

The Role of Corporate Culture in the Financial Industry*

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Abstract

This paper sheds light on the role of corporate culture in the financial industry. As a first step, we contribute to the literature that has described corporate culture as a tool for the self-selection mechanism of workers into firms, presumed a match of workers' attitude with the firms' corporate culture. Second, we investigate the role of corporate culture with respect to risk-taking and performance. Finally, we reopen the discussion on the nexus between CEO compensation and risk-taking against the backdrop of heterogeneous corporate culture types. Our results indicate that financial firms with a stronger competition-oriented corporate culture pay a larger share of total compensation to their CEO in terms of bonus payments. Moreover, the paper provides empirical evidence for a positive correlation between a competitive corporate culture and banks' credit risk as well as a positive correlation between a more competition-oriented corporate culture and the buy-and-hold stock price return over the S&P 500 Index return. These results suggest that competition-oriented firms, by attracting competitive workers, benefit from a strong internal competition between workers which increases firm value. However, the strong internal competition might also introduce workers to take excessive risks in order to outperform their competitors. We observe that this significant correlation of the corporate culture measure is found for given incentives from different compensation schemes. Contrary to that, the effect of CEO compensation schemes on banks' risk-taking is diluted once we control for corporate culture.

Keywords: corporate culture; CEO compensation; bank risk-taking; bank performance.

JEL-Classification: G21, G34, M14.

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1 Introduction

“[I]mproving culture in the financial services industry is an imperative. [...] In recent years, there have been ongoing occurrences of serious professional misbehavior, ethical lapses and compliance failures at financial institutions. [...] As a consequence, the financial industry has largely lost the public trust.”

— William C. Dudley, *President and CEO of the Federal Reserve Bank of New York*

The role of corporate culture in the financial industry has attracted large attention since the 2007-09 financial crisis among both academics and policymakers. In this way, the Federal Bank of New York hosted a workshop on “*Reforming Culture and Behavior in the Financial Services Industry*” where policymakers, researchers, and executives of leading financial institutions discussed about the possibility to enhance financial stability by improving culture in the financial service industry. However, the empirical literature dealing with a firm’s risk-taking behavior or performance has focused primarily on the role of incentives from CEO compensation schemes, such that the link between managerial compensation and firm’s risk taking behavior has been a widely discussed. It is argued that the contractual design of the management boards’ compensation implies distorted incentives for the firm’s decision makers. Variable compensation schemes introduce executives to engage in risk-seeking activities from which they fully benefit in case of success while the burden in case of a default is largely carried by debt holders or taxpayers.¹ The role of corporate culture, however, has largely been ignored.

We fill this gap and combine the theoretical work on corporate culture with the literature on CEO incentives from compensation and argue that firms differ regarding their CEO compensation scheme due to differences in their corporate culture. We show in a first step that differences in the compensation scheme of executives arise from differences in the corporate culture. This result can be interpreted as firms using their compensation scheme to recruit managers with attitudes that fit best their corporate culture. In a second step, we investigate the role of corporate culture regarding risk-taking behavior and

¹Being more precise, the literature discusses not only the link between variable and fix compensation, but focuses in greater detail on differences in the compensation scheme as for example on CEOs private gain from an increase in firm value. While most empirical evidence is in favor of the hypothesis that bonus compensation increases risk-taking of financial firms (see Balachandran, Kogut, and Harnal (2010), Chen, Steiner, and Whyte (2006), and Bai and Elyasiani (2013)), there is partly evidence that performance-based compensation schemes have not introduced additional risk-seeking, see Fahlenbrach and Stulz (2011).

performance in the financial industry for given CEO incentives arising from compensation schemes.²

The results indicate that the share of variable compensation to total payments is significantly higher in institutions with a strong competition-oriented corporate culture. Moreover, institutions with a strong focus on their competitors show also higher credit risks, while banks with a more creative cultural type are associated with lower credit risk. Finally, we obtain a positive correlation between a corporate culture towards competition and the excess buy-and-hold return of the institution's stock price over the S&P 500 Index return. Moreover, as the literature of CEO compensation suggests, we find higher risks for banks with a large bonus payment to its CEO. Interestingly, however, the effect of CEO bonus compensation is diluted once we include the measures of corporate culture and thus control for the self-selection of workers into firms.

The theoretical work of Friebel and Giannetti (2009), Kosfeld and von Siemens (2011), and van den Steen (2005) build the cornerstone of or interpretation of corporate culture. In these papers, corporate culture is described as a sorting mechanism that matches workers into firms with corresponding values and beliefs. Bandiera, Guiso, Prat, and Sadun (2015), too, agree on this idea and provide some evidence using data of Italian service sector executives. They find that more risk tolerant managers were attracted by firms with policies that create a tight link between reward and performance. In light of the importance of corporate culture regarding the self-selection of workers into firms, resuming the nexus between CEO compensation and risk-taking incentives is a crucial issue. While the literature regarding CEO compensation and risk-taking assumes that "people were entirely motivated by narrow, selfish concern",³ it neglects the effect of corporate culture on management behavior. For a clearer comprehension, assume, for example, that a bank with a strong focus on its *relative* performance, i. e., its own performance relative to the performance of competitor institutions that wants to recruit a new manager. In order to hire a manager with a strong competitive motivation, the firm could design a contract that only workers with a competitive attitude would choose, for instance by linking a large block of compensation to the bank's relative performance. Contrary to

²We focus our analysis on financial firms for two reasons. First, corporate culture is especially important in the financial sector since a bad corporate culture might generate a 'mistrust' towards the financial sector which might translate into a driving force of a full-blown financial crisis, see, for example, the bad equilibrium outcome in Diamond and Dybvig (1983). Second, financial firms are most flexible in fast adjusting their risk-return structure.

³See Milgrom and Roberts (1992).

that, managers with a less strong attitude towards competition might seek for a firm which offers a contract with a large share of fixed salary. The conclusion of this reasoning has strong implications for economic policy regarding the discussion on capping bonus payments to CEOs. If compensation does not cause risky investments, regulating CEO compensation would hardly be beneficial. To the contrary, it might even be harmful if the match between workers' attitudes and firms' corporate culture is productive and a bonus cap destroys this matching.

We follow Fiordelisi and Ricci (2014) and base our measure of corporate culture on the *Competing Value Framework (CVF)* developed by Quinn and Rohrbaugh (1983).⁴ As Cameron, Quinn, DeGraff, and Thakor (2006) describes, the *CVF* suggests that corporate culture as a combination of an organization's focus and structure imposes unique sets of values and beliefs which allows to distinguish four quadrants of cultural types and to derive certain value drivers and effectiveness criteria for each of the corporate culture dimension.⁵ We follow the methodology in Hoberg and Phillips (2016) and run a text analysis on banks' publicly available official annual documents (10-K reports), searching for synonyms that describe the four types of corporate culture.

The central idea of this approach follows the argumentation in Crémer (1993) and Hoberg and Phillips (2016): We assume that the vocabulary used by the management in 10-K reports reflects the features of the firm's corporate culture. Thus, we use the text used in each financial institutions' 10-K to assign each institution based on a bag of words describing the different leadership types from the *Competing Value Framework*. We then use the firm-year observations of the four cultural dimensions to analyze whether a stronger manifestation towards certain corporate cultures has an effect on different economic activities. As in Guiso, Sapienza, and Zingales (2006), who analyzes the effect of general culture on economic outcome,⁶ we use a twofold approach in this paper. First, we show that corporate culture has a direct effect on the compensation scheme of executives. This direct effect could be understood as a signal of a firm to attract only workers with similar attitudes and might introduce the self-selecting process of workers into firms. In a

⁴The *Competing Value Framework* has widely been used in the literature and there are many theoretical suppositions concerning this matter. For an overview of different theoretical suppositions, see the meta-analytic investigation of organizational culture and organizational effectiveness by Hartnell, Ou, and Kinicki (2011).

⁵The *CVF* has also been discussed with respect to corporate culture in banking by Thakor (2015).

⁶Guiso, Sapienza, and Zingales (2006) define (general) culture as customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation.

second step, we then analyze whether corporate culture translates into economic behavior such as performance and risk-taking.

The paper is organized as follows. We present a brief overview of the literature related to corporate culture in Section 2. In Section 3, we introduce the concept of corporate culture and describe the procedure of how we measure the differences in organizational culture types. Section 4 will then state the main hypotheses, present the empirical model as well as describe the data that we use for the analysis and its sources. The empirical results are shown in Section 5. Section 6 concludes.

