific outcome (Ali and Hirshleifer 2017), as predicted by Gottfredson and Hirschi's theory.

2.2 Corporate Culture and Top Managers

Corporate culture is commonly defined as the shared values and beliefs of employees (Van den Steen 2010; Liu 2016). Van den Steen (2010) shows analytically how corporate culture evolves, and derives that organizations have a tendency to develop homogenous beliefs (i.e. corporate culture). Two mechanisms through which the corporate culture evolves are screening (a manager will hire an employee who share his/her beliefs) and self-sorting (employees tend to choose to work with firms that share their beliefs), suggesting that firm managers are important determinants for corporate culture.

⁷ Gottfredson and Hirschi's book "A general theory of crime" is considered fundamental in the criminal literature (Pratt and Cullen 2006) with about 15,000 citations on Google Scholar (20 July 2021). In a meta-analysis based on 21 studies and 126 size effects Pratt and Cullen (2006) provide empirical evidence supporting the general theory of crime across several empirical measures used to quantify "lack of self-control."

Corporate culture is an important contributor to firm (mis)behavior. For example, the survey and interview evidence of Graham et al. (2021) indicate that executives view corporate culture as one of the top drivers of firm value, and believe that corporate culture influences corporate ethics and proxies for earnings management. Specifically, they report that 85% of their respondents believe that poor culture increases the likelihood that employees might act “unethically,” and 69% percent indicate that culture has a moderate or big effect the financial reporting quality. From the psychology literature, in a comprehensive meta-analysis Kish-Gephart et al. (2010) provide evidence that unethical culture correlates with unethical corporate outcomes, such as misrepresentation in financial reports or lying to customers.

A body of quantitative research measures corporate culture based on executives’ beliefs and values. One stream uses managers’ behavior within a firm to identify beliefs and values. For example, Biggerstaff et al. (2015) find that executives who benefit from option backdating are more likely to engage in other forms of corporate misbehavior, such as financial reporting fraud and earnings management. Ali and Hirschleifer (2017) find that executives with opportunistic insider trades are likely to experience other outcomes of firm misconduct, such as earnings management, restatements, SEC enforcement actions, and shareholder litigation, suggesting that opportunistic firm outcomes is driven by a certain corporate culture that ‘tolerates or even encourages such behavior’ (p. 491).⁸

⁸ Biggerstaff et al. (2015) attribute their findings to “unethical culture.” Ali and Hirschleifer suggest that their results are driven by either corporate culture or having ‘a set of managers who are inherently prone to cheating’ (p. 491).

Another stream uses “off-the-job” traits of executives and empirically link them to corporate outcomes. For example, Liu (2016) finds that the corruption index of executives’ country of ancestry correlates with firms’ engagement in earnings management, accounting fraud, option backdating, and opportunistic insider trading, claiming that executives’ corruption attitudes proxy for corporate culture and a firm’s general attitude towards opportunistic behavior. Davidson et al. (2015) find that the criminal records of CEOs and CFOs are positively associated with the propensity to misreport (executives named in SEC AAERs). They also find that insiders (others than CEOs) in firms with low frugality CEOs are more likely to be named in AAERs, because CEOs influence the corporate culture.⁹ Cline et al. (2018) find that executives with personal indiscretions disseminated by news media (allegations of dishonesty, substance abuse, sexual misadventure, accused of violence) are more likely to manipulate earnings, amongst other opportunistic corporate outcomes. The literature indeed suggests that managers and their beliefs influence corporate culture and firm outcomes.

The literature suggests that the CEO is influencing firm outcomes rather than other executives. Davidson et al. (2015) conduct their analyses using the criminal records of CEOs, and find that they are associated with fraud, even in a sample where either the CEO or the CFO are named by the SEC in fraud cases. Using hospitalization events to examine the effect of executives on firm policies, Bennedsen et al. (2020) find that the effect of CEOs’ hospitalization events is economically about double the size on profitability, than are hospitalization events for other

⁹ Davidson et al. (2015) explain that frugality is a psychological trait that reflects discipline in buying and using consumer goods and services to achieve long-term goals. They measure frugality using executives’ ownership of luxury goods, such as expensive cars, boats, or expensive houses.

executives, and conclude that “CEOs are unique” (p. 1877). Regensburg and Seitz (2021) find that the criminal of one person alone, the CEO, predicts firm bankruptcy. For these reasons I focus on the CEO and no other top managers

To the extent that a criminal record is an observable outcome of certain values and beliefs, and that CEOs influence corporate culture based on these values and beliefs, I predict that firms with CEOs with criminal records are more prone to report opportunistically. I formally state the hypothesis below.

Hypothesis 1: Firms with CEOs with criminal records are more prone to report opportunistically.

2.3 Corporate Culture and Employees

Consistent with the view of Van den Steen (2010), O’Reilly (1989) view corporate culture as shared beliefs by an organization’s members. O’Reilly argues that individuals are influenced by the common expectations by other individuals within the group because individuals seek to be accepted and live up to peers’ expectations and therefore ought to conform to group norms. This view is broadly supported in the literature, for example by Hackman (1992) and Elster (1989) on social norm theory and Akers (1973) on deviant behavior and social learning. A large empirical literature on peer effects documents that the decisions of individuals are influenced by their peers (e.g., Sunstein 2002; Dimmock et al. 2018; Murphy 2019).

Whereas Van den Steen (2010) models corporate culture as an outcome of the manager’s decision to employ employees with similar beliefs (the sorting channel), O’Reilly (1989) recognizes that employee beliefs not necessarily conform to top management beliefs. O’Reilly explains that the management’s beliefs capture how things are ought to be, whereas employee

beliefs define ‘how things actually are’ (p. 13). From a theoretical standpoint, it seems that employees have a say on corporate culture.¹⁰

Employees can influence the financial reporting through several channels. Accounting data originate far from the C-suite, and many employees participate in the generation of this data (Call et al. 2017). Through this channel, employees can choose to submit (or not) opportunistic sub-reports. This phenomenon is a well-recognized issue in the management accounting literature, where budget targets provide subordinates incentives to manage earnings (Jensen 2003; Courty and Marschke 2004; Libby and Lindsay 2010). Employees can manage the earnings estimates they submit to superiors to personally gain reputation and/or obtain bonus payments. Also through this channel, employees can choose to comply (or not) with opportunistic managers’ request to help managing earnings (e.g., Feng et al. 2011), which is what happened in for example the HealthSouth case. That is, employees might succumb to a manager’s pressure and help manage earnings in order to keep his/her job.

Beyond their participating role in the process of generating accounting information, employees play a governance role and may (or may not) take corrective action and report intentional financial misreporting. For example, in the case of HealthSouth an employee was one of the first to inform the firm’s auditors about severe accounting problems in the accounting department. Dyck et al. (2010) document that employees detect fraud more often than both the SEC and auditors and Call et al. (2016) find that firms involved in financial reporting violations take

¹⁰ It is rather easy to come up with examples of firms in which the employees do not share the view of the top management. For example, strikes happen due to disagreement between the management and the employees and employees can blow the whistle when managers are misbehaving.

actions to motivate employees not to report financial misconduct, emphasizing the importance of employees as a governance mechanism.

Beyond the use of executive traits to capture corporate culture (as discussion in Section 2.2), researchers use demographic proxies, such as the level of education (Call et al. 2017) or religiosity (McGuire et al. 2012; Dyreng et al. 2012) at the proximity of firms' headquarters.¹¹ Notable exceptions include the research by Guiso et al. (2015) who use employee survey responses administered by the Great Place To Work Institute and find that firms in which employees score their executives high on integrity have higher profitability, and the research by Regensburg and Seitz (2021) who use administrative data from Denmark and find that firms with more employees with criminal records are more likely to go bankrupt.

Because of employees' influence on corporate culture and their ability to affect financial reporting, directly or indirectly by influencing their peers, I predict that firms with more employees with criminal records are more likely to report opportunistically. I expect this association to be incremental to the effect of the CEO.

Hypothesis 2: Incremental to the effect of CEOs' criminal records, firms with more employees with criminal records are more likely to report opportunistically.

¹¹ McGuire et al. (2012) and Dyreng et al. (2012) argue that even managers (and not employees) self-select or conform to local norms, whereas Call et al. (2017) use geographic proxies to capture traits of firms' employees.

3. Sample Construction and Key Measures

3.1 Data Sources and Data Description

I gather data from several sources. Throughout the process, I use unique personal identifiers (CPR numbers) and unique firm identifiers (CVR numbers) to link employees and managers to the firms in which they work.¹² In general, this manuscript shares the data with Regenburt and Seitz (2021).

3.1.1 Firm Financials

I obtain accounting data of all firms incorporated in Denmark for the period 1998-2016 from the Orbis database with assets above DKK 1 million (EUR 0.13 million). I complement with accounting data from Experian. Whereas Orbis provides standardized accounting data, Experian provides detailed non-standardized data, including line items as reported in the annual report. The Experian data provide enriched line item accounting data on current assets and current liabilities enabling the computation of accruals.

¹² All persons born or residing in Denmark are assigned a unique CPR-number, an individual's civil registration number. CPR-numbers are private information. CPR-numbers are used by banks, employers when paying salary, governmental bodies, etc., enabling me to merge information on individuals from a wide variety of sources. All legal business entities in Denmark are assigned a unique CVR-number, which is a firm ID number. CVR numbers are publicly disclosed. Statistics Denmark anonymizes CPR and CVR numbers before I access the data.

3.1.2 CEOs, Employees, and Criminal Records

I identify CEOs through filings with the Danish Business Authority.¹³ I identify employees through the Integrated Database for Labor Market Research (IDAN database) developed and maintained by Statistics Denmark. The database contains annual-level information on employment spells (employer-employee links, including job start dates, salaries, and job ending dates). It is not costly for employers to report employee data to Statistics Denmark, because firms have salary software that automatically report each individual's income to the Danish Tax Authorities, which is then collected by Statistics Denmark. I define a person as an employee of a firm in a given year if he/she receives salary from the firm and is registered as an employee at year-end.

I acquire access to the Danish Central Registry (Kriminalstatistik Afgørelse) also through Statistics Denmark, which provides data on all criminal decisions from 1980. The dataset provides information on (1) judicial decisions, including criminal convictions and investigations for crimes that led to dismissals and not guilty verdicts, (2) penalties imposed on offenders, such as imprisonment, suspended sentences, and fines above DKK 1,500 (EUR 200), and (3) the nature of the crime, based on seven-digit crime codes used by the Danish police. (The digit system has a tree structure, similar to industry classifications.) The offenses include felonies, misdemeanors,

¹³ The Danish Business Authority requires all companies to file firm executives. Failing to do so results in rejection of the firm establishment in case of a start-up or compulsory dissolution in the case of an established firm.

See http://filer.erhvervsstyrelsen.dk/file/307660/vejl_om_ledelses_revisor_vedtaegtsaendring.pdf

Firms benefit from filing firm executives because executive status is a requirement for the individual to make significant decisions on behalf of the firm (for example apply for debt).

and legal infractions, and hence cover serious crimes, such as sexual, violent, or drug-related offenses, and petty crimes, such as shoplifting.

I use the crime codes to map the nature of crime reported in the Danish registers to the Federal Bureau of Investigation (FBI) definitions of general crime categories and white-collar crime and its subcategories, based on the conversion tables reported by Andersen et al. (2020), and present these mappings in Appendix B.

