

Trust, but Verify: MD&A Language and the Role of Trust in Corporate Culture

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Abstract Trust is both ethically important and essential for business but difficult to measure. This paper contributes toward clarifying the nature of trust in a way that is both conceptually helpful for ethical inquiries concerning business and pertinent to the measurement of trust as an element in organizations. Several papers hypothesize that increasing the role of trust in a corporation reduces the need for external monitoring and contracts. Assessing this important hypothesis requires a way to gauge whether a firm has a trusting corporate culture. We develop an objective measure of trust in a firm's corporate culture by counting the number of times 21 trust-related words appear in an important kind of document: the Management Discussion and Analysis section of the annual report. We report two significant findings: that, contrary to what one might think, firms with a trusting culture frequently use audit and control-type words and that trust is positively linked with subsequent share price volatility. We propose explanations of these findings with the hope of facilitating

the objective measurement of trust and enhancement of a trusting atmosphere in corporate culture.

Keywords Trust · Ethics · Corporate culture · Corporate governance · Audit · Disclosures · Textual analysis · Monitoring

Introduction

Trust is a major element in corporate culture and widely considered morally important. This paper proposes an objective way to provide a measure of trust in corporate culture. Our research indicates a need for a new direction—not previously developed in earlier papers—in such measurement. Our discussion of the measurement method we develop is placed in the context of a conception of trust that, in itself, is useful for the kind of ethical analysis our work seeks to facilitate.

In addition to these theoretical aspects of our paper, we indicate some findings that hold interest for management and business ethics alike. We show a significant relation between high levels of such trust and share price stock return volatility. The level of this trust is also likely to be influential in many other aspects of business activity and its public perception, but we leave these additional connections for future inquiry. Our results to date, however, suggest that our method of measurement may be useful in exploring the effects of trust, or at least the language of trust, in these and other ethically important areas.

One of the key features of corporate culture is the need to motivate employees to work, not in their own self-interest, but in the firm's best interest. Shareholders want employees to spend their days maximizing the economic success of the firm, not shirking hard work. Given that employee self-interest in maintaining their own well-being

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is stronger than the motivation to work for others; contracts, oversight, and/or stock options are typically utilized by outside shareholders to ensure a proper alignment of the employee's work effort.

The inability to create complete contracts that anticipate all possible states of nature and behavioral responses suggests that specific aspects of corporate culture, such as trust, might play an important role in corporate management theory and finance theory. Prior literature suggests the possible benefits of corporate culture, such as increasing the role of employee trust, over the use of contracts and excessive monitoring.

For example, Bromiley and Cummings (1995) suggest that trust could serve to reduce control systems needed to monitor corporate performance. Recently, Larcker and Tayan (2013) posit that US corporate governance would improve if more trust (e.g., fewer controls), were placed on managers and workers. They argue that because of a few firms, such as Enron and WorldCom, excessive constraints are now being placed on US managers. Their paper suggests that "a corporate governance system based on trust might be more cost-effective than one built on elaborate controls." Schoorman et al. (2007) argue that one of the major differences between agency theory and stewardship theory is the use of trust versus complex control systems to manage risk. The first step in testing the hypothesis that trust can be beneficial is to identify which firms have a trusting corporate culture.

Within this framework, trust, as an integral component of business ethics, plays a central role in validating the economic relevance of business ethics itself. That is, to the extent that trust bridges the gap between actual and complete contracts, it plays a central role in the economic efficiency of any organization. And, if trust is an important organizational attribute, measuring its presence in a corporation's culture, in turn, becomes important.

We are aware of only three papers that consider something similar to textual analysis in empirically examining trust. Waber et al. (2011) considers the social signals surrounding trust as a means of studying trust in environments where individuals might not have time to participate in survey studies (e.g., doctor office visits). Breeman (2012) considers a hermeneutic method, which is a subjective attempt to isolate broad meaning from short excerpts of text. Most similar to our approach, Guiso et al. (2015) examine the web pages for all Standard & Poor's 500 (S&P 500) firms for use of the 10 "integrity" words (e.g., *integrity*, *ethics*, *accountability*, *trust*, *honesty*, and *responsibility*). Guiso et al. (2015) also use an employee survey conducted by the Great Place to Work Institute to quantify corporate culture for a sample of large capitalization companies during 2007–2011. Specifically, they focus on responses for two of the survey questions, "Management's actions match its words" and "Management is honest and ethical in its business practices."

We attempt to provide a means of measuring one realization of trust that is relatively objective and provides for measurement across a large sample (essentially the population) of public companies. Our premise is that the construct of trust in corporate culture should be reflected in the word usage of managers in the Management Discussion and Analysis (MD&A) section of their 10-Ks (i.e., annual reports). Form 10-K filings are one of the most important documents created by managers of publicly traded firms to inform outsiders about company operations. We believe that they are prepared with care and represent at least how management views major attributes of the firm. The MD&A section of the 10-K is where management describes how the company has been operating in past year and discusses future plans/projects.

