Value-Based Leadership[*]

Morten Bennedsen [†]   Esther Chevrot-Bianco [‡]

May 27, 2021

Comments welcome.

ABSTRACT

The strength of personal values and how these penetrate firm organization is measured through a survey of 1500 Danish CEOs. We construct a measure of value-based leadership and investigate the impact on firm outcomes and firm policies. First, value-based leadership is more common in family firms and with female leadership, but not correlated to leaders' IQ nor to management practices. Second, value-based leadership is positively correlated to firm performance. Causal evidence is provided through the analysis of CEO changes and CEO hospitalizations. Third, value-based leaders build more resilient organizations in a pandemic crisis and generate less conflicts, lower employee turnover and have a flatter organizational structure in normal times. Taken together, leaders' personal values and how they spread through organizations are important factors in explaining the value they bring to their firms.

Keywords: CEOs, Values, Leadership, Performance

"The principles of the Cadbury code are based on the same key moral guidelines that the Quaker pioneers believed in when they set up their businesses: openness, accountability, honesty, responsibility, fairness, and above all trust."

Adrian Cadbury, last family chairman of Cadbury and chairman of the Cadbury Code UK 1992, the first national code of good governance principles in the world.

1 Introduction

Are top leaders more effective when their management style is grounded in strong personal values? Value-based leadership (hereforth VBL) is a popular concept in the business press,[1] but has played a smaller role in academic economic and finance research, where it is considered a vaguely defined and hard to measure concept. It is well-established that the identity of the CEO is of importance for firm performances (see Bertrand and Schoar (2003a) and Bennedsen et al. (2007)), however little is known about what separates good and bad managers. In this paper we identify the strength of personal values and how these penetrate firm organizations as a novel channel through which CEO identity matters for firm policies and outcomes.

One prominent example of strong value-based leadership is the British chocolatier, Cadbury, created in 1837 by John Cadbury, a dedicated Quaker that taught in Sunday schools, advocated against social injustice and saw the new cocoa business as an affordable alternative to alcohol. The religious Quaker values of the Cadbury family penetrated the chocolate company such that the growth of the company catalyzed further investment in social courses from improving employees and their families health and education to active engagement in the anti-slavery movement. The key values of the Quaker religion made many Quaker firms very successful in the 19th century, not least because

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[1]VBL is the core of several management books (Gilliland et al. (2003); Kraemer (2011); Kraemer (2015)), MBA and Executive courses at Business schools, and a peer-reviewed journal alimented by scholars and business leaders (*Journal Value-Based Leadership*).

Quakers were trustworthy.[2] Almost 150 years later, Adrian Cadbury - the last family chairman and CEO of the Cadbury company - is appointed chairman of the first code of best corporate governance practice in the world. The Cadbury code is the blueprint for more than 70 country codes across the world. Although Quaker values were never specified in the code, for Adrian Cadbury they were essential: "The principles of the Cadbury code are based on the same key moral guidelines that the Quaker pioneers believed in when they set up their businesses: openness, accountability, honesty, responsibility, fairness, and above all trust" (Bennedsen and Cadbury (2013)).

We define value-based leadership as when decision-making and governance in a firm mirror the personal values of the individuals in charge (Bennedsen and Fan (2014)). We focus on CEOs' personal values and investigate to what extent they penetrate the entire organization. Firm culture is often defined as the combination of values and social norms that are present explicitly or implicitly in the firm (Graham et al. (2017)). Social norms are drivers of incentives and are known to all employees, as are consequences when they are broken (Fehr and Schurtenberger (2018)). Personal values of the CEO are used as drivers of intrinsic motivation and may be an integrated part of leadership style through several channels. First, they can be used as guidelines for decision making in general and in particular in unprecedented situations, where experience based decision making is less efficient.[3] Related to this, strong values can mitigate the adverse consequences of incomplete contracts (Guiso et al. (2015); Frydlinger and Hart (2019)). Second, when leaders values penetrate the organization, it reduces coordination costs by permitting less monitoring and leading to higher utility and execution effort (Steen (2010)). Third, when

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[2]The trustworthiness of the Quaker's made them particular successful in the financial sector where trust was highly sought after during the early industrial revolution in the 19th century UK. Banks like Barkley and Lloyd were founded by their namesake Quaker families.