3.1.3 Sample Selection

I merge these datasets and impose several screens. Table 1 shows the sample selection process. I exclude financial reports that do not cover 12 months, certain industries (financial, utilities, and state-owned) consistent with prior research, and publicly listed firms (very few firms are classified as publicly listed). To avoid double counting I exclude subsidiaries for which the parent company is identified in the dataset and reports consolidated financial statements. I also impose several size thresholds. Based on the current auditing thresholds as outlined by Bernard et al. (2018), I keep firm-year observations with total assets of at least DKK 4 million (EUR 533,000) and at least 12 full-time equivalent employees. The minimum thresholds ensure that all sample firms are audited, prevent mom-and-pop stores from driving the results, and allow for variation in employee traits. I also impose an upper size threshold and remove firms that do not meet the European Commission's thresholds for being classified as small and medium-sized enterprises (SMEs). I finally exclude firm-year observations with insufficient data to estimate Eq. 1 (the main estimation, outlined in

Section 4.2). The final dataset comprises the years 2001-2014,¹⁴ 16,259 unique firms, 97,106 firm-years, 1.393,392 unique persons, 5,392,905 person-years and 5,571,909 person-firm-years.¹⁵

3.2 Key Variables

I define all variables in Appendix A. I elaborate on the main variables used in this study below.

3.2.1 Criminal Records of Executives and Employees

For each person, I define an indicator *Record* that takes the value one if a person has a criminal record as of the end of December for the year, and zero otherwise. I include both convictions and criminal charges that led to dismissals or acquittals in my measure of criminal records.¹⁶ I exclude traffic-related offences, such as speeding, for two reasons. First, this is consistent with the literature (e.g., Bennett 2018; Kallunki et al. 2018; Breining et al. 2020). Second, many individuals have traffic-related records (68% of CEOs and 35% of employees.)

I aggregate the *Record* information to the firm-year level, and construct the following variables: *CEO_record* indicates that the CEO has a criminal record. *%EMPL_record* denotes the

¹⁴ Accounting information for the years preceding and following this period is included in the financial ratio generation. Also, the preceding and following years are included to compute leaded and lagged cash flows used for accrual estimation (for example, observations for the year 2014 include cash-flow information for the years 2012-2016).

¹⁵ The number of person-firm-year observations is slightly higher than the number of person-year observations, because one person can work at more than one firm within a year.

¹⁶ This is standard in the literature. See e.g., Amir et al. (2014a; 2014b), Davidson et al.(2015; 2020), Kallunki et al. (2018), and Law and Mills (2019).

percentage of employees with criminal records (percentage of employees where *Record*=1). *CEO_record* is used to test H1 and *%EMPL_record* is used to test H2.

3.2.2 *New Finance*

I use events where the firm raises new financing (either debt or equity) to identify a setting with prior beliefs about the incentives to manage earnings. Because most firms are not mandated to publish cash flow statements, I estimate new finance issues based on income statement and balance sheet items. Specifically, I follow Godsell et al. (2017, 445), who likewise base their analysis on Orbis data and use a similar method to identify firms raising new financing as an opportunistic setting.

First, I calculate the difference between long-term bank debt in year $t+1$ and long-term bank debt in year $t-1$, and scale the difference by assets in year $t-1$. I define *DebtIssue* as an indicator variable that takes the value one if the change in debt scaled by assets is larger than 0.05, and zero otherwise. Second, I calculate the difference between shareholders' equity in year $t+1$ and shareholders' equity in year $t-1$, and further deduct the sum of net income in year t and net income in year $t+1$, and scale this number by assets in year $t-1$. I define *EquityIssue* as an indicator variable that takes the value one if the change in equity (controlling for concurrent income) scaled by lagged assets is larger than 0.05, and zero otherwise. Finally, I define the variable *NewFinance* as an indicator variable that takes the value one if either *DebtIssue* or *EquityIssue* equals one, and zero otherwise. The variable captures firms that raise new finance in year t or $t+1$.

4. Empirical Design and Results

4.1 Descriptive statistics

Table 2 provides descriptive statistics. The average sample firm has 37 full time equivalent employees and is relatively small with total assets of EUR 5.8 million. Twenty-four percent of the firm-year observations are classified as *NewFinance*. (Recall that *NewFinance* indicates indicates firms raising new finance in year t or year $t+1$.) About 17.4% of CEOs have criminal records, and in the average firm about 16.2% of the employees do.¹⁷ The average of discretionary accruals is naturally 0 because they are estimated as a residual. (For descriptive purposes I estimate discretionary accruals (*DACC*) as the residual of estimating accruals (*OPACC*) on the accrual control variables. Appendix A outlines this estimation.)

4.1.1 Discretionary Accruals, CEOs, and Employees

Table 3 compares firms' discretionary accruals by whether firms have CEOs with criminal records (*CEO_record*) and by whether firms have a high proportion of employees with criminal records (denoted by *EMPL_record* which indicates that *%EMPL_record* is above the within-year median. I use the median for the year to split the sample to overcome fluctuations of criminal employee distributions over time, and to measure the workforce criminality relative to other firms.) The table uses only observations related to new finance (*NewFinance*=1).

¹⁷ The percentage of CEOs with criminal records is lower than reported in Kallunki et al. (2018), potentially because they use Swedish data and I use Danish data. Their sample firms are also very different from the sample firms used in this study.

Panel A shows that discretionary accruals (*DACC*) of firms with CEOs with criminal records are positive (0.009) and significantly larger than *DACC* of firms without such CEOs. The results provide initial support for H1.

Panel B shows that *DACC* of firms with a relatively high proportion of employees with criminal records (*EMPL_record*=1) are positive (0.006) and significantly larger than *DACC* of firms with a relatively low proportion of employees with criminal records (*EMPL_record*=0).

Panel C isolates the incremental effect of employees (CEOs) by conditioning the sample by the criminal records of CEOs (employees). The rows show the incremental effects of employees, conditioned by CEOs with (and without) criminal records. For both of these conditions, more employees with criminal records are associated with larger discretionary accruals. The effect is largest when the CEO has a criminal record. The columns show the incremental effect of CEOs, conditioned by the proportion of employees with criminal records being relatively large or small. The effect of the CEO is only significant when the proportion of employees with criminal records is relatively large.

Overall, discretionary accruals are larger when both the CEO and a relatively large proportion of employees have criminal records. The results suggest that the criminal records of both CEOs and employees, incremental to each other, provide information about financial reporting outcomes, specifically accruals during new finance issues. This is consistent with H2.

If the results above were due to earnings management, I would expect discretionary accruals to peak when firms raise new finance, because accruals must reverse over time. Therefore, I plot *DACC* over time by the four groups depicted in Panel C of Table 3. Figure 1 graphs the time-series properties of *DACC* by *CEO_record* and *EMPL_record*. For firms with CEOs and many employees with criminal records *DACC* increases and peaks when firms issue new finance (the panel in the

lower right corner). *DACC* is negative in the following period, consistent with reversal. The panel resembles that reported by Cohen and Zarowin (2010 Table 2) investigating discretionary accruals around seasoned equity offerings, and gives confidence that discretionary accruals capture earnings management in this setting. The results corroborate the findings above, and depict the importance of investigating accruals in a setting where incentives provide a priori expectation on the sign of *DACC*.

4.1.2 Discretionary accruals and types of crime

Table 4 provides information on types of crime and the mean of discretionary accruals (*DACC*) during the issuance of new finance, per type of crime.¹⁸ The average of *DACC* during the issuance of new finance is 0.03. Discretionary accruals are generally higher than 0.03 across all crime codes, both when conditioning on the criminal records of CEOs (column 2) and employees (columns 4 and 5). This indicates that firms with CEOs and more employees with criminal records have higher discretionary accruals during the issuance of new finance, independent on the type of crime.

4.2 Main Analysis

I formally test the hypotheses with the following equation.

$$OPACC_{it} = \alpha_0 + \beta_1 VOI_{it} + \beta_2 NewFinance_{it} + \beta_3 VOI_{it} * NewFinance_{it} + Accrual\ controls_{it} + \gamma Firm\ controls_{it} + \varepsilon_{i,t} , \quad (1)$$

for firm i in year t . *OPACC* is comprehensive operating accruals, including both working capital and non-current operating accruals (inspired by Larson et al. 2018). *VOI* is the variable of interest, and refers to *CEO_record* or *%EMPL_record*, dependent on the hypothesis being tested. The

¹⁸ I elaborate on the types of crime in Section 4.3.

indicator *NewFinance* captures a setting in which the firm has an incentive to manage earnings, which is important when investigating discretionary accruals (Godsell et al. 2017). The slope on β_3 thus captures the effect of *VOI* on accruals, given the firm raises new finance and controlling for the effects of determinants of accruals and earnings management used by the literature.

Accrual controls are firm-specific variables used to estimate accruals (and discretionary and innate accruals). Following Larson et al. (2018) I control for current comprehensive operating cash flows (*OPCF*), two leads and lags of *OPCF*, growth in employees (*EMPLGR*),¹⁹ and an interaction of *EMPLGR* and lagged net operating assets scaled by assets ($EMPLGR_t \times NOA_{t-1}$).

I control for negative cash flows (*dumOPCF*) and an interaction between negative cash flows and cash flow ($DumOPCF * OPCF$) to allow a piecewise linear relation between current *OPCF* and *OPACC* (Ball and Shivakumar 2006). I complement the model of Larson et al. (2018) with lagged return on assets (ROA_{t-1}) to control for performance (Kothari et al. 2005). I control for lagged *ROA* and not current *ROA* because current *ROA* and current *OPCF* would perfectly explain *OPACC*. I also control for future employee growth ($EMPLGR_{t+1}$) because firms invest based on expectations to future growth (Collins et al. 2017).²⁰

¹⁹ Revenue data, as used in conventional research when estimating discretionary accruals, is not available for the vast majority of the sample firms due to exemption rules allowing firms below certain thresholds to not disclose revenue. Instead, inspired by Allen et al. (2013) and Larson et al. (2018) I use employee growth, a growth measure that to a lower degree is subject to accounting manipulation than (say) revenue, however to some extent is still subject to discretionary hiring and firing decisions.

²⁰ Collins et al. (2017) use the market-to-book value to proxy for growth opportunities, which is not available for my sample. Therefore, I use realized employee growth for year $t+1$ instead.

Firm controls are firm specific variables used by prior research examining earnings management (e.g., Chen et al. 2018), and include the logarithm of total assets to measure firm size ($\ln(TA)$), the logarithm of firm age ($\ln(FirmAge)$), total liabilities to total assets ($TLTA$), the standard deviation of return on assets (SD_ROA), and property, plant and equipment scaled by assets (PPE).

Following Chen et al. (2018) I estimate accruals with a one-step procedure, rather than the conventional two-step procedure, which provides biased estimates.²¹ That is, the β_3 coefficient captures the association between accruals and the variable of interest when firms raise new finance, controlling for the variables conventionally used to estimate accruals and used as controls in earnings management estimations. In all estimations, I control for industry and year fixed effects. In some regressions, I additionally control for firm fixed effects.

Table 5 shows the results. Column 1 shows the estimation with firm related variables only. Accruals are insignificantly related to $\ln(TA)$ and negatively related to $TLTA$, consistent with single-step regressions in Chen et al. (2018). Both current and future employee growth are positively associated with accruals. Accruals are negatively associated with lagged and leaded cash flows, and positively to current cash flows, consistent with Larson et al. (2018). Accruals increase by lagged ROA , consistent with Kothari et al. (2005).

