Ethics, Performance Measure Choice, and Accounting Manipulation

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Abstract

We examine whether embedding ethical values within the 'fiber' of the firm influences performance measure choices and whether accounting manipulation is more or less severe depending on these ethical values. Based on a sample of 550 managers our findings show that ethical values prevalent in a work unit affect performance measure choice, namely ethical values that "focus on self" increase the use of costly aggregated performance measures that capture the joint performance of multiple work units to promote between-unit cooperation. We estimate that the effect of ethical values on the use of aggregate measures is almost twice as large as the effect of within-firm interdependencies, which have been considered the main determinant of their use in prior literature. We also demonstrate that an ethical work climate with a lower "focus on self" reduces the incidence of accounting manipulation.

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1. Introduction

The Sarbanes-Oxley Act attempted to tackle corporate cultures that fostered unethical behavior by legislating that public companies must disclose whether they have adopted a code of ethics (and if not, why not) for senior financial officers.[1] Stock exchanges around the world followed suit and now require companies to disclose codes of ethics for all directors and employees of the firm.[2] Codification of ethical behavior through legislation may not be sufficient to deter ethical transgressions and firms are under increasing pressure to implement formal and informal mechanisms to embed ethical behavior into the "fiber" of the firm (Victor and Cullen 1988; Schminke, Arnaud and Kuenzi 2007; Pierce and Snyder 2008).[3] Some recent theory papers have pointed out that optimal incentive contracts may vary according to whether firms have a prevailing work climate that is more or less ethical (Sliwka 2007; Fischer and Huddart 2008; Carlin and Gervais 2009). Empirical support for these predictions has been sparse. In addition, it remains an open question whether embedded ethical behavior is associated with those accounting manipulations that have been the focal point of regulatory fervor in recent years. Indeed, Bazerman and Banaji (2004, p. 111) believe that unethical behavior occurs "without the conscious awareness of the actors who engage in them" and thus regulatory changes and even changes in incentive structures within firms may simply bypass the vast majority of such behavior. We shed light on this issue by providing both empirical evidence on whether the properties of the

[1] Sarbanes Oxley Act, Section 406(a)(b).
[2] For example, TSE, ASX and Euronext/Amsterdam all require companies to have a code of conduct.
[3] Indeed, "Enron had a code of ethics that everyone had to sign and it got updated nearly every year. It grew longer and longer with each revision… The code of ethics was starting to reflect that the wheels were coming off and they wanted to ensure that employees would keep quiet". (Sherron Watkins, as cited in Koerwer 2004)

performance measures used in incentive contracts[4] is associated with ethical values and on whether accounting manipulations are more or less severe depending on the ethical values.

While it is difficult to separate individual from ethical values at the firm or work unit level, there is evidence that it is possible to do so (Victor and Cullen 1988; Schminke et al. 2007; Pierce and Snyder 2008). We focus on ethical values that are embedded within a work unit, that is, when there are shared perceptions regarding prevalent ethical-related values, norms, and behaviors among individuals within a department, business unit, or the firm itself. We draw on the well-established management literature that distinguishes different dimensions of ethical work climates (EWCs). There is evidence that EWCs influence different types of ethical transgressions, that they vary across work units, and that individuals can identify the existence of normative patterns within a group quite distinct from their own set of beliefs.

An EWC is one that allows "an individual organizational member to identify the "right" alternative—at least in the organization's view" (Victor and Cullen 1988, p. 101)[5]. We focus on one component of what Schminke et al. (2007) refer to as "collective moral judgment". Collective moral judgment is defined as norms of moral reasoning used to judge what is morally right. It stems from Kohlberg's (1984) notion that there are stages of moral development. At the lower level of collective moral reasoning is the ethical norm where the focus is on "self", while at the higher level the collective reasoning is on "others".[6]

[4] We use the term 'incentive contracts' to refer to the contract an agent has with a principal against which she is measured and rewarded. It is the choice of performance measure that is of particular interest to those in accounting studying incentive contract design.

[5] Those adopting the Victor and Cullen's (1988) framework study EWC at the firm, business unit, or department level. Following this literature we adopt the generic term 'work unit' as our arguments hold for relations among the test variables at the department, business unit or firm level. We are conscious of the advice provided by Luft and Shields (2003) that theory and level of analysis must be consistent and ensure that our data are collected at the level appropriate to test our hypotheses.

[6] Note that both conceptually and in measurement (details follow below), "focus on self" and "focus on others" are different distinct dimensions of moral judgment with different empirical scales. Thus, those work climates which have a low "focus on self" do not necessarily consider others when judging the morally right action. In other words, "focus

An emerging literature in economics argues that the ethical values of agents and/or the prevailing norms in a firm can affect the optimal design of incentive contracts (Sliwka 2007; Fischer and Huddart 2008; Carlin and Gervais 2009).[7] These studies do not, however, address specifically whether performance measures also vary according to the ethical work climate. As accountants, our interest is primarily in the properties of performance measures used in incentive contracts. A set of closely related papers has pointed out that senior managers use aggregate performance measures, i.e., summary measures that capture the performance of more than one organizational unit within the firm, to align the incentives of local managers with the firm's overall objective (Bushman, Indjejikian and Smith 1995; Keating 1997; Abernethy, Bouwens and van Lent 2004; Bouwens, Hofmann and van Lent 2011).[8] These measures, while more noisy than those defined at the local manager's level, are less distorted because they better capture how managerial actions affect firm value. These earlier papers document that aggregate performance measures are especially well tailored for dealing with interdependencies among local units. Interdependencies cause spillover effects; i.e., the decisions of a focal manager can potentially harm or benefit the wealth of other managers in the firm. As aggregate measures capture not just the actions of the focal manager, but also those of other managers in the firm, using these measures is costly as they impose compensation risk on risk averse agents. Our intuition is that when the EWC of a work unit is such that the prevailing ethical norm is "focus on others", senior management will use aggregate measures less and rely instead on the ethical norm to ensure that

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on self" and "focus on others" are *not* extremes of the same underlying construct, but separate stages of moral development.

[7] Recent work by Tayler and Bloomfield (2010) shows that formal controls can also affect the personal norms of people and their tendency to conform to the behavior of those around them. We analyze *work unit* norms (i.e., the ethical work climate) instead of personal norms and argue that these are less likely to be affected by a manager's individual incentive contracts.

[8] For business unit managers, firm-wide measures, such as firm profit or the firm's stock price, are "aggregate" (Abernethy et al. 2004). Robinson, Sikes and Weaver (2010) argue that for managers of functional units (e.g., legal, accounting) profit or return-on-investment is a more aggregate performance measure than costs or revenues associated with their department. For functional managers, we change our definition of "aggregate measure" accordingly.

managers make decisions that do not unduly harm other managers in the firm. In contrast, when "focus on self" is the prevailing norm, then senior management will complement this EWC with incentive contracts that place higher weight on aggregate measures. Our identification strategy relies on existing evidence that a work unit's EWC is embedded into its structural arrangements and permeates the complete organizational architecture (Roberts 2004). As such, changing an EWC is difficult (especially in comparison to changing the weights placed on performance measures in incentive contracts), and we consider it as pre-determined in our tests.

We then examine directly the impact of EWC on accounting manipulation. We define accounting manipulation as including those purposive actions taken to change the reported accounting numbers. We include manipulation of "real" economic activities (e.g., accelerating sales, reduction of discretionary expenditure, buying rather than leasing an asset) and classification shifting (e.g., shifting funds between accounts). Our investigation is motivated by a growing awareness in the literature that accounting manipulation may be a function of lax ethical norms and baneful social influences rather than the equity incentives of senior management (Armstrong, Jagolinzer and Larcker 2010). An EWC that emphasizes a "focus on others", where others include shareholders, other department managers and the firm itself, may provide managers with sufficient cues about what is considered legitimate behavior in the work unit that they refrain from engaging in manipulation. On the other hand, a higher "focus on others" might imply that managers are willing to manipulate accounting numbers if they believe it benefits the firm. For example, by avoiding violating a debt covenant or by evading regulatory attention of monopolistic profits. Despite significant personal monetary and non-monetary costs (including potential incarceration, fines, and a loss of reputation) (Karpoff, Lee and Martin 2008) these managers may undertake earnings management if they believe it benefits the firm. Thus, we do not predict a

signed relation between an EWC with higher "focus on others" and accounting manipulation. When a work unit has a high "focus on self", on the other hand, accounting manipulations may result in higher payoffs to the manager (although the link with equity incentives is somewhat contested) (Armstrong, Guay and Weber 2010). Thus, we predict a positive association between "focus on self" and accounting manipulation.