[3]The worldwide luxury brand Hermès provides an example in which values were used to inform strategic decision-making. In the 60s, facing an increasing competitive pressure from product made of synthetic material, the CEO Robert Dumas-Hermès refused to develop similar products and chose to stick to the strict use of leather and silk. He made this decision in the name of the company's historical attachment to craftsmanship, quality, and patience, at the cost of short-term business opportunities. In 1970, the company had to stop the production for two weeks due to lack of orders (Bennedsen et al. (2015))

top leaders values penetrate the organization it also works as creating an identity for the firm and its stakeholders, and generates a formal or informal code of conduct. Finally, VBL may contribute to the formation of an homogeneous corporate culture, therefore indirectly enhancing performances (Kotter and L (1992); Kreps (1990)).[4]

Our approach to quantify value-based leadership is survey based. We have conducted a survey that elicits personal values of 1,500 CEOs in Denmark based on the methodology of the World Value Survey.[5] Our survey includes questions on personal values and on the interplay between values and leadership. We construct a VBL measure using factor analysis on answers to the 50 survey questions. This VBL measure captures both the personal values of the CEOs in our sample and to what extent these values are present in the firms they manage.

We begin the analysis by characterizing value-based leaders and their firms. We document that value-based leadership is more common in family firms, defined as firms where multiple family members are involved. On average female CEOs also are higher on our VBL scale than male CEOs. For a subset of CEOs, we then compare our value-based leadership measure with a survey based measure of management practice as developed in Bloom and Van Reenen (2007) and show that value-based leadership is uncorrelated to survey measures of management practices. Finally, for a subset of male CEOs, we are able to use data from military drafting to compare value-based leadership with a measure of IQ. Interestingly, we find that there is no correlation between intelligence and the value-based leadership factor. This supports our claim that value-based leadership is a novel channel through which the identity and personal traits of CEOs affect firm performance.

Our second contribution is to document that our VBL measure is positively correlated with firm performance. On average, CEOs that represent more value-based led firms have higher operating performance. In our most preferred specification, going from the 10th to the 90th percentile on the VBL factor predicts a 22% increase in performances.

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[4]Sørensen (2002) provides one of the rare empirical test of the relationship between strength of a the corporate culture and performance, and find that in stable environment, strong-culture firms have more reliable performance.

[5]http://www.worldvaluessurvey.org/wvs.jsp

Furthermore, we derive a causal interpretation of the relationship between VBL and performance through two additional exercises. First, we analyze CEO changes: When a firm hires a CEO from the above median VBL score pool, performance increases the following years. Second, we study CEO hospitalization events: When a CEO with high VBL score stays in hospital, it has a negative impact on firm performance, whereas we do not find any performance effect of the CEO hospitalization for CEOs with low VBL score. To rule out the reverse causality between hospitalization and performance, we show that future hospitalization of high VBL leaders does not impact current performance.

Our final contribution is to investigate how value-based leaders operate their companies and if we can find support for the theoretical arguments above. We first ask if value-based led organizations are more resilient in times of crisis. To answer this question we add a survey on the impact of the COVID crisis on firms (Bennedsen et al. (2020a)). We document that value-based leaders are more stakeholder focused, defined as they prioritize the well-being of communities, employees and customers more than survival. Furthermore, they were less likely to fire employees and less likely to take up government programs to furlough workers during the start of the pandemic crisis in the spring of 2020. This is consistent with value-based leadership being used as guiding principles in novel business situations where experience based leadership is less useful. We then proceed to analyse leadership behavior in non-crisis periods and find that high VBL CEOs self-report less conflicts in their firms. Furthermore, firms run by high VBL CEOs experience lower turnover, have more female employees and a less hierarchical organizational structure. These findings are consistent with value-based leadership reducing coordination costs and the need for monitoring, and providing an informal identity accepted by employees.