²¹ Conventionally, researchers in the first stage estimate discretionary accruals as the residual of an OLS regression. In the second stage, the residuals from the first stage are typically used as dependent variable. However, this ignores correlations between control variables from the first stage and control variables from the second stage and thus biases coefficient estimates.

Column 2 adds criminal records of CEOs and shows that they are positively associated with discretionary accruals when the firm issues new finance, captured by the interaction $CEO_record \times NewFinance$, providing evidence in support of H1. In economic terms, firms with record-holder CEOs, relative to other firms, use accruals to increase net earnings scaled by lagged assets (ROA) by 0.84 percentage points, or about 12% of the unconditional sample mean ROA .

Column 3 adds to the estimation the percentage of employees with criminal records. The effect of CEOs slightly decreases, but remains statistically and economically significant, indicating that one channel through which executives affect financial reporting is to employ employees who share their beliefs. Incremental to the effect of CEOs, criminal records of employees are associated with discretionary accruals when the firm issues new finance, captured by the interaction $\%EMPL_record \times NewFinance$, indicating that firms with more employees with criminal records are more likely to manage earnings, supporting H2. Economically, one standard deviation of $\%EMPL_record$ is associated with an increase in ROA of 0.47 percentage points, or about 6.7% of the unconditional sample mean ROA .

It is possible that unobserved firm covariates drive the results. Therefore I estimate Eq. 1 with firm fixed effects in column 4. The coefficient on CEO_record turn out insignificantly different from zero, likely due to the low turnover of CEOs in the sample. The coefficient on $\%EMPL_record$ remains significant, although with smaller coefficient than in the cross-sectional estimations.

Finally, it is possible that the associations between accruals on the left-hand side, and *Firm controls* and *Accrual controls* on the right hand side, differ when firms issue new finance compared to when they do not. Column 5 hence estimates a modified version of Eq. 1 using new finance observations ($NewFinance=1$) only, and hence the interaction term $VOI \times NewFinance$ disappears

from the equation. With this specification the coefficients on *CEO_record* and *%EMPL_record* directly measure the associations between accruals and criminal records, conditional on issuing new finance. The inferences from this estimation remain unchanged, although the coefficient on *CEO_record* is only marginally significant.

4.3 *Types of crime*

I then examine whether individuals with certain types of crime drive the results. Below I explain the different types of crime that I investigate.

- White-collar crimes: I classify by the nature of the crime using an FBI classification system to map the Danish crime codes to white-collar crime (and nonwhite-collar crime) and its subcategories (fraud, corporate, legal). I transform the Danish crime codes to FBI white-collar categories using the conversion tables reported by Andersen et al. (2020) and present them in Appendix B.
- FBI NIBRS: I use a second system, the FBI NIBRS classification system, to classify by the nature of the crime. These categories include person, property, society, and other. As above, Appendix B presents the conversion tables from Andersen et al. (2020).
- On record at hire: In Denmark, criminal records are not publicly available as are they in the US (partly through background checking services). An employer can ask a (potential) employee to submit his/her certificate of criminal records. The police then issues the certificate to the employee, who can then at own will forward it to the employer. The certificate shows offences of the penal code and certain other offences, committed within

two to five years depending on the severity of the crime.²² Crimes committed before this period are automatically spent (i.e. sealed), and thus do not appear on the certificate. However, these crimes do appear in my proprietary dataset. I then condition by crime disclosed on the criminal record at hiring (at least on crime appeared on the certificate), undisclosed crime (individuals with prior criminal actions for which no offenses appeared on the certificate), and crime committed following a hire (individuals who had not committed any crime before the employment).

- Seriousness: I condition individuals' criminal records by the most serious crime on the record. The severity is determined by whether the crime is penalized by imprisonment, suspended sentences, and other outcomes (mainly fines, but also diversion or deferred adjudications, dismissals, and acquittals).
- Timing: I condition by crimes committed within three years (*After t-3*, crimes committed during the period from January year $t-2$ to December year t) and older crimes (*Before t-3*).

Figure 2 shows the coefficients on *CEO_record* and *%EMPL_record* including only the type of crime in question. The coefficients are derived from a version of Eq. 1 using only new finance observations (*NewFinance*=1) comparable to the estimation presented in column 5 of Table 5. I use new finance observations only to ease the interpretation of the coefficients and avoid presenting interaction terms.

Almost all of the coefficient estimates on *CEO_record* are above zero, consistent with the main analysis. However, many of the coefficients are not statistically significant at the 5% level

²² See <https://politi.dk/straffeattest/afgoerelser-paa-din-straffeattest> (in Danish).

(two-sided test). None of the coefficients, using only the type of crime in question, are significantly different from the main analysis using all crimes.

For the coefficients on *%EMPL_record*, most coefficients are significantly above zero. Only the coefficients on *%EMPL_record* using *Fraud* (crimes related to fraud) and *After t-3* (recent crimes) are significantly larger than the coefficient on *%EMPL_record* using all crimes (main analysis). This could indicate that these crimes drive the results, although I do not find similar evidence for CEOs.

Collectively, the results do not provide robust evidence that any specific type of crime drives the results, although employees' fraud (*Fraud*) and recent crime within the last three years (*After t-3*) are associated with significantly more earnings management than are other crimes.

I also make two additional inferences based on the results. First, the results regarding employees with criminal records remain unchanged using only undisclosed crimes at hiring. That is, employers hiring employees with criminal records, without knowing they have criminal records, engage in more earnings management. This provides suggestive evidence that employees have an influence on accruals. Second, both current (within three years) and non-current (older than three years) crimes are associated with earnings management, consistent with crime being an observable outcome of a trait and persists throughout life, as proposed by Gottfredson and Hirschi (1990).

4.4 Subsample analyses

Table 6 presents the results of re-estimating Eq. 1 for different subsamples. Columns 1 and 2 condition the sample by whether firms have independent boards, as proxied for by the CEO not serving on the board. The results suggest that board independence attenuates the opportunistic behavior of CEOs but not employees. (The coefficient on *CEO_record* is not statistically significant for the independent board sample. However, the coefficient estimates of *CEO_record*

are not statistically different for the two subsamples. The coefficients on *%EMPL_record* are statistically significant in both subsamples.)

Columns 3 and 4 (5 and 6) splits the sample by the size of firms as measured by their total assets (number of employees). *CEO_record* is only significant for relatively large firms. The coefficient estimate on *CEO_record* is larger (marginally significant) when size is measured by total assets (columns 3 and 4). *%EMPL_record* is highly significant for relatively small firms. The coefficient estimate on *%EMPL_record* is larger (marginally significant) when size is measured by the number of employees (columns 5 and 6). Collectively, these results indicate that the association between earnings management and CEOs' (employees') criminal records is stronger for large (small) firms.

4.5 Robustness: Entropy balanced sample

I estimate Eq. 1 using an entropy-balanced sample because linear models can be misspecified (McMullin and Schonberger 2020). The entropy-balanced control sample is balanced on three moments (mean, variance, and skewness) and a tolerance of 0.015. I match on *Accrual controls* and *Firm controls*, and include only new finance observations (*NewFinance*=1) like column 5 of Table 5. I match on three variables (one at a time.) First, I match the samples by the criminal record of the CEO (*CEO_record*=1 vs. *CEO_record*=0). Second, I match the samples by whether the firm's employees are relatively criminal (above the within-year median, *EMPL_record*=1 vs. *EMPL_record*=0). Finally, I match by the criminal record of the CEO and the criminality of the employees (*CEO_record*=1 and *EMPL_record*=1 vs. others). I then estimate Eq. 1 using these matched samples and present the results in Table 7. Any prior conclusions remain unchanged.

4.6 Indications outside Discretionary Accruals

I then examine whether criminal records of CEOs and employees are associated with other financial reporting outcomes. Specifically, I estimate the two conditional conservatism regressions of Ball and Shivakumar (2005), the informativeness of current earnings about future earnings and cash flows (e.g., Richardson et al. 2005; Minnis 2011), and accruals quality (Call et al. 2017).

4.6.1 Conditional Conservatism: Accruals and Cash Flow from Operations

The first conditional conservatism estimation is the following.

$$\begin{aligned} WCACC_{i,t} = & \alpha_0 + \beta_1 OCF_{i,t} + \beta_2 DumOCF_{i,t} + \beta_3 OCF_{i,t} * DumOCF_{i,t} \\ & + \beta_4 VOI_{i,t} * OCF_{i,t} + \beta_5 VOI_{i,t} * DumOCF_{i,t} \\ & + \beta_6 VOI_{i,t} * OCF_{i,t} * DumOCF_{i,t} + \varepsilon_{i,t}, \end{aligned} \quad (2)$$

for firm i in year t . $WCACC$ is working capital accruals scaled by lagged assets, OCF is cash flows from operations scaled by lagged assets, and $DumOCF$ indicates that OCF is negative. VOI is the variable of interest and refers to *CEO_record* or *%EMPL_record*. I further control for year and industry fixed effects. I expect a negative sign on β_1 because accruals mitigate noise in cash flows. I expect a positive sign on β_3 , which captures asymmetric loss recognition, because accrued losses are more likely when the cash flow is negative. That is, asymmetric loss recognition predicts that the association between cash flows and accruals is more positive (closer to zero, or smaller in absolute magnitude) when cash flows are negative. My two hypotheses imply in this setting that firms with record-holder CEOs and more employees with criminal records are less likely to recognize transitory losses (i.e. are less likely to recognize bad news in the financial statements). The predictions imply a negative sign on β_6 .

Table 8 reports the results from estimating Eq. 2. Column 1 estimates the equation without criminal records of CEOs and employees. The slope on the interaction $DumOCF \times OCF$ is

negative, indicating that the sample firms on average report “contra-conservatively.” This result is consistent with Ball and Shivakumar (2005) (the sum of the slopes on β_3 and β_7 in Table 5 of Ball and Shivakumar is negative, as noted by Minnis (2011 footnote 9).) Column 2 adds the criminal records of CEOs and shows that they are negatively associated with timely loss recognition (the interaction term $CEO_record \times DumOCF \times OCF$ is negative and marginally significant.) Column 3 adds the criminal records of employees and depicts that they are negatively related to timely loss recognition (the interaction term $\%EMPL_record \times DumOCF \times OCF$ is negative and statistically significant at conventional levels.) The effect is incremental to that of CEOs. Controlling for size (see Ball and Shivakumar 2005) in column 4 does not change the inferences. The findings are consistent with the hypothesized predictions.