Similar to prior research our empirical analysis is at the work unit level of analysis. Our data are collected using an online survey conducted by a professional recruiting consultancy on behalf of the Dutch Controllers Institute.[9] This survey allows us to obtain direct data on EWC based on instruments validated in prior research. The use of managers who are members of the Controllers Institute is valuable for several reasons. Foremost, these respondents have expert accounting knowledge, are likely to have some direct input into the accounting reports, and thus will have first-hand knowledge of the degree to which a work unit engages in accounting manipulations. In addition, the managers in our sample vary on one important characteristic, namely the extent to which they are also members of the Dutch professional association of Certified Public Auditors (in addition to their membership of the Controllers Institute).[10] There is some evidence that professional affiliation matters in the reporting behavior of financial managers (Ge, Matsumoto and Zhang 2008; Wang, Petroni and Jiang 2009). Members of a professional association tend to develop common ethical values. This is true for auditors, whose membership is conditional on taking ethics courses as part of the CPA qualification program and on not violating the association's code of conduct. Thus, we can test whether it is the "professional ethics" of

[9] Controller is a general term used in the Netherlands to include financial controllers, internal auditors, CFOs, finance managers, and management accountants.

[10] It is quite common in the Netherlands for financial controllers to have a dual post-graduate degree; one that qualifies them as Certified Public Auditor and one that admits them as members of the Controllers Institute and the title "registered controller".

controllers or the ethical values of the work unit itself (i.e., EWC) that is associated with accounting manipulation.[11]

We find that the choice of performance measure is affected by the ethical work climate. Specifically, we find that higher "focus on self" is positively associated with the weight on aggregate performance measures for annual appraisal, career decisions, and (weakly) bonus decisions. We do not find that "focus on others" affects the weight on aggregate performance measures. We document that the effect of "focus on self" on the weight placed on aggregate measures is almost twice the size as that of within-firm interdependencies on the use of these measures. Interdependencies have so far dominated the literature as the determinant for the use of aggregate measures. Turning our attention to accounting manipulation, we see once again that "focus on self" but not "focus on others" matters. We document a strong positive association between a EWC that focuses on self and the degree of accounting manipulation. In addition, we show that "professional ethics" and EWC are two distinct concepts; work units where the respondent has a CPA degree and is a member of the auditors' professional association engage in significantly lower accounting manipulation. Controlling for CPA degree does not, however, affect the association of interest between EWC and accounting manipulation.

This study makes several contributions to the literature. First, we add to the growing body of theoretical and empirical research across multiple disciplines indicating that an organization can influence the ethical behavior of its employees through the creation of social norms that support "doing the right thing" (Schminke, Ambrose and Neubaum 2005; Schminke et al. 2007; Sliwka 2007; Pierce and Snyder 2008; Pinto, Leana and Pil 2008; Mas and Moretti 2009; Armstrong,

[11] On the other hand, financial controllers may have a-typical compensation contracts compared with line managers. In particular, giving financial controllers incentives to cooperate might be considered less important than doing the same for managers of mutually dependent business units (Bushman et al. 1995). Note, however, that this consideration would work against us finding a relation between EWC and the weight placed on aggregate measures using data about financial controllers.

Guay et al. 2010; Armstrong, Jagolinzer et al. 2010). Our findings show ethical values prevalent in a work unit affect incentive contract design, namely that a focus on self increases the use of costly aggregated performance measures. In the absence of this focus on self, principals can trust agents do the right thing. Second, we demonstrate that an EWC with a lower focus on self reduces the incidence of accounting manipulations. This finding corroborates evidence from a nascent literature that investigates how religious beliefs of corporate executives affect their decision-making, including decisions relating to financial reports (Dyreng, Mayew and Williams 2010; Grullon, Kanatas and Weston 2010; McGuire, Omer and Sharp 2011). While we measure the ethical work climate in a work unit directly, the literature on religious beliefs relies on geographical location proxies (i.e., whether the firm operates in areas with high religious adherence) to infer social norms. Third, we draw on a large set of managers who are members of a financial controllers institute to test our hypotheses. Recent work has emphasized the role of financial executives in the reporting process and, in particular, in earnings management (DeJong and Ling 2010; Feng et al. 2010). We provide evidence that the professional association of managers operating within a work unit is significant in explaining accounting manipulation and incremental to the effect of the ethical values embedded in the work unit.

2. Hypothesis development

2.1 Economic models of ethical behavior

Recently, models have been developed to allow for a "virtuous" agent and to explain how a firm, through its principal, can create a social norm based on trust or fairness (Sliwka 2007; Carlin and Gervais 2009). The interest from economics comes from challenges that incentive contracts "crowd out" intrinsic motivation and thus might not be as efficacious in motivating agents to exert effort (Frey and Jegen 2001; Kunz and Pfaff 2002; Sliwka 2007; Fischer and Huddart 2008).

Sliwka (2007) provides a useful model as it speaks directly to the role of contracting in creating social norms. He departs from models that assume there are only two different type of agents in a firm—what Carlin and Gervais (2009) call egoistic (self-interested) and virtuous (one who can be trusted to do the right thing by others). Sliwka argues that both types of agents are "steadfast"—that is they do not change over time. However, he introduces into his model a third type of agent—the conformist. A conformist is influenced by what he thinks others will do as he is concerned with how others perceive him. The firm can deliberately influence how these conformist agents behave and thus create what becomes a social norm for the firm. A principal's choice to "control" agents by providing incentives or by trusting them[12] signals the social norm. Trust means, in this context, that the principal lets the agent decide how to allocate effort.[13] If the signal is "trust" the conformist will behave as a virtuous agent as he believes that the social norm is that most people are trustworthy. Use of "incentives" on the other hand signals that the principal does not believe employees are trustworthy but rather that they are self-interested. Sliwka's (2007) model illustrates how a credible signal from the principal can change the social norm, as virtuous agents will soon become the majority and crowd out those who prefer a work climate based on self-interest. The effect is exacerbated as virtuous agents will self-select into firms or departments with ethical social norms. Pierce and Snyder (2008) go even further and challenge the assumption that agents are steadfast. These authors provide empirical evidence that demonstrates how the social norm within a firm influences the behavior of its employees. They show that when employees move from one firm to another, their behavior conforms "to the facility that employs them", which suggest the existence of "ethical spillovers" from the firm to its employees (Pierce

[12] While we are not interested in "trust" per se, reviews of the EWC literature indicate that trust is the unifying theme of the numerous frameworks developed to study EWC (Cohen 1995).

[13] Falk and Kosfeld (2006) argue that putting controls in place to direct the behavior of agents can in fact *demotivate* agents to make decisions in the interest of the principal. One example of this would be controlling the internet access of employees, which demonstrates that the principal believes that the agents will be distracted from their work and spend too much time unproductively browsing the web.

and Snyder 2008, p. 1892). Individual personal ethics are constrained or altered by social norms almost immediately (see also, Trevino, Weaver and Reynolds 2006). While separating individual ethics from organizational influences has been a difficult challenge in the extant literature, there is sufficient empirical support that it is possible to isolate collective social norms and assess their impact on employees within the firm (Knez and Simester 2001; Mas and Moretti 2009).

2.2 Ethical work climate and incentive contract design

When principals cannot rely on the prevailing social norm to make agents do the right thing, economic theory suggests that incentive contracts are used instead. As accountants, we are interested in one particular dimension of these contracts, namely the properties of the performance measure specified therein. Prior empirical evidence has suggested a role for aggregate accounting performance measures (such as profits, return-on-investments) to motivate managers to consider other agents in the firm when making decisions (Bouwens and van Lent 2007). When these aggregate measures are defined to summarize the performance of not just the focal manager but also others in the firm (e.g., firm-wide profits), agents are encouraged to cooperate and coordinate decision-making (Bushman et al. 1995; Keating 1997; Abernethy et al. 2004).

We predict the ethical work climate to be a significant factor in explaining the weight on aggregate performance measures in incentive contracts (holding other contract features constant). The weight on performance measures in incentive schemes requires a cost/benefit tradeoff. Using aggregate measures potentially imposes some costs on both the agent and the principal as the measure is noisy; it reflects not only the actions of the focal manager but also the actions of other managers in the firm (Holmstrom 1979; Banker and Datar 1989). In equilibrium, risk averse agents will want to be compensated for taking on this risk. The benefit, however, is that the agent

will consider the externalities of his actions and will thus collaborate with other subunits and coordinate decisions.