The Challenge of Defining and Measuring Trust in Corporate Culture

Trust is both ubiquitous and amorphous, with the former contributing to the latter. Although trust is studied in various social sciences, a universally accepted definition of trust does not exist.¹ Rousseau et al. (1998) and Dietz et al. (2010) provide a useful summary of the attempt to provide a clear definition of trust which could anchor subsequent theoretical and empirical work. Rousseau et al. (1998, p. 394) surmise there is "no universally accepted scholarly definition of trust," then propose one provided by Mayer et al. (1995) as a potential candidate: "Trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another." While this definition is acknowledged in the organizational behavior literature, economists, for example, still consider definitions that are more grounded in a game theoretic context. See Lane and Bachmann (1998) for a general discussion or Axelrod (1984) for a specific example.

One aspect of trust that makes its topology elusive is its multilevel nature, with interactions between individuals, groups, firms, and institutions all having a potential role in its assessment (see, for example, Schoorman et al. 2007). Dietz et al. (2010) also note how trust can be viewed differently across different cultures, with Bachmann and Zaheer (2013) providing an example of trying to bridge the European conceptualization of trust with the American view.

It is within this context that we accept the conclusion of McEvily et al. (2003, p. 101) conclusion that:

¹ For a useful gateway into the trust literature, see the special editions of *Organization Science* (Jan–Feb, 2003) and *Academy of Management Review* (July, 1998). Both Kramer and Tyler (1995) and Saunders et al. (2010) provide edited collections on the topic of trust.

Rather than debating which of these definitions is more correct, we believe that the field would be better served by researchers acknowledging that trust is a multifaceted concept, clearly identifying which definition is most relevant for their particular research question, and applying that definition consistently.

The lens through which we consider trust is broadly cast within the view of Schoorman et al. (2007) who argue that the trust of management is critical in understanding organizational trust, since it is the managers who “will govern the strategic actions of the organization” (p. 346). To the extent that trust is a central aspect of a corporation’s culture, we expect its presence to permeate the communications of managers with shareholders. We appreciate that by arguing that trust is an aspect of corporate culture, we are embedding one amorphous concept in another. Dietz et al. (2010) provide a useful discussion of the interaction between trust and culture.

Given the nebulous conceptual framework of trust research, it is not surprising that, as McEvily et al. (2003) note, empirical work on the topic is not even keeping up with the theories. Trust can be treated as a dependent variable, an independent variable, or an interactive variable. McEvily and Tortoriello (2011) provide a broad review of the measurement issues surrounding trust, noting that the state of the art, across 129 different measures of trust, is both “rudimentary and highly fragmented” (p. 23). Trust in the extant literature is most frequently measured using qualitative data such as surveys, interviews, or laboratory experiments.

Unlike much of the prior literature, we proxy for the magnitude of the role trust plays in a firm’s corporate culture by a selective method of counting the number of times unique “trust” words appear. A number of other ethics papers have, like our paper, parsed documents for specific words or to measure document tone (see, Holder-Webb and Cohen (2012); Patelli and Pedrini (2015); Yuthas et al. 2002; and Forster et al. 2009). Firms with a more frequent count of 21 unique “trust” words in the MD&A section of their 10-Ks are hypothesized to have a corporate culture that involves greater trust. Examples of the 21 “trust” words include *trust*, *character*, *ethics*, *fairness*, *integrity*, *honest*, and *virtue*. More than 40 % of our sample uses at least one “trust” word in their MD&A section.

Our 21 “trust” words are selected on the basis of Butler and Cantrell’s (1984) five specific components of trust but would be widely acknowledged as representing trust according to most theories of trust we have encountered. Each of the trust words relate to either integrity (i.e., *integrity*, *ethics*, and *honesty*); competence (i.e., *accountability* and *responsibilities*); consistency (i.e., *fairness*);

loyalty (i.e., *respect*); or openness (i.e., *transparency*). Although admittedly Butler and Cantrell’s list is derived in the context of dyadic interpersonal trust (supervisor/subordinate), this at least provides a non-arbitrary basis for our targeted word list and we believe the list is substantially complete in the context of our analysis.

It is important to note that all of Butler and Cantrell’s five trust components relate to moral values. Although we do not endorse their framework entirely, we agree that the selected words are trust words. To insure the manager’s MD&A language usage actually relates to trust and not to a financial asset or the name of a company committee, we drop all capitalized trust words except those following a sentence termination. Thus, “Bond Backed Asset Trust (BBAT)” and “Business Ethics Committee” are not included in our tabulation of trust words.

One major advantage in our 10-K parsing methodology over using web pages at a single point in time or customer/employee survey results is significantly larger sample sizes. Our sample contains 40,441 publicly traded firm-year observations during 1997–2012. To illustrate our procedure, consider JC Penney’s 10-K document filed on March 4, 2007. JC Penney has one of the highest trust word counts in our sample. The firm uses seven different trust words in their MD&A section (*ethics*, *ethical*, *integrity*, *responsible*, *responsibility*, *responsibilities*, and *transparency*). Here are three sentences from the MD&A section of JC Penney’s 10-K with the trust words in italics:

The Company also recognizes that to achieve its strategies, it must maintain its reputation among many constituents—customers, suppliers, investors and regulators, as well as the general public—for business practices of the highest *ethical* quality. Attention to *integrity* and reputation has always been a key aspect of the Company’s practices and maintenance of reputation is the *responsibility* of everyone in the organization. The Company supports this individual *responsibility* in many ways, including a code of *ethics*, training, policies, reporting mechanisms and oversight through the Company’s Legal Compliance and Business Ethics Committee, which is discussed below.²