4.6.2 Conditional Conservatism: Earnings Changes

The second conditional conservatism estimation is the following.

$$\begin{aligned} \Delta Earnings_{i,t} = & \alpha_0 + \beta_1 \Delta Earnings_{i,t-1} + \beta_2 Dum \Delta Earnings_{i,t-1} \\ & + \beta_3 \Delta Earnings_{i,t-1} * Dum \Delta Earnings_{i,t-1} \\ & + \beta_4 VOI_{i,t} * \Delta Earnings_{i,t-1} + \beta_5 VOI_{i,t} * Dum \Delta Earnings_{i,t-1} \\ & + \beta_6 VOI_{i,t} * \Delta Earnings_{i,t-1} * Dum \Delta Earnings_{i,t-1} + \varepsilon_{i,t}, \end{aligned} \quad (3)$$

for firm i in year t . $\Delta Earnings$ is the change in net earnings scaled by lagged assets. $Dum \Delta Earnings$ indicates that $\Delta Earnings$ is negative. VOI is the variable of interest and refers to CEO_record or $\%EMPL_record$. Following Ball and Shivakumar (2005) I predict deferred recognition of economic gains as persistent positive components of accounting income, implying that $\beta_1=0$. Asymmetric loss recognition implies that negative earnings changes are transitory, and hence $\beta_3<0$. Consistent with Section 4.6.1 above, I expect that the criminal records of CEOs and employees are negatively associated with timely loss recognition, the prediction being that $\beta_6>0$.

Table 9 shows the results. Column 1 estimates Eq. 3 without the criminal records of CEOs and employees. In contrast to the expectation the slope on $\Delta Earnings_{t-1}$ is negative and negative. The slope on the interaction $Dum\Delta Earnings_{t-1} \times \Delta Earnings_{t-1}$ is negative (consistent with Table 4 of Ball and Shivakumar (2005), where the sum of α_3 and α_7 is negative.) In columns 2 through 4, none of the interactions $CEO_record \times Dum\Delta Earnings_{t-1} \times \Delta Earnings_{t-1}$ and $CEO_record \times Dum\Delta Earnings_{t-1} \times \Delta Earnings_{t-1}$ are significantly different from zero. The estimations thus do not provide support for H1 and H2.

4.6.3 Informativeness of current Earnings about future Earnings and Cash Flows

I then turn to explore another aspect of earnings quality, the informativeness of current earnings about future earnings and future cash flows. Following the literature (e.g., Richardson et al. 2005; Minnis 2011) I view high informativeness as an earnings quality attribute, because informative earnings are more sustainable and provide firm stakeholders an earnings signal that is informative about future performance. If firms with record-holder CEOs and more employees with criminal records are more likely to report opportunistically, through (say) accrual or real earnings management, I expect that the current earnings of those firms contain less information about future earnings and cash flows. Specifically, I estimate the equation below.

$$ROA_{it+1} \text{ or } OCF_{it+1} = \alpha_0 + \beta_1 ROA_{i,t-1} + \beta_2 VOI_{i,t} + \beta_3 ROA_{i,t} * VOI_{i,t} + \gamma Firm\ controls_{i,t} + \varepsilon_{i,t}, \quad (4)$$

for firm i in year t . ROA is net earnings scaled by lagged assets. OCF is cash flow from operations scaled by lagged assets. VOI is the variable of interest and refers to CEO_record or $\%EMPL_record$. $Firm\ controls$ denote firm controls used in the main analysis. Informativeness refers to the predictive slope on current ROA , captured by β_1 . The H1 and H2 hypothesized

relationships predict a negative sign on β_3 .

The columns 1 through 3 (4 through 6) of Table 10 report the results of estimating Eq. 4 with ROA_{t+1} (OCF_{t+1}) as the dependent variable. For both estimations, the results indicate that the informativeness of earnings decreases in when the CEO has a criminal record and when more employees have criminal records (the interactions $CEO_record \times ROA_t$ and $\%EMPL_record \times ROA_t$ are significantly negative.)

4.6.4 Accruals quality

I follow Call et al. (2017) and estimate accruals quality with equation below.

$$AQ_{i,t} = \alpha_0 + \beta_1 VOI_{i,t} + \beta_2 AQ_Controls_{i,t} + \varepsilon_{i,t}, \quad (5)$$

for firm i in year t . AQ is accruals quality, and is the standard deviation of discretionary accruals ($DACC$) multiplied by -1 to ease interpretation (higher AQ then measures better accruals quality). VOI is the variable of interest, CEO_record or $\%EMPL_record$. I use the controls from Call et al. (2017) that are available in my data. These controls include revenue volatility (*Revenue volatility*), cash flow volatility (*Cash flow volatility*), the intensity of intangible assets (*Intantigles/TA*), the incidence of negative earnings (*NLosses*), size ($\ln(TA)$), and capital assets intensity (*PPE*). As in the other estimations, I control for industry and year fixed effects.

Table 11 estimates Eq. 5. Column 1 presents the results without the variables pertaining to criminal records. Consistent with Table 3 of Call et al. (2017), the accruals quality (1) decreases with revenue and cash flow volatility and the number of recent losses, (2) increases with firm size and capital asset intensity, and (3) is insignificantly associated with the intensity of intangible assets. (Note that Call et al. (2017) use the standard deviation of $DACC$ as measure of accounting quality. I multiply this measure with -1 to ease interpretation. Therefore, the coefficients reported in Table 11 have opposite signs of those reported by Call et al. (2017).)

Columns 2 and 3 then add the criminal records of CEOs and employees, respectively. The accruals quality decreases when firms have CEOs with criminal records and more employees with criminal records, consistent with the notion that these firms engage in more earnings management. In economic terms, a CEO with a criminal record is associated with a decrease in AQ of about 3.3% of the variable's mean. A one standard deviation increase in $\%EMPL_record$ corresponds to a decrease in AQ of about 1.0% of the variable's mean.²³

4.7 Channels through which Corporate Culture influences Crime

Liu (2016) explains that the theory of corporate culture predicts two channels through which corporate culture influences individuals' behavior and thereby firm outcomes. First, managers (for example those with criminal records) attract workers who share their beliefs through sorting mechanisms (Van den Steen 2010) (for example those with criminal records.) Second, individuals are likely to act in accordance with the firm culture because individuals seek to conform to group norms (Elster 1989; Hackman 1992) and learn from their peers (Akers 1973).

Regarding the first part, I do find that CEOs with criminal records tend to employ more employees with criminal records. Firms with CEOs with criminal records on average employ 37% more employees with criminal records than do other firms.²⁴ This provides empirical evidence for an underlying assumption of Liu (2016) and Biggerstaff et al. (2015); that top managers tend to

²³ Call et al. (2017) report that one standard deviation change in their proxies for employees' education is associated with a change in AQ between 3.8 and 5.4%.

²⁴ According to columns 6 through 8 of Table 2, firms' employees with criminal records constitute about 20.8% (15.2%) of the workforce when the firm's CEO has a (has no) criminal record.

employ employees with who share their beliefs. However, significant variation exists in this relationship. The standard deviation of *%EMPL_record* for firms with (without) a record-holder CEO corresponds to 69% (71%) of the mean of the variable.

Regarding the second part, Regenburg and Seitz (2021), who base their analysis on a comparable dataset, show that the propensity for newly hired employees to commit new crime increases with the proportion of coworkers with criminal records. This holds for both new employees who had criminal records at hire and new employees who did not. Collectively, these results are consistent with the theoretical predictions regarding corporate culture.

5. Conclusion

This paper hypothesizes and provides evidence that firms with an opportunistic corporate culture, as measure by the criminal records of CEOs and rank-and-file employees, are more likely to report opportunistically. First, I hypothesize and find that firms with CEOs with criminal records are associated with opportunistic reporting outcomes. Second, based on prior theoretical work on corporate culture, I predict that the percentage of a firm's employees with criminal records captures an aspect of corporate culture not explained by the traits of a firm's executives. I identify several channels through which employees can influence financial reporting, and empirically document that the percentage of employees with criminal records is positively associated with opportunistic financial reporting outcomes, incrementally to the CEO.

The results of this paper extend recent research on corporate culture and financial reporting (Biggerstaff et al. 2015; Liu 2016) by providing evidence that employee traits, incremental to top managers' traits, capture an aspect of corporate culture which is associated with a firm's financial reporting. The paper has implications for researchers interested in corporate culture and firm outcomes, and suggests that proxies of employee traits are powerful measures of corporate culture.

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Appendix

Appendix A. Variable definitions

Variable	Definition
Firm	
<i>TA</i>	Total assets
<i>TLTA</i>	$TL/TA_t = \frac{Total\ liabilities_t}{Total\ assets_t}$
<i>SD_ROA</i>	Standard deviation of <i>ROA</i> . Calculated with the five most recent years' data, requiring at least three years' observations.
<i>PPE</i>	$PPE_t = \frac{Tangible\ fixed\ assets_t}{Total\ assets_t}$
<i>FirmAge</i>	A firm's age measured in years since incorporation.
$\ln(FirmAge)$	Logarithm of 1+ <i>FirmAge</i>
<i>IndependentBoard</i>	<i>IndependentBoard</i> is an indicator value that takes the value one if the firm has a board on which the CEO does not serve, and zero otherwise.
<i>NewFinance</i>	<p>Following Godsell et al. (2017) p 445:</p> <p><i>NewFinance</i> takes the value one if:</p> $\frac{equity_{t+1} - (equity_{t-1} + net\ income_{t+1} + net\ income_t)}{Total\ assets_{t-1}} > 0.05$ <p>or</p> $\frac{Long\ term\ debt_{t+1} - Long\ term\ debt_{t-1}}{Total\ assets_{t-1}} > 0.05$ <p>, and zero otherwise</p>
<i>Industry</i>	<p>Industry indicators based on NACE Rev. 2 sections (21 industries).</p> <p>For industry codes reported with NACE Rev. 1.1 (prior to 2008) I use a conversion table generously provided by Carolina Villegas Sanchez, based on the paper by Kalemli-Ozcan et al. (2015).</p>
Accrual	
<i>EMPLGR</i>	$EMPLGR_t = \frac{Employees_t - Employees_{t-1}}{Employees_{t-1}}$

Where *Employees* denotes the number of full-time equivalent employees.

$$ROA \quad ROA_t = \frac{Net\ Earnings_t}{Total\ assets_{t-1}}$$

$$NOA \quad NOA_t = \frac{NOA_BS_t}{Total\ assets_{t-1}}$$

Where

NOA_BS is net operating assets before scaling

$$NOA_BS = Operating\ assets - Operating\ liabilities$$

Where

$$\begin{aligned} Operating\ assets \\ &= Total\ assets - cash\ and\ cash\ equivalents \\ &\quad - properties\ held\ for\ sale \\ &\quad - receivables\ from\ closely\ related\ parties \end{aligned}$$

$$\begin{aligned} Operating\ liabilities \\ &= Total\ liabilities - current\ part\ of\ mortgage \\ &\quad - current\ part\ of\ bank\ debt \\ &\quad - liabilities\ to\ closely\ related\ parties \\ &\quad - dividends\ if\ included\ in\ current\ liabilities \\ &\quad - long\ term\ interest\ bearing\ debt \end{aligned}$$

$$OPACC \quad OPACC_t = \frac{NOA_BS_t - NOA_BS_{t-1}}{Total\ assets_{t-1}}$$

$$OPCF \quad OPCF_t = \frac{Net\ income_t - (NOA_BS_t - NOA_BS_{t-1})}{Total\ assets_{t-1}}$$

$DumOPCF$ $DumOPCF$ takes the value 1 if $OPCF < 0$, and zero otherwise.