2 Literature Review

For a quite long period of time, the economic literature ignored the importance of corporate culture, either due to the fact that it was regarded as irrational, irrelevant, difficult to measure, or difficult to include in theoretical models. However, the matter seems to be very important in practice since a good corporate culture aims at facilitating the provision of incentives or at improving coordination and cooperation among members. Kreps (1990) stressed the necessity of considering corporate culture in economic research as well as the development of sufficient theoretical tools capturing this issue to be of great importance. According to this early work, understanding organizational culture is essential in order to understand the actual purpose of a firm why to implement a particular strategy. In the theoretical framework of Kreps (1990), corporate culture can be understood in two different ways:

		Junior	
		<i>A</i>	<i>B</i>
Senior	<i>A</i>	<i>S, j</i>	<i>0, 0</i>
	<i>B</i>	<i>0, 0</i>	<i>s, J</i>

Figure 1: Coordination game between senior and junior personnel in Kreps (1990).

First, it is modeled as a tool that can ensure coordination in games with multiple pure-strategy Nash equilibria. Assuming a coordination game within a company with a senior person and a junior person, as it is represented in Figure 1 with $s, S, j, J > 0$ and $S > s, J > j$. While standard game theory cannot say which of the two pure strategy Nash

equilibria will be played,⁷ corporate culture can overcome this problem. Supposing for example a corporate culture where juniors are to defer seniors, one can expect that strategy A will be chosen by both players.

		Employee	
		Trust	Don't trust
Boss	Treat fairly	7, 5	2, 3
	Exploit	9, 0	4, 1

Figure 2: Repeated game between boss and employee in Kreps (1990).

Second, corporate culture is represented as a tool to categorize future contingencies for the aim of sustaining the cooperative play. In an infinitely often repeated prisoners dilemma game, where the boss can exploit his employee or treat him fairly, while the employee can either trust or not (see Figure 2), corporate reputation and traditions for treating employees fairly can sustain the desirable outcome that employees always play the strategy “*Trust*”.

These insights about the practical relevance led to a fast growing literature on corporate culture in various fields of economic research, especially in the most recent years. For instance, the work of Carrillo and Gromb (1999) models corporate culture as a production technology. Employees have to undertake culture-specific investments in order to improve their effectiveness under the firm-specific culture, but they also bear the risk that the organization adopts a different culture at a subsequent date. Their setup results in the existence of multiple equilibria: A firm has a strong culture if employees perceive that the organization’s culture is unlikely to be altered and therefore engage more in culture-specific investments. On the other hand, they invest little in culture-specific skills if cultural changes are more likely to occur, resulting in a weak corporate culture.

The idea of corporate culture has also been associated with the subject of common beliefs and leadership. Similar to Kreps (1990), Bolton, Brunnermeier, and Veldkamp (2013) describe corporate culture as a determination of the prevalence of one equilibrium in a multiple equilibria outcome of a coordination game among a firm’s leader and its followers. The leader receives a signal on which he defines the firm’s strategy or mission. The rest of the organization also receives a signal and decides how closely to follow the leader. In particular, they form their action based on the expectation whether the leader ignores the

⁷(i) Each player takes action A or (ii) each player takes action B.

information based on their own action or not. Thus, while they agree with Kreps (1990) that corporate culture relates to endogenous equilibrium beliefs, Bolton, Brunnermeier, and Veldkamp (2013) move towards an interpretation of corporate culture to agents' interactions with others, and the information generated by those interactions.

Cr mer (1993) defines corporate culture as the stock of knowledge shared by the members of an institution in which the associates of the organization have to invest in order to acquire this knowledge. More precisely, he disentangles culture in a common language and codes, a shared knowledge of facts, and a shared knowledge of established rules of behavior. By discussing the efficiency of different channels of communication within a firm, Cr mer (1993) shows that every technique of treatment of information can be made more efficient by corporate culture.⁸

Furthermore, corporate culture has been discussed as a sorting mechanism tool in the literature on labor market competition. Friebel and Giannetti (2009) try to identify the driving forces of workers' attitude towards large and small firms. They assume that talented people like to pursue their own ideas but at the same time, they like to be insured against income risk. They can show in their framework that the set of workers employed in small firms increases in the ease of access to credit, i.e. when workers have the opportunity to insure themselves against income risk.

In another strand of the literature, corporate culture has been linked to the subject of social capital. Rob and Zemsky (2002), for example, model the effect of corporate culture with regard to a workers' decision to cooperate. Workers have to choose the total amount of effort and the allocation of this effort, i.e. whether they want to provide individual effort or cooperative effort. They show that a firm's stock of social capital, which is labeled in the steady state as corporate culture, is not only driven by incentives, but also by its own internal dynamics. Thus, the optimal choice of incentives can create cultural differences across firms.

The model of Kosfeld and von Siemens (2011) combines the self-selection of workers into firms with the literature on workers' willingness to provide effort in social tasks and highlights the role of sorting and heterogeneity among workers in the presence of different corporate cultures. They analyze workers willingness to cooperate in a competitive labor

⁸In line with the interpretation of Cr mer (1993), we will use the common vocabulary as a measure of corporate culture in the empirical analysis later on.

market with workers being heterogeneous with respect to their intrinsic motivation to cooperate in a team. They find that selfish workers are employed in firms that offer strong monetary incentives for individual effort while a cooperative worker prefers an organization with colleagues of cooperative workers. In their model, firms develop different corporate culture types due to competition for workers with heterogeneous preferences rather than corporate culture being the outcome of the entrepreneurs creation process.

A similar labor market sorting mechanism takes place in the model of van den Steen (2005) where CEOs have an extreme strong belief about the right course of action. By attracting people with similar beliefs, the manager creates in the long-run a corporate culture that increases the effort and utility of employees and improves coordination among workers.

In Bandiera, Guiso, Prat, and Sadun (2015), too, the self-selection of workers with different attitudes into firms with different cultural orientations plays a vital role. Using data of Italian service sector executives, the paper provides some evidence that more risk tolerant managers were attracted by firms with policies that create a tight link between reward and performance, i. e. firms with an outstanding bonus culture.

We largely follow Friebel and Giannetti (2009), Kosfeld and von Siemens (2011), van den Steen (2005), and Bandiera, Guiso, Prat, and Sadun (2015) in understanding the role of corporate culture as a sorting mechanism tool in the labor market. However, we slightly distance from the view in Kosfeld and von Siemens (2011) that corporate culture is solely the outcome of a competition for workers but that it is the result of the founder's (or early CEO's) vision. In our view, compensation schemes and thus the competition for workers is already one outcome of the prevailing corporate culture in order to signal the firm's cultural type and thus attract only workers with similar beliefs and attitudes.

Despite the growing importance of corporate culture in the theoretical literature, the empirical literature providing evidence on the link between corporate culture and a firm's performance is scant.⁹ Some older literature, as for example Denison (1990) and Kotter and Heskett (1992), tries to explain the interrelation between a firm's performance and its corporate culture using questionnaire data or case studies. Kotter and Heskett (1992) derive a measure for the cultural strength of a firm using data they have collected from 207

⁹Note that there is a large discussion on organizational culture in the business literature as for example regarding knowledge management and organizational innovation, see the meta analysis of Hartnell, Ou, and Kinicki (2011) for an overview.

US firms of different industries with the help of a questionnaire survey.¹⁰ This measure of cultural strength is then used to examine the effect of culture on different measures of long-term economic performance as for example the average yearly increase in net income or stock prices as well as the average yearly return on investment. The authors find that some corporate culture types boost firms' long-term performance while other kinds of culture mitigate individual success. For example, Kotter and Heskett (1992) mention that interviewees often refer to the prudent risk-taking of some firms as a potential cultural characteristic for a good performance.

Denison (1990), too, uses behavioral culture data from different surveys as well as case studies to make a point on the interrelation between corporate culture and economic performance. More precisely, he uses an instrument that has been constructed based on data collected in the *Survey of Organizations* as well a second separate version of the instrument based on the *Organization Survey Profile* and tries to explain with the initial difference in the survey data the pattern of performance of 34 organizations over the following five years. The strongest results between corporate culture and effectiveness are found with respect to different levels of involvement, proxied by an index of survey question regarding the organization of work, the emphasis on human resources, decision-making practices, and coordination between organizational units. Denison (1990) shows that involvement in terms of both formal and informal sources contributes to a higher organizational effectiveness.

Our paper is most closely related to the work by Guiso, Sapienza, and Zingales (2013), which analyzes the dimensions of corporate culture that are related to firm's performance. To this extent, the authors use two alternative measures of corporate culture. On the one hand, Guiso, Sapienza, and Zingales (2013) derive a measure by text analysis and collect the company's core values declared on the corporate website. After aggregating among the 50 most recurring values, the authors remained with 9 categories of corporate culture that were assigned to all companies that list any of these values on their website. On the other hand, the authors use a second measure that focused only on integrity as one category of corporate culture and is derived from the "Great Place to Work" dataset. While Guiso, Sapienza, and Zingales (2013) find no effect of their first measure on performance, they find a stronger firm performance when employees perceive managers as trustworthy and

¹⁰In order to minimize the problem of mis-perception, the authors asked the top six managers of each firm to judge the corporate culture of their competitors rather than the culture of their own firm.

ethical.