There is a growing empirical literature on the interaction between top leaders individual traits and firm performance (for example: Bertrand and Schoar (2003b); Bennedsen et al. (2007); Malmendier and Tate (2008); Malmendier and Tate (2009); Kaplan et al. (2012) Bandiera et al. (2020)). It has been shown that prior corporate and non-corporate experience matters (Schoar and Zuo (2016); Schoar and Zuo (2017); Benmelech and Frydman (2015)), that networks created through school participation are correlated with firm policies and firm outcomes (Nguyen (2012); Kramarz and Thesmar (2013); Shue (2013)).

Relative to this literature, we propose top leaders personal value as a channel through which the identity of the CEO matters.

Our paper provides empirical support to a theoretical literature emphasizing the role of managerial beliefs and vision for firm activities. Economists[6] have modelled how managers' characteristics (Steen (2005); Bolton et al. (2013); Dessein and Santos (2016); Steen (2018))[7] and leadership style (Rotemberg and Saloner (1993); Rotemberg and Saloner (1994); Rotemberg and Saloner (2000); Hermalin (1998); Hermalin (2007))[8] can help monitoring business activities and solving coordination issues. In particular, Steen (2005) proposes that managerial vision helps attract and retain employees with similar beliefs. Bolton et al. (2013) highlight how the CEO's resoluteness (or vision) can sustain her credibility among followers, which in turn aligns their incentives and increase performance.

The rest of this paper is organized as follows: In Section 2 we describe our data and provide descriptive statistics. In section 3 we identify firm and personal characteristics that are correlated with higher VBL factors. Section 4 documents the causal relationship between value-based leadership and firm performance. In Section 5 we analyze what leaders with strong values that penetrate their firms do differently. Section 6 concludes. We elaborate on the data construction and the factor analysis in the Appendix.

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[6]Outside of economics, in the management, sociology, organizational psychology and organizational behavior literature, leadership has received considerable attention. For a perspective on the different approaches, see Nohria and Khurana (2010).

[7]Dessein and Santos (2016) show how small initial differences in managers' expertise can lead to important differences in strategic choices due to selective attention allocation in complex environments. Alternatively, Steen (2018) proposes that the reflect of the strategist's background in strategies is attributable to the need for credibility and confidence in the strategy execution.

[8]Rotemberg and Saloner (1993) and Rotemberg and Saloner (2000) mainly study how certain dimensions of leadership (the strength of empathy and vision, respectively) affect the distribution of incentives in the firm, and in turn, profitability. Hermalin (1998) and Hermalin (2007) propose a theory of "Leading by Example", in which the leader has informational advantage and solves the incentives misalignment problem by working hard to signal the high payoff of effort to followers

2 Data and summary statistics

2.1 Quantifying leadership values

Our primary source of data for quantifying leadership values comes from a survey we conducted in 2015 in Denmark.[9] The survey focused on leaders attitudes and personal values and was done through Danish National Statistical Agency (*Statistics Denmark*), who were responsible for sending out the survey and collect answers.[10] We contacted 49,799 CEOs,[11] and collected 13,593 answers, for a final response rate of approximately 27%.[12]

The survey contained 50 questions[13] in three main sections: the attitudes, social and leadership value section; a section about firm characteristics and the industry in which the firm operates; and, a section on change in ownership. In the first section we used questions routinely asked in the World Value Survey and the European Values Study.[14] For data on the interplay between values and leadership, we asked the CEO's questions covering the visibility of the management values in the firm, the role of the CEO's personal values in the daily management, and the strength of moral values in the business operation.

To identify variation in leadership values we first conduct a factor analysis. Table

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[9]This subsection is a summary of Appendix B and C. Tables and figures are reported there.

[10]They emailed an invitation to participate in the survey featuring a link to the questionnaire. After two weeks, non-responding CEOs were reminded with a second email, and ultimately received a phone call where they given the opportunity to answer the questionnaire in a phone interview.

[11]We started with all equity and limited liability companies in Denmark, which represent 39,3% of the active 280,000 companies (Source: *Statistics Denmark*). Among these firms, we identified the CEO in as many as we could, which left us with 49,799 firms.

