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The Role of Corporate Culture in the Financial Industry

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Abstract

This paper analyzes the role of corporate culture in the financial industry. Theoretical literature emphasizes the role of corporate culture in the sorting process of workers into firms. We take this argument to the empirics and analyze whether banks that differ in their corporate culture use different compensation schemes in order to attract a specific type of workers. In a second step, we combine the role of corporate culture with the literature on CEO compensation and risk-taking and analyze empirically the impact of corporate culture on banks' risk-taking as well as on banks' performance. More precisely, we argue that the incentives arising from CEO compensation schemes are diluted once we control for the self-sorting mechanism of CEOs in firms with different corporate cultures. We find that CEOs of banks with a strong competition-oriented corporate culture have a larger share of variable payments in their total compensation. Moreover, we find that a more competition-oriented corporate culture is associated with a higher credit risk as well as with a higher buy-and-hold stock market return.

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 link between managerial compensation and firm’s risk taking behavior has been a widely discussed issue in academia as well as among policymakers. 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 Concerning this matter, policymakers have become aware of the importance of corporate culture only recently. 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 largely ignored the role of corporate culture and has focused primarily on the role of incentives from CEO compensation schemes.

We combine the theoretical work on corporate culture with the literature on CEO incentives from compensation and argue in this paper that firms differ regarding their CEO compensation scheme due to differences in their corporate culture. This difference could be interpreted as firms designing a compensation scheme to recruit managers with specific attitudes. In a second step, we then analyze the role of corporate culture for the risk-taking behavior in the financial industry as well as for a bank’s performance for given

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 the CEO’s private gain from an increase in firm value. However, 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).

CEO incentives due to compensation schemes.²

We obtain in the data a significant positive correlation between the degree of competition-oriented corporate culture and a CEO's share of variable compensation to total payments. Furthermore, we find a positive and significant correlation between the degree of a bank's competition-oriented corporate culture and its credit risk, 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. Interestingly, the level of statistical significance weakens for the measures of CEO bonus compensation once we include our corporate culture measures.

We see the role of corporate in a similar manner as the theoretical work of Friebe and Giannetti (2009), Kosfeld and von Siemens (2011), and Van den Steen (2005). In these papers, corporate culture is described as a sorting mechanism that matches workers into firms with corresponding values and beliefs. Knowing the importance of corporate culture, one could assume that it might not only be the manager's compensation scheme that drives incentives and firm's risk-taking behavior, but also the culture within the firm. Translating these arguments to the world of financial intermediaries seems to be a crucial issue. While the literature regarding CEO compensation and risk-taking assumes that "people were entirely motivated by narrow, selfish concern",³ there is nothing said about the effect of corporate culture on management behavior. It might well be the case that competitive managers accept only contracts that pay a large bonus if the firm outperform its competitors. Such a contract might in turn only be offered by firms with a strong competition-oriented corporate culture. To the contrary, 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 most difficult issue of an empirical analysis of corporate culture is the question of a clear measure. We adopt the methodology by Fiordelisi and Ricci (2013) and use the *Competing Value Framework (CVF)* developed by Quinn and Rohrbaugh (1983) as

²We focus our analysis on financial firms for two reasons. First, a good 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).

a starting point.⁴ 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 Moreover, we follow the argumentation in Cr  mer (1993) and assume that corporate culture is reflected by a common vocabulary and a common language wherefore we 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. This approach provides us for each financial firm one measure per corporate culture type and year, capturing the degree of each of the four corporate culture dimensions. 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 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 review of the economic corporate culture literature in Section 2. In Section 3, we will 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 will be shown in Section 5. Section 6 concludes.

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).

⁵See Cameron, Quinn, DeGraff, and Thakor (2006).

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.

2 Literature Review

The importance of corporate culture has largely been ignored in the economic literature, 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 Kreps (1990), understanding organizational culture is essential in order to understand the actual purpose of a firm why to implement a particular strategy. In his theoretical framework, corporate culture can be understood in two different ways:

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

Figure 1: Coordination game between senior and junior personnel.