The novel feature of this paper is that the text-based measure of corporate culture offers not only a more precise classification based on the corporate culture a firm wants to represent as compared to the existing industry classification scheme or the executive remuneration as rather crude proxies for culture, but it also allows to distinguish between the effect arising from corporate culture from the incentive-driven effect of compensation schemes.¹¹

3 What is Corporate Culture

3.1 Defining Corporate Culture

We broadly adopt the definition of corporate culture by Kotter and Heskett (1992), who describe the culture of an organization as a two-level collective. On the one hand, corporate culture refers to values that are shared by all members of the organization. Those values, as for example the deep caring about customer satisfaction, employee well-being, or even money, are less clearly visible outside the corporation and hard to change since the members of the organization might be unaware of their common values that bind them together. This first level should reflect the implicit self-sorting mechanism of workers as it has been described in Bandiera, Guiso, Prat, and Sadun (2015) and Friebel and Giannetti (2009). Potential employees and especially CEOs might be just willing to accept a job offer of an organization if the shared values of this company are in line with their own beliefs. This understanding of corporate culture as a self-sorting mechanism is also largely in line with the ideas of van den Steen (2005) who argues that managers with strong beliefs about the right course, which he calls a ‘vision’, can have an important indirect influence on a firm’s behavior and performance. By attracting people with similar beliefs, the manager corroborates the corporate culture that increases the effort and utility of employees and improves coordination among workers. Beginning with the beliefs of the founder, the organization should have hired only those worker, especially in the firm’s management, that correspond to the initial values and beliefs such that corporate

¹¹Hoberg and Phillips (2016) and Hoberg and Maksimovic (2015) argue in a similar manner that a text-based measure allows for a more accurate product classification of firms’ business than SIC codes and a more detailed reflection of firms’ financing needs, respectively.

culture can be seen as a quite stable phenomenon. The second level of corporate culture refers at a more visible stage to the image or the behavioral pattern of the organization. Those group behavior norms set an example of the common work life to new employees as for example daily working overtime or wearing a particular dress code. This level of culture is generally automatically adopted by new employees, but might be more easily changed, e.g. in case of an appointment of a new manager.¹² However, assuming constant values and beliefs of individuals over time, a CEO who self-select himself in a firm should also agree with the visible level of corporate culture and have thus rarely an incentive to change the stable pattern of this level of corporate culture in normal times.

This two-level construct of corporate culture enables us to interpret the changes of the degree of the dimensions of corporate culture over time. While we regard the first intrinsic level of corporate culture to remain constant over time, the second level allows for a mimicking of a specific cultural type, for example after a year of bad success or after having had a bad press. We assume that our measure captures both dimensions, but that, due to its stable nature, bank fixed effects will absorb the first level of corporate culture.

3.2 From Words to Corporate Culture

The cornerstone of our measure of corporate culture is the *Competing Value Framework (CVF)*, a framework that originally emerged from the empirical analysis of the principles of an effective organization in Quinn and Rohrbaugh (1983). According to the CVF, organizational culture can be divided into two dimensions. The first dimension specifies the degree of flexibility and discretion on the one hand versus stability and control on the other hand. The second dimension differentiates between the organizational orientation towards a differentiation with outsiders and external opportunities on the one hand and the integration of processes and internal capability on the other hand. With the aid of these two dimensions of an organization's focus and its structure, one can identify four quadrants of different organizational forms, as shown in Figure 3.

¹²Note that this second level of corporate culture coincides to an earlier definition of organizational culture by Deshpande and Webster (1989) who define organizational culture as “the pattern of shared values and beliefs that help individuals understand organizational functioning and thus provide them norms for behavior in the organization.”

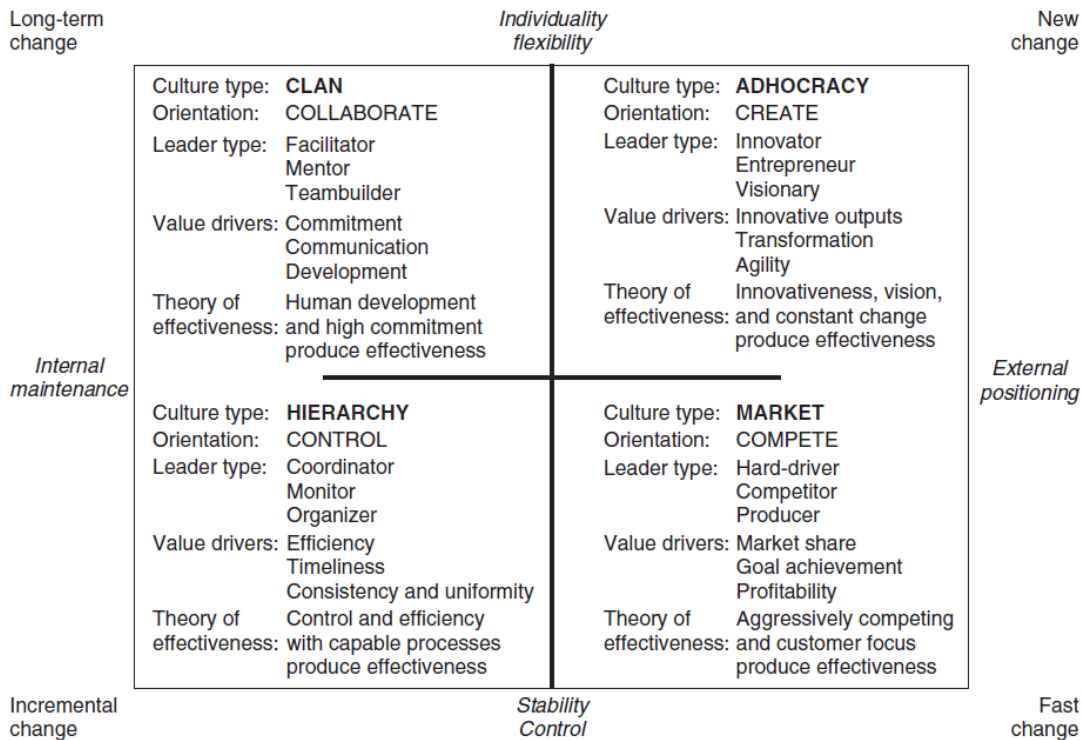


Figure 3: Core dimensions of the Competing Value Framework. Source: Cameron, Quinn, DeGraff, and Thakor (2006).

The upper left quadrant, the collaboration-orientated culture, represents an internal focused culture type with an emphasis on individual flexibility and adaptability. This quadrant is characterized by activities like developing people, building human competencies, and solidifying an organizational culture with the mantra describing the collaboration culture as “human development, human empowerment, human commitment”.¹³ The idea why this cultural strategy can enhance firm value is that, by achieving cooperative processes and obtaining cohesion through broad employee involvement and consensus, corporates can implement a positive employee attitude which again might result in well performing work groups, teamwork, or larger effort.

The internal focused culture type with a strong alignment to stability is given by the control-orientated culture. This type features a permanent implementation of better processes and thus a continual improvement in efficiency. Cameron, Quinn, DeGraff, and Thakor (2006) describes the mantra of this quadrant as “better, cheaper, and surer”, which is reflected by value-increasing activities like quality enhancements, cost and productivity

¹³See Cameron, Quinn, DeGraff, and Thakor (2006).

measures, or efficiency enhancing measures.

The two quadrants on the right hand side represent the organizational culture types with a focus on an external strategic direction. The culture type with an external focus and individual flexibility in the upper right quadrant can be described as a corporation with a creative orientation. Firms in this quadrant are characterized by the ability to deal effectively with discontinuity, change, and risk. They create value by means of innovation in products and service in terms of developing either new options in distribution or new technologies. The mantra of this culture type is labeled by Cameron, Quinn, DeGraff, and Thakor (2006) as “create, innovate, and envision the future.”

Finally, institutions in the lower right quadrant, i.e. firms with a focus on differentiation as well as on stability and control, are characterized by Cameron, Quinn, DeGraff, and Thakor (2006) with the mantra “compete hard, move fast, and play to win.” This competition orientated culture type aims to act aggressive and forceful towards competitors with a typical demand of having immediately a good result. The competition orientated culture type emphasizes a strong focus on organizational effectiveness by competing very aggressive, responding fast to changes, and concentrating on customers.

The *Competing Value Framework* can be used to identify the components within a corporate body which are emphasized by the management board as the firm’s basic strategy as for example innovation for the create type, increasing profit for the competition type, employee satisfaction for the collaborate type, and efficiency for the control type culture. This description of strategies has been further extended by effectiveness criteria characteristics of type-specific beliefs, values, and artefacts, as it is shown in Figure 4.