[12]Response rate for CEOs survey usually range between 9% and 16% (Graham et al. (2013)). However, this comparison has to be taken with caution since our original sample includes a large share of single-person companies.

[13]The exact wording of questions is provided in Table 15.

[14]Questions from these surveys are regularly used in economic research linking cultural and personal values to economic outcomes (La Porta et al. (1997); Au and Cheung (2004); Guiso et al. (2008); Gabaix and Landier (2008)).

16 in the Appendix shows the results of the Exploratory Common Factor Analysis (ECFA) for the 50 survey items. We obtain seven latent factors with an eigenvalue higher than one. Factor loadings display a clear pattern: the seven factors have distinct sets of loadings, and few survey items have high loadings on multiple factors. These results are indicative of a clear underlying structure in the data, and support the grouping of survey questions in seven unique factors: dishonesty, altruism, nationalism, leadership values, religiosity, trust, and interest for politics.

In this paper we focus on leadership values and use this factor as basis for our measure of value-based leadership. There are four questions that load high on our VBL factor, the highest is "To what extent are the management values visible to the employees and present in the company?". The second highest is "To what extent is there a clear, focused, and well-defined leadership in the company?" and these are followed by "To what extent do you think that your personal values are important to the company's operation?" and "To what extent is the business operation based on strong moral values, e.g keeping words, treating all stakeholders well?". These four questions are thus crucial for our quantification of the variation in value-based leadership. As our measure of value-based leadership we will primarily use the VBL factor and sometime supplement with a VBL index, which is constructed by taking the average of answers for each leader to the four questions identified above.

To document the consistency of our VBL measures we repeated two important questions ('To what extent are the management values visible to the employees and present in the company?" and "To what extent do you think that your personal values are important to the company's operation?") in a new survey we conducted in April 2020. Among the CEOs that participated in both the 2015 and the 2020 survey we found a strong positive association between our VBL measures in 2015 and the answers to the two key questions in 2020 (see Figure 9 and Table 18 in the Appendix). This is consistent with the view that management styles are shaped by early life factors and persistent over time (Schoar and Zuo (2017)).

2.2 Other data sources

We combine the survey data with firm and ceo level data. Unique CEO and firm identifiers were provided by *Statistics Denmark* and allowed us to merge the survey with Danish administrative records.

The unique person identification number allows us to merge the survey with Danish administrative records that cover the entire national population. From these records we obtain information on various personal characteristics of the CEO, such as sex, age, education, income etc.

Similarly, the unique firm identification number allows us to retrieve information on many aspects of the firms from Danish registers. Our main data sources are the Accounting Statistics register (FIRE)[15] and the General Company Statistics register (FIRM).[16] From these we obtain financial information (such as firm earnings, capital, debt) and other characteristics of the firm (such as age, legal type, number of employees, industry code). In addition, we use information on ownership and management from business registers provided by the Danish Business Authorities (*Erhvervsstyrelsen*). The list of variables is provided in Table 13.

2.3 Sample statistics

We start with all firms that answered the survey and retain only those with an average of at least 3 employees in a 3-year period before the survey[17], which results in a sample of

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[15]FIRE register records income and balance sheet statements for all active firms in Denmark.

[16]FIRM records additional statistics on labor forces and firm background information.

[17]We use the the average number of employees over 3 years rather than the number of employees in 2015 to smooth out fluctuations due to idiosyncratic factors.

1,557 unique firms.[18] [19]. Summary statistics are presented in Table 1.

Panel A of table 1 shows that sample CEOs are 54 years old on average. There are very few female CEOs, only 12% are women. Their educational level varies significantly with 32% of them holding a bachelor or higher degree. Most CEOs have been a long time in the same firm with 84% of the sample having more than 10 years tenure.

Panel B displays summary statistics at the firm level. Our main measure of firm performance is operating returns on assets (OROA), computed as the ratio of pre-tax earnings to the book value of total assets[20]. The mean OROA is 8 pct which is similar to other studies of small and medium sized firms in Denmark (see for instance Bennedsen et al. (2007)). The net income over assets is slightly smaller and the average age of the firms is 17 years. Mean asset size is DKK 15 millions and the mean number of employees is slightly more that 14. Notice both these measures are highly skewed with few very big firms. Thus, we will use the logarithm to these variables in our analysis.

