Corporate Culture and Banking[*]

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Abstract

This paper sheds light on the role of corporate culture in banking and analyzes the impact of corporate culture on CEO compensation. Moreover, we investigate the role of corporate culture with respect to banks' performance and risk. Our results indicate that firms with a stronger competition-oriented culture pay a larger share of total compensation to their executives in terms of variable payments. Moreover, we provide evidence for a positive correlation between a competitive corporate culture and banks' buy-and-hold stock returns. Control-oriented firms are found to have a lower return volatility, which comes at the cost of smaller returns.

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

JEL-Classification: G21, G34, M14.

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 among both academics and policymakers since the 2007-09 financial crisis. 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 the possibility of enhancing financial stability by improving culture in the financial service industry. The empirical literature, however, has focused mainly on the relation between CEO compensation and bank performance or risk, respectively, but largely ignored the role of corporate culture.[1] We fill this gap and analyze the relationship between corporate culture and CEO compensation, as well as the impact of corporate culture on firms' performance and risk.[2]

We find that differences in the compensation schemes of executives might arise from differences in corporate culture. More precisely, we obtain a significantly higher share of variable compensation to total payments for institutions with a strong competition-oriented corporate culture. This result is in line with the theoretical work of Friebel and Giannetti (2009), Kosfeld and von Siemens (2011), and van den Steen (2005), in which corporate culture is described as a sorting mechanism that matches workers into firms with corresponding values and beliefs: firms use their compensation scheme to recruit

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

[2]Kreps (1990) was the first paper stressing the necessity of considering corporate culture in economic research. According to this early work, understanding organizational culture is essential in order to understand the actual purpose of a firm to implement a particular strategy. Since then, a great amount of theoretical literature has discussed corporate culture along various dimensions, e.g. social capital (see, e.g., Rob and Zemsky (2002)), common beliefs and leadership (see, e.g., Bolton, Brunnermeier, and Veldkamp (2013)) or labor market developments (see, e.g., Friebel and Giannetti (2009), Kosfeld and von Siemens (2011), or van den Steen (2005)).

managers with attitudes that fit best to their corporate culture,[3] i.e. ,firms that focus much on competitors signal their culture on the labor market by using high bonus offers in order to attract CEOs with strong competitive characteristics.

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, as this literature assumes that "people were entirely motivated by narrow, selfish concern" (Milgrom and Roberts (1992)) and thus, CEOs directly follow the incentives from compensation. With regards to this question, we find that institutions with a strong focus on their competitors show higher excess buy-and-hold returns over the S&P 500 Index return. We also obtain a negative correlation between a control-oriented corporate culture and, not only the volatility of these firm's stock returns, but also lower returns for these firms.

Having a clear measure of corporate culture is key for empirically investigating the relationship between corporate culture and executive pay and firm performance respectively. We follow Fiordelisi and Ricci (2014) and Thakor (2015), 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) describe, 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 one to distinguish four quadrants of cultural types and to derive certain value drivers and effectiveness criteria for each of the corporate culture dimensions. In line with Hoberg and Phillips (2016) and Fiordelisi and Ricci (2014), we then 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 of 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 of financial institutions' 10-K reports to assign each institution a

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[3]Bandiera, Guiso, Prat, and Sadun (2015) agree on this idea and provide evidence for Italian service sector executives.

[4]The *Competing Value Framework* has widely been used in 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). It was first used to develop a measure of corporate culture by Fiordelisi and Ricci (2014), who analyze the effect of corporate culture on CEO turnover for a given performance and find that the negative relation between firm performance and CEO turnover is reinforced by a cultural orientation towards control. Thakor (2015) further theoretically describes how culture can be diagnosed using the CVF.

value for the four characteristics of corporate culture based on a bag of words describing the different leadership types from the *Competing Value Framework*. Besides the firm-year observations of the four cultural dimensions, we group banks into one cultural category based on the CVF words used in the 10-K reports following a similar procedure as in Hoberg and Phillips (2016)

There is some rather old empirical literature providing evidence on the link between corporate culture and a firm's performance,[5] such as Denison (1990) and Kotter and Heskett (1992) for example. With the help of a questionnaire survey, Kotter and Heskett (1992) derive a measure for the cultural strength of a firm using the data that they collected from 207 US firms of different industries.[6] This measure of cultural strength is then used to examine the effect of culture on different measures of long-term economic performance, such as, for example, the average annual increase in net income or stock prices, as well as the average annual return on investment. The authors find that some corporate culture types boost firms' long-term performance, while other types 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 as a second separate version of the instrument based on the *Organization Survey Profile*, and tries to explain the pattern of performance of 34 organizations over the following five years by using the initial difference in the survey data. The strongest results between corporate culture and effectiveness are found with respect to different levels of involvement, proxied by an index of survey questions 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 higher organizational effectiveness.

Apart from this old literature, our paper is most closely related to the work by Bandiera, Guiso, Prat, and Sadun (2015) and Guiso, Sapienza, and Zingales (2015). The focus of the paper by Bandiera, Guiso, Prat, and Sadun (2015) is on the self-selection of

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

[6]In order to minimize the problem of misperception, 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.

workers with different attitudes into firms with different cultural orientations. Using data of Italian service sector executives, the paper provides 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. Guiso, Sapienza, and Zingales (2015) analyze the dimensions of corporate culture that are related to a firm's performance. To this extent, the authors use two alternative measures of corporate culture. First, Guiso, Sapienza, and Zingales (2015) derive a measure from text analysis and collect the company's core values as declared on the corporate website. After aggregating the 50 most recurring values, the authors remained with 9 categories of corporate culture that were assigned to all of the companies that list any of these values on their website. Second, the authors use a second measure that focuses only on integrity as one category of corporate culture and is derived from the "Great Place to Work" dataset. While Guiso, Sapienza, and Zingales (2015) find no effect of their first measure on performance, they find a stronger firm performance when employees perceive managers as trustworthy and ethical.

The novel feature of our paper is that the text-based measure of corporate culture offers not only a more precise classification based on the corporate culture that 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 and the incentive-driven effect of compensation schemes.[7] As in Guiso, Sapienza, and Zingales (2006), who analyzes the effect of general culture on economic outcome,[8] we employ a two-step procedure. First, we show that corporate culture has a direct effect on the compensation schemes 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 show that corporate culture translates into economic behavior, such as performance and risk.

The paper is organized as follows. In Section 2, we introduce the concept of corporate culture and describe the procedure of how we measure the differences in organizational culture types. Section 3 will state the main hypotheses, present the empirical model and describe the data that we use for the analysis and its sources. The empirical results are

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[7]Hoberg 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 compared to SIC codes, and a more detailed reflection of firms' financing needs, respectively.

[8]Guiso, 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.

shown in Section 4. Section 5 concludes.

2 Measuring Corporate Culture

2.1 Definition of 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, such as, for example, the deep caring about customer satisfaction, employee well-being, or even money, are less clearly visible on the outside of the corporation and hard to change, since the members of the organization might be unaware of the common values that bind them together. 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 for new employees, such as, for example, daily working overtime or abiding by 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.[9] Both levels should impact the 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 executives might just be willing to accept a job offer from an organization if the shared values of and the behavioral patterns within this company are in line with their own beliefs.

2.2 Competing Value Framework

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

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[9]Note that this second level of corporate culture coincides with 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."

towards a differentiation with outsiders and external opportunities on the one hand, and the integration of processes and internal capabilities 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 1.

Long-term change	Individuality flexibility	New change
Internal maintenance	Culture type: **CLAN** Orientation: COLLABORATE Leader type: Facilitator / Mentor / Teambuilder Value drivers: Commitment / Communication / Development Theory of effectiveness: Human development and high commitment produce effectiveness	Culture type: **ADHOCRACY** Orientation: CREATE Leader type: Innovator / Entrepreneur / Visionary Value drivers: Innovative outputs / Transformation / Agility Theory of effectiveness: Innovativeness, vision, and constant change produce effectiveness	**External positioning**
	Culture type: **HIERARCHY** Orientation: CONTROL Leader type: Coordinator / Monitor / Organizer Value drivers: Efficiency / Timeliness / Consistency and uniformity Theory of effectiveness: Control and efficiency with capable processes produce effectiveness	Culture type: **MARKET** Orientation: COMPETE Leader type: Hard-driver / Competitor / Producer Value drivers: Market share / Goal achievement / Profitability Theory of effectiveness: Aggressively competing and customer focus produce effectiveness	
Incremental change	Stability Control	Fast change

Figure 1: 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 using the mantra describing the collaboration culture as "human development, human empowerment, human commitment".[10] The idea as to 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.

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[10]See Cameron, Quinn, DeGraff, and Thakor (2006).

The internal focused culture type, with its 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 services 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 immediately having a good result. The competition orientated culture type emphasizes a strong focus on organizational effectiveness by competing very aggressively, responding quickly 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, for instance innovation for the creative type, increasing profit for the competitive type, employee satisfaction for the collaborative type, and stability 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 shown in Figure 2.

2.3 From Words to Corporate Culture

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

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

of financial institutions based on the vocabulary. As a 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. The synonyms for the four cultural dimensions *collaboration, competition, control,* and *creation* were selected in a two-step procedure in order to minimize the subjectivity in the selection of words. In a first step, synonyms describing each cultural dimension were collected from Cameron, Quinn, DeGraff, and Thakor (2006) and Hartnell, Ou, and Kinicki (2011). Those words were then used 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 these type of words in 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. 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.