First, it is modeled as a method 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 anything about the outcome of 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.

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

Second, corporate culture is represented as a method 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 have driven corporate culture to a fast growing issue in various strands of the economic literature, especially in the most recent years. For instance, corporate culture has been discussed as a sorting mechanism tool in the literature on labor market competition. Friebe 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 a second 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.

By combining those two fields, the model of Kosfeld and von Siemens (2011) 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 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.

We largely follow Friebe and Giannetti (2009), Kosfeld and von Siemens (2011), and Van den Steen (2005) 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.

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 later date. Their setup results in the existence of multiple equilibria: A firm has a strong culture if employees perceive the organization's culture to be 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 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) go 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 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

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 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-

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.

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.

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.

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.

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 reflects the implicit self-sorting mechanism of workers as it has been described in 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 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.¹¹

¹¹Note 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

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 has 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 four 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 Measuring Corporate Culture

The starting point of our measures of corporate culture is the *Competing Value Framework (CVF)*. This framework 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.

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”.¹² 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,

values and beliefs that help individuals understand organizational functioning and thus provide them norms for behavior in the organization.”

¹²See Cameron, Quinn, DeGraff, and Thakor (2006).

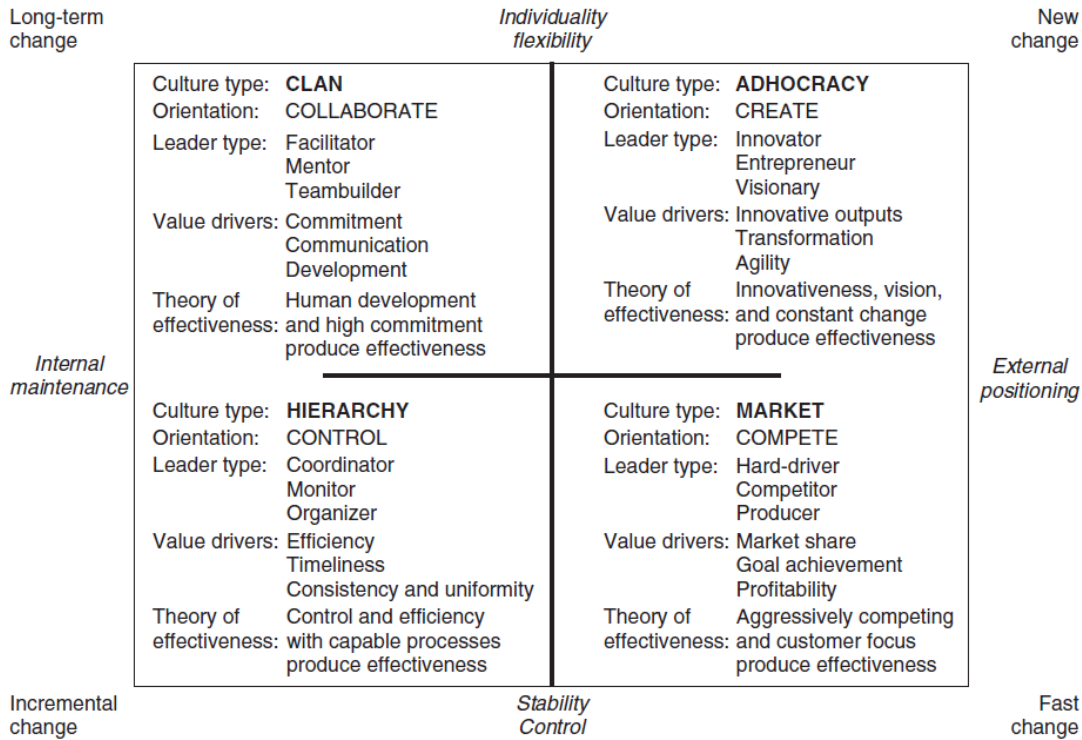


Figure 3: Core dimensions of the Competing Value Framework. Source: Cameron, Quinn, DeGraff, and Thakor (2006).