$DACC$ Comprehensive discretionary accruals, defined as the residuals from the estimation model below (Eq. A1).

$$\begin{aligned} OPACC_{it} = & \alpha_0 + \beta_1 EMPLGR_{it} + \beta_2 EMPLGR_{it+1} + \beta_3 EMPLGR_{it} * \\ & NOA_{t-1} + \beta_4 OPCF_{it-2} + \beta_5 OPCF_{it-1} + \beta_6 OPCF_{it} + \beta_7 DumOPCF_{it} + \\ & \beta_8 OPCF_{it} * DumOPCF_{it} + \beta_9 OPCF_{it+1} + \beta_{10} OPCF_{it+2} + \\ & \beta_{11} ROA_{it-1} + \sum Industry + \sum Year + \varepsilon_{it} \end{aligned} \quad (A1)$$

$NACC$ Comprehensive normal accruals, defined as the predicted values from estimating Eq. A1

Conservatism

$$OCF_t = \frac{Net\ income_t - (WCACC_t - WCACC_{t-1}) + depreciation_t}{TA_{t-1}}$$

Where WCACC is working capital accruals before scaling by assets.

$$WCACC = \frac{WC\ Assets_t - WC\ Liabilities_t}{TA_{t-1}}$$

Where

$$WC\ Assets = \begin{aligned} &Current\ assets - cash\ and\ cash\ equivalents \\ &\quad - properties\ held\ for\ sale \\ &\quad - receivables\ from\ closely\ related\ parties \end{aligned}$$

$$WC\ Liabilities = \begin{aligned} &Current\ liabilities - current\ part\ of\ mortgage \\ &\quad - current\ part\ of\ bank\ debt \\ &\quad - liabilities\ to\ closely\ related\ parties \\ &\quad - dividends\ if\ included\ in\ current\ liabilities \end{aligned}$$

DumOCF Indicates that *OCF* is negative.

$$\Delta Earnings_t = \frac{Net\ income_t - Net\ income_{t-1}}{TA_{t-1}}$$

DumΔEarnings Indicates that *ΔEarnings* is negative.

Accruals quality

AQ Accruals quality (*AQ*) is the standard deviation of discretionary accruals (*DACC*). It is calculated with the five most recent years' data, requiring at least three years' observations.

Revenue volatility Revenue volatility (*Revenue volatility*) is the standard deviation of revenues scaled by assets. It is calculated with the five most recent years' data, requiring at least three years' observations. To extend the availability of revenues data (the majority of firms are subject to exemption rules allowing them to not report revenues), I obtain access to proprietary data on revenue from tax filings through Statistics Denmark.

Cash flow volatility Cash flow volatility (*Cash flow volatility*) is the standard deviation of operating cash flows (*OCF*). It is calculated with the five most recent years' data, requiring at least three years' observations.

$$Intangibles/TA = \frac{Intangible\ assets_t}{TA_t}$$

NLosses *NLosses* counts the number of losses (negative net income years) within the last 5 years, requiring at least three years' data.

ln(TA) *ln(TA)* is the logarithm of total assets (*TA*).

PPE

$$PPE_t = \frac{Tangible\ fixed\ assets_t}{Total\ assets_t}$$

CEOs and employees

Record

Record is an indicator variable that takes the value one if an individual has a criminal record as of end of December, and zero otherwise. Traffic-related offences (for example speed tickets or parking tickets) are excluded from the definition.

Employees

Number of full-time equivalent employees. This metric is either extracted from the annual report (through the ORBIS database) or provided by Statistics Denmark.

CEO_record

CEO_record indicates that the CEO of a firm has a criminal record.

%EMPL_record

%EMPL_record denotes a firm's percentage of employees criminal records.

An employee is a person that (1) receives salary from the firm, (2) is registered as an employee at year-end, and (3) is not identified as CEO.

EMPL_record

EMPL_record takes the value one if *%EMPL_record* is above the within-year median and zero otherwise.

Appendix B. Danish crime codes and FBI classifications

English description	Danish code	White-Collar crime			FBI NIBRS classification			
		Fraud	Legal	Corporate	Person	Property	Society	Other
Forgery	1304	X				X		
Forgery by check	1308	X				X		
Embezzlement	1354	X				X		
Fraud (credit, unemployment etc.)	1357	X				X		
Fraud (checks)	1360	X				X		
Breach of trust (using checks, credit cards, computers)	1363	X				X		
Extortion and usury	1366	X				X		
Debtor fraud	1372	X				X		
Tax fraud	1384	X						X
Serious fraud cases (accounting fraud, etc.)	1398	X				X		
Counterfeiting money and legal evidence	1430	X						X
Breaking tax laws	3610	X						X
Money laundering and related acts	3810	X						X
Legal abuse, confidential breach, court office	1415		X					X
False statement to court	1420		X					X
False statement	1425		X					X
Illegal occupation (gambling, begging, service business)	1450		X					X
Breaches confidentiality, racial discrimination, defamation, etc.	1485		X					X
Health and social legislation	3815			X				X
Housing and construction laws	3820			X				X
Environmental law violations	3825			X				X
Employer violations (driving, hours, wages)	3835			X				X
Corporate laws (competition, marketing, accounting, etc.)	3840			X				X
Assault against public servant while in discharge of his duty	1210				X			
Riot/ disturbance of public order	1220				X			
Attempted homicide	1240				X			
Common assault	1252				X			
Grievous assault	1255				X			
Particularly grievous assault	1258				X			
Domestic violence against innocent	1260				X			
Intentional bodily harm	1270				X			
Intentional bodily injury	1280				X			
Threats	1292				X			
Homicide	1230				X			
Involuntary manslaughter/ bodily harm	1283				X			
Involuntary manslaughter with driving accident	1460				X			
Crimes against life and body (e.g., contribution to suicide, not helping injured)	1286				X			
Crimes against personal freedom (e.g., detention, trafficking)	1289				X			
Incest.	1110				X			
Rape, etc.	1120				X			
Heterosexual sexual offense against child under 12 years	1130				X			
Sexual offense against child under 12 years	1131				X			
Heterosexual offense in general	1140				X			

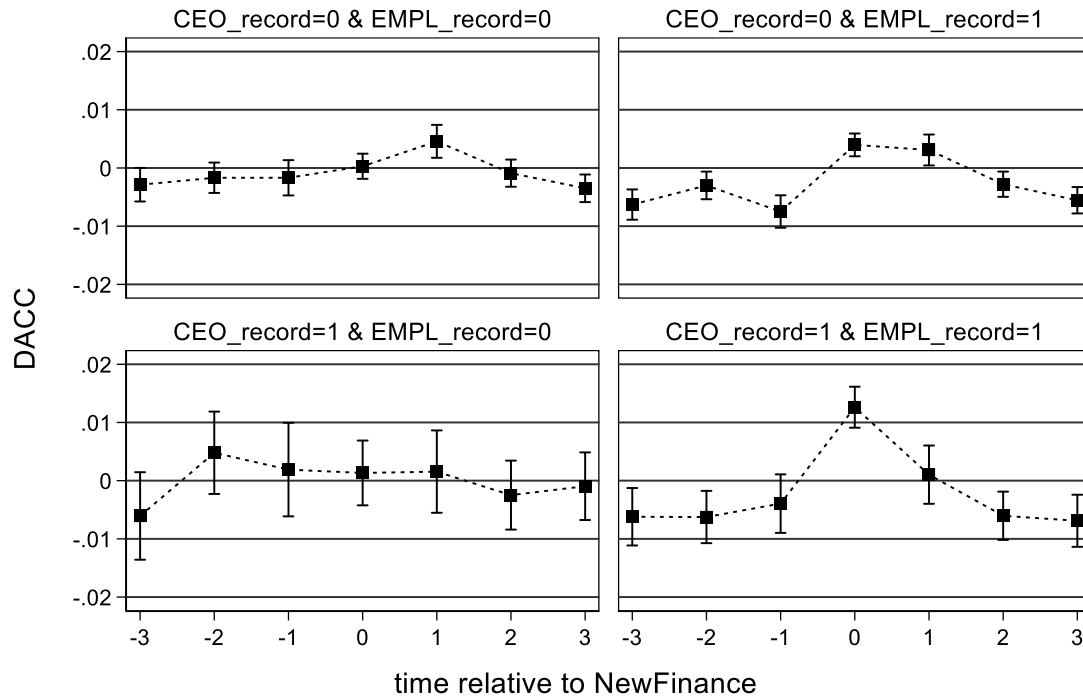
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English description	Danish code	White-Collar crime			FBI NIBRS classification			
		Fraud	Legal	Corporate	Person	Property	Society	Other
Sexual crime against child between 13 and 14 years	1141				X			
Sexual crime in general	1145				X			
Homosexual sexual offense against children under 12 years	1150				X			
Homosexual sexual offenses in general	1160				X			
Arson	1312					X		
Burglary from location/business	1316					X		
Burglary from house/apt	1320					X		
Burglary from uninhabited buildings	1324					X		
Vandalism	1390					X		
Theft from car, boat, etc.	1328					X		
Store Thefts etc.	1332					X		
Other thefts	1336					X		
Larceny by finding	1351					X		
Theft of registered vehicle	1339					X		
Theft of moped	1342					X		
Theft of bike	1345					X		
Theft of other vehicle	1348					X		
Robbery	1380					X		
Handling stolen goods	1376					X		
Careless handling of stolen goods	1394					X		
Drug trafficking	1435						X	
Drug smuggling	1440						X	
Euphoriant act (narcotics)	3210						X	
Legislation related to gambling, licencing, trade	3855						X	
Prostitution, etc.	1180						X	
The Firearms Act	3410						X	
Unknown criminal types	1000							X
Offenses against decency (by pawing)	1172							X
Offense against public decency (by removing cloths)	1174							X
Offense against public decency (other)	1176							X
Offenses against official authorities	1410							X
General public offenses	1445							X
Family relation offense	1455							X
Privacy infringements, defamation	1475							X
Laws concerning. animals, hunting, etc.	3830							X
Legislation applying to the armed forced	3845							X
Legislation applying to public utilities	3850							X
Special laws, other	3865							X
Unspecified legislation	3870							X

This table shows the mapping of the crime codes used by the Danish Criminal Registry to the FBI white-collar crime definitions and FBI NIBRS classifications from Appendix F and H in Andersen et al. (2020). The FBI NIBRS classes are crimes against persons, crimes against property, crimes against society, and other crimes, abbreviated respectively. X marks the corresponding category.