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

Culture Type	Bag of Words
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*

Table 2 provides descriptive statistics for the four dimensions of corporate culture. In the 10-K reports of our sample firms, there are, on average, 1.387 percent of all words used related to the word *control*. While PacWest Bancorp in 2006, JP Morgan Chase in 2004 or Bank of America in 2003 show the least orientation towards *control*, we find Stifel Financial Corp to have the strongest *control*-oriented corporate culture in the 10-K report for the 2009 business year. Words related to *compete* are used more often with a mean value of 2.164 percent of total words. The 2002 report of Northern Trust shows the least use of *competitive*-oriented words, while the strongest focus on competitors is found for TD Ameritrade, but also in the 10-K report of optionsXpress Holdings or Lehman Brothers (in 2005 and 2006 respectively). The highest number of *collaboration*-related words has been found in the 10-K report of People's United in 2006, with the other

Table 2: Summary statistics of the four corporate culture dimensions

Variable	Mean	Std. Dev.	Min.	Lower Quantile	Upper Quantile	Max.	N
Control	1.387	0.376	0.503	1.061	1.827	4.535	1229
Compete	2.164	0.39	1.33	1.762	2.712	3.747	1229
Collaborate	1.037	0.181	0.348	0.842	1.25	2.207	1229
Create	1.081	0.155	0.288	0.886	1.28	1.671	1229

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 10th percentile (90th percentile).

extreme being Stifel Financial Corp in 2010. The same 10-K also displays the lowest number of *creative*-oriented words, while the strongest use of *creative*-oriented words is found at Bank of New York Mellon's 10-K report of 2007.[11]

Our measure of corporate culture is relative persistent over time with some within firm time variation, as can be seen in Figure 3 where we depict the four dimensions of corporate culture for four well-known banks in the sample: Wells Fargo Company, Morgan Stanley, and the two failed banks Lehman Brothers and Bear Stearns. One can clearly observe a large difference in the level of the cultural dimensions. For example, the competition-oriented cultural dimension is more pronounced for the investment banks Lehman Brothers, Bear Stearns and Morgan Stanley than it is for the commercial bank Wells Fargo. One can also observe a certain level of within firm variation of the cultural dimensions over time, which is most pronounced for control- and the collaboration-oriented culture. However, this variation is rather small as the average standard deviation across all firms values only about 10 percent of its mean value.[12] This result is in line with the definition of organizational culture by Kotter and Heskett (1992), as the measure captures both levels of corporate culture 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

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[11]Since a bank can also mimic a corporate culture in any given year, the descriptive statistics of the average cultural dimension orientation of bank i might be of additional interest in order to get a taste of the long-term perspective. We find, for example, Countrywide Financial or Wells Fargo among the banks with the least competitive-oriented corporate culture and TD Ameritrade, as well as Lehman Brothers and Bear Stearns, among the banks with the strongest competition-oriented corporate culture.

[12]The only exception is the collaborate cultural dimension with a standard deviation to mean ratio of 17,49%.

in the case of a change in 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. One concern of the measurement procedure might be the homogeneity across 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 across financial institutions. Our data, however, documents significant differences in the variation of all four dimensions of corporate culture; see Table 2 (for all sample firms) and Figure 3 (for four exemplary firms).

Figure 3: The four dimensions of corporate culture for four banks of the sample

(a) Control

(b) Compete

(c) Collaborate

(d) Create

In addition to the continuous measure for the four corporate culture dimensions, we develop a corporate culture measure based on shared values and group banks into

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a cultural category following an approach similar to Hoberg and Phillips (2016). The starting point of mapping firms into cultural clusters is to create for each firm i a vector P containing the four dimensions of corporate culture. As we want to cluster banks based on their long-term culture, we use the average occurrence of the bag of cultural words in all of the firm's available 10-K reports as a measure for the cultural dimensions.[13] We then normalized these vectors P_i to have unit length,

$$V_i = \frac{P_i}{\sqrt{P_i \cdot P_i}},$$

such that all firms reside in a space shaped as a surface of a 4-dimensional unit sphere. The $Nx4$ matrix comprising of the set of all N firms' normalized vectors, i.e., row i containing vector V_i of firm i, is defined as Q, which is a full description of the firm-to-word spatial representation of firms in the culture space.

We next apply a partition clustering routine on Q in order to group our firms into one of the four clusters representing the cultural dimensions. More precisely, we employ a kmeans clustering approach using the angular separation similarity measure, which is the cosine of the angle between two vectors measured from zero and which lies in the $[-1; 1]$-interval.[14] This procedure uses the vector V_i and V_j for comparing the cultural dimension of firm i and firm j and calculates the angular separation similarity measure as

$$\frac{V_i \cdot V_j'}{\sqrt{V_i^2 \cdot (V_j^2)'}}.$$

Table 3 provides some descriptive statistics of the four cultural clusters. Obviously, as banks with a high average value of one cultural dimension are more likely to appear in the respective cluster, the mean value of each cultural dimension is highest in its own cluster. In the Appendix, Table A2, we present the results of our clustering procedure, i.e. the assignment of each bank into one group representing one of the four cultural dimensions. Not surprisingly, we find aggressive banks with a 'cowboy' culture, such as Lehman Brothers or Bear Stearns for example, in the competitive cluster, while more regional banks, such as Fifth Third Bancorp, Keycorp, or BB&T Corp, are found in the

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[13]Note that we cannot cluster banks based on their highest cultural exposure, as most of the financial institutions in the sample show the highest average level for the competition-oriented culture type. We also disregard the clustering of banks into one cultural group on a year-to-year basis, as the shared values of an institution should be rather stable over time.

[14]We apply the cosine similarity method due to its wide usage in studies on information processing; see Hoberg and Phillips (2016) and Sebastiani (2002).

Table 3: Descriptive statistics of the four cultural clusters

		Collaborate-Cluster	Compete-Cluster	Control-Cluster	Create-Cluster
Collaborate	Mean	1.266	1.029	0.991	0.994
	Std. Dev.	0.219	0.151	0.155	0.149
Compete	Mean	2.000	2.408	2.090	2.019
	Std. Dev.	0.266	0.428	0.315	0.287
Control	Mean	1.261	1.295	1.709	1.386
	Std. Dev.	0.209	0.250	0.579	0.342
Create	Mean	1.015	1.069	1.084	1.110
	Std. Dev.	0.142	0.153	0.170	0.148

Descriptive statistics of the four dimensions of corporate culture for the four cultural clusters. 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 in the annual 10-K report. Individual banks are assigned into a cultural cluster based on a kmeans clustering approach using the cosine similarity measure.

control cluster.

3 Empirical Analysis

3.1 Hypotheses

The role of corporate culture is at the heart of our empirical analysis. In a first step, we analyze the self-sorting mechanism of workers into firms. Potential employees and especially executives might just be willing to accept a job offer from an organization if the shared values of this company are in line with their own. 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 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.

Financial firms with a strong competition-oriented corporate culture always try to prevail their competitors. According to the core dimensions of the *Competing Value Framework* in Figure 2, those firms are characterized by the artefact '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 2.

Hypothesis 2 ('Stock Returns'). *Ceteris paribus, the buy-and-hold return of stocks is higher for banks with a stronger competition-oriented corporate culture.*

Finally, a firm's corporate culture might not only affect returns, but also risk. For example, the return of competition-oriented firms might well outperform their competitors, but this increase in returns might come at the cost of higher risk. Similarly, firms might be willing to accept lower returns due to their choice of a safe strategy, as one might expect of firms with a control-oriented corporate culture. Thus, we expect return volatility to be higher the more competition-oriented a bank's corporate culture is, and to be lower the more control-oriented a bank's corporate culture is, as postulated in Hypothesis 3.

Hypothesis 3 ('Return Volatility'). *Ceteris paribus, return volatility is higher for banks with a stronger competition-oriented corporate culture and lower for banks with a more pronounced control-oriented corporate culture.*

3.2 Empirical Model

The aim of our empirical analysis is to explain the effect of corporate culture on the design of a bank's compensation schemes, as well as on banks' performance and risk. In a first step, we test for an endogenous sorting mechanism for workers 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 executives 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 (average executive's) variable compensation to total compensation and cash bonus payments to her cash salary of financial firm i at time t as follows:

$$CompensationScheme_{i,t} = \alpha + \beta \cdot Control_{i,t-1} + \gamma \cdot Compete_{i,t-1} + \delta \cdot Collaborate_{i,t-1}$$
$$+ \rho \cdot Create_{i,t-1} + \theta \cdot X_{i,t-1} + SICcode_i + \mu_t + u_{i,t}. \qquad (3.1)$$

In a second step, we aim to explain the buy-and-hold return of a bank's stock, as well as the volatility of a financial institution's returns. We model the excess buy-and-hold return over the S&P 500 Index return as a measure of performance, and the standard deviation of daily observations of returns over one year as a measure of asset risk for financial firm i at time t in a similar way as the compensation variables in Equation 3.1:

$$Y_{i,t} = \alpha + \beta \cdot Control_{i,t-1} + \gamma \cdot Compete_{i,t-1} + \delta \cdot Collaborate_{i,t-1}$$
$$+ \rho \cdot Create_{i,t-1} + \theta \cdot X_{i,t-1} + SICcode_i + \mu_t + u_{i,t}. \tag{3.2}$$

$Control$, $Compete$, $Collaborate$, and $Create$ measure the four dimensions of corporate culture (see Section 2.3). 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 (3.1) is positive. Hypothesis 2 and Hypothesis 3 describe the special characteristics of firms with a strong competition-oriented corporate culture. Hypothesis 2 describes that firms with a strong competitive-oriented corporate culture always try to prevail over their competitors. If this characteristic indeed made those firms 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 (3.2). Similarly, if competitive culture type banks are more aggressive and thus associated with higher credit risk, as postulated in Hypothesis 3, we would expect a positive coefficient γ in the equation explaining volatility.