We follow Fiordelisi and Ricci (2014) and use the *CVF* as a starting point of our analysis in order to gather measures of corporate culture from financial firm annual 10-K reports filed with the Securities and Exchange Commission (SEC). More precisely, we use the culture-specific effectiveness criteria to collect a bag of words for each cultural type and process the text in these reports using text analysis algorithms to form cultural characteristics of financial institutions based on the vocabulary. As text analysis of 10-K reports provides a systematic and objective measurement of the “words and expressions used by the members of an organization,” (Fiordelisi and Ricci (2014)), the vocabulary represents the outcome of the corporate culture at a particular point in time. Fiordelisi and Ricci (2014) selected the synonyms for the four cultural dimensions collaboration, competition, control, and

Culture Type	Assumptions	Beliefs	Values	Artifacts (behaviors)	Effectiveness Criteria
Clan	Human affiliation	People behave appropriately when they have trust in, loyalty to, and membership in the organization.	Attachment, affiliation, collaboration, trust, and support	Teamwork, participation, employee involvement, and open communication	Employee satisfaction and commitment
Adhocracy	Change	People behave appropriately when they understand the importance and impact of the task.	Growth, stimulation, variety, autonomy, and attention to detail	Risk-taking, creativity, and adaptability	Innovation
Market	Achievement	People behave appropriately when they have clear objectives and are rewarded based on their achievements.	Communication, competition, competence, and achievement	Gathering customer and competitor information, goal-setting, planning, task focus, competitiveness, and aggressiveness	Increased market share, profit, product quality, and productivity
Hierarchy	Stability	People behave appropriately when they have clear roles and procedures are formally defined by rules and regulations.	Communication, routinization, formalization, and consistency	Conformity and predictability	Efficiency, timeliness, and smooth functioning

Figure 4: Core dimensions of the Competing Value Framework. Source: Hartnell, Ou, and Kinicki (2011).

creation in a two-step procedure in order to minimize the subjectivity in the selection of words. In a first step, they collect the synonyms describing each cultural dimension from Cameron, Quinn, DeGraff, and Thakor (2006) and Hartnell, Ou, and Kinicki (2011). They then use those words in a second step to find other synonyms in the Harvard IV-4 Psychosocial Dictionary. This yields for each dimension of corporate culture a bag of words that represents a particular cultural orientation, as shown in Table 1. For example, words such as *achievement*, *performance*, and *excellence* are found to be associated with the word *compete* so that a more frequent usage of this type of words in the official documents suggests the corporate culture of the organization to be more oriented towards competition. The four corporate culture dimensions have finally been estimated for a financial firm in a given year as the number of words associated with the respective dimension in the firm’s annual 10-K report to the total number of words used in the annual 10-K report.¹⁴ This measure offers a more precise classification based on the corporate culture a firm wants to represent as compared to the existing industry classification scheme as a rather crude proxy for culture.

Referring to the definition of organizational culture by Kotter and Heskett (1992), our measure captures both levels of corporate culture the shared values as well as the group behavior norms. The common language and the vocabulary used in the annual 10-K reports do certainly reflect the goals that tend to shape the persistent behavior of the

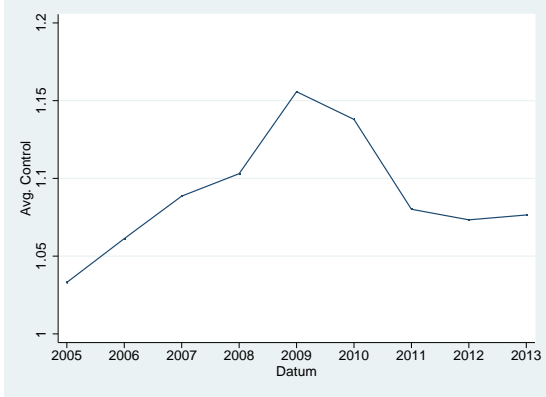
¹⁴See Fiordelisi and Ricci (2014) for a detailed description of the derivation of the corporate culture measure.

Table 1: Bag of words to identify the corporate culture dimensions, taken from Fiordelisi and Ricci (2014)

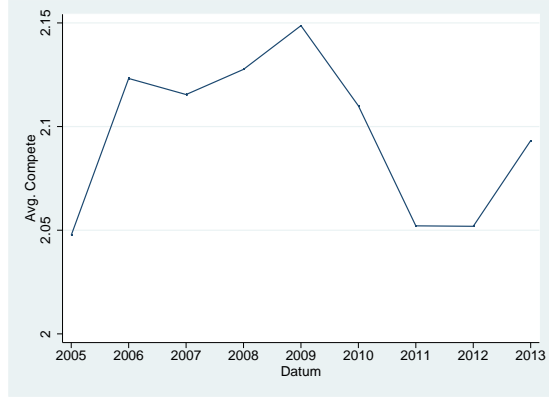
<i>Culture Type</i>	<i>Bag of Words</i>
Control	capab*, collectiv*, commitm*, competenc*, conflict*, consens*, control*, coordin*, culture*, decentr*, employ*, empower*, engag*, expectat*, facilitator*, hir*, interpers*, involv*, life*, long-term*, loyal*, mentor*, monit*, mutual*, norm*, parent*, partic*, procedur*, productiv*, retain*, reten*, skill*, social*, tension*, value*
Compete	achiev*, acqui*, aggress*, agreem*, attack*, budget*, challeng*, charg*, client*, compet*, customer*, deliver*, direct*, driv*, excellen*, expand*, fast*, goal*, growth*, hard*, invest*, market*, mov*, outsourc*, performanc*, position*, pressur*, profit*, rapid*, reputation, result*, revenue*, satisf*, scan*, succes*, signal*, speed*, strong, superior, target*, win*
Collaborate	boss*, burocr*, cautio*, cohes*, certain*, chief*, collab*, conservat*, cooperat*, detail*, document*, efficien*, error*, fail*, help*, human*, inform*, logic*, method*, outcom*, partner*, people*, predictab*, relation*, qualit*, regular*, solv*, share*, standard*, team*, teamwork*, train*, uniform*, work group*
Create	adapt*, begin*, chang*, creat*, discontin*, dream*, elabor*, entrepre*, envis*, experim*, fantas*, freedom*, futur*, idea*, init*, innovat*, intellec*, learn*, new*, origin*, pioneer*, predict*, radic*, risk*, start*, thought*, trend*, unafra*, ventur*, vision*

organization over time even in case of changes in the management. However, beside this long run view, it should also mirror the more short-run character of an organization's culture due to common ways of taking steps which might more quickly change after a year of bad success. The variation of the four measures of the corporate culture dimension is depicted in Figure 5. A concern of our measurement procedure might be the homogeneity over firms. Fiordelisi and Ricci (2014) raise the doubts that listed companies might tend to write an official document in order to meet the expectations of investors. Consequently, the reports of the firms should sound very similar and there would be only little heterogeneity between the financial institutions. Responding to this concern, we present in Figure 6 the four dimensions of corporate culture for two well-known banks in the sample, JP Morgan Chase and Wells Fargo Company. Moreover, as can be seen in the variation of the corporate culture measures in Table 2, we document significant differences across all four dimensions of corporate culture.

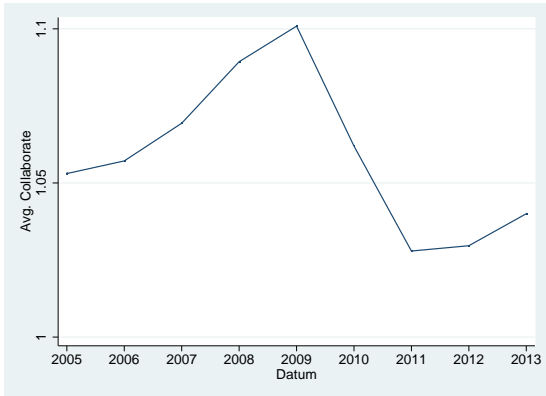
Figure 5: Arithmetic mean of the four dimensions of corporate culture