When the ethical work climate encourages prioritizing "others" rather than "self", we expect that the use of aggregate measures will decline. Others, in this case, can be interpreted as other managers, subunits, the firm, shareholders or any other group external to the focal unit. Given this work climate, and bearing in mind that "noisy" measures are costly, there is little need to use aggregate accounting performance measures as the social norm will be to think of others. Consequently, managers are more likely to internalize the effects of a decision on others when evaluating alternatives. In contrast, when the prevailing work climate is one where "thinking of self" is the social norm, we expect that the use of aggregate performance measures will increase. These measures will direct the attention of the self-interested agent to the effects of their actions on other subunits or managers (Bouwens, Hofmann and van Lent 2009). Aggregate accounting performance measures are expected to be used to influence the manager to "think of others", that is, to consider the externalities associated with their actions. When the principal cannot rely on the agent to take actions that are consistent with the firm's objectives, she will choose a performance measure that captures these objectives and link the agent's wealth directly to that measure (Feltham and Xie 1994; Baker 2000).

Most prior research discusses the use of aggregate measures in the context of (interdependent) business unit managers. Evidence exists, however, that aggregate measures are also salient for functional level managers (such as financial controllers or CFOs) as they encourage coordination and cooperation vertically and horizontally within the firm (Robinson et al. 2010).[14]

[14] For these managers, even measures defined at their own level, such as business unit profits for a business unit controller, are "aggregate" as they combine costs and revenues which are not dependent on the actions of functional level manager, but rather on those of his operational counterparts in manufacturing or sales, respectively.

Our expectation relating to ethical work climate and the use of aggregate performance measures is as follows:

> **H1:** There will be a positive (negative) association between the weight placed on aggregate accounting performance measures and an ethical work climate where collective moral judgment focuses on self (others).

2.3 Ethical work climate and accounting manipulation

In recent debates on accounting scandals and corporate fraud much attention has been devoted to the putative perverse consequences of executive compensation (see, e.g., Burns and Kedia 2006). The findings from the empirical literature that tries to link the equity incentives of senior management to earnings management and fraud are, perhaps surprisingly, equivocal (O'Connor et al. 2006; Armstrong, Guay et al. 2010; Armstrong, Jagolinzer et al. 2010). It is unclear whether executive incentives are causally related to accounting manipulation and whether managers benefit from engaging in the practice. Nevertheless, as accounting performance measures are an integral part of managerial incentive contracts, manipulating accounting numbers potentially can directly increase managerial wealth. For the purpose of our study, we define accounting *manipulation*, paraphrasing Schipper (1989), as the purposive intervention in the accounting reporting process with the intent of obtaining some private gain. This intervention can include decisions relating to "real" economic activities (Roychowdhury, 2006), such as accelerating sales, reducing discretionary expenditures (e.g., maintenance) and/or account classification shifting (McVay 2006). Prior research linking equity incentives and accounting manipulation ignores the reputational and litigation costs faced by executives (Karpoff et al. 2008), the actions by governance boards to minimize the occurrence and/or costs of accounting manipulation, and finally, the *ethical values* of executives (Armstrong et al. 2010a). Little empirical evidence is currently available on the role of ethical values in reducing the incentives for

manipulation, despite calls for more work on this question made years ago (Merchant and Rockness 1994).[15]

Our predictions for the association between the ethical work climate and accounting manipulation depend on whether the climate is "focus on self" or "on others". The case for "focus on self" is relatively straightforward; a work climate that prioritizes self-interest is unlikely to provide signals to agents that earnings management constitutes undesired behavior.[16] Indeed, if accounting manipulations benefit the agent's wealth, then a prevailing ethical norm that emphasizes "self" even allows agents to judge their behavior as morally right.

In a "focus on others" ethical work climate, accounting manipulations are less likely to occur if agents judge these to be potentially harmful to others in the firm (such as peers, subordinates, or even shareholders). This could be the case when managers are competing for a bonus and the bonus pool is fixed. Or when earnings are managed to just miss the consensus analyst forecast in order to manipulate stock option grants (Aboody and Kasznik 2000) even though missing a forecast may have negative effects on the firm's stock price and consequently on the shareholders (Skinner and Sloan 2002; McAnally, Srivastava and Weaver 2008).

On the other hand, accounting manipulations can, to some extent, help to prevent greater harm. When debt covenants are set very tight and the firm is in danger of being in technical default, even when it is financially healthy, a manager with high "focus on others" might feel it is in the best interests of the firm (i.e., others) to manage earnings to avoid unduly losing control over the

[15] A lack of ethical values features often as they key ingredient in anecdotal evidence on accounting frauds. Consider Enron whistleblower Sherron Watkins's account of that company's ethical work climate, which she cites as a unique factor that contributed to the fraud: "An organization can have a wonderful anonymous employee hotline and a great value system on paper but is the company getting the value system from the walls to the halls when the great performers can violate the values at will and go unpunished? The value system then means nothing and becomes trash. How the leader models those values and standards sets the tone for what's acceptable behavior in the organization." (Koerwer 2004)

[16] Compare the comments of the bankruptcy examiner of WorldCom on the role of "a culture of greed [which] may be said to have permeated top management" as a prime contributor to the accounting fraud (Thornburgh 2002, p. 63).

firm (cf. Dichev and Skinner 2002). Similarly, to avoid shareholders being harmed by a negative stock price reaction to missing an earnings forecast, managers might feel that some earnings management is morally justified. Thus, for "focus on others" we do not have a signed prediction with regard to its relation with accounting manipulation.

> **H2a:** There will be a positive association between accounting manipulation and an ethical work climate where collective moral judgment focuses on self.
> **H2b:** There will be an association between accounting manipulation and an ethical work climate where collective moral judgment focuses on others.

2.4 Identification strategy and the persistence of ethical work climates

One central issue in the interpretation of our hypotheses tests is whether reverse causality (i.e., performance measure choice or accounting manipulation are causal determinants of ethical work climate) is a plausible alternative to our story. Current theory in management and economics suggests it is not. The reason is that work unit climates are *defined* as the "relatively enduring quality of the total organizational environment" (Tagiuri and Litwin 1968, p. 25). Or as Hermalin (2007, p. 34) puts it "[culture] is a property of the firm. … the culture will persist over time, evolving slowly if at all".[17] Indeed, as work climates tend to permeate all facets of the firm and become institutionalized in the firm's procedures, practices and operating procedures, changing a work climate is very hard. Prior work has suggested that even when a firm's survival is at stake, work climates tend to evolve only slowly (Sørensen 2002). In contrast, senior managers can easily change the weight they place on a performance measure when conducting an annual evaluation; in most organizations, doing so would be a matter of routine. This might be perhaps less so, when the performance measure in question is explicitly specified in a compensation contract—but even then, individual contract modifications are much easier to achieve than changing the climate of the firm or work units within a firm. Similar reasoning applies to individual managers varying the degree of

[17] Culture and work climate can be seen as synonyms in the context of our study (cf. Denison 1996).

accounting manipulation over time as compared with the same managers changing the ethical work climate. Thus, we consider the ethical work climate as pre-determined for the purpose of our study; any feedback relations from the choice of performance measures (or from accounting manipulation effort) are likely to be of second order importance.

3. Sample selection, survey design, and variable measurement

3.1 Sample selection

We obtain data from a salary survey conducted by Robert Walters, a professional recruiting consultancy, for the Dutch Controllers Institute (CI). The survey was sent to the members of the CI in 2009. While the survey was conducted under the responsibility of the CI, one of the co-authors of the present study advised on questionnaire design and, in return, was able to include some additional questions unrelated to compensation. Ultimately, however, the CI decided on the length of the survey, on which questions to include and on the exact wording of the questions.

Membership of the CI is open to those who pass advanced (post graduate) examinations in controlling or auditing and entitles members to the legally protected title of "registered controller". Junior membership is available for those still studying for the qualification. All (approximately 7900) members received an email invitation to participate in an online survey.

The initial sample consists of 701 respondents, yielding a response rate of nine percent. We excluded 82 respondents who are working as managers on a temporary basis as the survey asked for detailed information about company practices and these managers are not likely to have this kind of knowledge. We exclude a further 62 respondents who have jobs without managerial responsibility. Thus, our main sample consists of 557 observations from managers of 'work units' with respondents having job titles such as CEO, manager, CFO, group controller, or finance

manager. When evaluating the non-response bias, what matters is not just the (non-)response rate, but also the difference between respondents and non-respondents on the characteristics of interest (Biemer 2010). We therefore examine non-response bias by comparing the characteristics of early and late respondents in the online survey (the earliest response is on August 21, 2009, and the latest on October 15, 2009). In untabulated tests, we find that early respondents tend to be slightly more experienced and older than late respondents. We do not find any differences in firm size between the same two groups (Moore and Reichert 1983). More importantly, however, no significant differences exist between the two groups for the variables of interest, i.e., the prevailing ethical work climate, the weight placed on aggregate performance measures, and accounting manipulation. We therefore conclude that non-response bias is unlikely to play a major role in our tests.