We acknowledge the possibility that companies discussing *fairness* and *integrity* in their 10-K are not truly virtuous, but are merely engaging in cheap talk to mislead outside investors and others. One cannot completely differentiate cheap talk from language expressing genuine virtue, but we present some evidence that trust language in the MD&A

² Since we count only lower cased trust words (except following a sentence termination), the word “Ethics” is not italicized because it is not included in our tabulation.

section is not just cheap talk by management. Using the Hong and Kacperczyk (2009) definition of “sin” stocks (i.e., firms engaged in the businesses of alcohol, tobacco, or gambling), we find that sin stocks have significantly *lower* trust word usage in their 10-Ks. Thus, evidence indicates that manager’s use of trust language is not false signaling by firms like R.J. Reynolds Tobacco Company or MGM Mirage Casinos trying to appear highly virtuous. Realities of business make whitewashing and even exaggeration dangerous—actions speak louder than words, and those writing these documents know they will be scrutinized by the media and investors.

What are other significant characteristics of firms using more unique trust words in their MD&A section? Firms with high trust word usage tend to be larger market value companies listed on the New York or American Stock Exchanges with higher pre-filing stock return volatility. Larger and older companies might be expected to spend more time commenting on their corporate culture than younger, smaller firms. Consistent with our use of language to quantify a major aspect of a trusting corporate culture, we also find that when managers more frequently discuss employees and workers in their MD&A, they tend to also have higher “trust” word counts. Since this would obviously expose management to criticism for a disparity between word and deed, it is some confirmation of our hypothesis that our objective measure correlates not only with trust words per se but also with the positive attitudes and corporate policies they express. This suggests that they view use of these words as important in matters of policy of the kind that concern both corporate culture and ethics.

One reason for the importance of trust in corporate culture is that, in addition to being morally desirable as facilitating interrelations in the firm, it might be expected to reduce certain costs. Whether trust complements or substitutes for various forms of control is a central question in the trust literature. Rousseau et al. (1998) note that trust is a substitute for control mechanisms and that strict controls signal a lack of trust. Puranam and Vanneste (2009) report that in some markets, demanding contacts or governance may actually crowd out trust. They conclude that “... the reliance of governance may be seen as a signal of distrust” (p. 26). Similarly, Bromiley and Cummings (1995) and Larcker and Tayan (2013) suggest that having a higher level of trust in a company will potentially lower or even eliminate much of the costs associated with monitoring by directors or with external auditors.

In contrast, both Poppo and Zenger (2002) and Costa and Bijlsma-Frankema (2007) provide empirical support for the notion that trust complements controls. Poppo and Zenger argue that clearly articulated contracts encapsulate the degree of risk in exchange along with encouraging the longevity of a relationship. In their view, contracts

provide the scaffolding on which trust is built. Their empirical results based on outsourcing relationships support the hypothesis of complementarity. In a utopian situation, a firm with a trusting corporate culture would not need to spend millions of dollars on director oversight or have expensive auditors visiting far-flung warehouses to take inventory. In the actual world, however, managers realize that even a corporate culture built on trust needs verification to bring structure and a lower bound to the trust relation.

Consistent with the complementarity hypothesis, we find a high correlation between trust as an element in corporate culture and emphasis on auditing and control mechanisms. Moreover, where trust is actually operative in corporate culture, we would expect management to willingly undergo audits and controls, as opposed to acting from a fear of exposure.

In our regression analyses, after controlling for firm characteristics like market value and prior performance, we report the coefficient on the count of trust words is positive and statistically significant when the dependent variable is the count of audit and control words. Firms with a trusting corporate culture apparently find it necessary to disclose their auditing and internal control mechanisms to outside investors. Clearly, having a trusting culture does not imply that the firm has no rules in place to ensure that the managers operate within acceptable boundaries. This finding alone has some significance: it undermines the view that where there is trust there need not be rules, explicit procedures, and verification.

Empirically, we also find evidence of a link between trust and risk. The ethical side of this link concerns the need not to abuse trust by taking the unreasonable risks it often makes possible. A related aspect of this link is that risk-taking is essential for most kinds of innovation. One would expect a culture of trust to lead to higher risk tolerance, and we hypothesize that this should lead to higher actual risk-taking, which in turn should be correlated with stock price volatility. Our findings confirm this hypothesis. Companies with a more trusting corporate culture experience significantly higher subsequent stock return volatility.

The higher subsequent stock return volatility might be caused by a trusting culture which occasionally leads to poor internal controls. A trusting corporate culture should be expected to have higher volatility given the enormous potential downsides when trust is unfortunately misplaced—or even appears to be. As noted by Kramer (2009), “Trust entails risk. There’s no way to avoid that.”