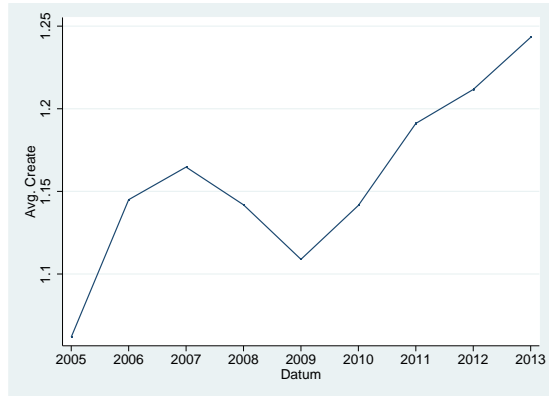
(a) Control



(b) Compete



(c) Collaborate



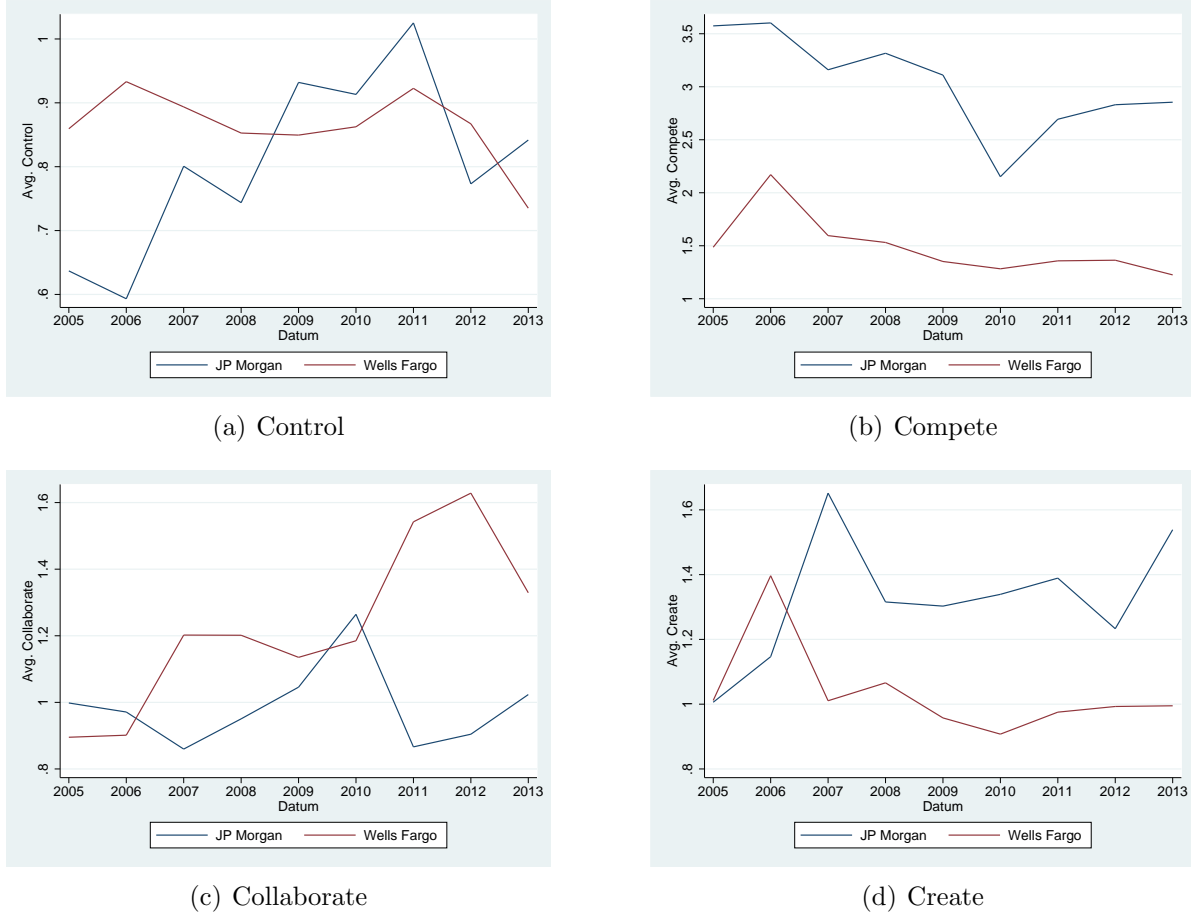
(d) Create

4 Empirical Analysis

4.1 Hypotheses

Our empirical approach aims to explain the effect of corporate culture. In a first step, we analyze the self-sorting mechanism of workers into firms. Potential employees and especially CEOs might be just willing to accept a job offer of an organization if the shared values of this company are in line with their own ones. As a credible signaling tool, firms could make use of differences in compensation schemes in order to indicate their corporate culture. For example, a firm with a strong focus on its competitors might design a compensation contract that pays a large share of variable bonus compensation in order to attract workers with a strong competitive attitude. We therefore expect that firms with a strong focus on competition have compensation schemes with a large share

Figure 6: The four dimensions of corporate culture for two banks of the Sample



of variable compensation relative to the fix salary, as postulated in Hypothesis 1.

Hypothesis 1 ('Endogenous Sorting Mechanism'). *Ceteris paribus, the share of variable compensation relative to the fix salary is higher for banks with a stronger competition-oriented corporate culture.*

The literature on the relationship between CEO compensation schemes and firms' risk-taking has shown that variable compensation schemes introduce incentives for CEOs to increase the firm's risk. However, the conclusion that compensation schemes set incentives for CEOs to take excessive risks would be misleading if CEOs with certain attitudes self-select into firms with the most suitable corporate culture and the firms use the compensation scheme to signal their cultural type. For example, CEOs of financial firms with a competitive corporate culture, where aggressiveness is described to be one artifact as it shown in Figure 4, might have characteristics that yields to higher credit risk independent

of incentives from compensation schemes. Thus, we expect credit risk to be higher the more competition-oriented a bank’s corporate culture is, as postulated in Hypothesis 2.

Hypothesis 2 (‘Credit Risk’). *Ceteris paribus, the credit risk is higher for banks with a stronger competition-oriented corporate culture.*

Financial firms with a strong competition-oriented corporate culture try to always prevail their competitors. According to the core dimensions of the *Competing Value Framework* in Figure 4, those firms are characterized by the artifact ‘aggressiveness’ and by the effectiveness criterion ‘profit’. Therefore, if those firms succeed in finding projects with higher returns, we should find higher buy-and-hold returns for competitive firms compared to their competitors. This leads us to Hypothesis 3.

Hypothesis 3 (‘Excess Stock Returns’). *Ceteris paribus, the buy-and-hold return of stocks is higher for banks with a stronger competition-oriented corporate culture.*

4.2 Empirical Model

The aim of our empirical analysis is to explain the effect of corporate culture on banks’ compensation schemes as well as on banks’ performance and banks’ risk-taking for a given compensation scheme. In a first step, we test for an endogenous sorting mechanism of CEOs towards firms with a particular corporate culture. More precisely, we want to investigate whether financial firms use their compensation schemes as a signal for potential CEOs and test whether banks which are heterogeneous with respect to their corporate culture differ in their compensation schemes. We therefore model the ratio of a CEO’s cash bonus payments to his cash salary of financial firm i at time t as follows:¹⁵

$$\begin{aligned} CompensationScheme_{i,t} = & \alpha + \beta \cdot Control_{i,t-1} + \gamma \cdot Compete_{i,t-1} + \delta \cdot Collaborate_{i,t-1} \\ & + \rho \cdot Create_{i,t-1} + \theta \cdot X_{i,t-1} + \nu_i + \mu_t + u_{i,t}. \end{aligned} \quad (1)$$

In a second step, we aim to explain the buy-and-hold return of a bank’s stock as well as the credit risk of a financial institution. For the latter, we follow Foos, Norden, and

¹⁵As a robustness check, we use with the ratio of variable compensation to total compensation a second measure of bonus payments that additionally includes non-cash compensation.

Weber (2010) and use the ratio of loan loss provisions in period t to total loans in period $t - 1$. We use a one period lag of total loans in the denominator in order to potentially disentangle losses from existing loans and losses from new granted loans.¹⁶ We further follow Foos, Norden, and Weber (2010) and use the logarithm of the variable in order to observe a $(-\infty, \infty)$ range and to remove negative values which should not be seen as a proxy for ‘negative credit risk’ but rather interpreted in terms of earnings management. We model our measure of credit risk and the excess buy-and-hold return over the S&P 500 Index return as a measure of performance for financial firm i at time t in a similar way as the compensation variables in Equation 1:

$$\begin{aligned} CreditRisk_{i,t} = & \alpha + \beta \cdot Control_{i,t-1} + \gamma \cdot Compete_{i,t-1} + \delta \cdot Collaborate_{i,t-1} \\ & + \rho \cdot Create_{i,t-1} + \theta \cdot X_{i,t-1} + \nu_i + \mu_t + u_{i,t}. \end{aligned} \quad (2)$$

and

$$\begin{aligned} StockReturn_{i,t} = & \alpha + \beta \cdot Control_{i,t-1} + \gamma \cdot Compete_{i,t-1} + \delta \cdot Collaborate_{i,t-1} \\ & + \rho \cdot Create_{i,t-1} + \theta \cdot X_{i,t-1} + \nu_i + \mu_t + u_{i,t}. \end{aligned} \quad (3)$$

Control, *Compete*, *Collaborate*, and *Create* measure the four dimensions of corporate culture (see Section 3.2). We use the variables of the corporate culture dimension with a lag of one period in order to account for the publication lag. According to Hypothesis 1, we expect that financial firms with a competition-oriented culture are fighting hardest for talents. This ‘competition’ for talent should be reflected in higher bonus payments for competition-oriented firms and gives reason to expect that the coefficient γ in Equation (1) is positive. Hypothesis 2 and Hypothesis 3 describe special characteristics of firms with a strong competition-oriented corporate culture. If competitive culture type banks are more aggressive and thus associated with higher credit risk, as postulated in Hypothesis 2, we would expect a positive coefficient γ in Equation (2). Similarly, Hypothesis 3 describes that firms with a strong competitive-oriented corporate culture always try to prevail their competitors. If this characteristic indeed made those firm more profitable, we would expect the buy-and-hold returns to exceed their competitors which should be reflected in a positive coefficient γ in Equation (3).