We control with $X_{i,t}$ for further variables that might potentially influence the amount of bonus payments towards executives, buy-and-hold returns, and risk with a natural candidate being the size of the financial institution (measured by the log of total assets), as well as other sets of balance sheet variables, such as, for example, the ratio of total assets to equity as a measure of a bank's capitalization, and the ratio of profits to total assets as a measure of the banks' 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 a measure for the CEO's incentives due to different compensation schemes in Equation (3.2).

As Figure 3 already indicates, bank with different business models differ in their corporate culture. These level differences in cultural characteristics are part of the variation that we aim to explain. However, in order to distinguish between the effect arising from

banks' business models and banks' corporate cultures, we include a dummy for each SIC code and exploit only the within-industry classification variation. Finally, year dummies μ_t capture all macroeconomic dynamics 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.

One concern regarding our analysis might be that both bonus payments in year $t+1$ and the language of the 10-K report of year t depend on corporate success in year t, such that the results could be driven by this relation and not reflect the impact of corporate culture. In order to deal with this concern, we redo our analysis using the culture cluster dummy instead of the continuous culture measure. As the clustering approach measures the firm's long-term culture by taking all of the firm's 10-K of the sample period into account, the problem of reverse causality should be mitigated. Note that in these regressions, we have to exclude one cultural dimension due to perfect multicollinearity.

Another point of critique might be the impact of the financial crisis on both the wording in annual reports and banks' bonus payments, especially for banks that receive TARP support. In order to eliminate the impact of TARP, we restrict our sample period to the non-crisis time and exclude data of the years 2008 and 2009.

3.3 Data Sources and Descriptive Statistics

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.[15] 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 quickly adjusting their risk-return structure. We also exclude firms that are not in the lending business, such as data processing firms (SIC code 6099), personal credit institutions, such as American Express (SIC code 6141), security & commodity brokers, such as NYSE Euronext (SIC code 6200), as well as investment advice firms and pure brokerage houses, such as Charles Schwab.[16] For all lending institutions in the sample, we collect in a first step CEO compensation data from

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[15]We 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.

[16]We list all firms that we include in our analysis in Appendix A.

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 2002 and 2014 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 Compustat in order to obtain annual balance sheet information and Compustat Bank in order to obtain bank-specific characteristics. We finally collect stock price data from CRSP on a monthly basis and average the monthly returns in order to obtain annual frequency data.

Our final sample consists of an unbalanced panel of 133 financial institutions for which we obtain all information between 2002 and 2014, with a total of 1,229 firm-year observations. While the descriptive statistics of the cultural measure are described in the previous section, we now present descriptive statistics of the compensation variables, the market-based return, and the balance sheet variable in Table 4.

Table 4: Summary statistics of market-based measures, compensation variables and balance sheet variables

Variable	Mean	Std. Dev.	Min.	Lower Quantile	Upper Quantile	Max.	N
Variable Compensation (CEO)	0.633	0.262	0	0.23	0.935	1	1229
Variable Compensation (Board)	0.64	0.228	0.006	0.311	0.915	0.992	1229
Bonus/Salary (CEO)	1.188	4.865	0	0	2.25	68.283	1225
Bonus/Salary (Board)	1.169	4.129	0	0	2.426	56.722	1229
Return over S&P 500	-0.084	2.887	-18.595	-3.138	3.034	14.554	1217
Return over S&P 500 (winsorized)	-0.019	2.521	-6.255	-3.138	3.034	6.832	1217
return volatility	0.261	0.703	0.022	0.071	0.334	11.195	1216
Leverage	14.913	34.564	1.068	7.03	16.575	373.628	1229
Profitability	0.042	0.027	-0.052	0.021	0.058	0.652	1229
log (Total Assets)	9.76	1.76	4.841	7.905	12.402	14.986	1229

Descriptive Statistics of executive compensation variables, the excess stock market return over the S&P 500 Index return, as well as bank balance sheet statistics. The compensation variable *Variable Compensation (CEO)* is defined as the ratio of a CEO's total compensation minus cash salary to her total compensation and the *Bonus/Salary (CEO)* as the cash bonus payments to a CEO in relation to her cash salary. The variables *Variable Compensation (Board)* and *Bonus/Salary (Board)* describe the respective measure as an average over all board members that were available in Standard & Poor's Execucomp. 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 (winsorized at the 2.5/97.5% level). *return volatility* is measured as the standard deviation of annual returns on a daily basis, averaged over one year. *Leverage* is defined as bank's total assets over book equity. The *Profitability* indicates the ratio of gross profits to total assets, and *log (Total Assets)* describes the natural logarithm of a bank's total assets.

4 Estimation Results

We first present the estimation results of Equation (3.1), which aims to explain the self-sorting mechanism of executives into firms with a given corporate culture. In the second

part of this section, we show the results for the buy-and-hold returns over the S&P 500 Index return before we turn our attention to return volatility in the third part of the section. As described in Section 2, we assume that corporate culture is a stable process within a firm that takes place over time. Therefore, in order to analyze the effect of a long-term corporate culture, we are not able to include bank fixed effects. Instead, we include industry fixed effects in some specifications. Note that exploiting only the within-industry variation yields a very imprecise measure as the industry specific culture (i.e. the across industry variation) is also an important part of the firm's corporate culture.

4.1 Self-Selection of Workers

Table 5: Explaining the share of variable compensation to salary

VARIABLES	(1) variable compensation (CEO)	(2) variable compensation (CEO)	(3) variable compensation (CEO)	(4) variable compensation (Board)	(5) variable compensation (Board)	(6) variable compensation (Board)
Control (t-1)	0.106***	0.0413*	0.0312	0.0980***	0.0267	0.0195
	(0.0257)	(0.0224)	(0.0216)	(0.0225)	(0.0190)	(0.0165)
Compete (t-1)	0.142***	0.126***	0.0855***	0.145***	0.130***	0.0722***
	(0.0341)	(0.0280)	(0.0290)	(0.0316)	(0.0250)	(0.0239)
Collaborate (t-1)	-0.0686	-0.0257	-0.0126	-0.0751	-0.0281	-0.0124
	(0.0796)	(0.0644)	(0.0621)	(0.0751)	(0.0570)	(0.0538)
Create (t-1)	0.178**	-0.0554	-0.0566	0.195***	-0.0615	-0.0542
	(0.0735)	(0.0666)	(0.0664)	(0.0723)	(0.0622)	(0.0622)
Leverage (t-1)		-0.00104***	-0.00101***		-0.000860***	-0.000806***
		(0.000220)	(0.000224)		(0.000230)	(0.000237)
Profitability (t-1)		0.855*	0.951*		0.878**	0.963*
		(0.484)	(0.547)		(0.435)	(0.510)
log (Total Assets) (t-1)		0.0615***	0.0657***		0.0672***	0.0677***
		(0.00513)	(0.00626)		(0.00456)	(0.00564)
Constant	0.134	-0.177	-0.158	0.134	-0.209**	-0.136
	(0.124)	(0.110)	(0.129)	(0.117)	(0.0945)	(0.106)
Observations	1,229	1,229	1,229	1,229	1,229	1,229
R-squared	0.192	0.340	0.360	0.216	0.441	0.470
Time Dummies	YES	YES	YES	YES	YES	YES
Industry Dummies	NO	NO	YES	NO	NO	YES

OLS regression of Equation (3.1) with time fixed effects. Column (3) and column (6) provide results for an OLS regression including fixed effects for the bank's standard industrial classification (SIC) code such that the corporate culture measures are to be interpreted as a bank's deviation from the industry-specific long-term culture. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

Table 5 and Table 6 present the regression results from the specification that aims to explain the share of variable compensation to total compensation and the ratio of cash bonus payments to salary, respectively. The first three columns report results regarding the compensation of the CEO, and columns 4 to 6 report results based on the average compensation of all executives.

The results show that CEOs of banks with a competition-oriented corporate culture have a significant higher share of variable compensation to total compensation. This positive correlation remains in place once we control for further balance sheet characteristics such as a bank's size, capitalization and a bank's profit, as well as for the inclusion of industry fixed effects. A similar pattern of competition-oriented corporate culture firms is found for the ratio of cash bonus to cash salary. Executives of banks with a competitive corporate culture show a significantly higher share of cash bonus to salary. This correlation, however, disappears as soon as we look only at the within-industry variation.

Table 6: Explaining Variable Compensation

VARIABLES	(1) Bonus/Salary (CEO)	(2) Bonus/Salary (CEO)	(3) Bonus/Salary (CEO)	(4) Bonus/Salary (Board)	(5) Bonus/Salary (Board)	(6) Bonus/Salary (Board)
Control (t-1)	0.984**	0.448	0.271	1.078**	0.370	0.194
	(0.493)	(0.468)	(0.379)	(0.534)	(0.456)	(0.384)
Compete (t-1)	2.355**	2.624**	0.0674	2.015***	2.231***	-0.309
	(0.915)	(1.020)	(0.509)	(0.741)	(0.827)	(0.428)
Collaborate (t-1)	-1.063	-0.523	-0.156	-0.926	-0.295	0.0285
	(1.162)	(0.970)	(0.888)	(1.156)	(0.913)	(0.859)
Create (t-1)	3.078	1.268	2.288	3.663	1.199	2.235
	(3.130)	(2.974)	(2.974)	(2.529)	(2.341)	(2.340)
Leverage (t-1)		0.00218	0.00749*		0.00188	0.00825**
		(0.00528)	(0.00423)		(0.00594)	(0.00406)
Profitability (t-1)		-16.29	-14.90		-12.50	-11.03
		(13.04)	(11.79)		(10.96)	(9.588)
log (Total Assets) (t-1)		0.500***	0.445***		0.663***	0.621***
		(0.149)	(0.129)		(0.176)	(0.149)
Constant	-5.553	-8.152**	-4.204	-6.023*	-9.474**	-5.638**
	(3.766)	(4.029)	(2.809)	(3.469)	(3.750)	(2.494)
Observations	1,225	1,225	1,225	1,229	1,229	1,229
R-squared	0.096	0.137	0.225	0.116	0.198	0.318
Time Dummies	YES	YES	YES	YES	YES	YES
Industry Dummies	NO	NO	YES	NO	NO	YES

OLS regression of Equation (3.1) with time fixed effects. Column (3) and column (6) provide results for an OLS regression including fixed effects for the bank's standard industrial classification (SIC) code such that the corporate culture measures are to be interpreted as a bank's deviation from the industry-specific long-term culture. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

Table C1 documents the results using the culture cluster dummy. Note that, due to perfect multicollinearity, we had to exclude one cultural dimension (compete), such that all coefficients are to be interpreted in relation to competitive culture firms. We find all coefficients to have a negative sign (although not always significant), i.e., the share of variable to total compensation is highest for the competition-oriented culture firms. In Appendix D, we display our findings excluding the crisis years 2008 and 2009 in Table D1 and Table D2. The results are virtually unchanged when compared to those based on the entire sample period.