The source of our data is a single survey instrument and a single informant per firm. To address the potential concerns of common method and single informant bias, the questionnaire features several procedural remedies. In addition, we conduct two statistical tests to estimate the extent to which common method variance affects our findings. Specifically, the questionnaire follows the procedural remedies of protecting respondent anonymity, separating the measurement of the variables of interest, and improving item clarity. Importantly, as the survey was presented to respondents as the Controller's Institute Annual Salary Survey, respondents were unlikely to guess that the data would also be used to investigate the relation between ethical work climates, performance measurement choice, and accounting manipulation. Thus, the influence of implicit theories or the raters' assumptions about the co-occurrence of items should be relatively minor. Our statistical remedies include a correlational marker technique (Lindell and Whitney 2001) and

Harman's (1967) single factor test.[18] Together these procedures suggest that neither common method nor single informant bias unduly affects our inferences.[19]

Table 1, Panel A presents summary statistics on the respondents. On average, respondents are male and 40 years of age. Although we have only 11 percent female respondents in the sample, this reflects the gender composition of the CI membership, which is predominantly male (83 percent). As is true for the population, about 70 percent of the respondents is between 31 and 45 years of age; 49 percent of the sample has a CPA degree and is *also* a member of the Royal NIVRA (the Dutch professional society of auditors). Consistent with their mean age, respondents have on average more than 16 years of work experience, of which 5.4 years in their current firm and 2.8 years in their current job. They have reported to their current superior for about 2.4 years and have close to six people reporting directly to them.

The industry profile of the sample is reported in Table 1, Panel B. The (financial) services sector represents approximately 20 percent of the sample; manufacturing represents 22 percent and the remainder of the sample represents a good cross section of industries (e.g., transportation, utilities, and construction). Compared to the population, we have fewer respondents from the service-related industries (sample = 45.25%; population = 60%); this difference is mostly due to the professional services and real estate sectors.

3.2 Survey design

The primary purpose of the survey was to gather information about the compensation packages of the CI membership. In addition to details about salary, bonus, and benefits, respondents were asked to provide background information about their own job, the firm in which

[18] While Harman's single factor test is commonly used in accounting research (see, e.g., Abernethy et al. 2004), we were unable to find any applications of the correlational marker technique, despite its prominence in management and organizational research (cf. Chang, van Witteloostuijn and Eden 2010).

[19] Details are available in the Appendix 2 (marked: not intended for publication).

they are currently employed, and about the department with which they are most closely associated. Respondents were guaranteed anonymity to improve response rates on several sensitive questions, including those about the ethical values in the work unit, the degree to which their work unit is involved in accounting manipulation, as well as specifics about their salary. Owing to the anonymity of the respondents (and their place of employment), we cannot link our survey data to data from annual reports, stock prices, or other publicly available data. However, the survey uses well established instruments (or adaptations thereof) that have been extensively used and validated in prior work. We have multi-item measures for most latent constructs, which allows us to conduct psychometric tests. In some cases, we have alternative measures for the same construct to test for convergent validity. We also believe that the use of an *online* survey helped to improve the veracity of responses, inasmuch as respondents might feel embarrassed to admit to accounting manipulation or less ethical behavior when facing an interviewer or even in a mailed questionnaire.

3.3 Variable measurement

Appendix 1 includes all survey items and scales used in this study. Panels A and B of the appendix provide summary statistics based on the original scale of all survey items used to construct the latent variables.[20] These tables also provide details on psychometric tests of reliability and validity. To summarize, we find that our latent variables have good reliability (as measured by Cronbach's alpha), and construct validity (following from the "clean" factor pattern in the cross loadings) (Harman 1967). Correlations with measures used to test for convergent validity are also supportive. Panel C provides the instrument used to capture weight placed on aggregate performance measures.

[20] Items are standardized (mean = 0; std. dev. = 1) when entered into the factor analysis, consistent with the recommendation in Nunnally and Bernstein (1994).

3.3.1 Variables of interest

Weight on aggregate performance measures. Based on prior research (Abernethy et al. 2004; Bouwens and van Lent 2007), the survey provides respondents with a list of performance measures and asks them to indicate the weight, in percentage terms, placed by their superior on each measure when evaluating work unit performance. We construct this variable by summing those measures that respondents indicate are "above" level summary measures, that is, measures that are not specific to their own unit. The survey asks respondents to allocate weights to the same set of performance measures in two other decision contexts: bonus-related and long term career decisions. For those respondents who have *explicit* bonus schemes, the survey asks them to allocate the weights used by their superior when deciding on the bonus pay. In addition, all respondents provide the weights each performance measure receives when their superior decides on promotion or other forms of career advancement. Following Ittner and Larcker (2001), we expect that the use of performance measures will vary across decision contexts (see also, Bouwens and van Lent 2007). Specifying a decision context is also likely to reduce survey-related measurement error as it provides a frame of reference in the minds of respondents. In addition, while the use of performance measures is likely to differ across contexts, they will at the same time have many determinants in common. As a consequence, the findings for each decision (annual evaluation, bonus, and career) provide partial validation for the results in the remaining contexts. Table 2 reports descriptive statistics of the weight on aggregate performance measures. The mean weight is highest in the restricted sample of firms with explicit bonus schemes (mean = 37 percent) and lowest in career decisions (mean = 9 percent). The weight varies substantially in the samples, however. The median weight on aggregate performance measures for annual appraisal purposes is

10 percent, while for career decisions more than half of the sample does not place any weight on these measures.

Degree of accounting manipulation. The survey uses an adapted version of the accounting manipulation instrument described in Merchant (1990) and in Chow, Kato, and Merchant (1995). Respondents indicate how frequently in the past year, they or someone in their work unit has engaged in the following behaviors: deferring a needed expenditure, accelerating a sale, shifting funds between accounts to avoid budget overruns, and finally, buying equipment from the outside so that the expenditure is capitalized rather than expensed.[21] In contrast to the four point original instrument, the survey uses a seven point Likert scale (1=never occurs, 4=occurs sometimes, 7=occurs frequently).

Ethical work climate. The survey uses an instrument developed by Arnaud and Schminke (2010) based on Victor and Cullen's (1988) earlier research. The instrument captures the collective moral judgment component of ethical work climate. Collective moral judgment refers to the collective decision making framework employed in making moral judgments in an organization. Moral judgment is the norm of moral reasoning used to judge which course of action is morally right. Victor and Cullen (1988) distinguish different dimensions of collective moral judgment based on the referent group used when applying ethical criteria to organizational decisions. Collective moral judgment can be viewed as different stages of moral development. Arnaud (2010) separated moral judgment into "self", considered to be at the lower level of moral reasoning and "other" where the referent group is "communal" or "universalistic". Consistent with this, the survey measures collective moral judgment along two dimensions, namely, *Collective moral judgment – focus on*

[21] The original instrument asks specifically to what extent respondents "pulled profits from future periods into the current period" by deferring a needed expenditure or accelerating a sale. Robert Walters and the Controllers Institute did not include the explicit reference to the practice of shifting profits over periods in an attempt to increase the response rate. They were concerned that in, an online survey, direct questions about earnings management practices might deter respondents from completing the survey or would invoke socially desirable answers.

others and *Collective moral judgment—focus on self*. The instrument was designed to capture "normative patterns" in work units and respondents are "asked not to report on their own behavior and values" but rather on the "practices and procedures that they perceive to exist in their organizations" (Victor and Cullen 1988, p. 103).[22] The first dimension (*focus on others*) captures the extent to which the prevailing social norm in the work unit defines morality in terms of consequences of actions for co-workers or society at large. A representative question in this dimension is "People around here have a strong sense of responsibility to society and humanity". The second dimension (*focus on self*) measures whether the prevailing social norm in the work unit defines morality in terms of personal consequences of actions. The shortened version of the instrument is used and asks respondents questions such as "In my department, people's primary concern is their own personal benefit".[23]

It is important to emphasize that this instrument does not measure variations in ethical values of individual respondents. Instead, the questions are designed to gauge the overall work climate in the respondent's unit or department. We assess the convergent validity of these two constructs by computing the Pearson correlation with another dimension of ethical work climate available from the survey, namely "collective moral awareness". *Collective moral awareness* is a measure of whether a social norm exists in the work unit that encourages individuals to recognize or be sensitive to ethical dilemmas. This measure consists of three items (such as, "People around here are aware of ethical issues"). We expect *focus on others* (*focus on self*) to be positively

[22] There is a question whether people's perceptions of the ethics of others are likely to be driven by the individual's own disposition. For example, there is some evidence, albeit weak, that cynical individuals hold the opinion that other people are self-serving and pursue their selfish interest at the expense of others (Guastello et al. 1992; Antes et al. 2007). Wanous et al. (2000) show, however, that cynicism about the functioning of organizations is not rooted in dispositional traits. As such, individual dispositions are unlikely to bias our measure of EWC and, more importantly, it is unlikely that dispositions are related with the survey instruments for accounting manipulation or the choice of performance measure. Thus, variation between respondents in dispositions (such as cynicism) should not explain our results.