In Denmark there are two types of limited liability firms for smaller firms where boards are optional and A/S for relatively larger firms where boards are mandatory. We notice that six out of ten firms are incorporated as APS, the incorporation for smaller firms and that one out of two firms have a supervisory board. Around three out of four companies are founder managed and one in four are family firms with at least three family members involved in the board or management.

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[18]The objective of the survey was partly to study entrepreneurship, thus there were no employment restriction on the surveyed firms. The relatively small sample size is, therefore, explained by the dominance of single-person companies in the initial sample of respondents, and by the Danish Business structure. Out of the 200,000 active companies in Denmark, 80% have less than five employees and less than DKK 5 million in total assets (Source: *Ejerledelse i Danmark..* Report 2015).

[19]The final sample includes 100 firms in Agriculture, Forestry and Fishing , 213 in Manufacturing, 287 in Construction, 346 in Transport and Tourism, 76 in Information and Communication, 25 in Finance and Insurance, 31 in Real Estate, 219 in Business services, and 260 in Wholesale and Retail Trade.

[20]One advantage of using pre-tax earnings rather than net earnings in the performance measure is that it is unaffected by difference in capital structure (Amore and Bennedsen (2013)). To mitigate the effect of outliers, we winsorize OROA at the 1% level.

3   What characterizes value-based leaders and their firms?

Variations in the VBL factor are systematically correlated with variation in CEO, industry and firm level characteristics. In this section we identify some main correlates of VBL with respect to CEO and firm characteristics.

3.1   Value-based Leadership and CEO characteristics

Figure 2 shows correlations between CEO characteristics and the VBL factor score. For each CEO characteristic we have run a separate regression controlling for industries and we show the 95 pct confidence interval for the estimate.

The left hand side of the figure is based on register variables collected by Statistic Denmark. We notice that women and older CEOs score higher on the VBL factor. There is also a positive significant correlation between VBL and tenure, which seems natural given that CEOs with longer tenure have more time to impact their firm. VBL is also correlated with higher income but this is less statistically significant. Later in the paper, we control for the CEO's gender, age, and education in all of our specifications.

The right hand side of Figure 2 shows correlation with other types of personal values. These six variables are constructed from the same survey and represent the six other factors in the factor analysis. The VBL factor is positively correlated with being engaged in politics, having higher trust and higher level of altruism. Not surprisingly VBL is negatively correlated with acceptance of dishonesty.

Next we document to what extent value-based leadership correlates with traditional measures of CEO quality. In the top panel of Figure 3, we have education length as a measure of quality on the vertical axis and VBL factor on the horisontal axis. We bin the observations and see a slightly downward relationship but there is no statistically significant correlation in the data.

In the middle panel we estimate CEO quality from wage equations. We use a pre-sample of workers at our sample firms to estimate the contribution of education, experience, gender, and civil status to wages. We then use the coefficients obtained to

predict the quality of CEOs during the sample period. Again we find in the plot a slightly negative relationship, however this correlation is not statistically significant.

In the bottom panel of Figure 3 we replace CEO quality with CEO IQ. We do this for a subset of firms where we can find military draft data for the CEO. In the military draft process there is a compulsory IQ test that we have access to for the last three decades. Since, the test is taken when men are 18 year old, we do not have the data for more than 110 of our CEO sample. Again we notice a slight negative trend between CEO IQ and value-based leadership, a correlation that is not statistically significant though.

We thus conclude that VBL is not correlated with CEO quality in any of the three measures we have access to.

3.2 Value-based Leadership and firm characteristics

We now investigate which firm and industry characteristics correlate with value-based leadership. In Figure 1 we find that VBL CEOs are distributed unevenly across industries. Higher mean VBL is found in industries like Information and Communication, and wholesale and retail trade. In contrast, the VBL factor has lower mean in resource-based industries and in the construction sector. These average differences line up intuitively with part of the economy in which interpersonal interactions are more likely to play a crucial role for the business operations.