Data

We create the 10-K (i.e., annual corporate report) sample by downloading all 10-K, 10-K405, 10KSB, 10-KSB, and 10KSB40 documents that were filed on the US Securities

Table 1 Impact of data screens on final sample creation

	Dropped	Sample size
SEC 10-K files 1997–2012		168,248
Drop if number of 10-K words ≤ 2000 or MD&A words ≤ 200	37,706	130,542
Drop financial firms (remove Fama–French Industries of 44–47)	29,889	100,653
CRSP PERMNO match and ordinary common equity	48,292	52,361
Drop if missing announcement returns or market values	1245	51,116
Drop if stock price $\leq \$3$	10,675	40,441

This table reports the impact of various data filters in arriving at the final 10-K sample

and Exchange Commission’s (SEC) EDGAR website (www.sec.gov) between January, 1997 and December, 2012. We then examine the MD&A section (Item 7) of the 10-K for unique trust words. Often, trust words appear when management discusses their corporate culture. For example, HCA (Hospital Corporation of America) notes in their 10-K filed in 2004: “HCA is committed to a corporate culture highlighted by the following values—compassion, honesty, integrity, fairness, loyalty, respect and kindness.” Hewlett Packard in their 2007 10-K filing states: “We are expanding our *ethics* and compliance programs and enhancing our corporate governance to ensure that all of our actions are consistent with HP’s values.” Coca-Cola mentions in their 10-K filed on February 28, 2011 that “Being a *responsible* global citizen that makes a difference” (italicization of trust words is ours).

Table 1 shows how data screens affect the number of 10-Ks entering our final sample. Some firms have an MD&A section consisting of only a few words because the firm incorporates most material by reference. For example, General Electric’s entire 2008 MD&A section (Item 7 of their 10-K) consists of this one sentence: “Incorporated by reference to pages 42–62 and 107–111 of the Annual Report to Shareowners for the fiscal year ended December 31, 2007.” Since our analysis is dependent on having a material MD&A section, we drop 37,706 observations having fewer than 201 words in their MD&A section.

Banks and insurance companies have high counts of the word “trust” in their financial documents. For example, Bank of America in the MD&A section of their 2009 10-K use the word *trust* 18 different times (e.g., credit card securitization trust; outstanding trust certificates; the trust would enter into early amortization; will be issued by the trust to the Corporation; a trust sponsored by the Corporation; corporate sponsored trust companies; and issue trust preferred securities). To insure that our results are not contaminated by incorrect parsing, we eliminate companies in the Fama and French (1997) industries of banking, insurance, real estate, and trading (dropping 29,889 observations). Our requirement that the 10-K filer be on the Center for Research in Security Prices (CRSP) database and have available stock market data, drops 48,292 and

1245 firm-year observations, respectively. Lastly, to minimize the impact of microcap firms, we drop 10,675 observations having a stock price less than or equal to \$3. Our final sample consists of 40,441 firm-year observations during 1997–2012.

Variable Definitions

Our key variable, *Trust words*, is the sum of unique trust words occurring in the MD&A section of the 10-K. The 21 words defined to be trust language are *accountability, character, ethics, ethical, ethically, fairness, honest, honesty, integrity, respect, respected, respectful, responsible, responsibility, responsibilities, transparency, trust, trusted, truth, virtue, and virtues*.³ All “respect to” phrases are deleted. All capitalized “*Trust*” words are deleted except those following sentence terminations.

It is important to emphasize a cautionary element in our method: our *Trust words* variable is not based on a frequency count. For each of the trust words, we only tabulate the first occurrence of the word token. This procedure avoids giving high weights to repetitively used words like *trust* or *respect* to describe the firm’s corporate culture. It also eliminates irrelevant differences between writers who use the same word repeatedly where others would use pronouns like ‘it’ to avoid repetition. Loughran and McDonald (2014) use a similar methodology in the tabulation of their *Financial terminology* variable. The *Trust words* variable has a possible range of 0 to 21. Figure 1 reports the time series trend in *Trust words* during 1997–2012. The mean value increases from 1997 until 2005. After 2005, the mean number of unique *Trust words* is generally stable.

We also create a frequency count of auditing and control-type words within the MD&A section. The percent of *Audit words* variable is defined as the count of audit words in the MD&A section divided by the number of words

³ Of the ten Integrity words used in Guiso et al. (2015), eight are also contained on our *Trust words* list. The only two exceptions are “Do the right thing” and “ownership”.

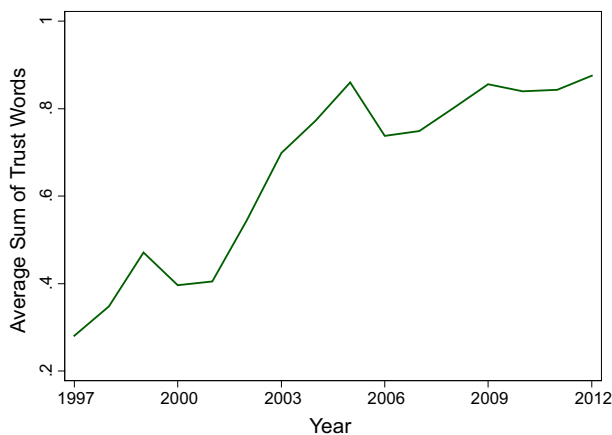


Fig. 1 Time series of *Trust words* in the MD&A section of the 10-K, 1997–2012

appearing in the MD&A section. Audit words include *audit*, *audits*, *audited*, *auditor*, and *auditing*. The percent of *Control words* variable is the count of controls words (i.e., *controls*, *procedure*, and *procedures*) in the MD&A section of the 10-K divided by the number of words appearing in the MD&A section.