Thus, we find some evidence that firms with a competitive corporate culture attract new executives by paying a large share in terms of variable compensation. Moreover, cash bonuses were additionally used by firms within an industry classification to signal their corporate culture.

4.2 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 (3.2).

Table 7: Explaining Excess Returns over the S&P 500 Index Return

VARIABLES	(1) return	(2) return	(3) return
Control (t-1)	-0.254*	-0.225	-0.275*
	(0.152)	(0.158)	(0.160)
Compete (t-1)	0.331**	0.331**	0.0424
	(0.153)	(0.154)	(0.206)
Collaborate (t-1)	0.354	0.331	0.234
	(0.300)	(0.292)	(0.296)
Create (t-1)	-0.524	-0.419	-0.274
	(0.366)	(0.396)	(0.400)
Leverage (t-1)		0.000235	0.00195
		(0.00385)	(0.00468)
log (Total Assets) (t-1)		-0.0284	-0.0220
		(0.0349)	(0.0327)
Constant	0.862	1.011	1.564*
	(0.659)	(0.654)	(0.812)
Observations	1,217	1,217	1,217
R-squared	0.240	0.240	0.247
Time Dummies	YES	YES	YES
Industry Dummies	NO	NO	YES

OLS regression of Equation (3.2) explaining banks' annual excess return over the S&P 500 Index with time fixed effects. Column (3) provides results for an OLS regression including fixed effects for the bank's standard industrial classification (SIC) code such that the corporate culture measures are to be interpreted as a bank's deviation from the industry-specific long-term culture. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

Table 7 indicates that banks with a competition-oriented corporate culture are asso-

ciated with higher excess returns. We find a positive and significant coefficient for the competitive corporate culture which, however, disappears once we exploit the within-industry classification variation. This finding might again be due to the prevalence of certain corporate culture types in industries, such as a tendency to a more competition-oriented corporate culture for investment banks for example. A second interesting finding of Table 7 is the negative coefficient for control-oriented corporate culture types. This effect, however, does not appear to be statistically significant in all specifications.

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

VARIABLES	(1) return	(2) return	(3) return	(4) return
Control (t-1)	-0.194	-0.173	-0.157	-0.161
	(0.162)	(0.168)	(0.163)	(0.166)
Compete (t-1)	0.286*	0.282*	0.373**	0.376**
	(0.153)	(0.154)	(0.155)	(0.155)
Collaborate (t-1)	0.447	0.432	0.409	0.413
	(0.302)	(0.293)	(0.302)	(0.295)
Create (t-1)	-0.574	-0.499	-0.454	-0.475
	(0.369)	(0.389)	(0.383)	(0.397)
Bonus/Salary (CEO) (t-1)	0.0114	0.0129		
	(0.0111)	(0.0113)		
Variable Compensation (CEO) (t-1)			-0.349	-0.366
			(0.271)	(0.305)
Leverage (t-1)		6.73e-05		-1.44e-05
		(0.00388)		(0.00379)
log (Total Assets) (t-1)		-0.0214		0.00639
		(0.0371)		(0.0410)
Constant	0.539	0.667	0.484	0.450
	(0.649)	(0.637)	(0.611)	(0.619)
Observations	1,167	1,167	1,170	1,170
R-squared	0.238	0.239	0.241	0.241
Time Dummies	YES	YES	YES	YES

OLS regression of Equation (3.2) explaining banks' annual excess return over the S&P 500 Index. All specifications include time fixed effects. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

In Table 8, we additionally control for the incentives that arise from the design of the CEO compensation scheme. We present the results with respect to the two different measures of a compensation scheme, the ratio of cash bonus payments to cash salary

and the share of variable compensation in the total compensation.[17] All results regarding the culture measures remain qualitatively unchanged. We find only a significantly and positive relation between the excess return and a corporate culture that is more competition-oriented. Interestingly, the compensation variables do not turn out to be statistically significant.

When using the cultural cluster dummies (Table C2 and Table C3), we obtain negative coefficients for all cultural groups, indicating that returns are highest for firms with a competition-oriented culture. Focusing on the sub-sample which excludes the financial crisis (Appendix D, Table D3 - Table D5), the results are again very similar to the findings based on the overall sample.

4.3   Return Volatility

This subsection now sheds light on the correlation between corporate culture and banks' volatility of annual returns.

In Table 9, we find a strong significant correlation between a corporate culture that is more control-oriented and the volatility of returns. This correlation remains valid even if we control for bank characteristics, as well as for industry fixed effects. Moreover, firms with an orientation towards a more collaborative culture, too, indicate a lower return volatility.

It seems natural to relate these results to the previous result on corporate culture and stock market returns in Table 7. Regarding the control-oriented corporate culture, we found lower stock market returns and lower return volatility. These results indicate that financial firms with a strong focus on control want to have a stable, less volatile return, and are in turn willing to accept a smaller return.

Again, we additionally control for the incentives that arise from the design of the CEO compensation scheme in Table 10 and Table B2. Here, too, all results regarding the culture measures remain qualitatively unchanged. We find a lower return volatility for both cultural types, control-oriented and collaborative firms. Moreover, Table 10 and Table 8 document an interesting finding regarding the share of variable compensation to total compensation. While the negative (although not significant) coefficient in Table 8 is rather surprising, Table 10 provides an intuition for this result: CEOs who receive a large part of their compensation from (non-cash) bonuses prefer to smooth their income

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[17]In Table B1 in the appendix, we do not focus on CEO compensation, but rather use the average value of all executives.

Table 9: Explaining return volatility

VARIABLES	(1) return volatility	(2) return volatility	(3) return volatility
Control (t-1)	-0.109***	-0.0889**	-0.0866**
	(0.0414)	(0.0379)	(0.0427)
Compete (t-1)	-0.0382	-0.0202	-0.0741
	(0.0341)	(0.0411)	(0.0477)
Collaborate (t-1)	-0.196*	-0.208*	-0.207**
	(0.108)	(0.110)	(0.0986)
Create (t-1)	-0.0488	-0.0114	-0.0653
	(0.103)	(0.0901)	(0.135)
Leverage (t-1)		0.00481**	0.00516**
		(0.00223)	(0.00250)
Profitability (t-1)		-0.104	0.291
		(0.900)	(1.029)
log (Total Assets) (t-1)		-0.0217*	-0.0231**
		(0.0122)	(0.0114)
Constant	0.646***	0.705***	0.828***
	(0.199)	(0.222)	(0.247)
Observations	1,216	1,216	1,216
R-squared	0.056	0.088	0.107
Time Dummies	YES	YES	YES
Industry Dummies	NO	NO	YES

OLS regression of Equation (3.2) explaining banks' volatility of annual returns. Column (3) provides results for an OLS regression including fixed effects for the bank's standard industrial classification (SIC) code such that the corporate culture measures are to be interpreted as a bank's deviation from the industry-specific long-term culture. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

instead of generating high returns at any price.

The dummy regressions in Appendix C, where the excluded cultural cluster are control-oriented firms, and the regressions excluding the period of the financial crisis display again a very similar picture. Most coefficients of the culture dummies in Table C4 and Table C5 have a positive sign, while the results from Tables D6 - D8 are qualitatively similar to the ones based on the entire sample.

Table 10: Explaining return volatility

VARIABLES	(1) return volatility	(2) return volatility	(3) return volatility	(4) return volatility
Control (t-1)	-0.109**	-0.0861**	-0.0644*	-0.0697**
	(0.0441)	(0.0412)	(0.0334)	(0.0341)
Compete (t-1)	-0.0469	-0.0268	0.00595	0.0177
	(0.0369)	(0.0495)	(0.0281)	(0.0357)
Collaborate (t-1)	-0.203*	-0.215*	-0.220*	-0.217*
	(0.112)	(0.117)	(0.117)	(0.121)
Create (t-1)	-0.0402	0.00453	0.0494	-0.00315
	(0.108)	(0.0927)	(0.108)	(0.0933)
Bonus/Salary (CEO) (t-1)	0.00141	0.00147		
	(0.00115)	(0.00205)		
Variable Compensation (CEO) (t-1)			-0.373**	-0.358**
			(0.149)	(0.173)
Leverage (t-1)		0.00478**		0.00465**
		(0.00224)		(0.00233)
Profitability (t-1)		-0.283		0.288
		(1.646)		(1.768)
log (Total Assets) (t-1)		-0.0237*		0.000797
		(0.0133)		(0.0161)
Constant	0.646***	0.724***	0.656***	0.593***
	(0.214)	(0.242)	(0.213)	(0.201)
Observations	1,166	1,166	1,169	1,169
R-squared	0.055	0.088	0.071	0.099
Time Dummies	YES	YES	YES	YES
Industry Dummies	NO	NO	NO	NO

OLS regression of Equation (3.2) explaining banks' volatility of annual returns. All specifications include time fixed effects. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

5   Conclusion

Corporate culture has attracted more and more attention during recent years, especially the culture in the financial industry since the recent 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 and 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 executives in terms of bonus payments. Concerning this, we find a positive correlation between the degree of a competition-oriented corporate culture and the executives' share of variable compensation to total payments, as well as the ratio of cash bonus payments to salary.