Turning to firm characteristics, table 2 shows that the VBL factor is not strongly correlated to any of the typical firm characteristics such as size and age. The VBL factor is higher in firms managed by the founder (on average by 13% of a standard deviation) and in family firms (on average by 15% of a standard deviation), even within industry, and when controlling for other firm observable characteristics. Founders have unique impact on their firm because they make critical decisions in periods where the firm is highly malleable and thus have the tools to reflect their preferences and values in the structure of the firm. Family values are commonly accepted as one of the core asset of family firms (Bertrand and Schoar (2006); Bennedsen and Fan (2014)). They originate in family history, regional culture, or religions, and are transmitted within the family, sometimes across generations. Family members embody these values, and often play an active role

in the management of the firm. Such a deep grounding of values makes family firms an ideal setting for VBL to be successfully implemented. These correlations remain largely unchanged when we control for CEO characteristics (results available upon request).

Next we investigate if VBL is correlated with a broader stakeholder view through relational contract and/or if it correlates with other measures of management and orgaizational practices. We do this through merging our sample with a survey of management practices that we did in 2018. The survey was similar to the international surveys of management practice (Bloom and Van Reenen (2007) and Bloom et al. (2019)) and was answered by approximately 5,000 Danish CEOs, among whom 175 also participated in the survey conducted in 2015. The results are showed in table 3.

Controlling for CEO characteristics, we find very robust associations between the VBL factor and a question measuring the strength of relational contracts with different types of stakeholders: "As a director of your company, how loyal do you feel to the following stakeholders in the company?". This question is very close to our interpretation of VBL, since it captures the use of guiding principles in the CEO's conduct with different stakeholders. VBL-oriented leaders are more likely to be loyal to any type of stakeholders, but even more so to employees and customers.

In contrast, there is no significant association between the VBL factor and an overall management score calculated using all the questions related to management practices in the survey. Thus, we can see that value-based leadership as defined in this paper is not the same nor correlated with overall management score. Management practices can be split up in subgroups (namely, in the survey we define two subgroups: incentives score and leadership score). In unreported regressions we find no correlation between these subgroups and value-based leadership.

To sum up, value-based leadership is more common in family firms, under female leadership and corresponds to a broader stakeholder view of the corporation. However, it is not correlated with measures of CEO quality - including intelligence - nor common measures of management practices.

4 Value-based Leadership and Firm Performance

In this section, we present our results on the effect of VBL on firm performances. Section 4.1 shows correlations between the VBL factor and register-based measures of firm performances. We then provide causal evidence for this relationship by exploiting CEOs changes (section 4.2.1), and CEOs hospitalization shocks (section 4.2.2). Additional robustness tests are discussed in Section 4.3.

4.1 Baseline results

We start by analyzing whether VBL correlates with firm performances. To this end, we match our measure of VBL with register-based accounting data, keeping data in a 3-year period before - and including - the year in which we observe VBL for the CEO (2015)[21]. We further restrict our sample to firm-year observations for which the current CEO is at the helm of the company.[22] Using OLS, we estimate the following regression:

$$y_{ifs} = \alpha + \beta\hat{\theta}_i + \gamma_1 \mathbf{X_i} + \gamma_2 \mathbf{X_f} + v_s + \epsilon_{ifs} \tag{1}$$

in which y_{ifs} is the outcome of interest (OROA, ratio of net income to assets, and standard deviation of OROA) in firm f, led by CEO i and industry s. $\hat{\theta}_i$ is the VBL score of CEO i, $\mathbf{X_i}$, and $\mathbf{X_f}$ are vectors of CEOs and firms characteristics, respectively. $\mathbf{X_i}$ includes age, gender and a dummy for whether the CEO holds a university degree, and $\mathbf{X_f}$ includes number of employees and total assets. All time-varying variables are averaged based on years 2013-2015, and variables definitions are given in table 13. v_s are two digit industry fixed effects. Standard errors are robust and clustered at the 2-digit industry level, which accounts for heteroskedasticity and correlation in the structure of the residuals. The coefficient of interest, β, captures the correlation between the VBL factor and the various outcomes of interest.