¹⁶This procedure follows the assumption that borrowers rarely default within the first year after a loan has been granted.

We control with $X_{i,t}$ for further variables that potentially might influence the amount of bonus payments towards executives and buy-and-hold returns with a natural candidate being the size of the financial institution (measured by the log of total assets), but also other sets of balance sheet variables as for example the ratio of total assets to equity as a measure of a bank’s capitalization and the return on average assets as a measure of the banks’ assets performance. Likewise to the corporate culture variables, we use all balance sheet variables with one lag to account for the publication lag. We additionally include in the credit risk and stock return equation a measure for the CEO’s incentives due to different compensation schemes. We do not lag this variable in order to capture the incentives of the business year the contract is referring to.

Year dummies μ_t capture the time effects that vary over time but affect all financial firms in the US equally. In order to account for autocorrelation of financial firms, we cluster standard errors at the bank level throughout the empirical analysis.

Following the description of corporate culture in Section 3 and in line with Kotter and Heskett (1992), we try to model both components of corporate culture shared values and group behavior norms. In order to capture the later, we include bank fixed effects in our model and thus measure the deviation of the culture-defining vocabulary from its average. We interpret this within variation as a short-run change of an organization’s culture due to common ways of taking steps, for example after a year of bad success. It might also be interpreted as a financial firm mimicking a particular corporate culture. We claim to measure the joint effect of shared values and behavior norms and thus identify the effect of a firm’s corporate culture once we neglect bank fixed effects.

Therefore, we present the results of the three models in two ways. In the specification including firm-specific dummies, the measures of the cultural dimensions are interpreted as a sudden (one-time) deviation from the company’s long-run culture and can also be understood as a firm mimicking a culture type that does not coincide with its intrinsic shared values. For the specification excluding the bank fixed effect, we assume the (remaining) unobservable individual factors to be distributed independently of the regressors and use a GLS random-effects model. We interpret the coefficients of the measures of the cultural dimensions in these specifications as the actual effect of a long-term corporate culture.

4.3 Data Sources

We follow Fahlenbrach and Stulz (2011) and restrict our sample to all financial institutions with an SIC code between 6000 and 6300 for which CEO compensation data could be obtained for the year 2006 in the Standard & Poor’s Execucomp database.¹⁷ The choice of Standard & Poor’s Execucomp database being the first restriction is due to one goal of the paper to shed light on the interplay of corporate culture, CEO compensation and performance. We consider only firms with an SIC code between 6000 and 6300 since they are most flexible in fast adjusting their risk-return structure. We also exclude firms that are not in the lending business as for example investment advice firms and pure brokerage houses. For all those lending institutions, we collect in a first step CEO compensation data from the Standard & Poor’s Execucomp database. In a second step, we collect all available annual 10-K reports of those firms in the period between 2004 and 2013 from the SEC EDGAR database. These annual reports were used to obtain the four corporate culture dimensions for each bank and each year. In a third step, we use Bureau van Dijk’s Bankscope database and collect annual bank balance sheet information in order to obtain bank-specific characteristics. We finally collect stock price data from CRSP on a monthly frequency and average the monthly returns in order to obtain annual frequency data.

Our final sample consists of an unbalanced panel of 86 financial institutions for which we obtain all informations between 2004 and 2013, with a total of 561 firm-year observations.

4.4 Descriptive Statistics

We present descriptive statistics of the four dimensions of corporate culture in Table 2 and of the compensation variables, the market-based return, and the balance sheet variable in Table 3.

In the 10-K reports of our sample firms, there are on average 1.091 percent of all words used related to the word *control*. While Suntrust Banks shows the least orientation towards *control* in the 10-K report of 2004, we find Fifth Third Bancorp to have the strongest *control*-oriented corporate culture in the 10-K report for the business year 2011. Words related to *compete* are used more often with a mean value of 2.100 percent of total words.

¹⁷We decided to use all firms for which Execucomp has data in 2006 in order to mitigate the problem that some banks dropped out of the market during the financial crisis.

Table 2: Summary statistics of the four corporate culture dimensions

Variable	Mean	Std. Dev.	Min.	Lower Quantile	Upper Quantile	Max.	N
Control	1.091	0.205	0.414	0.826	1.338	1.677	561
Compete	2.100	0.376	1.175	1.711	2.547	3.602	561
Collaborate	1.061	0.25	0.602	0.823	1.356	2.185	561
Create	1.154	0.205	0.584	0.95	1.397	2.314	561

Descriptive Statistics of the four dimensions of corporate culture. The measures describe the number of words used in the annual 10-K report related to the respective corporate culture as a percentage of the total number of words of the annual 10-K report. The lower (upper) quantile describes the value at the 10% percentile (90% percentile).

The least use of *competitive*-oriented words shows the report of Bank of America in 2011, while the strongest focus on competitors is found in the 10-K report of JP Morgan Chase in 2005. The highest number of *collaboration*-related words has been found in the 10-K report of Huntington Bancshares in 2006, with the other extreme being the Bank of America in 2011. The strongest use of *creative*-oriented words is found at Keycorp's 10-K report of 2006 while the report of Suntrust in 2004 displays the lowest number of *creative*-oriented words.¹⁸

The mean ratio of CEO cash bonus to salary is 0.39 with a minimum value of receiving no cash bonus payments at all and a maximum of cash bonus amounting 14.5 times the salary. The CEOs of the firms in our sample received a mean share of variable compensation to total compensation of 59.4 % with one bank in the sample paying only a cash salary (Citigroup in 2010) and some banks pay almost the entire annual payment in terms of variable terms (Central Pacific Financial in 2010 or JP Morgan Chase between 2006 and 2008). Regarding annual buy-and-hold stock market returns, financial firms perform on average slightly worse than the S&P 500 Index with a average excess return over the index return of -0.006 . The mean leverage defined as total assets over equity is found to be 10.66 with a very low share of equity to total assets found at Cascade Bancorp in 2011 and Anchor Bancorp Wisconsin in 2010. Note that three banks report negative values of

¹⁸Since a bank can also mimic a corporate culture in a particular year, the descriptive statistics of the average cultural dimension orientation of bank i might be additionally of interest in order to get a flavor of the long-term perspective. We find, for example, Wells Fargo to be the bank with the least competitive-oriented corporate culture and the SVB Financial Group, but also PNC Financial and JP Morgan Chase among the banks with the strongest competition-oriented corporate culture.

Table 3: Summary statistics of market-based measures, compensation variables and balance sheet variable

Variable	Mean	Std. Dev.	Min.	Max.	N
Return over S&P 500	-0.006	0.035	-0.186	0.146	561
Bonus/Salary	0.39	1.445	0	14.5	561
Variable Compensation	0.594	0.268	0	1	561
log (Total Assets)	10.054	1.703	7.148	14.674	561
Leverage	12.172	14.063	2.896	156.182	561
ROAA	0.624	1.353	-8.09	4.75	561
log (Loan Loss Ratio)	-5.112	1.323	-9.789	-1.768	561

Descriptive Statistics of the excess stock market return over the S&P 500 Index return, CEO compensation variables, as well as bank balance sheet statistics. The *Return over S&P 500* is derived as the buy-and-hold stock price return minus the return on the S&P 500 Index. The CEO compensation variable *Bonus/Salary* is defined as the cash bonus payments to a CEO in relation to his cash salary and the *Variable Compensation* as the ratio of total compensation minus cash salary to the total compensation. *log (Total Assets)* describes the natural logarithm of a bank's total assets. *Leverage* is defined as bank's total assets over book equity. *ROAA* indicates the return on average assets, and the *log (Loan Loss Ratio)* as a measure of credit risk is defined as the natural logarithm of the ratio of a bank's loan loss provisions in year t to its total loans in year $t - 1$.

equity. Since a negative equity implies a leverage of infinity, we set the leverage of those banks to the maximum observed value in the sample. The average return on average assets of the banks in our sample is 0.624 with the lowest return on average assets being found in the balance sheet of Fannie Mae in the year 2009.

5 Estimation Results

We first present the estimation results of Equation (1) that aims to explain the self-sorting mechanism of CEOs into firms with a given corporate culture. In the second part of this section, we show the results for the credit risk before we turn our attention on the buy-and-hold returns over the S&P 500 Index return in the third part of the section. As described in Section 3, we assume that corporate culture is a stable process within a firm over time. Therefore, in order to analyze the effect of a long-term corporate culture, we are not able to include bank fixed effects. We assume that the unobservable characteristics of a bank besides the corporate culture are uncorrelated with the explanatory variables and estimate the model using a GLS random-effects estimator. Additionally, we report the results including bank dummies. In this specification, the coefficients of our corporate culture measure are interpreted as a firm's deviation from its long-term cultural average and thus, as an attempt of a firm to mimic a certain corporate culture.