Second, we investigate the role of corporate culture with respect to performance and risk. Interestingly, the paper provides empirical evidence for a positive correlation be-

tween a competition-oriented corporate culture and the buy-and-hold stock price return. This result suggests that competition-oriented firms, by attracting competitive workers, benefit from a strong internal competition between workers which increases firm value. Moreover, we find evidence that firms with a strong focus towards control manage to reduce the volatility of annual stock returns, but pay this reduction in risk with a lower stock return.

We are aware that our analysis is just a first step towards developing the effect of corporate culture on economic outcomes. The results, however, point towards important implications for regulation. We show that different corporate culture types have different preferences for risk-taking, and that it is not necessarily the monetary incentives that promote excessive risk-taking. If this effect was causal, the discussion on capping bonus payments to CEOs should be reconsidered. If compensation does not cause excessive risk-taking, regulating CEO compensation would hardly be beneficial. On the contrary, it might even be harmful; if the match between workers' attitudes and a firm's corporate culture is productive, a bonus cap could destroy 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 of action against a competition-oriented corporate culture might hurt financial innovation and thus be harmful for economic growth.

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Appendix A   Appendix A: Sample Firms

Table A1: List of banks in our sample

1	AMERIPRISE FINANCIAL INC	46	FIRST HORIZON NATIONAL CORP	90	PNC FINANCIAL SVCS GROUP INC
2	ANCHOR BANCORP WISCONSIN INC	47	FIRST INDIANA CORP	91	POPULAR INC
3	ASSOCIATED BANC-CORP	48	FIRST MIDWEST BANCORP INC	92	PRIVATEBANCORP INC
4	ASTORIA FINANCIAL CORP	49	FIRST NIAGARA FINANCIAL GRP	93	PROSPERITY BANCSHARES INC
5	BANCORPSOUTH INC	50	FIRSTFED FINANCIAL CORP/CA	94	PROVIDENT BANKSHARES CORP
6	BANK MUTUAL CORP	51	FIRSTMERIT CORP	95	RAYMOND JAMES FINANCIAL CORP
7	BANK OF AMERICA CORP	52	FLAGSTAR BANCORP INC	96	REGIONS FINANCIAL CORP
8	BANK OF HAWAII CORP	53	FRANKLIN BANK CORP	97	S & T BANCORP INC
9	BANK OF NEW YORK MELLON CORP	54	FULTON FINANCIAL CORP	98	SANTANDER HOLDINGS USA INC
10	BANK OF THE OZARKS INC	55	GLACIER BANCORP INC	99	SIMMONS FIRST NATL CP -CL A
11	BANKUNITED FINANCIAL CORP	56	GOLDMAN SACHS GROUP INC	100	SOUTH FINANCIAL GROUP INC
12	BB&T CORP	57	GREATER BAY BANCORP	101	STATE STREET CORP
13	BBCN BANCORP INC	58	HANMI FINANCIAL CORP	102	STERLING BANCORP/NY -OLD
14	BBVA COMPASS BANCSHARES INC	59	HUDSON CITY BANCORP INC	103	STERLING BANCSHARES INC/TX
15	BBX CAPITAL CORP	60	HUNTINGTON BANCSHARES	104	STERLING FINANCIAL CORP/WA
16	BEAR STEARNS COMPANIES INC	61	INDEPENDENT BANK CORP/MI	105	STIFEL FINANCIAL CORP
17	BOSTON PRIVATE FINL HOLDINGS	62	INDYMAC BANCORP INC	106	SUNTRUST BANKS INC
18	BROOKLINE BANCORP INC	63	INVESTMENT TECHNOLOGY GP INC	107	SUSQUEHANNA BANCSHARES INC
19	CASCADE BANCORP	64	INVESTORS FINANCIAL SVCS CP	108	SVB FINANCIAL GROUP
20	CATHAY GENERAL BANCORP	65	IRWIN FINANCIAL CORP	109	SWS GROUP INC
21	CENTRAL PACIFIC FINANCIAL CP	66	JEFFERIES GROUP LLC	110	SYNOVUS FINANCIAL CORP
22	CHITTENDEN CORP	67	JPMORGAN CHASE & CO	111	TCF FINANCIAL CORP
23	CITIGROUP INC	68	KEYCORP	112	TD AMERITRADE HOLDING CORP
24	CITY HOLDING CO	69	LABRANCHE & CO INC	113	TD BANKNORTH INC
25	CITY NATIONAL CORP	70	LEHMAN BROTHERS HOLDINGS INC	114	TOMPKINS FINANCIAL CORP
26	COLONIAL BANCGROUP	71	M & T BANK CORP	115	TRADESTATION GROUP INC
27	COLUMBIA BANKING SYSTEM INC	72	MAF BANCORP INC	116	TRUSTCO BANK CORP/NY
28	COMERICA INC	73	MARSHALL & ILSLEY CORP	117	U S BANCORP
29	COMMERCE BANCORP INC/NJ	74	MELLON FINANCIAL CORP	118	UCBH HOLDINGS INC
30	COMMERCE BANCSHARES INC	75	MERCANTILE BANKSHARES CORP	119	UMB FINANCIAL CORP
31	COMMUNITY BANK SYSTEM INC	76	MERRILL LYNCH & CO INC	120	UMPQUA HOLDINGS CORP
32	CORUS BANKSHARES INC	77	MORGAN STANLEY	121	UNITED BANKSHARES INC/WV
33	COUNTRYWIDE FINANCIAL CORP	78	MUFG AMERICAS HOLDINGS CORP	122	UNITED COMMUNITY BANKS INC
34	CULLEN/FROST BANKERS INC	79	N B T BANCORP INC	123	WACHOVIA CORP
35	DIME COMMUNITY BANCSHARES	80	NATIONAL CITY CORP	124	WASHINGTON FEDERAL INC
36	DOWNEY FINANCIAL CORP	81	NATIONAL PENN BANCSHARES INC	125	WASHINGTON MUTUAL INC
37	E TRADE FINANCIAL CORP	82	NEW YORK CMNTY BANCORP INC	126	WEBSTER FINANCIAL CORP
38	EAST WEST BANCORP INC	83	NORTHERN TRUST CORP	127	WELLS FARGO & CO
39	EDWARDS (A G) INC	84	OLD NATIONAL BANCORP	128	WESTAMERICA BANCORPORATION
40	FANNIE MAE	85	OPTIONSXPRESS HOLDINGS INC	129	WHITNEY HOLDING CORP
41	FIFTH THIRD BANCORP	86	PACWEST BANCORP	130	WILMINGTON TRUST CORP
42	FIRST BANCORP P R	87	PEOPLE'S UNITED FINL INC	131	WILSHIRE BANCORP INC
43	FIRST COMMONWLTH FINL CP/PA	88	PINNACLE FINL PARTNERS INC	132	WINTRUST FINANCIAL CORP
44	FIRST FINL BANCORP INC/OH	89	PIPER JAFFRAY COS INC	133	ZIONS BANCORPORATION
45	FIRST FINL BANKSHARES INC				

Table A2: List of banks in the four cultural groups

Collaborate

BBVA COMPASS BANCSHARES INC	PEOPLE'S UNITED FINL INC
COLUMBIA BANKING SYSTEM INC	PINNACLE FINL PARTNERS INC
CORUS BANKSHARES INC	PROSPERITY BANCSHARES INC
FIRST FINL BANCORP INC/OH	STERLING BANCSHARES INC/TX
FIRST FINL BANKSHARES INC	SYNOVUS FINANCIAL CORP
FIRST INDIANA CORP	UNITED BANKSHARES INC/WV
INDEPENDENT BANK CORP/MI	WELLS FARGO & CO
MERCANTILE BANKSHARES CORP	WESTAMERICA BANCORPORATION
NATIONAL PENN BANCSHARES INC	

Compete

BANK OF NEW YORK MELLON CORP	OLD NATIONAL BANCORP
BANK OF THE OZARKS INC	OPTIONSXPRESS HOLDINGS INC
BBX CAPITAL CORP	PACWEST BANCORP
BEAR STEARNS COMPANIES INC	PIPER JAFFRAY COS INC
BOSTON PRIVATE FINL HOLDINGS	POPULAR INC
BROOKLINE BANCORP INC	PRIVATEBANCORP INC
CASCADE BANCORP	PROVIDENT BANKSHARES CORP
CENTRAL PACIFIC FINANCIAL CP	RAYMOND JAMES FINANCIAL CORP
COMMERCE BANCSHARES INC	S & T BANCORP INC
E TRADE FINANCIAL CORP	SANTANDER HOLDINGS USA INC
EAST WEST BANCORP INC	SIMMONS FIRST NATL CP -CL A
FRANKLIN BANK CORP	STATE STREET CORP
FULTON FINANCIAL CORP	SVB FINANCIAL GROUP
GLACIER BANCORP INC	SWS GROUP INC
GOLDMAN SACHS GROUP INC	TCF FINANCIAL CORP
INVESTMENT TECHNOLOGY GP INC	TD AMERITRADE HOLDING CORP
INVESTORS FINANCIAL SVCS CP	TD BANKNORTH INC
IRWIN FINANCIAL CORP	TOMPKINS FINANCIAL CORP
JEFFERIES GROUP LLC	TRADESTATION GROUP INC
LABRANCHE & CO INC	UCBH HOLDINGS INC
LEHMAN BROTHERS HOLDINGS INC	UNITED COMMUNITY BANKS INC
M & T BANK CORP	WASHINGTON FEDERAL INC
MAF BANCORP INC	WINTRUST FINANCIAL CORP
MELLON FINANCIAL CORP	