[INSERT TABLE 4 ABOUT HERE]

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[21]Limitation of data availability prevents us from using data in the post-survey period.

[22]We observe 1 year for 6.9%, 2 years for 8.9%, and 3 years for 84.3% of the sample, respectively.

Results are shown in table 4. The first three columns use the entire sample of firms (conditional on the availability of controls). Column 1 displays the estimate from the least restrictive specification of equation 1. A one unit increase on the VBL factor is associated to a 0.6 ppt higher OROA (a 8% change), significant at the 1% level. This effect is economically meaningful since it implies that going from the 10th to the 90th percentile on the VBL factor predicts a 22% increase in performances (0.006 x (1.27 - (-1.57))/0.077). Column 2 shows that the estimate is robust to the inclusion of CEO and firm controls. We control for CEO's gender, age, and education. Furthermore, we control for firm size through the logarithm of number of employees and asset size.

In column 3, we test the robustness of our finding to the use of an alternative measure of VBL. We estimate the most restrictive version of equation 1 using the VBL index (a simple average of our different survey measures of VBL). A one unit increase in the VBL index is associated to a 1 ppt higher OROA, significant at the 1% level. Since the VBL index ranges in a narrower set of values than the VBL factor, the economic effect is similar: going from the 10th to the 90th percentile of the VBL index is associated to a 22% increase in performances (0.01 x (5-3.25)/0.077). In the top-left corner of Figure 4, we show binned scatter plots for regression results of Column (2) of table 4, illustrating the positive relationship between VBL and OROA.

We are interested in understanding if the correlation between value-based leadership and firm performance is driven by small firms or if it holds for larger firms too. In columns 4 and 5 we restrict the analysis to the subsample of firms with more than 10 employees. The coefficient for the VBL factor is twice as large as for the whole sample and significant on a 5% level. Similar, the coefficient for the VBL index is more that twice as large and significant at a 5% level. Thus, we conclude that the correlation between VBL and firm performance is larger and with similar statistical significance for larger firms. In the top-right corner of Figure 4 we show binned scatter plots for regression results of Column (5) of table 4, illustrating the positive relationship between VBL and OROA for larger firms.

In Columns (6) and (7) we repeat the analysis from the first two columns but now replacing operating return over asset with net-income over assets as our performance

14

measure. We find the coefficient of VBL factor (Column (7)) and VBL index (Column (8)) to be economically similar to the regressions with OROA as the performance measure, and statistically significant at 5 and 1% level, respectively.

VBL-oriented CEOs might not only have better average performances but might also be better at smoothing out variations in performances. We test this possibility by regressing the standard deviation of OROA across the sample years on the VBL factor and averages of other regressors. Column (8) shows the results: the coefficient on VBL enters negatively and significantly at the 10% level. A one unit increase on the VBL factor is associated to a 0.4 ppt reduction in the standard deviation of OROA (a 5% decrease). In the bottom part of Figure 4, we show binned scatter plots for regression results of Column (8) of table 4, illustrating the negative relationship between VBL and the standard deviation of OROA. Left hand side shows the relationship for the entire sample, right-hand side restricts to larger firms with more than 10 employees.

4.2 Causal evidence

In this subsection we provide evidence for a causal interpretation of the documented correlation between value-based leadership and firm performance. Alternatively, the correlation could be the result of firm heterogeneity: For instance, in Table 2 we noticed that the VBL factor is higher in family firms, who in many studies have been shown to outperform non family firms (see for instance Anderson and Reeb (2003) and Sraer and Thesmar (2007)).[23] To support a causal interpretation, we exploit variation in firm exposure to value-based leadership from CEO changes and from CEO hospitalizations. Finally, we support the causal interpretation through a placebo test of *future* hospitalization on current performance. Our findings support that value-based leadership creates firm value.