To insure that ‘non-trust-related’ firm characteristics are not driving the analysis, our regressions include a number of control variables. Our eight additional control variables are: (1) following Hong and Kacperczyk (2009), a sin stock dummy equal to one for companies associated with alcohol, tobacco, and gambling, else zero; (2) natural logarithm of one plus the count of the words *employee*, *labor*, *worker*, and *workers* in the MD&A section of the 10-K; (3) natural logarithm of market value (stock price times shares outstanding) 1 day prior to the 10-K filing date; (4) pre-filing alpha from a market model using trading days $[-252, -6]$; (5) pre-filing root mean square error (RMSE) from a market model using trading days $[-257, -6]$; (6) two-day abnormal returns surrounding the 10-K filing date $[0, 1]$; (7) natural logarithm of the number of words in the 10-K; and (8) a dummy variable equal to one if the firm is listed on Nasdaq at the time of the 10-K filing, zero otherwise. More detailed variable descriptions are provided in the Appendix Table 6.

Summary statistics (mean, 10th percentile, median, and 90th percentile) for key variables are reported in Table 2. Although the median *Trust words* value is 0, the 75th percentile is 1 while the 90th percentile has a value of 2. The median number of times the MD&A section mentions *employee*, *labor*, *worker*, and *workers* is 2 while the 90th percentile has a value of 10. Consistent with the evidence of Loughran and McDonald (2011), the typical announcement return around the 10-K filing date is close to zero (median value of only -0.187%). The average market

value for the sample is \$2.1 billion, while 61 % of our firms are listed on Nasdaq at the time of the 10-K filing.

Some Characteristics of Firms with a Trusting Corporate Culture

A first step in our analysis is to report certain characteristics of companies with a high value for *Trust words*. In the Table 3 regression, the dependent variable is *Trust words*. Our eight control variables are included along with an intercept, Fama and French 48-industry dummies, and calendar-year dummies. The *t*-statistics are in parentheses with the standard errors clustered by both year and industry. In the Table 3 regression, all the control variables have significant coefficients except for 10-K filing-day returns.

The negative coefficient on the *Sin dummy* variable (*t*-statistic of -5.51) indicates that firms with, by our measure, a trusting corporate culture are less likely to be in the industries of alcohol, tobacco, or gambling. Our *Trust words* measure is not driven by tobacco firms trying to falsely signal virtue in their 10-K. The coefficient on $\log(\text{Worker count})$ is positive with a *t*-statistic of 8.35. Significantly, more discussion in the MD&A section expressing concerns about workers or labor is positively linked with higher values for *Trust words*. This supports our contention that *Trust words* are linked with a firm’s corporate culture. Firms that describe a trusting corporate culture in their MD&A section also devote more text to mentioning their work force. The Table 3 regression results also indicate that firms with larger market values and companies listed on the New York or American Stock Exchanges are associated with higher trust word values. Larger and more mature firms are more likely to inculcate trust as an alternative to an increasingly complex contracting environment.

The Link Between the Discussion of Trust Words and Audit/Control Language

To empirically test the relation between a trusting corporate culture and manager’s auditing and control language, Table 4 uses two different dependent variables. The first two columns have % *Audit words* as the left-hand-side variable while columns (3) and (4) have % *Control words* as the variable of interest. In columns (1) and (3), only control variables are included in the regression. When % *Audit words* is the dependent variable in column (1), only $\log(\text{Worker count})$ and $\log(\text{Number of words})$ have significant coefficient values. Greater frequency of *workers* or *labor* language is positively linked with more discussion of auditing by the firm. The negative coefficient on $\log(\text{Number of words})$ suggests that as the length of the

Table 2 Summary Statistics

	Mean	10th percentile	Median	90th percentile
Trust words	0.6315	0	0	2
% Audit words	0.0145	0	0	0.0435
% Controls words	0.0159	0	0	0.0455
Worker count	3.8566	0	2	10
Market value (\$bil)	2.1053	0.039	0.331	3.751
Pre-filing Alpha	0.0739	−0.173	0.045	0.344
Pre-filing RMSE	3.4372	1.516	3.012	5.792
2-day filing returns, %	−0.2584	−5.926	−0.187	5.315
# of 10-K words	42,275	14,481	33,428	79,484
Nasdaq dummy	0.6071	0	1	1

Trust words is the sum of unique trust words occurring in the MD&A section of the 10-K. The *% Audit words* variable is defined as the count of audit words (i.e., *audit*, *audits*, *audited*, *auditor*, and *auditing*) in the MD&A section divided by the number of words appearing in the MD&A section. The *% Control words* variable is the count of controls words (i.e., *controls*, *procedure*, and *procedures*) in the MD&A section of the 10-K divided by the number of words appearing in the MD&A section. See Appendix Table 6 for definitions of all other variables

Table 3 Characteristics of firms with a trusting corporate culture

	(1)
Sin dummy	−0.26 (−5.51)
Log(Worker count)	0.13 (8.35)
Log(Market value)	0.05 (6.72)
Pre-filing Alpha	−7.10 (−3.97)
Pre-filing RMSE	1.58 (3.21)
Filing date returns [0,1]	−0.05 (−0.70)
Log(Number of words)	0.22 (5.76)
Nasdaq dummy	−0.17 (−5.57)
R^2	17.02 %
Sample size	40,441

The dependent variable, *Trust words*, is defined as the number of unique trust words appearing in the MD&A section of the 10-K. See Appendix Table 6 for definitions of all other variables. The regression also includes an intercept, Fama and French 48-industry dummies, and calendar year dummies. The *t*-statistics are in parentheses with standard errors clustered by year and industry

10-K increases, a lower percentage of the text is devoted to mentioning words like *auditing*, *auditor*, and *audited*.