[23] Respondents were told to consider 'department' as the unit with which they were associated.

(negatively) correlation with *Collective moral awareness*. Indeed, correlations coefficients are 0.52 and –0.31 (p-value<0.01), respectively. In our sample, 24 respondents tick the top two boxes (i.e., 6 or 7) on all three items that measure *Focus on self*. In contrast, 163 respondents answer in the top two boxes of the scale for all items of *Focus on others*.

3.3.2 Control variables

The control variables capture salient aspects of the work unit's operating environment as well as heterogeneity among respondents and differences in the control systems within their work units. Tables 1 and 2 present summary statistics on all control variables. *Within-firm dependencies* is a measure of spillovers between different work units in the respondent's firm and is based on a instrument described in Bouwens and van Lent (2007). *Information asymmetry* is based on six survey items that ask respondents to indicate whether their superior or they are more knowledgeable about some key aspects of their business. This instrument was first published by Dunk (1993) and has been applied in recent studies (e.g., Abernethy et al. 2004; Bouwens and van Lent 2007). *Competition* is constructed from six questions that ask the respondent to describe the rate of change in their work environment. A representative question is "What is the rate of change in competitor strategies?". These questions are taken from Khandwalla (1972). *Firm size* is the natural logarithm of the number of employees working for the firm, *Capital market pressure*, is the natural logarithm of 1 plus the percentage of equity owned by "anonymous shareholders", as provided by the respondents. Respondent specific controls are indicator variables and include gender (1 if female; otherwise zero); *Auditor (CPA) qualification* (1 if respondents report that they are a CPA, otherwise zero); and a question about whether the respondent is *embedded in controlling department* (1 if yes, otherwise zero). The survey asks respondents what percentage of their salary they would be willing to give up in order to guarantee job security for one year, two

years, and five years. Answer categories provided are zero percent, between one and five percent, between five and ten percent, 10-15 percent, 15-20 percent, 20-25 percent, and more than 25 percent. We take the mean of their answers to these three alternative time periods as a measure of *Risk avoidance*, under the assumption that more risk averse respondents are willing to give up more of their income to secure their jobs. Note from Table 2 that the majority of respondents are not willing to sacrifice pay for job security (the median answer category is 1). The survey also asks respondents to report the likelihood that they will still be working for their current firm ten years from today (1 *if respondent has long horizon in firm*, i.e., if respondents report a higher than 50 percent probability that they will still be working at their current firm ten years from now and zero otherwise); if *the respondent's job is at headquarter level* (1 if yes, otherwise zero). About half of the respondents are working at the firm's headquarters. Incentive contract controls include the maximum percentage respondents can earn as performance-dependent pay compared to their fixed salary. On average, the *% Potential bonus* is about 22 percent of fixed salary, but bonuses range between 0 and 300 percent.

4. Results

4.1 Does ethical work climate affect the use of aggregate performance measures?

We test our first hypothesis, which predicts that a collective moral judgment—focus on self (focus on others) increases (decreases) the use of aggregated performance measures, with the following industry fixed effects Tobit model,

$$Weight\ Aggregate\ PM^C = \beta_0 + \beta_1 Focus\ on\ self + \beta_2 Focus\ on\ others + \sum_i \gamma_i\ Controls + \sum_j \delta_j\ Industry + \varepsilon^C \quad (1)$$

We use a Tobit model because the weight on aggregate performance measures is either zero or 100 percent for a nontrivial fraction of our sample; i.e., our dependent variable is a corner

solution response (Wooldridge 2002).[24] The superscript C denotes the three decision contexts we are considering: annual appraisal, bonus decisions, and long term career. Hypothesis H1 implies $\beta_1 > 0$ and $\beta_2 < 0$.

Our set of control variables is motivated by earlier studies that have examined the determinants of the use of aggregate performance measures (Bushman et al. 1995; Keating 1997; Abernethy et al. 2004). Together, these studies have found that environmental conditions, salient aspects of the organizational design such as decentralization and incentive compensation, and interdependencies between units within the work unit (as an outcome of the production function) are significantly associated with the use of aggregate performance measures. We further include a set of indicator variables for each of the industries represented in the sample to account for likely remaining heterogeneity between the firms not captured by our control variables. It is important to observe that we expect many of these variables also to influence the ethical work climate of the firm (see, e.g., Fischer and Huddart 2008). Controlling for these factors reduces the likelihood of endogeneity bias in the estimation of our variables of interest.

Table 3 presents the results of estimating model (1) in four separate columns for a base model that consists of the control variables only and for each of the three decision contexts. The findings for the base model in the first column indicate that *% Potential bonus* and *Respondent's job is at the headquarter level* are positively associated with the weight placed on aggregated performance measures. On the other hand, *Firm size* and *Information asymmetry* are negatively related with the use of aggregated measures.

When we include our variables of interest in columns 2-4, we find mixed support for our first hypothesis. Specifically, *Focus on self* is significantly positively associated with the weight

[24] Specifically, in the context of annual evaluations (bonus) [career], 285 (131) [497] respondents report zero percent weight and 35 (50) [19] respondents report 100 percent weight on aggregate performance measures.

on aggregate performance measures. On the other hand, *Focus on others* is unrelated to the use of aggregate performance measures, which is inconsistent with hypothesis H1.

We compute the marginal effects of the (truncated) expected value of the weight on aggregate performance measures, i.e., we describe how the weight placed on this measure changes with respect to *Focus on self* and *Within-firm interdependencies* (McDonald and Moffitt 1980). These marginal effects allow us the gauge the *economic* significance of our findings. We compare the marginal effects of ethical values and interdependencies because much of the extant literature that attempts to explain the prevalence of aggregate performance measures identifies operational spillovers as their main determinant (Bushman et al. 1995; Keating 1997; Abernethy et al. 2004).[25] The marginal effect of *Focus on self* evaluated at its mean is 5.09 percentage points, whereas the marginal effect of *Within-firm interdependencies* at its mean is 2.96 percentage points. As the mean weight on aggregate measures is about 25%, both effects are economically significant. Nevertheless, ethical values far outweigh operational spillovers with respect to their impact on the use of aggregate measures in incentive contracts.

Robustness checks. We examine whether any differences in our results for the three decision contexts are due to changes in sample composition for the bonus context on the one hand and the annual appraisal and long term career contexts on the other. We restrict our sample to the 420 observations with an explicit bonus plan and redo the regressions reported in columns (2) and (3) of Table 3. Our inferences are unaffected by using the restricted sample and we conclude that sample composition does not drive differences in the original set of results.

While *Focus on self* and *Focus on others* are theoretically distinct dimensions of an ethical work climate, they are empirically negatively correlated (corr. = −0.4), albeit that the correlation

[25] For these computations, we drop the indicator variable that equals 1 for those cases where the respondent's job is at the headquarter level. This indicator variable is correlated with within-firm dependencies and including it would cause us to underestimate the effect of within-firm dependencies on aggregate performance measures.

is too low to raise multicollinearity concerns. Nevertheless, we check whether *Focus on others* fails to attain significance in our regressions because of this correlation. When we drop *Focus on self* from the regression specification, we still do not find significance on *Focus on others*. Thus, *Focus on self* and *Focus on others* are not simply interchangeable opposite ends of one underlying construct, but empirically and theoretically distinct dimensions of ethical work climates.