Control

BANK MUTUAL CORP	INDYMAC BANCORP INC
BANKUNITED FINANCIAL CORP	KEYCORP
BB&T CORP	N B T BANCORP INC
CHITTENDEN CORP	NATIONAL CITY CORP
CITY HOLDING CO	STIFEL FINANCIAL CORP
COMERICA INC	SUNTRUST BANKS INC
EDWARDS (A G) INC	SUSQUEHANNA BANCSHARES INC
FIFTH THIRD BANCORP	WASHINGTON MUTUAL INC
FIRSTMERIT CORP	WILMINGTON TRUST CORP
HUDSON CITY BANCORP INC	ZIONS BANCORPORATION

Create

AMERIPRISE FINANCIAL INC	FLAGSTAR BANCORP INC
ANCHOR BANCORP WISCONSIN INC	GREATER BAY BANCORP
ASSOCIATED BANC-CORP	HANMI FINANCIAL CORP
ASTORIA FINANCIAL CORP	HUNTINGTON BANCSHARES
BANCORPSOUTH INC	JPMORGAN CHASE & CO
BANK OF AMERICA CORP	MARSHALL & ILSLEY CORP
BANK OF HAWAII CORP	MERRILL LYNCH & CO INC
BBCN BANCORP INC	MORGAN STANLEY
CATHAY GENERAL BANCORP	MUFG AMERICAS HOLDINGS CORP
CITIGROUP INC	NEW YORK CMNTY BANCORP INC
CITY NATIONAL CORP	NORTHERN TRUST CORP
COLONIAL BANCGROUP	PNC FINANCIAL SVCS GROUP INC
COMMERCE BANCORP INC/NJ	REGIONS FINANCIAL CORP
COMMUNITY BANK SYSTEM INC	SOUTH FINANCIAL GROUP INC
COUNTRYWIDE FINANCIAL CORP	STERLING BANCORP/NY -OLD
CULLEN/FROST BANKERS INC	STERLING FINANCIAL CORP/WA
DIME COMMUNITY BANCSHARES	TRUSTCO BANK CORP/NY
DOWNEY FINANCIAL CORP	U S BANCORP
FANNIE MAE	UMB FINANCIAL CORP
FIRST BANCORP P R	UMPQUA HOLDINGS CORP
FIRST COMMONWLTH FINL CP/PA	WACHOVIA CORP
FIRST HORIZON NATIONAL CORP	WEBSTER FINANCIAL CORP
FIRST MIDWEST BANCORP INC	WHITNEY HOLDING CORP
FIRST NIAGARA FINANCIAL GRP	WILSHIRE BANCORP INC
FIRSTFED FINANCIAL CORP/CA	

Appendix B   Executive Board Compensation

Table B1: Explaining excess returns over the S&P 500 Index return

VARIABLES	(1) return	(2) return	(3) return	(4) return
Control (t-1)	-0.279*	-0.242	-0.180	-0.197
	(0.158)	(0.160)	(0.165)	(0.165)
Compete (t-1)	0.339**	0.327**	0.460***	0.474***
	(0.162)	(0.165)	(0.171)	(0.175)
Collaborate (t-1)	0.332	0.304	0.273	0.288
	(0.303)	(0.296)	(0.305)	(0.301)
Create (t-1)	-0.581	-0.447	-0.377	-0.455
	(0.393)	(0.407)	(0.419)	(0.424)
Bonus/Salary (Board) (t-1)	0.00644	0.0116		
	(0.0113)	(0.0116)		
Variable Compensation (Board) (t-1)			-0.821**	-0.942**
			(0.318)	(0.402)
Leverage (t-1)		0.000127		-0.000507
		(0.00385)		(0.00379)
log (Total Assets) (t-1)		-0.0416		0.0289
		(0.0377)		(0.0471)
Constant	0.948	1.206*	0.977	0.842
	(0.706)	(0.724)	(0.655)	(0.718)
Observations	1,196	1,196	1,196	1,196
R-squared	0.241	0.242	0.245	0.246
Time Dummies	YES	YES	YES	YES
Industry Dummies	NO	NO	NO	NO

OLS regression of Equation (3.2) explaining banks' annual excess return over the S&P 500 Index. All specifications include time fixed effects. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

Table B2: Explaining return volatility

VARIABLES	(1) return volatility	(2) return volatility	(3) return volatility	(4) return volatility
Control (t-1)	-0.113***	-0.0900**	-0.0625**	-0.0732**
	(0.0424)	(0.0398)	(0.0294)	(0.0329)
Compete (t-1)	-0.0477	-0.0291	0.0133	0.0247
	(0.0366)	(0.0490)	(0.0308)	(0.0350)
Collaborate (t-1)	-0.197*	-0.208*	-0.227*	-0.219*
	(0.110)	(0.115)	(0.116)	(0.119)
Create (t-1)	-0.0577	-0.0122	0.0449	-0.0249
	(0.108)	(0.0917)	(0.111)	(0.0914)
Bonus/Salary (Board) (t-1)	0.00254	0.00333		
	(0.00182)	(0.00330)		
Variable Compensation (Board) (t-1)			-0.425**	-0.412*
			(0.178)	(0.229)
Leverage (t-1)		0.00476**		0.00453**
		(0.00224)		(0.00227)
Profitability (t-1)		-0.299		0.285
		(1.599)		(1.801)
log (Total Assets) (t-1)		-0.0246*		0.00614
		(0.0133)		(0.0186)
Constant	0.675***	0.759***	0.697***	0.607***
	(0.209)	(0.243)	(0.215)	(0.191)
Observations	1,195	1,195	1,195	1,195
R-squared	0.055	0.088	0.070	0.097
Time Dummies	YES	YES	YES	YES
Industry Dummies	NO	NO	NO	NO

OLS regression of Equation (3.2) explaining banks' volatility of annual returns. All specifications include time fixed effects. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

Appendix C   Grouping Firms to Cultural Dimension

Table C1: Explaining variable compensation

VARIABLES	(1) variable compensation (CEO)	(2) variable compensation (Board)	(3) Bonus/Salary (CEO)	(4) Bonus/Salary (Board)
Collaborate (Dummy)	-0.0622	-0.0684*	-1.137*	-1.076*
	(0.0435)	(0.0397)	(0.581)	(0.555)
Control (Dummy)	-0.0274	-0.0432	-1.229	-1.584*
	(0.0454)	(0.0386)	(1.176)	(0.908)
Create (Dummy)	-0.0445	-0.0470*	-1.366	-1.159
	(0.0283)	(0.0250)	(0.849)	(0.750)
Leverage (t-1)	-0.00110***	-0.000923***	0.00120	0.000675
	(0.000199)	(0.000209)	(0.00494)	(0.00564)
Profitability (t-1)	1.230**	1.250**	-7.694	-4.950
	(0.526)	(0.481)	(9.814)	(8.313)
log (Total Assets) (t-1)	0.0656***	0.0708***	0.675***	0.820***
	(0.00578)	(0.00499)	(0.244)	(0.237)
Constant	0.0354	-0.00829	-2.429*	-4.333***
	(0.0696)	(0.0595)	(1.432)	(1.570)
Observations	1,229	1,229	1,225	1,229
R-squared	0.310	0.403	0.108	0.174
Time Dummies	YES	YES	YES	YES
Industry Dummies	NO	NO	NO	NO

OLS regression of Equation (3.1) with time fixed effects. Culture dummy variables are equal to one if the bank is in the respective cultural cluster and zero otherwise. The dummy for the compete culture is excluded due to perfect multicollinearity. All specifications include time fixed effects. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

Table C2: Explaining excess returns over the S&P 500 Index Return

VARIABLES	(1) return	(2) return	(3) return	(4) return	(5) return
Collaborate (Dummy)	-0.00185	0.0248	-0.0230	-0.0190	-0.0744
	(0.162)	(0.161)	(0.166)	(0.158)	(0.167)
Control (Dummy)	-0.283*	-0.234	-0.237	-0.304*	-0.297*
	(0.148)	(0.150)	(0.154)	(0.154)	(0.162)
Create (Dummy)	-0.287**	-0.253*	-0.271*	-0.310**	-0.301**
	(0.136)	(0.138)	(0.142)	(0.139)	(0.148)
Bonus/Salary (t-1)		0.0114		0.00611	
		(0.0103)		(0.00937)	
Variable Compensation (t-1)			-0.265		-0.673**
			(0.242)		(0.280)
Constant	1.213***	0.896***	1.119***	1.215***	1.686***
	(0.250)	(0.249)	(0.299)	(0.253)	(0.310)
Observations	1,217	1,167	1,170	1,196	1,196
R-squared	0.238	0.236	0.238	0.239	0.242
Time Dummies	YES	YES	YES	YES	YES
Industry Dummies	NO	NO	NO	NO	NO

OLS regression of Equation (3.2) explaining banks' annual excess return over the S&P 500 Index with time fixed effects. Columns (2) and column (3) use compensation variables of the CEO, while column (4) and column (5) use the average compensation of a board member. Culture dummy variables are equal to one if the bank is in the respective cultural cluster and zero otherwise. The dummy for the compete culture is excluded due to perfect multi-collinearity. All specifications include time fixed effects. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