When the *Trust words* variable is added to the column (2) regression, the coefficients on *log(Worker count)* and *log(Number of words)* remain statistically significant. The coefficient on *Trust words* has a positive sign and is significant (*t*-statistic of 5.29). Controlling for other variables, as more trust words occur in the MD&A section, firms have a greater frequency of auditing-type words in their text. A natural explanation is that corporations with a trusting corporate culture feel the need to discuss their auditing verification to outside investors. Trust, but verify.

In the column (3) regression of Table 4, only *pre-filing alpha*, *pre-filing RMSE*, and *log(Number of words)* have coefficients significant at the 5 % level when the dependent variable is *% Control words*. It is interesting to note that the stronger the company's performance in the prior year, the less likely the firm will use control-type words (i.e., *controls*, *procedure*, and *procedures*) in their MD&A section. As might be expected, however, managers with higher stock return volatility in the year before the 10-K filing more often mention control-type words when describing the firm's operations. When *Trust words* is added to regression (4), its coefficient is positive and statistically significant at conventional levels (*t*-statistic of 7.88). Thus, the more trusting the corporate culture, as proxied by our count of trust words, the more frequently the firm discusses the controls it has in place. Our explanatory hypothesis here is that where corporate culture embodies trust or—also significant—where management is projecting trust in official statements that contribute to corporate culture, there is an awareness of the need for verification.

The Link Between a Trusting Corporate Culture and Subsequent Returns/Volatility

It has often been said that “good ethics is good business.” We consider a corporate culture of trust to be—in the right form—an element in good ethics, and one purpose of our study is to bring to bear a method of collecting hard data relevant to confirming the adage. Here we first note that Edmans (2011) finds that financial markets appear slow to incorporate soft/intangible information into stock prices. He reports that the top 100 firms, in terms of employee satisfaction, have abnormally high stock returns in the

Table 4 Regressions with % Audit and % Control words as the dependent variables

Dependent variable	% Audit words (1)	% Audit words (2)	% Controls words (3)	% Controls words (4)
Trust words		0.0032 (5.29)		0.0041 (7.88)
Sin dummy	−0.0065 (−1.78)	−0.0056 (−1.50)	−0.0015 (−1.58)	−0.0004 (−0.36)
Log(Worker count)	0.0014 (4.01)	0.0010 (2.56)	0.0004 (0.36)	−0.0002 (−0.15)
Log(Market value)	0.0002 (0.53)	−0.000 (−0.05)	0.0007 (1.80)	0.0005 (1.30)
Pre-filing Alpha	0.0006 (1.07)	0.0859 (1.39)	−0.0032 (−2.71)	−0.2884 (−2.55)
Pre-filing RMSE	−0.0002 (−1.31)	−0.0273 (−1.57)	0.0007 (2.05)	0.0006 (1.88)
Filing date returns [0,1]	0.000 (0.88)	0.0023 (0.92)	0.000 (0.46)	0.0022 (0.51)
Log(Number of words)	−0.0012 (−2.92)	−0.0019 (−4.54)	−0.0017 (−2.37)	−0.0026 (−3.36)
Nasdaq dummy	−0.001 (−1.20)	−0.0005 (−0.56)	−0.000 (−0.01)	0.0007 (0.40)
R^2	4.6 %	5.3 %	7.9 %	8.6 %
Sample size	40,441	40,441	40,441	40,441

The dependent variable in columns (1) and (2) is % *Audit words*, defined as the count of audit words in the MD&A section divided by the total number of words appearing in the MD&A section. Audit words are defined as *audit*, *audits*, *audited*, *auditor*, and *auditing*. The dependent variable in columns (3) and (4) is % *Control words*, defined as the count of controls words (defined as *controls*, *procedure*, and *procedures*) in the MD&A section of the 10-K divided by the total number of words appearing in the MD&A section. See Appendix Table 6 for definitions of all other variables. All regressions also include an intercept, Fama and French 48-industry dummies, and calendar year dummies. The *t*-statistics are in parentheses with standard errors clustered by year and industry

months following the publication of the survey results. Similarly, Davis et al. (2000) find trust is linked with higher company revenue and profitability within the restaurant industry. If better culture leads to improved future operating performance, one might expect that firms with a more trusting corporate culture might have higher subsequent stock returns.

For investors, the amount of variability in stock prices (i.e., its volatility) is one of the most important characteristics to consider before purchasing shares of a publicly traded company. The higher a stock's volatility, the riskier is the investment. What should our expectation be on the link between trusting culture and stock return volatility in the year following the 10-K filing? It is possible that firms with a trusting culture have a steadier course with fewer surprises. It may be, however, that as Hosmer (1995) maintains, “an essential part of the definition of trust is the expectation that the loss if trust is broken will be much greater than the gain when trust is maintained.” Also, Kramer and Lewicki (2010) note the difficulty in repairing trust once it is broken. Thus, firms with a trusting corporate culture might be expected to have higher volatility given the large downside if the trusting culture back fires.