Figures

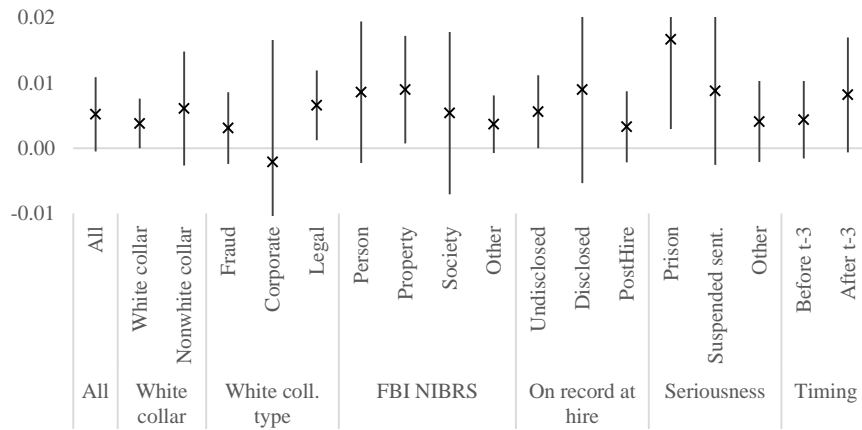
Figure 1. Time-series discretionary accruals relative to *NewFinance*, by criminal records of CEOs and employees



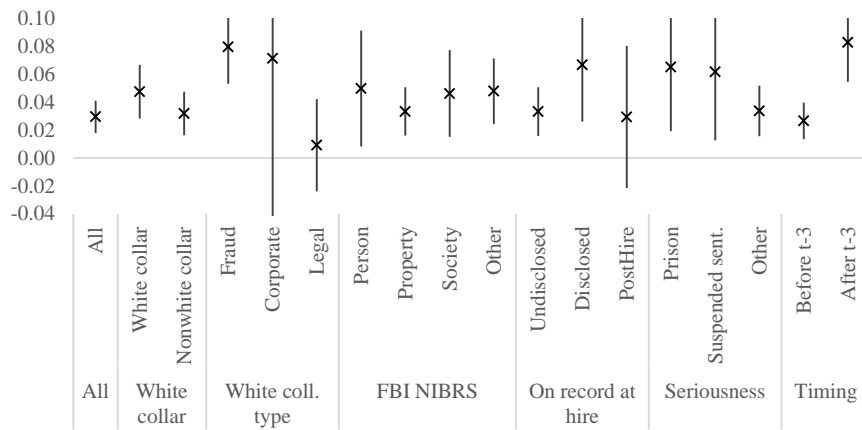
This figure shows the development in discretionary accruals (*DACC*) before and after a firm raises of new finance (*NewFinance*), by *CEO_record* (indicates CEOs with criminal records) and *EMPL_record* (indicates that the percentage of employees with criminal records is above the within year median). The lower panels (the panels to the right) show the development in *DACC* when the CEOs have criminal records (when the percentage of employees with criminal records is above the within year median). Ranges denote 95% confidence intervals. *DACC* is winsorized at the 1 and 99 percent level.

Figure 2. Types of crime

Panel A: CEOs



Panel B: Employees.



This figure shows the coefficient estimates of *CEO_record* (Panel A) and *%EMPL_record* (Panel B), as well as their 95% confidence intervals, using different types of crime on individuals' records. The coefficient estimates are from estimating Eq. 1 using only observations related to the firms raising new finance (*NewFinance*=1), comparable to the results reported in column 5 of Table 5. Section 4.3 outlines the crime categorizations.

Tables

Table 1. Sample selection

Note	Screen applied	Firm-Years	Firm-years dropped	Δ Firm-years (%)
1	Firm-years with employer-employee link for the years 1998-2016. Only financial reports covering 12 months.	768,697		
2	Remove certain industries	680,313	88,384	-11
3	Remove subsidiaries	671,759	8,554	-1
	Remove listed firms	670,094	1,665	0
4	Remove firm-years with assets below DKK 4 million (EUR 533,333)	378,855	291,239	-43
4	Remove firm-years with less than 12 full-time equivalent employees	173,567	205,288	-54
5	Remove firm-years that exceed two of three SME thresholds.	164,849	8,718	-5
	Keep observations with data available for estimating Eq. 1	97,106	67,743	-41

This table shows the sample selection procedure. Notes: (1) I collect accounting data for firms with at least DKK 1 million. (2) Consistent with prior accounting and finance research I exclude certain regulated industries (financials and utilities), and state-owned companies. (3) To avoid double counting I exclude subsidiaries for which the parent company is identified in the sample and report consolidated financial reports. (4) impose the minimum size requirements according to the current auditing thresholds in Denmark (Bernard et al. 2018). The minimum thresholds assure that all the sample firms undergo mandatory audit, that mom-and-pop stores do not drive our results, and that I have variation in the traits used to describe employees. (5) I exclude companies that exceed two of three of the Small and Medium sized Enterprise (SME) thresholds set by the European Commission available at https://ec.europa.eu/growth/smes/sme-definition_en because the inclusion of these large companies could differ fundamentally from SMEs (the majority of the sample) in many other aspects, thus confounding my results. To extend the availability of revenues data (the majority of firms are subject to exemption rules allowing them to not report revenues) needed to compute the SME category, I obtain access to proprietary data on revenue from tax filings through Statistics Denmark. If revenue data are still unavailable, I use only total assets and the number of employees to define SMEs.

Table 2. Descriptive statistics

Sample:	Full					CEO _record =1	CEO _record =0	
	N=97,106					N=16,928	N=80,178	
	Mean (1)	SD (2)	Q1 (3)	Median (4)	Q3 (5)	Mean (6)	Mean (7)	Diff. (8)
Firm								
<i>TA</i> (EUR million)	5.752	17.946	1.270	2.405	5.349	5.070	5.896	-0.826***
<i>TLTA</i>	0.655	0.221	0.511	0.672	0.806	0.667	0.653	0.014***
<i>SD_ROA</i>	0.087	0.104	0.033	0.057	0.100	0.088	0.087	0.000
<i>PPE</i>	0.256	0.231	0.063	0.179	0.406	0.296	0.247	0.049***
<i>FirmAge</i>	19.560	13.814	10.000	16.000	25.000	17.833	19.925	-2.091***
<i>IndependentBoard</i>	0.202	0.402	0.000	0.000	0.000	0.127	0.218	-0.091***
<i>NewFinance</i>	0.241	0.428	0.000	0.000	0.000	0.246	0.240	0.006*
Accrual estimation								
<i>DACC</i>	0.000	0.084	-0.043	-0.000	0.043	0.001	-0.000	0.002**
<i>NACC</i>	0.034	0.174	-0.063	0.017	0.112	0.035	0.033	0.001
<i>EMPLGR</i>	0.035	0.175	-0.061	0.000	0.095	0.042	0.034	0.008***
<i>ROA</i>	0.070	0.135	0.007	0.053	0.127	0.071	0.069	0.002*
<i>NOA</i>	0.466	0.317	0.270	0.489	0.678	0.481	0.463	0.018***
<i>OPACC</i>	0.034	0.204	-0.070	0.017	0.121	0.037	0.033	0.004**
<i>OPCF</i>	0.035	0.237	-0.069	0.038	0.154	0.033	0.035	-0.002
<i>DumOPCF</i>	0.400	0.490	0.000	0.000	1.000	0.406	0.398	0.008*
Conservatism								
<i>OCF</i>	0.097	0.209	-0.008	0.088	0.201	0.107	0.094	0.013***
<i>WCACC</i>	0.025	0.158	-0.053	0.015	0.095	0.024	0.025	-0.001
<i>DumOCF</i>	0.267	0.442	0.000	0.000	1.000	0.246	0.271	-0.025***
<i>ΔEarnings</i>	0.009	0.112	-0.040	0.004	0.050	0.010	0.008	0.001
<i>DumΔEarnings</i>	0.466	0.499	0.000	0.000	1.000	0.464	0.466	-0.002
Accruals quality								
<i>AQ</i>	-0.066	0.045	-0.085	-0.055	-0.035	-0.067	-0.066	-0.001***
<i>Revenue volatility</i>	0.525	0.482	0.207	0.383	0.681	0.526	0.525	0.001
<i>Cash flow volatility</i>	0.149	0.099	0.076	0.125	0.196	0.148	0.149	-0.001
<i>Intangibles/TA</i>	0.024	0.065	0.000	0.000	0.011	0.021	0.024	-0.003***
<i>NLosses</i>	0.190	0.261	0.000	0.000	0.333	0.186	0.191	-0.005**
<i>ln(TA)</i>	9.958	1.039	9.162	9.800	10.600	9.864	9.978	-0.114***
<i>PPE</i>	0.256	0.231	0.063	0.179	0.406	0.296	0.247	0.049***
CEO and employee								
<i>Employees</i>	36.980	35.315	16.000	24.000	41.000	33.259	37.765	-4.506***
<i>CEO_record</i>	0.174	0.379	0.000	0.000	0.000	1.000	0.000	1.000
<i>%EMPL_record</i>	0.162	0.117	0.077	0.138	0.220	0.208	0.152	0.056***

This table shows the descriptive statistics. The variables include firm-related variables, variables used for the estimation of accruals, conservatism, and accruals quality, and variables related to the CEO and the employees. Appendix A defines the variables. All financial ratios are winsorized at the 1 and 99 percent level. ***, **, * Represent significance levels at 0.01, 0.05, and 0.10, respectively (two-tailed test).

Table 3. Discretionary accruals during new finance issues by criminal records of CEOs and employees

<u>Panel A: CEOs' criminal records and discretionary accruals</u>				
	<u>CEO_record=0</u>	<u>CEO_record=1</u>	<u>Diff.</u>	
<i>DACC</i>	0.002*** (2.94)	0.009*** (5.83)	0.007*** (3.86)	
N	19,229	4,167	23,396	
<u>Panel B: Employees' criminal records and discretionary accruals</u>				
	<u>EMPL_record=0</u>	<u>EMPL_record=1</u>	<u>Diff.</u>	
<i>DACC</i>	0.001 (0.58)	0.006*** (6.74)	0.005*** (4.00)	
N	11,155	12,241	23,396	
<u>Panel C: CEOs' and employees' criminal records and discretionary accruals</u>				
		<u>EMPL_record=0</u>	<u>EMPL_record=1</u>	<u>Diff.</u>
<i>CEO_record=0</i>	<i>DACC</i>	0.000 (0.43)	0.004*** (3.91)	0.003** (2.34)
	N	9,711	9,518	19,229
<i>CEO_record=1</i>	<i>DACC</i>	0.001 (0.49)	0.013*** (7.17)	0.011*** (3.59)
	N	1,444	2,723	4,167
	Diff.	0.001 (0.30)	0.009*** (4.25)	0.008** (2.22)
	N	11,155	12,241	23,396

This table shows the mean of discretionary accruals (*DACC*) when the firm issues new finance (i.e. conditioned by *NewFinance*=1), by *CEO_record* (indicates that the CEO has a criminal record) and *EMPL_record* (indicates the percentage of employees with criminal records is above the within-year median). *t* statistics are in parentheses. ***, **, * Represent significance levels at 0.01, 0.05, and 0.10, respectively (two-tailed test). *DACC* is winsorized at the 1 and 99 percent level.