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 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 *Compete Value Framework* can be used to identify the components within a corporate body which are emphasized by the 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.

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).

We follow Fiordelisi and Ricci (2013) who use the culture-specific effectiveness criteria to collect a bag of words for each cultural type and run a text analysis on the publicly available official annual documents (10-K reports) of financial institutions. According to Fiordelisi and Ricci (2013), text analysis of 10-K reports provides a systematic and objective measurement of the “words and expressions used by the members of an organization,” and we assume that this vocabulary represents the outcome of the corporate culture at a particular point in time. Fiordelisi and Ricci (2013) selected the synonyms for the four

cultural dimensions collaboration, competition, control, and 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 represent a particular cultural orientation, as shown in Table 1. For example, Fiordelisi and Ricci (2013) find words such as *achievement*, *performance*, and *excellence* 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.¹³

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 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. As Figure 5 indicates, the measures of the corporate culture dimension are not homogeneous over time, although a certain stableness is preserved. A concern of our measurement procedure might be the homogeneity over firms. Fiordelisi and Ricci (2013) 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 over 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.

¹³See Fiordelisi and Ricci (2013) 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 (2013)

<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*

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 5: Arithmetic mean of the four dimensions of corporate culture

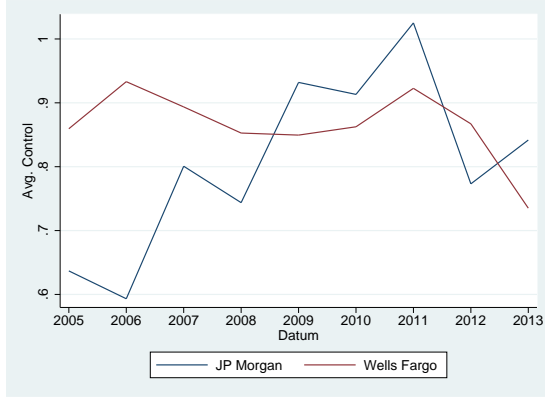


of variable compensation relative to the fix salary, as postulated in Hypothesis 1.

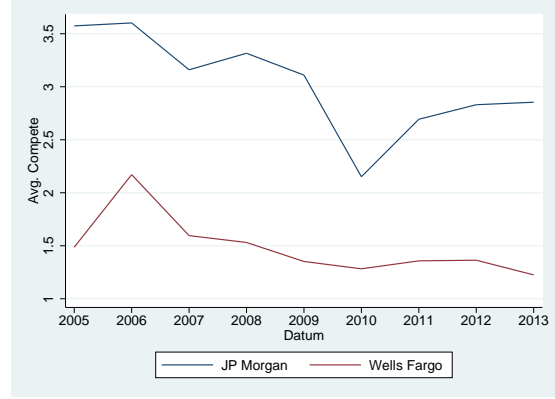
Hypothesis 1 ('Endogenous Sorting Mechanism'). *Ceteris paribus, the share variable compensation relative to the fix salary is higher for banks with a stronger competition-oriented corporate culture.*

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, aggressiveness as one artifact of a competitive corporate culture in Figure 4 might be a characteristic that yields to higher credit risk independent of incentives from compensation schemes. Thus, we expect

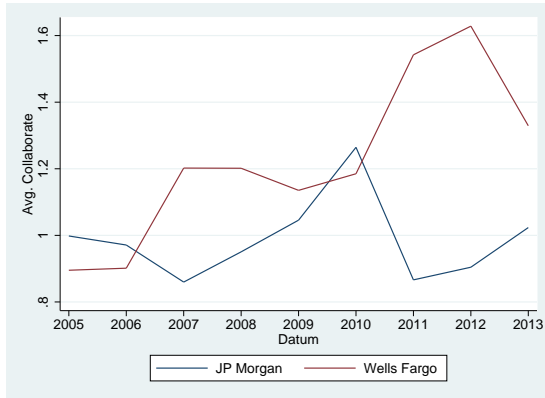
Figure 6: The four dimensions of corporate culture for two banks of the Sample