To examine whether there is a link between a trusting corporate culture and subsequent returns and volatility, the Table 5 regressions have *post-filing alpha* (column (1)) and *post-filing RMSE* (column (2)) as the dependent variables. The first column reports that sin stocks, small firms, or companies with a smaller 10-K word count have better subsequent stock return performance in the year following

Table 5 Relation between Trust and Subsequent Stock Returns/Volatility

Dependent variable	Post-filing alpha (1)	Post-filing RMSE (2)
Trust words	0.0016 (1.13)	0.0293 (2.27)
Sin dummy	0.0489 (3.50)	−0.2740 (−4.00)
Log(Worker count)	0.0031 (1.41)	−0.0254 (−2.56)
Log(Market value)	−0.0109 (−3.47)	−0.1994 (−6.70)
Pre-filing Alpha	0.0005 (0.04)	−1.0524 (−5.02)
Pre-filing RMSE	−0.0071 (−1.35)	0.5329 (11.71)
Filing date returns [0,1]	0.0024 (6.48)	−0.0206 (−5.07)
Log(Number of words)	−0.0115 (−3.76)	0.1985 (5.39)
Nasdaq dummy	0.0027 (0.50)	0.3310 (3.48)
R^2	4.7 %	54.7 %
Sample size	39,606	39,606

The dependent variable in column (1), *post-filing alpha*, is the alpha from a market model using trading days [$t + 1, t + 252$]. The column (2) regression has *post-filing RMSE*, from a market model using trading days [$t + 1, t + 252$], as its dependent variable. See Appendix Table 6 for definitions of all other variables. All regressions include an intercept, Fama and French 48-industry dummies, and calendar year dummies. The *t*-statistics are in parentheses with standard errors clustered by year and industry

the 10-K filing. The strong performance of sin stocks is consistent with Hong and Kacperczyk's (2009) evidence that sin stocks have higher expected stock returns than comparable publicly traded firms. As with most regressions trying to explain subsequent stock performance, the R^2 value in regression (1) is only 4.7 %.

Although the coefficient on *Trust words* is positive, it is not statistically significant (t -statistic of 1.13). Thus, our evidence is that firms with trusting corporate cultures do not have significantly higher subsequent stock returns. This need not be trust-related or even heavily related to corporate culture, but it might also be due to the difficulty that financial markets have in pricing intangibles, or it might be that investors have already incorporated firm culture into stock prices.

The second column of Table 5 reports the regression results when *post-filing RMSE* is the dependent variable. The R^2 value for the column (2) regression is 54.7 %. All of our eight control variables have significant coefficient values. Firms which are in sin industries, discuss employees more, are larger in size, or had better stock performance in the prior year have lower subsequent stock return volatility. Companies with higher prior period volatility or lengthier 10-Ks had higher subsequent volatility. The link between wordy 10-Ks and volatility might be because investors have a hard time assimilating valuation-relevant information from lengthy 10-Ks into the firm's stock price (see Loughran and McDonald (2014)). The more text investors or financial analysts have to read to properly forecast future cash flows, the more likely markets will have difficulty pricing the stock.

In the presence of the eight control variables, the coefficient on *Trust words* is statistically significant. More trusting corporate culture is associated with higher subsequent volatility. This finding is consistent with the conjectures of Hosmer (1995) and Kramer (2009) that a trusting corporate culture potentially increases the overall risk of the firm.

Some Limitations of the Analysis and Future Research

First, it is important to point out some limitations of our analysis. A skeptic could argue that the frequency of trust words in the MD&A section is driven by managers wanting to *appear* to have a culture of trust as opposed to actually having one. However, we find that firms in the sin industries of tobacco, alcohol, and gambling are *less* likely to use trust words in their MD&A sections. Further, there might be costs to trying to fool investors. The attempt often comes to light or at least generates suspicion. Investors are often annoyed when management tries to fool outsiders into thinking the company is something that it is not.

A second point offsets the force of the first. Even if the motivation for using trust words is self-interested, the very fact that these words are used is significant: it imposes responsibilities—legal as well as ethical—on the managers using them. Words selected by managers to discuss corporate culture affect employee morale and, likely, the firm's stock price—at least in its volatility, if our evidence

is indicative. Those words are also a basis for assessment of management, and this is significant for determining both the ethical character of a firm and its approach to producing goods and services.

Are there future questions that other researchers should investigate in the role that trust plays in corporate culture? Our study views trust in corporations mainly *horizontally*—at the level of managerial language. This is importantly indicative of corporate culture. Moreover, even apart from the acknowledged limitations, there are three positive implications of our analysis.

First, one might, using the techniques introduced here, study other levels in corporate culture and corporate activity. Secondly, future researchers might study trust language—and other aspects of corporate culture *vertically*, focusing on correlations or presumptive causal connections between that language at a managerial level (or even simply in specified documents) and a lower “rank-and-file” level. One would hope there is a “filtering down” effect of corporate culture, and, if so, our measurements of trust should indicate elements in corporate culture that exist in and affect people in the firm who are below the level of the upper management that produces the documents we have studied. Thirdly, researchers could correlate shareholder's appraisals of a company with such language—focusing on both sides (shareholders and management).