We are primarily interested in examining how performance measures are used in response to ethical work climates. Another important dimension of compensation contracts, however, is their incentive intensity (i.e., the contract's pay-for performance sensitivity). A firm that places a 10 percent weight on aggregate performance measures and uses a 200 percent potential bonus offers a very different contract from a firm in which a 10 percent weight on aggregate measures is combined with a 20 percent potential bonus. Milgrom and Roberts (1992) argue that firms choose *optimal combinations* of performance measures and incentive intensity. We explore this possibility by creating a new variable (*Weight*Bonus*) which is the product of the *weight on aggregate performance measures* and *% Potential bonus.* We replace the dependent variable in Equation (1) with this new construct and re-run all regressions. A priori, it is not clear what to expect. On the one hand, firms place more weight on aggregate measures as *Focus on self* increases (to promote cooperative behavior). However, more aggregate measures are noisy; to reduce the compensation risk of the agent, firms are predicted to decrease incentive intensity as aggregate measures are used more. Thus, whether ethical work climates with higher focus on self will have higher or lower *Weight*Bonus* depends on which of the two effects dominates. Our results (untabulated) show that *Focus on self* is weakly positively associated with *Weight*Bonus* in both the annual appraisal and long-term career decision contexts (but not in the bonus decision context).

4.2 Does an ethical work climate influence the degree of data manipulation?

Hypothesis H2 summarizes our expectations about the association between an ethical work climate and the degree of data manipulation. Specifically, we expect work units with a prevailing social norm that emphasizes a *Focus on self* to have higher data manipulation. We do not have a signed prediction for *Focus on others*. We test our hypothesis with several versions of the following OLS industry fixed effects regression,

$$Accounting\ manipulation = \beta_0 + \beta_1 Focus\ on\ self + \beta_2 Focus\ on\ others + \sum_i \gamma_i Firm\ structure\ controls + \sum_j \delta_j Respondent\ controls + \sum_k \theta_k Incentive\ contract\ controls + \sum_l \varphi_l Industry + \varepsilon \quad (2)$$

H2 implies $\beta_1 > 0$ and $\beta_2 \neq 0$. Table 4 presents the results of estimating model (2). We report a parsimonious model in the first column in which we only include the two variables that capture an ethical work climate. We find that *Focus on self* is positively and strongly associated with the degree of accounting manipulation (β_1 = 0.126, *p*-value<0.01). In contrast, we find that *Focus on others* is not associated with accounting manipulation. In subsequent regressions (presented in columns (2-6)), we separately include controls for firm structure and environment (column (2)), respondent characteristics (column (3)), and incentive contract design (column (4)). In all of these regressions, we also include industry fixed effects to account for industry related heterogeneity in the sample. Including these control variables does not materially affect our conclusions. We continue to find a significant positive association between *Focus on self* and the degree of accounting manipulation, whereas *Focus on others* is unrelated to the same. The same conclusion holds once we include all control variables simultaneously (in columns (5) and (6)).

Competition is strongly positively associated with the degree of accounting manipulation, but none of the remaining firm structure and environmental controls are significant. In contrast, we

find consistent evidence that respondent characteristics are an important determinant of accounting manipulation. Respondents who have a CPA qualification indicate a significantly lower degree of accounting manipulation in their unit that those without such qualifications. A CPA's education strongly emphasizes the code of conduct for auditors and CPA students are routinely trained in dealing with ethical questions. After graduation, CPAs become part of a professional society with a shared culture that reinforces the importance of ethical norms associated with the audit profession. Together, these factors might explain our findings. Similarly, when respondents are working in a controlling or finance department, especially at the headquarters level, they might feel that their job requires them to be vigilant about data integrity. Again, it might be the case that the respondents' professional values mitigate any incentives to engage in accounting manipulations, much the same as an ethical work climate would. Finally, consistent with earlier work in earnings management (e.g., Dechow and Sloan 1991), we find that respondents with longer horizons in the firm engage less in accounting manipulation.

5. Discussion and conclusions

We show that the ethical work climate—the prevailing norm in a work unit about what is morally right—affects the choice of performance measures in incentive contracts. Those working in climates with a high "focus on self" have incentive contracts in which aggregate accounting performance measures, which summarize the performance of not just the focal manager, but also of others in the firm, receive higher weight. Although such aggregate measures are noisy, they provide "self-focused" managers with incentives to internalize the effect of their decisions on the wealth of other agents and the value of the firm. We show that the economic significance of "focus on self" is almost twice as large as the effect size of within-firm interdependencies, which received the most attention in previous studies that have sought to explain the use of aggregate measures.

We do not find that the degree of "focus on others" matters in the use of aggregate performance measures. We expected that a focus on others would reduce the use of aggregated performance measures as acceptance of this social norm would be sufficient to induce collaboration and co-operation with others in the firm. The absence of a result is, at first sight, puzzling. One possible explanation is that there are opposing forces at work. We did not consider that the relationship between focus on others and aggregate performance measures might *also* be positive. There is some value to obtaining consistency in the signals sent by an EWC focused on others and by the use of aggregated performance measures, which provide incentives to focus on (i.e., collaborate with) others. The urge for consistency of signals might offset the predicted negative relation due to the costliness of using aggregated performance measures when it is not necessary to do so inasmuch as the ethical work climate already promotes considering others. The management literature on EWC provides another possible explanation. Ambrose et al.(2008) and others (Jones and Ryan 1997) argue that a higher order moral judgment, such as a focus on others, will not influence organizational practices that are 'instrumental' or which the individual does not see as being 'life or death issues' (Jones and Ryan 1997; Ambrose et al. 2008). It is reasonable to assume that the use of the performance measurement systems is an 'instrument' rather than a life or death issue! Thus we should not expect a relation. Martin and Cullen's (2006) meta-analysis also indicates that high-order moral judgment does not directly influence what they refer to as dysfunctional outcomes. Interestingly, their analysis indicates that an EWC focused on *self* does have a direct relation with dysfunctional outcomes. Our model only captures the direct effect of EWC on organizational practices and outcomes. It is thus possible that an EWC focused on others is not sufficiently salient or relevant to influence performance measurement choices. In the end, no

clear picture emerges empirically and further research is required to develop a better understanding of the forces at work.

We then document that an ethical work climate that emphasizes the "focus on self" also increases the accounting manipulation in the work unit of our respondents. Interestingly, our respondents are not only managers of the work unit but are also trained as financial controllers, and as such "are in a unique position to carry out accounting manipulation, from transaction structuring, to choosing an improper accounting method, to make false journal entries" (Feng et al. 2010, p. 2). Our findings contribute to a growing literature that examines the role of CFOs and other financial executives in the financial reporting process (Wang et al. 2009; DeJong and Ling 2010; Feng et al. 2010).

We document that the accounting manipulation as perceived by these managers depends on the ethical work climate. We also show that two factors specific to financial controllers are important in explaining manipulation. We find that respondents linked to a firm's headquarters (as opposed to a business unit) and those who are embedded in a financial/accounting staff department report significantly lower degrees of accounting manipulation. In addition, about 50 percent of our sample consists of managers who have CPA credentials. CPA training in the Netherlands explicitly aims at instilling professional ethical norms. Registration as CPA is conditional on adhering to the code of conduct of the Dutch CPA association. Our findings indicate that respondents who are also qualified CPAs experience strong "ethical spillovers" from the professional group to which they belong, which in turn leads to lower reported accounting manipulation in their work unit.[26]

[26] An alternative explanation would be that CPAs face different incentives than financial controllers as their outside job opportunities as a public auditor depend on being a member of the professional society. Violations of the professional ethics code can be penalized by revoking an auditor's right to practice.

While we did not predict a sign for the relation between accounting manipulations and an ethical work climate which "focuses on others", we cannot reject the null hypothesis that no association is in fact present. In sum, whereas ethical values are important to explain accounting manipulation, what matters specifically are both the degree to which the ethical work climate of managers' work unit emphasizes what is right for oneself *and* the presence of professional ethical values. In contrast, an ethical work climate wherein agents can be trusted to do the right thing does not materially affect accounting manipulation.

Our survey data offers several benefits over alternative empirical strategies that rely on publicly available data. We are able to obtain the manager's own estimation of the degree of accounting manipulation in his or her work unit. At the same time, our proxy for the ethical work climate is based on validated instruments taken from the management literature and relies on data gathered from the firm's own employees, arguably the most knowledgeable persons about its work climate. By relying on the membership of the professional association of financial controllers, we are able to base our analyses on a comparatively large dataset of over 550 observations.

We offer only a first exploration of the relation between ethical values, choice of performance measure in contract design, and opportunistic managerial actions such as accounting manipulations. Nevertheless, our results firmly document that ethical values play indeed the important role in practice that recent theory has suggested it would.