Table C3: Explaining excess returns over the S&P 500 Index Return

VARIABLES	(1) return	(2) return	(3) return	(4) return	(5) return
Collaborate (Dummy)	-0.00523	0.0255	-0.0240	-0.0149	-0.0816
	(0.164)	(0.162)	(0.164)	(0.161)	(0.163)
Control (Dummy)	-0.258*	-0.210	-0.239	-0.260	-0.317*
	(0.149)	(0.153)	(0.160)	(0.158)	(0.174)
Create (Dummy)	-0.257*	-0.225*	-0.271*	-0.265*	-0.320**
	(0.136)	(0.135)	(0.139)	(0.140)	(0.148)
Bonus/Salary (t-1)		0.0139		0.0129	
		(0.0114)		(0.0115)	
Variable Compensation (t-1)			-0.268		-0.772**
			(0.297)		(0.387)
Leverage (t-1)	-0.000135	-0.000259	-0.000354	-0.000238	-0.000869
	(0.00371)	(0.00374)	(0.00367)	(0.00372)	(0.00365)
log (Total Assets) (t-1)	-0.0294	-0.0265	0.000435	-0.0442	0.0219
	(0.0333)	(0.0362)	(0.0417)	(0.0385)	(0.0491)
Constant	1.485***	1.142***	1.121***	1.609***	1.564***
	(0.423)	(0.430)	(0.411)	(0.455)	(0.432)
Observations	1,217	1,167	1,170	1,196	1,196
R-squared	0.238	0.236	0.238	0.240	0.242
Time Dummies	YES	YES	YES	YES	YES
Industry Dummies	NO	NO	NO	NO	NO

OLS regression of Equation (3.2) explaining banks' annual excess return over the S&P 500 Index with time fixed effects. Columns (2) and column (3) use compensation variables of the CEO, while column (4) and column (5) use the average compensation of a board member. Culture dummy variables are equal to one if the bank is in the respective cultural cluster and zero otherwise. The dummy for the compete culture is excluded due to perfect multicollinearity. All specifications include time fixed effects. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

Table C4: Explaining return volatility

VARIABLES	(1) return volatility	(2) return volatility	(3) return volatility	(4) return volatility	(5) return volatility
Collaborate (Dummy)	0.0170	0.0154	-0.00299	0.0160	-0.00314
	(0.0204)	(0.0218)	(0.0233)	(0.0211)	(0.0221)
Compete (Dummy)	0.0486***	0.0498***	0.0432**	0.0502***	0.0450**
	(0.0172)	(0.0181)	(0.0200)	(0.0178)	(0.0185)
Create (Dummy)	0.0611**	0.0624**	0.0582*	0.0625**	0.0611**
	(0.0302)	(0.0313)	(0.0301)	(0.0306)	(0.0306)
Bonus/Salary (t-1)		-0.000643		-0.000835	
		(0.000396)		(0.000605)	
Variable Compensation (t-1)			-0.195**		-0.213***
			(0.0812)		(0.0755)
Constant	0.0463***	0.0451***	0.183***	0.0470***	0.194***
	(0.0132)	(0.0135)	(0.0500)	(0.0131)	(0.0458)
Observations	1,217	1,167	1,170	1,196	1,196
R-squared	0.053	0.052	0.068	0.052	0.066
Time Dummies	YES	YES	YES	YES	YES
Industry Dummies	NO	NO	NO	NO	NO

OLS regression of Equation (3.2) explaining banks' volatility of annual returns. Columns (2) and column (3) use compensation variables of the CEO, while column (4) and column (5) use the average compensation of a board member. Culture dummy variables are equal to one if the bank is in the respective cultural cluster and zero otherwise. The dummy for the control culture is excluded due to perfect multicollinearity. All specifications include time fixed effects. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

Table C5: Explaining return volatility

VARIABLES	(1) return volatility	(2) return volatility	(3) return volatility	(4) return volatility	(5) return volatility
Collaborate (Dummy)	0.000580	0.00161	-0.00535	0.00195	-0.00316
	(0.0178)	(0.0193)	(0.0196)	(0.0188)	(0.0184)
Compete (Dummy)	0.0251*	0.0263*	0.0292*	0.0267*	0.0324**
	(0.0137)	(0.0146)	(0.0157)	(0.0146)	(0.0150)
Create (Dummy)	0.0438	0.0431	0.0397	0.0431	0.0426
	(0.0289)	(0.0295)	(0.0282)	(0.0284)	(0.0285)
Bonus/Salary (t-1)		-0.000551		-0.000441	
		(0.000709)		(0.00115)	
Variable Compensation (t-1)			-0.167**		-0.168**
			(0.0780)		(0.0748)
Leverage (t-1)	0.00375***	0.00370***	0.00363**	0.00370***	0.00359**
	(0.00140)	(0.00141)	(0.00144)	(0.00141)	(0.00142)
Profitability (t-1)	-0.470	-0.908	-0.534	-0.892	-0.555
	(0.387)	(0.569)	(0.509)	(0.556)	(0.550)
log (Total Assets) (t-1)	-0.0139**	-0.0138**	-0.00295	-0.0136**	-0.00191
	(0.00614)	(0.00679)	(0.00615)	(0.00684)	(0.00630)
Constant	0.172**	0.197**	0.184**	0.191**	0.174**
	(0.0662)	(0.0780)	(0.0706)	(0.0774)	(0.0678)
Observations	1,217	1,167	1,170	1,196	1,196
R-squared	0.121	0.122	0.130	0.122	0.128
Time Dummies	YES	YES	YES	YES	YES
Industry Dummies	NO	NO	NO	NO	NO

OLS regression of Equation (3.2) explaining banks' volatility of annual returns. Columns (2) and column (3) use compensation variables of the CEO, while column (4) and column (5) use the average compensation of a board member. Culture dummy variables are equal to one if the bank is in the respective cultural cluster and zero otherwise. The dummy for the control culture is excluded due to perfect multicollinearity. All specifications include time fixed effects. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

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Appendix D   Excluding the Crisis Period

Table D1: Explaining the share of variable compensation to salary

VARIABLES	(1) variable compensation (CEO)	(2) variable compensation (CEO)	(3) variable compensation (CEO)	(4) variable compensation (Board)	(5) variable compensation (Board)	(6) variable compensation (Board)
Control (t-1)	0.101***	0.0389*	0.0315	0.0821***	0.0175	0.0105
	(0.0269)	(0.0219)	(0.0212)	(0.0233)	(0.0181)	(0.0163)
Compete (t-1)	0.126***	0.111***	0.0687**	0.136***	0.122***	0.0689***
	(0.0314)	(0.0249)	(0.0270)	(0.0276)	(0.0210)	(0.0218)
Collaborate (t-1)	-0.0611	-0.0229	-0.000503	-0.0660	-0.0261	-0.0116
	(0.0732)	(0.0558)	(0.0571)	(0.0674)	(0.0482)	(0.0483)
Create (t-1)	0.190***	-0.0723	-0.0646	0.212***	-0.0629	-0.0474
	(0.0713)	(0.0665)	(0.0676)	(0.0663)	(0.0591)	(0.0584)
Leverage (t-1)		-0.00104***	-0.000888***		-0.000883**	-0.000787**
		(0.000385)	(0.000322)		(0.000346)	(0.000330)
Profitability (t-1)		0.693*	0.807		0.691**	0.764*
		(0.403)	(0.490)		(0.343)	(0.425)
log (Total Assets) (t-1)		0.0619***	0.0644***		0.0644***	0.0646***
		(0.00530)	(0.00576)		(0.00438)	(0.00468)
Constant	0.154	-0.123	-0.107	0.146	-0.143	-0.0801
	(0.120)	(0.110)	(0.127)	(0.107)	(0.0903)	(0.101)
Observations	914	914	914	914	914	914
R-squared	0.130	0.308	0.331	0.168	0.417	0.446
Time Dummies	YES	YES	YES	YES	YES	YES
Industry Dummies	NO	NO	YES	NO	NO	YES

OLS regression of Equation (3.1) with time fixed effects. Column (3) and column (6) provide results for an OLS regression including fixed effects for the bank's standard industrial classification (SIC) code such that the corporate culture measures are to be interpreted as a bank's deviation from the industry-specific long-term culture. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

Table D2: Explaining bonus to salary ratio

VARIABLES	(1) Bonus/Salary (CEO)	(2) Bonus/Salary (CEO)	(3) Bonus/Salary (CEO)	(4) Bonus/Salary (Board)	(5) Bonus/Salary (Board)	(6) Bonus/Salary (Board)
Control (t-1)	0.837	0.181	0.0530	1.055*	0.240	0.106
	(0.540)	(0.431)	(0.417)	(0.628)	(0.473)	(0.443)
Compete (t-1)	2.831**	3.091**	0.0916	2.492***	2.684***	-0.291
	(1.098)	(1.205)	(0.577)	(0.924)	(0.999)	(0.507)
Collaborate (t-1)	-1.435	-0.758	-0.383	-1.193	-0.461	-0.168
	(1.381)	(1.094)	(1.016)	(1.317)	(1.021)	(0.964)
Create (t-1)	4.826	2.033	3.488	5.122	1.642	3.110
	(3.869)	(3.705)	(3.799)	(3.185)	(2.983)	(2.995)
Leverage (t-1)		0.00556	0.0116*		0.00493	0.0119**
		(0.00782)	(0.00603)		(0.00836)	(0.00576)
Profitability (t-1)		-19.23	-15.89		-15.24	-11.87
		(16.40)	(13.41)		(13.86)	(10.81)
log (Total Assets) (t-1)		0.660***	0.565***		0.812***	0.737***
		(0.181)	(0.149)		(0.209)	(0.172)
Constant	-7.794	-10.79**	-6.282*	-8.241*	-11.90**	-7.521**
	(4.908)	(5.022)	(3.377)	(4.433)	(4.590)	(3.006)
Observations	911	911	911	914	914	914
R-squared	0.099	0.154	0.253	0.122	0.218	0.352
Time Dummies	YES	YES	YES	YES	YES	YES
Industry Dummies	NO	NO	YES	NO	NO	YES