Table 4. Types of crime and discretionary accruals

Mean of variable:	CEOs		Employees		
	<i>CEO _record</i>	<i>DACC</i>	<i>%EMPL _record</i>	<i>DACC</i>	<i>DACC</i>
Sample:	<i>CEO_record=1 & NewFinance=1</i>		<i>%EMPL_record > within year median & NewFinance=1</i>	<i>%EMPL-record > within year 80th percentile & NewFinance=1</i>	
Offense	(1)	(2)	(3)	(4)	(5)
All	0.174	0.009	0.162	0.006	0.010
White-collar					
White-collar	0.104	0.010	0.052	0.006	0.010
Nonwhite-collar	0.090	0.006	0.133	0.006	0.010
White-collar types					
Fraud	0.049	0.007	0.035	0.006	0.008
Legal	0.007	0.011	0.006	0.002	0.005
Corporate	0.058	0.013	0.015	0.005	0.011
FBI NIBRS					
Person	0.025	0.009	0.040	0.006	0.009
Property	0.057	0.008	0.100	0.004	0.009
Society	0.020	0.004	0.034	0.004	0.006
Other	0.103	0.010	0.047	0.007	0.011
Seriousness					
Imprisonment	0.008	0.018	0.021	0.004	0.010
Suspended sentence	0.016	0.009	0.032	0.005	0.009
Other (e.g., fines)	0.149	0.008	0.109	0.005	0.009
On record					
Undisclosed	0.101	0.007	0.111	0.005	0.009
Disclosed	0.007	0.009	0.024	0.005	0.009
PostHire	0.066	0.011	0.027	0.006	0.009
Timing					
Before $t - 3$	0.164	0.008	0.144	0.006	0.010
After $t - 3$	0.019	0.010	0.035	0.007	0.008

This table shows the distribution of convictions per CEOs and employees. Column 1 shows the mean of firm-years in which a CEO has a criminal record pertaining to the respective crime category. Column 2 shows the mean of discretionary accruals (*DACC*) when firms issue new finance (*NewFinance=1*) conditional on the CEO having a criminal record pertaining to the respective crime category. For comparison, the mean *DACC* conditional on *NewFinance=1* in the full sample is about 0.003. Column 3 shows the mean percentage of employees with criminal records pertaining to the respective crime category. Column 4 shows the mean of discretionary accruals (*DACC*) when firms issue new finance (*NewFinance=1*) conditional on the proportion of employees with a criminal record pertaining to the crime code is above the within year median. Column 5 shows the mean of discretionary accruals (*DACC*) when firms issue new finance (*NewFinance=1*) conditional on the proportion of employees with a criminal record pertaining to the crime code is above the within-year 80th percentile.

Appendix B maps the crime codes used in the Danish Criminal Registers to the *White-collar* and *FBI NIBRS* categories. The *Seriousness* variables denote the most serious penalty imposed on an individual. The *On record* category denotes whether a crime was disclosed on the certificate of criminal record at hiring (used by employers to screen criminal records.) *PostHire* indicates that the first crime was committed after hiring. *Before $t - 3$* (*After $t - 3$*) indicates that an individual had committed crime before (after) the end of year $t - 3$.

The total percentage of the *White-Collar*, *FBI NIBRS*, and *Timing* categories (for example, the sum of the percentages reported in column 1 regarding Person, Property, Society, and Other) differs from the percentage of record holders reported in Table 2, because one person can be involved in several criminal actions. For the *Seriousness* and *On Record* categories, the classifications are mutually exclusive.

Table 5. Main analysis. Discretionary accruals and criminal records of CEOs and employees

		Dep. variable: $OPACC_t$				New $Finance_t$ =1
		Full sample				
	Exp. sign	(1)	(2)	(3)	(4)	(5)
Executives' and employees' criminal records						
CEO_record_t	? / + ^a		0.0011 (1.51)	0.0009 (1.42)	-0.0001 (-0.06)	0.0052* (1.79)
$CEO_record_t \times NewFinance_t$	+		0.0084*** (2.85)	0.0060** (2.02)	0.0044 (1.40)	
$\%EMPL_record_t$? / + ^a			0.0123** (2.22)	0.0170** (2.61)	0.0296*** (5.01)
$\%EMPL_record_t \times NewFinance_t$	+			0.0399*** (5.76)	0.0252*** (3.40)	
$NewFinance_t$	+	0.0068** (2.19)	0.0053* (1.70)	-0.0010 (-0.33)	0.0014 (0.57)	
Firm controls						
$\ln(TA)_t$?	0.0009* (1.73)	0.0009* (1.80)	0.0011** (2.19)	0.0490*** (9.78)	-0.0005 (-0.48)
$\ln(FirmAge)_t$?	-0.0089*** (-9.77)	-0.0088*** (-9.50)	-0.0088*** (-9.50)	-0.0337*** (-6.25)	-0.0120*** (-7.12)
$TLTA_t$?	-0.0967*** (-13.94)	-0.0967*** (-13.95)	-0.0973*** (-14.07)	-0.2461*** (-16.42)	-0.1379*** (-12.15)
SD_ROA_t	?	-0.0194 (-1.40)	-0.0194 (-1.40)	-0.0193 (-1.39)	0.0578* (2.52)	-0.1091*** (-5.12)
PPE_t	?	-0.0057** (-2.24)	-0.0061** (-2.46)	-0.0073*** (-3.08)	-0.0560*** (-6.32)	0.0123** (2.57)
Discretionary accruals controls						
$EMPLGR_t$	+	0.0803*** (14.68)	0.0803*** (14.75)	0.0800*** (14.40)	0.0779*** (13.52)	0.0765*** (6.23)
$EMPLGR_t * NOA_{t-1}$	+	0.0216* (1.87)	0.0214* (1.84)	0.0207* (1.79)	0.0087 (0.82)	0.0186 (1.05)
$EMPLGR_{t+1}$	+	0.0968*** (24.73)	0.0968*** (24.72)	0.0969*** (25.26)	0.0769*** (20.23)	0.1194*** (15.87)
$OPCF_{t-2}$	+	0.0415*** (13.44)	0.0415*** (13.42)	0.0415*** (13.42)	0.0336*** (12.67)	0.0430*** (11.13)
$OPCF_{t-1}$	+	0.0772*** (13.79)	0.0772*** (13.80)	0.0771*** (13.84)	0.0800*** (22.11)	0.0776*** (8.37)
$OPCF_t$	-	-0.6810*** (-98.56)	-0.6809*** (-97.93)	-0.6810*** (-97.66)	-0.7267*** (-126.82)	-0.6835*** (-75.23)
$DumOPCF_t$?	0.0139*** (6.44)	0.0139*** (6.47)	0.0138*** (6.43)	0.0127*** (7.03)	0.0144*** (4.46)
$DumOPCF_t * OPCF_t$	+	-0.1277*** (-9.51)	-0.1278*** (-9.54)	-0.1283*** (-9.58)	-0.1043*** (-9.51)	-0.1217*** (-8.47)
$OPCF_{t+1}$	+	0.1064*** (22.96)	0.1063*** (22.95)	0.1063*** (23.04)	0.0702*** (18.34)	0.1059*** (15.89)
$OPCF_{t+2}$	+	0.0525*** (17.87)	0.0525*** (17.78)	0.0525*** (17.80)	0.0258*** (9.98)	0.0741*** (10.90)
ROA_{t-1}	+	0.2516*** (12.95)	0.2512*** (12.94)	0.2505*** (13.00)	0.0142 (0.97)	0.2863*** (10.96)

Industry fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Firm fixed effects				Yes	
N	97,106	97,106	97,106	97,106	23,396
R ² adjusted	0.7864	0.7864	0.7866	0.8279	0.8016

This table shows the results of estimating Eq. 1 and examines whether the criminal records of CEOs and employees are associated with signed discretionary accruals when a firm raises new finance. The dependent variable, *OPACC*, is comprehensive accruals (both current and non-current) scaled by assets. *CEO_record* indicates that a CEO with a criminal record. *%EMPL_record* denotes the percentage of employees with criminal records. *NewFinance* indicates that the firm issues new finance in year t or $t + 1$. Appendix A defines all the variables. Standard errors are clustered by firm and year (Gow et al. 2010). t statistics are in parentheses. ***, **, * Represent significance levels at 0.01, 0.05, and 0.10, respectively (two-tailed test). All financial ratios are winsorized at the 1 and 99 percent level.

^a Denotes the expectations for the sample limited to new finance observations in column 5.

Table 6. Subsample analysis

Sample:	Exp. sign	Dep. variable: $OPACC_t$					
		<i>IndependentBoard</i>		<i>Size (TA)</i>		<i>Size (Employees)</i>	
		Yes	No	Large	Small	Large	Small
		(1)	(2)	(3)	(4)	(5)	(6)
CEO_record_t	+	-0.0020 (-0.40)	0.0052* (1.90)	0.0086*** (2.90)	-0.0003 (-0.08)	0.0084*** (2.76)	0.0003 (0.07)
$\%EMPL_record_t$	+	0.0480*** (2.74)	0.0236*** (3.40)	0.0229* (1.78)	0.0380*** (4.84)	0.0185 (1.61)	0.0420*** (5.65)
Firm controls		Yes	Yes	Yes	Yes	Yes	Yes
Accrual controls		Yes	Yes	Yes	Yes	Yes	Yes
Industry FE		Yes	Yes	Yes	Yes	Yes	Yes
Year FE		Yes	Yes	Yes	Yes	Yes	Yes
N		5,634	17,762	12,924	10,472	12,356	11,040
Adjusted R sq.		0.7601	0.8195	0.8330	0.7673	0.8035	0.8027

H0: Diff. **$CEO_record=0$**

Difference	0.0072	-0.0089	-0.0081
z-value	1.26	-1.86*	-1.54
p-value	0.207	0.063	0.123

H0: Diff. **$\%EMPL_record=0$**

Difference	-0.0244	0.0151	0.0235
z-value	-1.29	1.00	1.72*
p-value	0.195	0.316	0.086

This table shows the results of estimating Eq. 1 on subsamples. To ease the interpretation of the coefficients I use only new finance observations ($NewFinance=1$), comparable to the results reported in column 5 of Table 5. Columns 1 and 2 split the sample by firms having an independent board (*IndependentBoard*), as measured as a board on which the CEO does not have a seat. *IndependentBoard* proxies for governance. Columns 3 and 4 split the sample by the size of their total assets (*TA*). Large (small) firms have assets that are above (below) the within-year median. Columns 5 and 6 split the sample firms by the number of their full-time equivalent employees (*Employees*). Large (small) firms have a number of employees that is above (below) the within-year median. *Firm controls* and *Accrual controls* are estimated, but not reported, and cover the variables used in Table 5. All variables are described in detail in Appendix A. Standard errors are clustered by firm and year (Gow et al. 2010). *t* statistics are in parentheses. ***, **, * Represent significance levels at 0.01, 0.05, and 0.10, respectively (two-tailed test). All financial ratios are winsorized at the 1 and 99 percent level.

Table 7. Entropy-balanced sample

		Dep. variable: $OPACC_t$ Sample: $NewFinance=1$		
	Exp. sign	(1)	(2)	(3)
CEO_record_t	+	0.0056* (2.03)		
$EMPL_record_t$	+		0.0065*** (3.81)	
$CEO_record_t=1$ & $EMPL_record_t=1$	+			0.0089*** (3.87)
Accrual controls		Yes	Yes	Yes
Firm controls		Yes	Yes	Yes
N		23,396	23,396	23,396
R ² adjusted		0.8095	0.8233	0.8402

This table shows the results of estimating Eq. 1 using an entropy-balanced sample. The dependent variable, $OPACC$, is comprehensive accruals (both current and non-current) scaled by assets. CEO_record indicates that a CEO with a criminal record. $EMPL_record$ denotes that the percentage of employees with criminal records ($\%EMPL_record$) is above the median for the year. $NewFinance$ indicates that the firm raises new finance in year t or $t + 1$. The entropy-balanced sample is balanced on three moments (mean, variance, and skewness) and a tolerance of 0.015. Appendix A defines all the variables. Standard errors are clustered by firm and year (Gow et al. 2010). t statistics are in parentheses. ***, **, * Represent significance levels at 0.01, 0.05, and 0.10, respectively (two-tailed test). All financial ratios are winsorized at the 1 and 99 percent level.