Conclusion

Other papers have hypothesized that a more trusting corporate culture will lessen the need for external monitoring and contracts. Instead of using excessive legal contracts or costly monitoring to motivate employees to work in the best interests of shareholders, placing trust in managers might be more beneficial. However, it is difficult to gauge the level of trust in a firm's corporate culture. We agree that elevating the level of trust in a US corporation should be expected to improve the firm's corporate culture, but we have not found a negative correlation between degree of trust in a firm's culture and its use of various kinds of monitoring. Our findings point in a different direction, and we take the positive relation we have found between evidence of trust and emphasis on monitoring and control to show that trust is seen as calling for—and certainly not as making inappropriate—verification. Trust is built on the scaffolding of well-articulated contracts and controls.

Quite apart from our findings regarding trust in corporate culture, we are proposing a new method of measuring trust in that culture. The words managers use to describe their company in the Management Discussion and Analysis (MD&A) section of their annual corporate reports (Form 10-K) should, to a significant degree, proxy for the level of

trust. Specifically, we hypothesize that a more frequent count of 21 unique “trust” words, like *trust*, *character*, and *virtue*, in the MD&A section of a firm’s 10-K indicates a corporate culture that involves greater trust. We leave for later investigation the hypothesis that a counterpart of our method, geared to different words crucial for other elements of corporate culture, might facilitate different ways of determining the character of a firm’s corporate culture. We hope, then, to assist ethical analysis by providing a way to describe the ethical landscape in businesses.

Interestingly, firms whose corporate culture manifests a higher level of trust are more likely to use audit and control-type words in their MD&A section. Clearly, firms with a trusting culture need to discuss their auditing and internal control mechanisms to shareholders. Trust, but verify. Although we find no link between the degree of trust in a firm’s corporate culture and magnitude of subsequent share

price, our analysis finds a significant relation between trust and future volatility. Companies with a higher level of trust in their corporate culture have higher subsequent stock return volatility in the year following the 10-K filing date. If reasonable risk is crucial for innovation, the risk that goes with trust may well account for this. In any case, trust may be economically beneficial in an ethically positive corporate culture. Finding an objective way to gauge trust is an important step toward enhancing it where it is too low, sustaining it where it is high, and holding responsible those who claim to deserve it.

Appendix

See Table 6.

Table 6 Definitions of the variables used in the paper

Trust words	Number of unique trust words appearing in the MD&A section of the 10-K. Trust words are <i>accountability</i> , <i>character</i> , <i>ethics</i> , <i>ethical</i> , <i>ethically</i> , <i>fairness</i> , <i>honest</i> , <i>honesty</i> , <i>integrity</i> , <i>respect</i> , <i>respected</i> , <i>respectful</i> , <i>responsible</i> , <i>responsibility</i> , <i>responsibilities</i> , <i>transparency</i> , <i>trust</i> , <i>trusted</i> , <i>truth</i> , <i>virtue</i> , and <i>virtues</i> . All “respect to” phrases are deleted. All capitalized “Trust” words are deleted except those following a sentence termination. <i>Trust words</i> has a possible range of 0 to 21
% Audit words	Count of audit words in the MD&A section divided by the total number of words appearing in the MD&A section multiplied by 100. Audit words are defined as <i>audit</i> , <i>audits</i> , <i>audited</i> , <i>auditor</i> , and <i>auditing</i>
% Controls words	Count of controls words (defined as <i>controls</i> , <i>procedure</i> , and <i>procedures</i>) in the MD&A section of the 10-K divided by the total number of words appearing in the MD&A section multiplied by 100
Post-filing RMSE	The post-filing RMSE is from a market model using trading days $[t + 1, t + 252]$. To be included in the sample, the firm must have at least 66 observations of daily returns
Post-filing Alpha	The post-filing alpha is from a market model using trading days $[t + 1, t + 252]$. To be included in the sample, the firm must have at least 66 observations of daily returns
Control variables	
Number of 10-K words	Total number of words appearing in the 10-K
Nasdaq dummy	Dummy variable set to one if the firm is listed on Nasdaq at the time of the 10-K filing, else zero
Market capitalization	Market capitalization (stock price multiplied by shares outstanding) as of 1 day prior to the 10-K filing
Pre-filing Alpha	The pre-filing alpha is from a market model using trading days $[-252, -6]$. To be included in the sample, the firm must have at least 60 observations of daily returns.
Pre-filing RMSE	The pre-filing RMSE is estimated from a market model estimated using trading days $[-257, -6]$. To be included in the sample, the firm must have at least 60 observations of daily returns
2-day filing returns	Two-day $[0, 1]$ abnormal returns surrounding the 10-K filing date
Sin stock dummy	Following Hong and Kacperczyk (2009), the sin stock dummy is set to one for companies associated with alcohol (Fama–French Industry 4: Beer), tobacco (FF Industry 5: Smoke), and gambling (FF Industry 7: Entertainment), else zero. Firms within these three industries not related to vice (i.e., Coke-Coca, Pepsi Bottling, Jones Soda, and Walt Disney) are assigned a value of zero
Log(Worker Count)	Natural logarithm of one plus the count of the words <i>employee</i> , <i>labor</i> , <i>worker</i> , and <i>workers</i> in the MD&A section of the 10-K

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