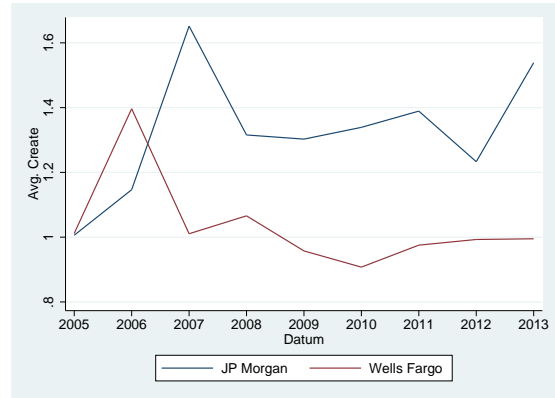
(a) Control



(b) Compete



(c) Collaborate



(d) Create

credit risk to be higher, the more competition-oriented a bank's corporate culture is, as postulated in Hypothesis 2.

Hypothesis 2 ('Excess Stock Returns'). *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:¹⁴

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

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 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.¹⁵ 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:

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

¹⁴As 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.

¹⁵This procedure follows the assumption that borrowers rarely default within the first year after a loan has been granted.

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 lagged the variables of the corporate culture dimension by 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).

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, but also other sets of balance sheet variables as, for example, with the log of total assets a measure for bank size, with the ratio of total assets to equity a measure of a bank’s capitalization, and observe with the return on average assets a measure of the bank 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 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 measures of the cultural dimensions in this specification 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.¹⁶ 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

¹⁶We decided to use all firms for which Execucomp has data in 2006 in order to mitigate the problem that some banks drop out of the market during the financial crisis.

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.

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).

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. 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.¹⁷

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 $t - 1$.

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

¹⁷Since 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.

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 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 presents 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 CEO's of banks with a competition-oriented corporate culture have a significant higher ratio of cash bonus payments to the cash salary. This significant correlation remains once we control for

Table 4: Explaining Bonus Payment

VARIABLES	(1) Bonus/Salary	(2) Bonus/Salary	(3) Bonus/Salary	(4) 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.

balance sheet characteristics 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 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 effect 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

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.

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 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 bank's risk taking regarding credit risk with a particular emphasis on the CEO's 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.

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.

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.

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).

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.

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 with more collaborative-oriented corporate culture banks. The more creative oriented the cultural type of financial firms, however, 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 do 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 do 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 type maintain once we control for bank characteristics and for the compensation variable.

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.

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 significantly lower excess of banks the more creative-oriented its corporate culture type and significantly higher excess returns the more collaboration orientated or the more competition oriented the bank's corporate culture.

6 Conclusion

This paper has analyzed the effect of corporate culture in the presence of different compensation schemes and assuming heterogeneous beliefs of workers. As it has been shown theoretically in the work by Friebel and Giannetti (2009) and Kosfeld and von Siemens (2011), there is a self-sorting mechanism of workers into firms that differ regarding their corporate culture. We provide empirical evidence that especially financial firms with a competition-oriented corporate culture use the design of compensation scheme to attract workers with similar attitudes. In this way, 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. Additionally, the paper provides empirical evidence for a positive correlation between a competitive corporate culture and banks' credit risk as well as positive correlation between a more competition-oriented corporate culture and the buy-and-hold stock price return over the S&P 500 Index return. It might be the case 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 the workers to take excessive risks in order to outperform their competitors. It has to be noted that the significant correlation is found for given incentives from different compensation schemes. The results indicate further that the strength of the effect of CEO compensation schemes on banks' risk-taking decrease once we control for corporate culture. Thus, the paper provides some empirical evidence for the self-sorting mechanisms described in the theoretical literature.

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