OLS regression of Equation (3.1) with time fixed effects. Column (3) and column (6) provide results for an OLS regression including fixed effects for the bank's standard industrial classification (SIC) code such that the corporate culture measures are to be interpreted as a bank's deviation from the industry-specific long-term culture. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

Table D3: Explaining Excess Returns over the S&P 500 Index Return

VARIABLES	(1) return	(2) return	(3) return
Control (t-1)	-0.331**	-0.293**	-0.337**
	(0.137)	(0.134)	(0.130)
Compete (t-1)	0.465***	0.476***	0.103
	(0.174)	(0.170)	(0.217)
Collaborate (t-1)	-0.0860	-0.100	-0.158
	(0.278)	(0.275)	(0.287)
Create (t-1)	-0.680*	-0.570	-0.329
	(0.360)	(0.422)	(0.453)
Leverage (t-1)		0.00342	0.00358
		(0.00686)	(0.00705)
log (Total Assets) (t-1)		-0.0346	-0.0436
		(0.0361)	(0.0385)
Constant	1.281*	1.401**	2.105**
	(0.705)	(0.702)	(0.831)
Observations	905	905	905
R-squared	0.330	0.332	0.344
Time Dummies	YES	YES	YES
Industry Dummies	NO	NO	YES

OLS regression of Equation (3.2) explaining banks' annual excess return over the S&P 500 Index with time fixed effects. Column (3) provides results for an OLS regression including fixed effects for the bank's standard industrial classification (SIC) code such that the corporate culture measures are to be interpreted as a bank's deviation from the industry-specific long-term culture. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

Table D4: Explaining Excess Returns over the S&P 500 Index Return

	(1)	(2)	(3)	(4)
VARIABLES	return	return	return	return
Control (t-1)	-0.247*	-0.210	-0.235*	-0.228
	(0.136)	(0.137)	(0.141)	(0.140)
Compete (t-1)	0.388**	0.393**	0.485***	0.489***
	(0.177)	(0.171)	(0.168)	(0.165)
Collaborate (t-1)	0.0103	-5.98e-05	-0.00633	0.00308
	(0.268)	(0.267)	(0.272)	(0.270)
Create (t-1)	-0.846**	-0.736*	-0.660*	-0.679*
	(0.335)	(0.383)	(0.341)	(0.381)
Bonus/Salary (CEO) (t-1)	0.0225**	0.0239*		
	(0.0113)	(0.0122)		
Variable Compensation (CEO) (t-1)			-0.169	-0.130
			(0.257)	(0.269)
Leverage (t-1)		0.00307		0.00341
		(0.00685)		(0.00682)
log (Total Assets) (t-1)		-0.0357		-0.00737
		(0.0366)		(0.0381)
Constant	1.095	1.241*	0.864	0.857
	(0.695)	(0.688)	(0.664)	(0.666)
Observations	856	856	859	859
R-squared	0.334	0.336	0.334	0.335
Time Dummies	YES	YES	YES	YES

OLS regression of Equation (3.2) explaining banks' annual excess return over the S&P 500 Index. All specifications include time fixed effects. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

Table D5: Explaining Excess Returns over the S&P 500 Index Return

VARIABLES	(1) return	(2) return	(3) return	(4) return
Control (t-1)	-0.385***	-0.320**	-0.294**	-0.293**
	(0.137)	(0.131)	(0.141)	(0.139)
Compete (t-1)	0.430**	0.424**	0.587***	0.590***
	(0.193)	(0.190)	(0.188)	(0.191)
Collaborate (t-1)	-0.0930	-0.124	-0.180	-0.168
	(0.275)	(0.274)	(0.287)	(0.283)
Create (t-1)	-0.879**	-0.648	-0.570	-0.605
	(0.385)	(0.434)	(0.385)	(0.441)
Bonus/Salary (Board) (t-1)	0.0263*	0.0335*		
	(0.0138)	(0.0174)		
Variable Compensation (Board) (t-1)			-0.646**	-0.607*
			(0.288)	(0.321)
Leverage (t-1)		0.00270		0.00281
		(0.00686)		(0.00673)
log (Total Assets) (t-1)		-0.0710*		-0.00178
		(0.0399)		(0.0443)
Constant	1.588**	1.948**	1.392*	1.363*
	(0.757)	(0.764)	(0.719)	(0.740)
Observations	884	884	884	884
R-squared	0.337	0.341	0.338	0.339
Time Dummies	YES	YES	YES	YES
Industry Dummies	NO	NO	NO	NO

OLS regression of Equation (3.2) explaining banks' annual excess return over the S&P 500 Index. All specifications include time fixed effects. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

Table D6: Explaining return volatility

VARIABLES	(1) return volatility	(2) return volatility	(3) return volatility
Control (t-1)	-0.0488**	-0.0295**	-0.0224
	(0.0199)	(0.0143)	(0.0165)
Compete (t-1)	-0.0160	0.00436	-0.000747
	(0.0144)	(0.0145)	(0.0282)
Collaborate (t-1)	-0.0435	-0.0294	-0.0445
	(0.0504)	(0.0502)	(0.0505)
Create (t-1)	0.0255	0.0178	-0.0410
	(0.0560)	(0.0494)	(0.0952)
Leverage (t-1)		0.00579***	0.00599***
		(0.00215)	(0.00221)
Profitability (t-1)		-0.328	-0.109
		(0.453)	(0.349)
log (Total Assets) (t-1)		-0.0131**	-0.0145***
		(0.00588)	(0.00488)
Constant	0.206***	0.197***	0.265***
	(0.0661)	(0.0718)	(0.0785)
Observations	905	905	905
R-squared	0.047	0.131	0.152
Time Dummies	YES	YES	YES
Industry Dummies	NO	NO	YES

OLS regression of Equation (3.2) explaining banks' volatility of annual returns. Column (3) provides results for an OLS regression including fixed effects for the bank's standard industrial classification (SIC) code such that the corporate culture measures are to be interpreted as a bank's deviation from the industry-specific long-term culture. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

Table D7: Explaining return volatility

VARIABLES	(1) return volatility	(2) return volatility	(3) return volatility	(4) return volatility
Control (t-1)	-0.0501**	-0.0269*	-0.0183	-0.0142
	(0.0213)	(0.0153)	(0.0195)	(0.0141)
Compete (t-1)	-0.0182	0.00956	0.0209	0.0366
	(0.0159)	(0.0174)	(0.0197)	(0.0228)
Collaborate (t-1)	-0.0442	-0.0262	-0.0588	-0.0311
	(0.0535)	(0.0555)	(0.0512)	(0.0537)
Create (t-1)	0.0310	0.0298	0.0975	0.0211
	(0.0611)	(0.0524)	(0.0604)	(0.0539)
Bonus/Salary (CEO) (t-1)	3.92e-05	-0.00136		
	(0.000430)	(0.000916)		
Variable Compensation (CEO) (t-1)			-0.267**	-0.238**
			(0.114)	(0.119)
Leverage (t-1)		0.00578***		0.00566**
		(0.00216)		(0.00229)
Profitability (t-1)		-0.871		-0.516
		(0.885)		(0.763)
log (Total Assets) (t-1)		-0.0128**		0.000675
		(0.00633)		(0.00764)
Constant	0.205***	0.197**	0.208***	0.144**
	(0.0735)	(0.0843)	(0.0716)	(0.0685)
Observations	856	856	859	859
R-squared	0.047	0.131	0.065	0.143
Time Dummies	YES	YES	YES	YES
Industry Dummies	NO	NO	NO	NO

OLS regression of Equation (3.2) explaining banks' volatility of annual returns. All specifications include time fixed effects. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.

Table D8: Explaining return volatility

VARIABLES	(1) return volatility	(2) return volatility	(3) return volatility	(4) return volatility
Control (t-1)	-0.0491**	-0.0275*	-0.0222	-0.0217
	(0.0200)	(0.0146)	(0.0158)	(0.0134)
Compete (t-1)	-0.0182	0.00908	0.0208	0.0317*
	(0.0155)	(0.0170)	(0.0177)	(0.0190)
Collaborate (t-1)	-0.0439	-0.0254	-0.0651	-0.0337
	(0.0517)	(0.0533)	(0.0522)	(0.0534)
Create (t-1)	0.0255	0.0263	0.0940	0.0147
	(0.0603)	(0.0506)	(0.0650)	(0.0498)
Bonus/Salary (Board) (t-1)	0.000341	-0.00128		
	(0.000684)	(0.00134)		
Variable Compensation (Board) (t-1)			-0.278***	-0.216**
			(0.0981)	(0.106)
Leverage (t-1)		0.00578***		0.00559**
		(0.00216)		(0.00221)
Profitability (t-1)		-0.849		-0.573
		(0.848)		(0.792)
log (Total Assets) (t-1)		-0.0124**		0.000614
		(0.00612)		(0.00685)
Constant	0.210***	0.194**	0.231***	0.164**
	(0.0711)	(0.0850)	(0.0719)	(0.0664)
Observations	884	884	884	884
R-squared	0.047	0.131	0.062	0.137
Time Dummies	YES	YES	YES	YES
Industry Dummies	NO	NO	NO	NO

OLS regression of Equation (3.2) explaining banks' volatility of annual returns. All specifications include time fixed effects. Standard errors (in parentheses) are clustered on bank level. ***, **, * indicate significance on the 1%, 5% and 10% level.