5.1 Bonus Payments

Table 4 and Table 5 present the regression results from the specification that aims to explain the ratio of cash bonus payments to salary and the share of variable compensation to total compensation, respectively. The first and third columns are using a random effects estimator and are showing the results for the specification that captures the long-term dimension of corporate culture. The regression results show that CEOs of banks with a competition-oriented corporate culture have a significant higher cash bonus to salary ratio. This significant correlation remains once we control for balance sheet characteristics such as banks' size, capitalization as well as banks' return on average assets. A similar pattern of competition-oriented corporate culture firms is found for the share of variable compensation to total compensation. CEOs of banks with a competitive corporate culture show a significantly higher share of variable compensation. The correlation in Table 4

Table 4: Explaining Bonus Payments

VARIABLES	(1)	(2)	(3)	(4)
	Bonus/Salary	Bonus/Salary	Bonus/Salary	Bonus/Salary
Control (t-1)	-0.669 (0.638)	-0.608 (0.748)	-0.666 (0.559)	-0.594 (0.730)
Compete (t-1)	0.925* (0.528)	1.108 (0.675)	0.858* (0.452)	1.212* (0.693)
Collaborate (t-1)	-0.730* (0.400)	-0.611* (0.338)	-0.810** (0.390)	-0.602* (0.312)
Create (t-1)	0.398 (0.264)	0.114 (0.337)	0.0404 (0.188)	-0.0661 (0.279)
log (Total Assets) (t-1)			0.212*** (0.0792)	-0.551* (0.316)
Leverage (t-1)			0.00146 (0.00212)	-0.000612 (0.00186)
ROAA (t-1)			0.0209 (0.0359)	0.00682 (0.0375)
Constant	0.942* (0.507)	0.743 (0.928)	-0.633 (0.849)	6.072* (3.131)
Observations	561	561	561	561
R-squared	0.203	0.214	0.272	0.221
Number of banks	86	86	86	86
Time FE	YES	YES	YES	YES
Bank FE	NO	YES	NO	YES

GLS regression of Equation (1) with time fixed effects. Column (2) and column (4) provide results for an OLS regression including bank fixed effects such that the corporate culture measures are to be interpreted as a bank's deviation from its long-term culture. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicates significance on the 1%, 5% and 10% level.

shows a second interesting result. The coefficient of *Collaborate* indicates a significantly negative correlation, saying that collaborative-oriented culture typed firm are associated with a lower share of cash bonuses for the CEO.

As described above, we interpret the results of the fixed effects regression as a change in the wording of the 10-K report to a firm's long-term corporate culture, i.e. as if a firm is mimicking a particular cultural type. The above result is less stable for firms that mimic a competitive corporate culture with their words used in their 10-K report. We only find weak evidence for a positive correlation between banks mimicking a competitive corporate culture and its actual cash bonus payments. The significance in the negative correlation between a collaborate-oriented corporate culture type firm and the ratio of cash bonus to salary is quite robust. CEO's of banks that use more collaborative-oriented words in their 10-K reports than they do on average display a lower ratio of cash bonus payments

Table 5: Explaining Variable Compensation

VARIABLES	(1) variable compensation	(2) variable compensation	(3) variable compensation	(4) variable compensation
Control (t-1)	0.0807 (0.0727)	0.0870 (0.0800)	0.0737 (0.0600)	0.0596 (0.0758)
Compete (t-1)	0.0702* (0.0410)	0.0557 (0.0579)	0.0593* (0.0313)	0.0458 (0.0547)
Collaborate (t-1)	0.0377 (0.0574)	-0.0332 (0.0639)	0.0495 (0.0456)	-0.0380 (0.0639)
Create (t-1)	-0.00242 (0.0741)	-0.117 (0.0951)	-0.0322 (0.0637)	-0.101 (0.0907)
log (Total Assets) (t-1)			0.0786*** (0.00757)	0.0393 (0.0406)
Leverage (t-1)			-0.000780* (0.000415)	-0.000873** (0.000363)
ROAA (t-1)			0.0328*** (0.0110)	0.0264** (0.0106)
Constant	0.431*** (0.0903)	0.647*** (0.118)	-0.329*** (0.0913)	0.273 (0.385)
Observations	561	561	561	561
R-squared	0.169	0.215	0.443	0.245
Number of banks	86	86	86	86
Time FE	YES	YES	YES	YES
Bank FE	NO	YES	NO	YES

GLS regression of Equation (1) with time fixed effects. Column (2) and column (4) provide results for an OLS regression including bank fixed effects such that the corporate culture measures are to be interpreted as a bank's deviation from its long-term culture. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicates significance on the 1%, 5% and 10% level.

to salary. It is further to note that all coefficients do not change dramatically between the fixed effects and random effects estimation, indicating that all remaining unobserved factors seem to be uncorrelated with the controls.

5.2 Credit Risk

We have shown in the previous section some evidence for the self-sorting mechanism of CEOs into firms with the most suitable corporate culture. This subsection now sheds light on the correlation between corporate culture and banks' risk taking regarding credit risk with a particular emphasis on CEO compensation schemes. We present in Table 6 the results using the ratio of a CEO's cash bonus payments to his cash salary and in

Table 7 the results using the share of variable compensation to total compensation as an alternative compensation measure.

Table 6: Explaining Loan Losses

VARIABLES	(1) log(LoanLoss)	(2) log(LoanLoss)	(3) log(LoanLoss)	(4) log(LoanLoss)	(5) log(LoanLoss)	(6) log(LoanLoss)
Control (t-1)	0.136 (0.297)	0.0774 (0.387)			0.214 (0.281)	0.175 (0.372)
Compete (t-1)	0.505*** (0.170)	0.780*** (0.208)			0.419*** (0.152)	0.690*** (0.199)
Collaborate (t-1)	0.0633 (0.306)	0.256 (0.373)			0.0810 (0.286)	0.290 (0.372)
Create (t-1)	-0.0195 (0.308)	-0.293 (0.394)			-0.129 (0.280)	-0.230 (0.372)
Bonus/Salary			0.0607** (0.0237)	0.0637** (0.0278)	0.0475* (0.0249)	0.0443 (0.0292)
log (Total Assets) (t-1)			0.123*** (0.0339)	0.344 (0.261)	0.112*** (0.0369)	0.248 (0.248)
Leverage (t-1)			0.00395 (0.00330)	0.00417 (0.00350)	0.00432 (0.00343)	0.00427 (0.00372)
ROAA (t-1)			-0.0983** (0.0398)	-0.0571 (0.0410)	-0.0983*** (0.0380)	-0.0606 (0.0388)
Constant	-7.585*** (0.467)	-8.036*** (0.525)	-7.597*** (0.361)	-9.821*** (2.553)	-8.499*** (0.562)	-10.52*** (2.508)
Observations	561	561	561	561	561	561
R-squared	0.436	0.629	0.501	0.625	0.496	0.637
Number of banks	86	86	86	86	86	86
Time FE	YES	YES	YES	YES	YES	YES
Bank FE	NO	YES	NO	YES	NO	YES

GLS regression of Equation (2) with time fixed effects. Column (2), column (4), and column (6) provide results for an OLS regression including bank fixed effects such that the corporate culture measures are to be interpreted as a bank's deviation from its long-term culture. The CEO compensation scheme is proxied by the CEO's cash bonus payments to salary ratio. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicates significance on the 1%, 5% and 10% level.

The coefficients in Table 6 show that managers with a higher ratio of cash bonus payments to cash salary tend to increase credit risk, as the literature on CEO compensation and risk-taking suggests. Moreover, we find a positive correlation between competition-orientated corporate culture and credit risk. This correlation is found for both the long-term dimension of corporate culture as well as the mimicking of the competition-orientated corporate culture. Interestingly, the results regarding the CEO compensation weakens once we control for the cultural dimension, especially with respect to the mimicking of a culture type and controlling for the long-term culture using bank fixed effects.

It is worthwhile to note that we find a positive significant correlation between the cash bonus ratio and credit risk, and a weakly significantly negative correlation between variable compensation ratio and credit risk. While cash bonus compensation boosts short-term risk-taking, a high degree of variable compensation, e.g. in terms of stock options, seems to set long-term incentives that do not increase current credit risk.