Table 8. Estimation of conditional conservatism. Regression of accruals on cash flows

	Exp. sign	(1) $WCACC_t$	(2) $WCACC_t$	(3) $WCACC_t$	(4) $WCACC_t$
OCF_t	-	-0.4540*** (-31.80)	-0.4561*** (-31.68)	-0.4433*** (-24.59)	-0.4632*** (-8.88)
$DumOCF_t$?	0.0217*** (6.84)	0.0212*** (6.28)	0.0271*** (6.23)	0.0832*** (5.96)
$DumOCF_t \times OCF_t$	+	-0.1631*** (-4.59)	-0.1529*** (-4.16)	-0.0976* (-1.81)	0.5283*** (4.87)
CEO_record_t	?		0.0013 (0.87)	-0.0002 (-0.14)	-0.0007 (-0.45)
$CEO_record_t \times OCF_t$?		0.0112 (1.17)	0.0161* (1.70)	0.0166* (1.74)
$CEO_record_t \times DumOCF_t$?		0.0025 (0.54)	0.0040 (0.89)	0.0037 (0.81)
$CEO_record_t \times DumOCF_t \times OCF_t$	-		-0.0661* (-1.80)	-0.0558 (-1.60)	-0.0600* (-1.76)
$\%EMPL_record_t$?			0.0377*** (5.16)	0.0341*** (4.66)
$\%EMPL_record_t \times OCF_t$?			-0.0867** (-2.02)	-0.0835* (-1.94)
$\%EMPL_record_t \times DumOCF_t$?			-0.0443*** (-3.11)	-0.0486*** (-3.43)
$\%EMPL_record_t \times DumOCF_t \times OCF_t$	-			-0.4256** (-2.57)	-0.4710*** (-2.88)
$\ln(TA)_t$?				-0.0055*** (-6.79)
$\ln(TA)_t \times OCF_t$?				0.0016 (0.33)
$\ln(TA)_t \times DumOCF_t$?				-0.0056*** (-4.28)
$\ln(TA)_t \times DumOCF_t \times OCF_t$?				-0.0615*** (-6.36)
Industry FE		Yes	Yes	Yes	Yes
Year FE		Yes	Yes	Yes	Yes
N		95,981	95,981	95,981	95,981
Adjust. R sq.		0.5339	0.5342	0.5354	0.5372

This table shows the results of estimating Eq. 2 and regresses working capital accruals on cash flows from operations, and hence estimates conditional conservatism. The estimation assimilates Table 5 of Ball and Shivakumar (2005). Grey shading highlights the coefficients of interest. The independent variable, $WCACC$, is estimated as the change in net working capital and is scaled by lagged assets. CEO_record indicates that a CEO with a criminal record. $\%EMPL_record$ denotes the percentage of employees with criminal records. Appendix A defines all variables. Standard errors are clustered by firm and year (Gow et al. 2010). t statistics are in parentheses. ***, **, * Represent significance levels at 0.01, 0.05, and 0.10, respectively (two-tailed test). All financial ratios are winsorized at the 1 and 99 percent level.

Table 9. Estimation of conditional conservatism. Regression of changes in net income on lagged changes in net income

	Exp. sign	(1) $\Delta Earnings_{t-1}$	(2) $\Delta Earnings_{t-1}$	(3) $\Delta Earnings_{t-1}$	(4) $\Delta Earnings_{t-1}$
$\Delta Earnings_{t-1}$	0	-0.1085*** (-8.77)	-0.1078*** (-9.36)	-0.0847*** (-6.37)	-0.3443*** (-3.81)
$Dum\Delta Earnings_{t-1}$?	-0.0034*** (-3.96)	-0.0034*** (-3.42)	-0.0012 (-0.75)	0.0026 (0.23)
$Dum\Delta Earnings_{t-1} \times \Delta Earnings_{t-1}$	-	-0.3341*** (-11.00)	-0.3320*** (-10.59)	-0.3327*** (-6.98)	-0.4469** (-2.46)
CEO_record_t	?		0.0011 (0.77)	0.0002 (0.17)	0.0004 (0.25)
$CEO_record_t \times \Delta Earnings_{t-1}$?		-0.0042 (-0.35)	0.0057 (0.49)	0.0069 (0.56)
$CEO_record_t \times Dum\Delta Earnings_{t-1}$?		-0.0006 (-0.40)	0.0003 (0.23)	0.0004 (0.28)
$CEO_record_t \times Dum\Delta Earnings_{t-1} \times \Delta Earnings_{t-1}$	+		-0.0131 (-0.36)	-0.0144 (-0.47)	-0.0099 (-0.33)
$\%EMPL_record_t$?			0.0177*** (2.69)	0.0183*** (2.85)
$\%EMPL_record_t \times \Delta Earnings_{t-1}$?			-0.1584*** (-4.50)	-0.1285*** (-3.50)
$\%EMPL_record_t \times Dum\Delta Earnings_{t-1}$?			-0.0154** (-2.39)	-0.0147** (-2.20)
$\%EMPL_record_t \times Dum\Delta Earnings_{t-1} \times \Delta Earnings_{t-1}$	+			0.0029 (0.02)	0.0091 (0.05)
$\ln(TA)_t$?				0.0016* (1.81)
$\ln(TA)_t \times \Delta Earnings_{t-1}$?				0.0266*** (3.02)
$\ln(TA)_t \times Dum\Delta Earnings_{t-1}$?				-0.0003 (-0.28)
$\ln(TA)_t \times Dum\Delta Earnings_{t-1} \times \Delta Earnings_{t-1}$?				0.0112 (0.61)
Industry FE		Yes	Yes	Yes	Yes
Year FE		Yes	Yes	Yes	Yes
N		97,106	97,106	97,106	97,106
Adjusted R sq.		0.0891	0.0891	0.0894	0.0906

This table shows the results of estimating Eq. 3 and regresses changes in net earnings on lagged changes in net earnings, and hence estimates conditional conservatism. The estimation assimilates Table 4 of Ball and Shivakumar (2005). Grey shading highlights the coefficients of interest. The independent variable, $\Delta Earnings$, is the change in net earnings scaled by lagged assets. CEO_record indicates a CEO with a criminal record. $\%EMPL_record$ denotes the percentage of employees with criminal records. Appendix A defines all variables. Standard errors are clustered by firm and year (Gow et al. 2010). t statistics are in parentheses. ***, **, * Represent significance levels at 0.01, 0.05, and 0.10, respectively (two-tailed test). All financial ratios are winsorized at the 1 and 99 percent level.

Table 10. Informativeness of current earnings about future earnings and cash flows

	Exp. sign	Dep. Variable: ROA_{t+1}			Dep. Variable: OCF_{t+1}		
		(1)	(2)	(3)	(4)	(5)	(6)
CEO_record_t	?		0.0026** (2.13)	0.0021* (1.82)		0.0040* (1.89)	0.0026 (1.31)
$CEO_record_t \times ROA_t$	-		-0.0400*** (-3.02)	-0.0263** (-2.12)		-0.0483*** (-2.90)	-0.0339** (-2.05)
$\%EMPL_record_t$?			0.0083 (1.20)			0.0321*** (3.77)
$\%EMPL_record_t \times ROA_t$	-			-0.2755*** (-6.87)			-0.2953*** (-5.38)
ROA_t	+	0.5582*** (39.41)	0.5646*** (38.72)	0.6039*** (40.93)	0.5078*** (19.74)	0.5155*** (20.16)	0.5572*** (18.76)
$\ln(TA)_t$?	-0.0049*** (-4.77)	-0.0048*** (-4.74)	-0.0049*** (-4.87)	-0.0083*** (-6.17)	-0.0083*** (-6.15)	-0.0081*** (-6.12)
$\ln(FirmAge)_t$?	-0.0027*** (-4.08)	-0.0027*** (-4.15)	-0.0028*** (-4.23)	-0.0062*** (-7.00)	-0.0062*** (-7.05)	-0.0062*** (-7.09)
$TLTA_t$?	-0.0275*** (-8.26)	-0.0276*** (-8.29)	-0.0279*** (-8.18)	-0.0471*** (-4.77)	-0.0471*** (-4.76)	-0.0480*** (-4.80)
SD_ROA_t	?	-0.0398*** (-3.94)	-0.0392*** (-3.87)	-0.0369*** (-3.65)	-0.0546*** (-5.32)	-0.0539*** (-5.27)	-0.0522*** (-5.18)
PPE_t	?	-0.0176*** (-9.11)	-0.0176*** (-9.34)	-0.0175*** (-9.33)	0.0508*** (10.65)	0.0507*** (10.66)	0.0496*** (10.63)
Industry FE		Yes	Yes	Yes	Yes	Yes	Yes
Year FE		Yes	Yes	Yes	Yes	Yes	Yes
N		97,106	97,106	97,106	95,176	95,176	95,176
Adjusted R sq.		0.3714	0.3717	0.3727	0.1720	0.1721	0.1727

This table shows the results of estimating Eq. 4 and examines the predictive ability of current earnings with respect to future earnings and cash flows. The dependent variable ROA (columns 1 through 3) is return on assets (net income scaled by lagged assets). The dependent variable OCF (columns 4 through 6) is operating cash flows (scaled by lagged assets). CEO_record indicates a CEO with a criminal record. $\%EMPL_record$ denotes the percentage of employees with criminal records. Appendix A defines all variables. Standard errors are clustered by firm and year (Gow et al. 2010). t statistics are in parentheses. ***, **, * Represent significance levels at 0.01, 0.05, and 0.10, respectively (two-tailed test). All financial ratios are winsorized at the 1 and 99 percent level.

Table 11. Accruals quality

	Exp. sign	Dep. Variable: AQ ($DACC$ volatility $\times -1$)		
		(1)	(2)	(3)
<i>CEO_record</i>	-		-0.0022*** (-3.19)	-0.0020*** (-2.89)
<i>%EMPL_record</i>	-			-0.0057** (-2.30)
<i>Revenue volatility</i>	-	-0.0144*** (-15.15)	-0.0144*** (-15.15)	-0.0143*** (-15.13)
<i>Cash flow volatility</i>	-	-0.1390*** (-12.20)	-0.1389*** (-12.18)	-0.1389*** (-12.19)
<i>Intangibles/TA</i>	?	-0.0046 (-0.71)	-0.0046 (-0.71)	-0.0050 (-0.76)
<i>NLosses</i>	-	-0.0327*** (-22.99)	-0.0327*** (-22.99)	-0.0327*** (-22.97)
<i>ln(TA)</i>	+	0.0030*** (7.49)	0.0030*** (7.44)	0.0030*** (7.37)
<i>PPE</i>	+	0.0167*** (9.25)	0.0169*** (9.38)	0.0172*** (9.60)
Industry FE		Yes	Yes	Yes
Year FE		Yes	Yes	Yes
<i>N</i>		57,718	57,718	57,718
Adjust. R sq		0.2952	0.2956	0.2958

This table estimates Eq. 5 and examines whether the criminal records of CEOs and employees are associated with accruals quality. The dependent variable accruals quality (AQ) is the standard deviation of abnormal accruals ($DACC$) for the years $t-4$ to t multiplied by -1. (Higher values of AQ then corresponds to higher accounting quality.) *CEO_record* indicates a CEO with a criminal record. *%EMPL_record* denotes the percentage of employees with criminal records. Appendix A defines all variables. Standard errors are clustered by firm and year (Gow et al. 2010). t statistics are in parentheses. ***, **, * Represent significance levels at 0.01, 0.05, and 0.10, respectively (two-tailed test). All financial ratios are winsorized at the 1 and 99 percent level.