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T A B L E 1

Summary Statistics on Respondents Characteristics and Sample Firms

Panel A: Summary statistics on respondents (N=557)

Variable	Mean	Std. Dev.	Min.	Median	Max.
Age	40.21	6.75	26.00	39.00	62.00
= 1 if female	0.11	0.32	0.00	0.00	1.00
= 1 if auditor (CPA) qualification	0.49	0.50	0.00	0.00	1.00
Total work experience (in years)	16.82	7.36	3.00	15.00	43.00
Tenure in current firm (in years)	5.44	5.38	0.00	4.00	38.00
Length of reporting relation with superior (in years)	2.43	2.52	0.00	2.00	18.00
Tenure in current position (in years)	2.77	2.68	0.00	2.00	19.00
Number of people reporting directly to respondent	6.13	11.77	0.00	4.00	172.00

Panel B: Industry profile of sample

Industry description	#	%
Agriculture, hunting, and fishing	17.00	3.05
Mining	7.00	1.26
Traditional manufacturing	84.00	15.08
High-tech manufacturing	39.00	7.00
Production, distribution and sales of gas, electicity, or water	24.00	4.31
Construction and building	42.00	7.54
Repair of consumer products and retail	35.00	6.28
Transportation, logistics, warehousing and communication	57.00	10.23
Financial institutions	110.00	19.75
Real estate and professional services	43.00	7.72
Public government and social security	23.00	4.13
Health	43.00	7.72
Environment, culture, recreation, and other services	33.00	5.92
Total	557.00	100.00

T A B L E 2

Summary Statistics on Variables of Interest and Control Variables

Variable	Mean	Std. Dev.	Min.	Median	Max.
Variables of interest:					
% weight on aggregate level measures (appraisal)	24.98	30.23	0.00	10.00	100.00
% weight on aggregate level measures (bonus)	37.21	32.36	0.00	33.00	100.00
% weight on aggregate measure (career)	8.97	21.64	0.00	0.00	100.00
Degree of accounting manipulation	0.00	0.78	-1.46	0.00	2.54
Moral judgment – focus on other	0.00	0.91	-3.17	-0.18	2.80
Moral judgment – focus on self	-0.02	0.91	-1.75	-0.02	2.60
Control variables:					
Structure	-0.02	0.90	-1.95	-0.01	1.75
Within-firm interdependencies	0.00	0.79	-1.89	0.10	1.59
% potential bonus (compared with fixed salary)	21.88	29.96	0.00	15.00	300.00
Firm size (log of employees)	7.81	2.48	1.79	7.70	13.08
Information asymmetry	0.01	0.98	-2.38	-0.09	1.79
Competition	0.00	0.90	-2.51	0.07	2.23
Capital market pressure	1.76	2.15	0.00	0.00	4.62
= 1 if embedded in controlling department	0.07	0.26	0.00	0.00	1.00
Risk avoidance	1.71	1.00	1.00	1.00	7.00
= 1 if respondent has long horizon in firm	0.76	0.42	0.00	1.00	1.00
= 1 if respondent’s job is at headquarter level	0.49	0.50	0.00	0.00	1.00

T A B L E 3

Tobit Regressions of Weight on Aggregate Performance Measures and Ethical Work Climate

Table 3 presents Tobit regressions of the weight on aggregate performance measures in the context of annual appraisals, bonus decisions, and long term career decisions, respectively, onto measures of Ethical Work Climate. Data are obtained from an online survey among the membership of the Controllers Institute. Robust standard errors are in parentheses. PS is predicted sign. *, **, and *** denote significance at the 10, 5, and 1 percent levels using a one-tailed test for variables with predicted sign and a two-tailed test for all other variables.

Dependent variable:		(1)	(3)	(5)	(7)
Weight on aggregate performance measures	PS	Base Model	Annual appraisal	Bonus decisions	Long term career
Variables of interest:					
Moral judgment – focus on self	+		10.45***	5.009*	13.30**
			(2.735)	(3.152)	(5.993)
Moral judgment – focus on others	—		0.982	0.693	-2.339
			(2.885)	(3.192)	(5.828)
Control variables:					
Structure		-1.351	-1.214	-4.769	-7.996
		(2.756)	(2.691)	(3.007)	(5.402)
Within-firm dependencies		3.300	4.386	1.537	0.903
		(2.915)	(2.878)	(3.085)	(5.387)
% potential bonus		0.410***	0.429***	0.274***	0.078
		(0.083)	(0.083)	(0.097)	(0.138)
Firm size		-2.709**	-2.663**	-3.060***	-8.798***
		(1.110)	(1.089)	(1.119)	(2.223)
Information asymmetry		-7.962***	-8.602***	-0.942	-10.73**
		(2.618)	(2.613)	(2.752)	(4.865)
Competition		3.300	2.729	5.497*	6.324
		(2.738)	(2.732)	(2.958)	(5.574)
= 1 if respondent's job is at headquarter level		14.10***	15.17***	10.60*	23.45**
		(5.357)	(5.304)	(5.443)	(10.290)
Intercept		34.98**	35.04**	54.80***	-55.36*
		(16.51)	(16.120)	(14.720)	(32.550)
Sigma		49.14***	48.35***	45.38***	73.37***
		(2.519)	(2.465)	(2.477)	(6.300)
Industry fixed effects?		Yes	Yes	Yes	Yes
N		556	556	420	556
Pseudo R-squared		0.033	0.037	0.018	0.051
F-statistic		5.126	5.219	2.438	2.454
p-value		0.000	0.000	0.000	0.000

T A B L E 4

OLS Regressions of Degree of Accounting Manipulation onto Ethical Work Climate

Table 4 presents ordinary least squares regressions of the degree of accounting manipulation onto measures of Ethical Work Climate. Data are obtained from an online survey among the membership of the Controllers Institute. Robust standard errors are in parentheses. PS is predicted sign. *, **, and *** denote significance at the 10, 5, and 1 percent levels using a one-tailed test for variables with predicted sign and a two-tailed test for all other variables.

Dependent variable: *Degree of accounting manipulation*	PS	(1)	(2)	(3)	(4)	(5)	(6)
Variables of interest:							
Moral judgment—focus on self	+	0.126***	0.116***	0.123***	0.134***	0.108***	0.113***
		(0.037)	(0.037)	(0.037)	(0.038)	(0.038)	(0.038)
Moral judgment—focus on others	?	-0.018	0.004	0.017	-0.002	0.007	0.016
		(0.038)	(0.039)	(0.038)	(0.039)	(0.038)	(0.039)
Firm structure and environment controls:							
Within-firm dependencies			-0.055			-0.037	-0.037
			(0.045)			(0.044)	(0.044)
Information asymmetry			-0.025			-0.032	-0.034
			(0.036)			(0.037)	(0.037)
Competition			0.159***			0.154***	0.143***
			(0.037)			(0.036)	(0.038)
Firm size			0.022			0.004	0.006
			(0.017)			(0.017)	(0.018)
Capital market pressure			0.028			0.032*	0.024
			(0.019)			(0.018)	(0.019)
Respondent specific controls:							
= 1 if female				0.063		0.063	0.064
				(0.099)		(0.096)	(0.098)
= 1 if auditor (CPA) qualification				-0.281***		-0.224***	-0.242***
				(0.067)		(0.065)	(0.067)
= 1 if embedded in controlling department				-0.292**		-0.361***	-0.296**
				(0.138)		(0.137)	(0.144)
Risk avoidance				0.067**		0.043	0.047*
				(0.027)		(0.028)	(0.027)
= 1 if respondent has long horizon in firm				-0.141*		-0.159**	-0.148*
				(0.080)		(0.076)	(0.080)
= 1 if respondent's job is at headquarter level				-0.163**		-0.138*	-0.135*
				(0.069)		(0.080)	(0.080)
Incentive contract controls:							
% potential bonus					0.000	-0.001	-0.001
					(0.001)	(0.001)	(0.001)
% incentive weight on aggregate measures					-0.000	0.001	0.001
					(0.001)	(0.001)	(0.001)

Intercept	0.001	-0.149	0.318	-0.005	0.138	0.276
	(0.033)	(0.278)	(0.295)	(0.278)	(0.177)	(0.332)
Industry fixed effects included?	No	Yes	Yes	Yes	No	Yes
N	557	557	557	556	556	556
Adj. R-squared	0.0201	0.0892	0.1000	0.0438	0.110	0.121
F-statistic	6.654	4.576	4.263	2.928	5.644	4.188
p-value	0.001	0.000	0.000	0.000	0.000	0.000

APPENDIX 1

Panel A:

Summary statistics and psychometric properties of *degree of data manipulation*

	Mean	Std. Dev.	Min.	Median	Max.	Factor pattern
Degree of data manipulation (1=never occurs, 7=occurs frequently)						
Cronbach alpha = 0.65						
Please indicate how often your unit pulls profits from future periods into the current period by deferring a needed expenditure.	3.620	1.439	1.00	4.00	7.00	0.545
Please indicate how often your unit pulls profit from future periods into the current period by accelerating sales.	3.108	1.649	1.00	3.00	7.00	0.543
Please indicate how often your unit shifts funds between accounts to avoid budget overruns.	2.759	1.445	1.00	2.00	7.00	0.526
Please indicate how often your unit buys equipment from outside so that the asset is capitalized rather than expensed in the period.	2.478	1.501	1.00	2.00	7.00	0.533

Panel B: Summary statistics and cross loadings on manifest indicators of latent independent variables

	Summary statistics		Cross loadings					
	Mean	Std. Dev.	1	2	3	4	5	6
(1) Moral judgement—focus on self (1=strongly disagree, 7=strongly agree) Cronbach alpha = 0.86								
People around here are mostly out for themselves.	3.370	1.410	**0.678**	-0.095	0.035	0.001	0.020	-0.038
People in my department think of their own welfare first when faced with a difficult decision.	3.551	1.362	**0.858**	0.035	0.011	0.011	0.010	-0.004
In my department people's primary concern is their own personal benefit.	3.310	1.414	**0.875**	0.019	-0.015	-0.006	-0.023	0.014
(2) Moral judgement—focus on others (1=strongly disagree, 7=strongly agree) Cronbach alpha = 0.81								
In my department it is expected that you will always do what is right for society.	4.158	1.240	0.024	**0.650**	-0.004	-0.025	0.006	-0.065
People around here have a strong sense of responsibility to society and humanity.	4.384	1.206	-0.131	**0.672**	0.062	-0.053	0.031	-0.052
What is best for everyone in the department is the major consideration.	4.115	1.152	0.037	**0.766**	-0.022	0.047	-0.002	0.006
The most important concern is the good of all the people in the department.	4.050	1.222	0.081	**0.723**	-0.027	0.020	-0.049	0.050
People in my department are actively concerned about their peers' interests.	4.218	1.132	-0.077	**0.578**	0.002	-0.004	0.025	0.050
(3) Structure (1=highly centralized, 5=highly decentralized) Cronbach alpha = 0.75								
What is the organizational structure of the overall company?	2.732	1.175	0.040	-0.006	**0.423**	-0.052	0.116	0.063
What is the organizational structure of individual operations?	3.162	1.063	-0.023	-0.007	**0.852**	0.012	-0.024	-0.008
What is the organizational structure of individual units?	3.136	1.072	0.021	0.012	**0.823**	0.019	-0.022	-0.010
(4) Within-firm interdependencies (1=no impact at all, 7=a very significant impact) Cronbach alpha = 0.76								
To what extent do your unit's actions impact on work carried out in other organizational units?	4.973	1.759	-0.016	0.005	0.022	**0.700**	-0.023	0.046
To what extent do actions of managers of other units of the firm impact on work carried out in your own unit?	4.630	1.750	0.025	-0.011	-0.030	**0.706**	0.023	0.017
(5) Information asymmetry (1=my superior, 4=my superior and I equally, 7= I) Cronbach's alpha = 0.93								
Compared with your superior, who is in possession of better information regarding the activities undertaken in your unit?	4.425	1.719	0.005	0.036	-0.015	0.056	**0.809**	0.000
Compared with your superior , who is more familiar with the input-output relations inherent in the internal operations of your unit	4.562	1.612	-0.042	0.007	-0.029	0.016	**0.856**	0.004
Compared with your superior, who is more certain about the performance potential of your unit?	4.325	1.574	0.030	0.012	0.020	-0.021	**0.852**	0.020
Compared with your superior, who is more familiar technically with the work of your unit?	4.817	1.647	-0.033	-0.005	0.008	0.012	**0.787**	-0.015

Compared with your superior, who is better able to assess the potential impact on your activities of factors external to your unit?	4.111	1.549	0.018	-0.032	0.013	-0.039	**0.765**	0.000
Compared with your superior, who has a better understanding of what can be achieved in your unit?	4.352	1.538	0.027	-0.014	0.033	-0.021	**0.869**	-0.009
(6) Competition (1= highly stable, infrequent change, 7=highly volatile, constant change) Cronbach's alpha = 0.81								
What is the rate of change in the buying patterns and requirements of customers?	4.234	1.554	-0.004	0.000	0.010	-0.064	-0.002	**0.781**
What is the rate of change in distributors' attitudes?	3.743	1.370	0.029	0.016	0.003	-0.004	0.023	**0.707**
What is the rate of change in industry buying patterns?	4.048	1.445	0.019	-0.005	-0.021	-0.108	-0.009	**0.754**
What is the rate of change in competitor strategies?	4.155	1.403	-0.022	-0.008	0.036	0.008	-0.045	**0.648**
What is the rate of change in technical development relevant to your unit's business?	3.795	1.518	-0.014	-0.014	-0.016	0.176	0.059	**0.476**
What is the rate of change in changes in (service) production process?	3.742	1.438	-0.045	0.008	0.020	0.146	-0.011	**0.494**

Panel C:
Measurement Instrument for Weight Placed on Aggregate-level Measures

Indicate the weights your superior places on each of these measures to assess your unit's performance. Your answers should total 100%.

1.	Stock-price related measures	%
2.	Firm-level performance measures (e.g. firm output, firm ROI, firm profit margins, firm income)	
3.	Measures summarizing the total performance of the unit of which your unit is a part (e.g., your work for a business unit which is part of a larger division—inasmuch as your performance evaluation depends on *divisional-level* measures, you should then report the weight on these divisional measures)	%
4.	Measures summarizing the total performance of your unit (e.g. your unit's income, unit EVA or ROI, unit output)	%
5.	Measures that provide performance information on specific aspects within your business unit (e.g. R&D, production efficiency or quality programs, unit product costs)	%
6.	Other measures not mentioned (please specify) …….	%
	Total	100%

The variable "weight placed on aggregate-level measures" is constructed by summing the answers to (1), (2) and (3).

A P P E N D I X 2
(Not intended for publication)
Remedies Undertaken against Common Method Variance and Single Respondent Bias

Remedy and Rational	Implementation
Procedural:	
Separation of measurement: Reduce the likelihood that the mindset of the rater biases the observed relation between dependent and independent variables, eliminating the effects of consistency motifs, implicit theories, social desirability tendencies, dispositional and transient mood states, and tendencies to acquiesce or respond in a lenient manner. (Podsakoff et al. 2003)	The survey uses different response formats (Likert scales, open-ended questions) and the items on ethical work climate, weight on performance measures, and earnings management were placed far apart from each other in the questionnaire. Items were not grouped by variable and the questions were not labeled on the basis of the reported constructs ("accounting manipulation", etc.) Finally, the survey was presented to respondents as a "salary benchmark study"; this stated objective reduces the possibility that respondents guessed the research question and/or formed implicit theories when answering the questions.
Protecting respondent anonymity and reduce evaluation apprehension: This technique decreases respondent's tendency to make socially desirable responses and/or be acquiescent or lenient	The cover screen of the internet survey and the invitation email assured respondents complete anonymity. The survey assured respondents that there were no right or wrong answers and that they should answer questions honestly.
Reducing item ambiguity: Problems in comprehension can be a source of method variance. Careful attention to the wording of items can reduce item ambiguity.	The questionnaire avoided or defined ambiguous or unfamiliar terms, avoided double-barreled questions and avoided complicated syntax. The survey also used different scale endpoints and formats for the dependent and independent variables to reduce method variance due to commonalities in scale endpoints and anchoring effects. Items avoided the use of bipolar numerical scale values and provided verbal labels for the midpoints of scales to mitigate acquiescence bias. (Tourangeau, Rips and Rasinski 2000).
Statistical:	
Harman's(1967) single-factor test: If a substantial amount of common method variance exists then either a single factor will emerge or one factor will account for the majority of covariance among the variables.	We load all the variables used in the study into an exploratory factor analysis and examine the unrotated factor solution to determine the number of factors that are necessary for the variance in the variables. This test strongly reject that one single factor is sufficient to account for the variance (p-value<1%).
Correlational marker technique: If a variable can be identified that is theoretically unrelated to at least one other variable in a study, preferably the dependent variable, then it can be used as a marker variable in controlling for common method variance (Lindell and Whitney 2001).	We used the number of annual paid holidays available to the respondent as the marker variable, as it was theoretically unrelated to many other variables and especially to accounting manipulation and weight on performance measures. All our significant zero-order correlations remained significant after the partial correlation adjustment, suggesting that common method variance was not a serious problem in our study.