Table 7: Explaining Loan Losses

VARIABLES	(1) log(LoanLoss)	(2) log(LoanLoss)	(3) log(LoanLoss)	(4) log(LoanLoss)
Control (t-1)			0.214 (0.277)	0.165 (0.379)
Compete (t-1)			0.488*** (0.153)	0.757*** (0.211)
Collaborate (t-1)			0.0610 (0.277)	0.253 (0.370)
Create (t-1)			-0.142 (0.270)	-0.261 (0.368)
Variable Compensation	-0.387 (0.255)	-0.240 (0.277)	-0.440* (0.254)	-0.274 (0.265)
log (Total Assets) (t-1)	0.167*** (0.0369)	0.329 (0.270)	0.156*** (0.0400)	0.234 (0.255)
Leverage (t-1)	0.00364 (0.00330)	0.00394 (0.00348)	0.00401 (0.00345)	0.00400 (0.00372)
ROAA (t-1)	-0.0859** (0.0423)	-0.0503 (0.0427)	-0.0845** (0.0403)	-0.0531 (0.0401)
Constant	-7.664*** (0.357)	-9.401*** (2.652)	-8.654*** (0.560)	-10.17*** (2.585)
Observations	561	561	561	561
R-squared	0.507	0.622	0.505	0.637
Number of banks	86	86	86	86
Time FE	YES	YES	YES	YES
Bank FE	NO	YES	NO	YES

GLS regression of Equation (2) with time fixed effects. Column (2) and column (4) provide results for an OLS regression including bank fixed effects such that the corporate culture measures are to be interpreted as a bank's deviation from its long-term culture. The CEO compensation scheme is proxied by the CEO's share of variable compensation to his total compensation. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicates significance on the 1%, 5% and 10% level.

5.3 Returns

In this section, we aim to explain the correlation between the buy-and-hold stock return over the S&P 500 Index return and the different corporate culture types as described in Equation (3). We again present the results with respect to the two different measures of a CEO compensation scheme, the ratio of cash bonus payments to cash salary (Table 8) as well as the share of variable compensation in the total compensation (Table 9).

As Table 8 indicates, banks with a competition-oriented corporate culture are associated with higher excess returns. Excess stock market returns are also significantly correlated

Table 8: Explaining Excess Returns over the S&P 500 Index Return

VARIABLES	(1) excess return	(2) excess return	(3) excess return	(4) excess return	(5) excess return	(6) excess return
Control (t-1)	-0.000539 (0.00499)	0.000344 (0.0109)			-0.000180 (0.00472)	0.00488 (0.0113)
Compete (t-1)	0.00592* (0.00305)	-0.00730 (0.00543)			0.00535* (0.00296)	-0.00331 (0.00536)
Collaborate (t-1)	0.00933*** (0.00302)	0.00134 (0.00991)			0.00905*** (0.00290)	0.00222 (0.0103)
Create (t-1)	-0.0155*** (0.00494)	-0.00340 (0.0103)			-0.0152*** (0.00502)	-0.0121 (0.00813)
Bonus/Salary			0.000567 (0.000475)	0.000161 (0.000493)	0.000536 (0.000403)	0.000391 (0.000574)
log (Total Assets) (t-1)			-0.000326 (0.000669)	-0.0222*** (0.00698)	-5.82e-05 (0.000666)	-0.0224*** (0.00694)
Leverage (t-1)			0.000104 (8.80e-05)	0.000311*** (0.000116)	0.000108 (8.14e-05)	0.000315*** (0.000118)
ROAA (t-1)			0.00291** (0.00126)	-0.000270 (0.00159)	0.00267** (0.00128)	-0.000223 (0.00157)
Constant	-0.00710 (0.00698)	0.0169 (0.0166)	-0.00509 (0.00615)	0.213*** (0.0676)	-0.0117 (0.00787)	0.228*** (0.0680)
Observations	561	561	561	561	561	561
R-squared	0.216	0.217	0.213	0.245	0.223	0.247
Number of banks	86	86	86	86	86	86
Time FE	YES	YES	YES	YES	YES	YES
Bank FE	NO	YES	NO	YES	NO	YES

GLS regression of Equation (3) with time fixed effects. Column (2), column (4), and column (6) provide results for an OLS regression including bank fixed effects such that the corporate culture measures are to be interpreted as a bank's deviation from its long-term culture. The CEO compensation scheme is proxied by the CEO's cash bonus payments to salary ratio. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicates significance on the 1%, 5% and 10% level.

with a more collaborative-oriented corporate culture. Moreover, the more creative oriented the cultural type of financial firms, the lower seems to be the excess stock market returns. All these findings do, however, only hold for the long-term dimension of corporate culture. We find no significant correlation for financial firms' excess stock market return and a firm's mimicking behavior of a culture type once we control for the long-term dimension of corporate culture using bank-individual dummies. We find no evidence for the ratio of cash bonus to salary as a variable reflecting the CEO compensation scheme. Interestingly, all significant correlations regarding the four cultural types maintain once we control for bank characteristics and for the compensation variable.

All results remain qualitatively unchanged once we turn to the specification using the share of variable compensation to total compensation as a measure of CEO compensation. We find a significantly lower excess return for banks with a more creative-oriented corporate culture and significantly higher excess returns the more collaboration orientated or the more competition oriented the bank's corporate culture.

Table 9: Explaining Excess Returns over the S&P 500 Index Return

VARIABLES	(1) excess return	(2) excess return	(3) excess return	(4) excess return
Control (t-1)			-0.00139 (0.00458)	0.00406 (0.0111)
Compete (t-1)			0.00525* (0.00305)	-0.00329 (0.00506)
Collaborate (t-1)			0.00775*** (0.00286)	0.00236 (0.00988)
Create (t-1)			-0.0154*** (0.00498)	-0.0111 (0.00825)
Variable Compensation	0.00988 (0.00652)	0.00997 (0.00975)	0.00870 (0.00673)	0.00987 (0.00978)
log (Total Assets) (t-1)	-0.000961 (0.000703)	-0.0227*** (0.00696)	-0.000583 (0.000648)	-0.0230*** (0.00692)
Leverage (t-1)	0.000111 (8.48e-05)	0.000320*** (0.000114)	0.000114 (7.96e-05)	0.000323*** (0.000116)
ROAA (t-1)	0.00246* (0.00143)	-0.000532 (0.00169)	0.00229 (0.00145)	-0.000481 (0.00168)
Constant	-0.00423 (0.00618)	0.213*** (0.0686)	-0.00816 (0.00777)	0.227*** (0.0690)
Observations	561	561	561	561
R-squared	0.216	0.247	0.226	0.249
Number of banks	86	86	86	86
Time FE	YES	YES	YES	YES
Bank FE	NO	YES	NO	YES

GLS regression of Equation (3) with time fixed effects. Column (2) and column (4) provide results for an OLS regression including bank fixed effects such that the corporate culture measures are to be interpreted as a bank's deviation from its long-term culture. The CEO compensation scheme is proxied by the CEO's share of variable compensation to his total compensation. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicates significance on the 1%, 5% and 10% level.

6 Conclusion

Corporate culture has attracted more and more attention during recent years, especially the culture in the financial industry since the 2007/09 financial crisis. This paper sheds light on the role of corporate culture in the financial industry. As a first step, we contribute to the literature that has described corporate culture as a tool for the self-selection mechanism of workers into firms, presumed a match of workers' attitude with the firms' corporate culture. We provide empirical evidence that financial firms with a stronger competition-oriented corporate culture pay a larger share of total compensation to their CEO in terms of bonus payments. Concerning this, we find a positive correlation between

the long-run degree of a competition-oriented corporate culture and the ratio of cash bonus payments to salary as well as the share of variable compensation to total payments to the CEO.

Second, we investigate the role of corporate culture with respect to risk-taking and performance. Interestingly, the paper provides empirical evidence for a positive correlation between a competitive corporate culture and banks' credit risk as well as a positive correlation between a more competition-oriented corporate culture and the buy-and-hold stock price return over the S&P 500 Index return. These results suggest that competition-oriented firms, by attracting competitive workers, benefit from a strong internal competition between workers which increases firm value. However, the strong internal competition might also introduce workers to take excessive risks in order to outperform their competitors.

Finally, we also reopen the discussion on the nexus between CEO compensation and risk-taking against the backdrop of heterogeneous corporate culture types: We observe that the significant correlation of the corporate culture measure is found for given incentives from different compensation schemes while the effect of these compensation schemes on banks' risk-taking is diluted once we control for corporate culture.

These results have important implications for regulation. We have shown that different corporate culture types have different preferences for risk-taking, and that it not necessarily the monetary incentives that promotes excessive risk-taking. Therefore, the discussion on capping bonus payments to CEOs should be reconsidered. If compensation does not cause risky investments, regulating CEO compensation would hardly be beneficial. To the contrary, it might even be harmful if the match between workers' attitudes and firms' corporate culture is productive and a bonus cap destroys this matching. Alternatively, it might be beneficial to develop guidelines that shape the culture in banking towards a more sustainable business concept. However, as the superior performance of banks with a competition-oriented corporate culture suggests, one should keep in mind that taking too strong action against a competition-oriented corporate culture might hurt financial innovation and thus be harmful for economic growth.

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