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[23]Scholars have suggested relations specific family assets as drivers of performance in family firms, including heritage, legacy, business and political networks and value-based leadership (see Bennedsen and Fan (2014)). Thus, any superior performance by family firms may be driven by more than value-based leadership.

4.2.1 Firm performance around CEO appointments

Our first approach is to investigate whether the change in performance following a CEO appointment is related to the VBL score of the incoming CEO[24]. To be specific we denote the CEO that answered our survey for the incoming CEO and we focus on firms where we can observe when the incoming CEO started in the firm and the identity of the previous (outgoing) CEO. The ideal test would be to measure the change in performance around the change in CEO against the difference between the VBL factor of the incoming and outgoing CEO. Unfortunately we do not have the VBL factor of the outgoing CEO since we only did the survey once in 2015.

Instead we categorize incoming CEOs into high and low VBL CEOs, depending on if the VBL factor is above or below median. Thus, we compare the *change* in performance in firms hiring a high-VBL CEO versus in firms hiring a low-VBL CEO. The underlying premise is that on average firms that hire a high-VBL CEO will experience an increase in value-based leadership and firms that hire a low-VBL CEO will experience a decrease in value-based leadership. This approach is similar in spirit to a difference-in-difference strategy and enables us to include firm fixed effects.

Despite this obvious advantage, our strategy does not control for time-varying shocks correlated with performance. In other words, it relies on the assumption that firms hiring VBL-oriented CEOs and firms hiring low-VBL CEOs are on similar performance trends (the "parallel trends" assumption). Before implementing our main analysis, we test this assumption by examining the relationship between *pre*-appointment performance trends and the probability of hiring a VBL-oriented CEO.

To perform the main analysis, we restrict the sample to a subset of firms for which we observe the appointment of the current CEO (the CEO who was at the helm of the firm in 2015). We obtain 163 CEO appointments in total[25] and merge this subsam-

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[24]We follow the approach of Bandiera et al. (2020).

[25]In order to increase the number of events and statistical power, we consider appointments in a 6-year period (years 2009 to 2015) before the year in which we measure VBL. We don't go further back in time in order to avoid the consequences of the 2008 financial crisis. The results remain unchanged when considering only appointments in a shorter period before 2015. Of the 163 appointments, 83 concern a high

ple with register-based accounting data up to 5 years before and after the appointment. In order to investigate the change in performance following the appointment of a VBL-oriented CEO, we estimate the following difference-in-differences model:

$$y_{ift} = \lambda_f + \nu_t + \beta \mathbb{I}\{Post\}_t \times \mathbb{I}\{\hat{\theta}_i \geq \underline{\hat{\theta}}\}_i + \gamma \mathbf{X_{f,t}} + \epsilon_{ift} \tag{2}$$

in which y_{ift} is OROA of firm f where the CEO i was appointed in period t. t varies from 5 years before to 5 years after the CEO appointment. $\mathbb{I}\{\hat{\theta}_i \geq \underline{\hat{\theta}}\}_i$ is a dummy variable equal to 1 if the VBL score of the appointed CEO is higher than or equal to the sample median of the VBL factor, $\mathbf{X_{f,t}}$ is a vector of time-varying firm characteristic including the same variables as in (1). ν_t and λ_f are period and firm fixed effects. Note that $\mathbb{I}\{\hat{\theta}_i \leq \underline{\hat{\theta}}\}_i$ and $\mathbb{I}\{Post\}_t$ are omitted in the specification of equation 2 because they are absorbed by firm and period fixed effects, respectively. Standard errors are robust and clustered at the firm level, and the coefficient of interest β captures the differential effect of hiring a high-VBL CEO compared to a low-VBL CEO on performances.

[INSERT TABLE 5 ABOUT HERE]

Before estimating equation 2, we test whether performance trends *before* appointment predict the type of CEO eventually hired by the firm. Column 1 of table 5 reports the results of regressing the firm OROA before the CEO appointment on a trend interacted with the high-VBL indicator of the appointed CEO ($\mathbb{I}\{\hat{\theta}_i \geq \underline{\hat{\theta}}\}$). The estimated coefficient is 0.004, not significantly different from zero (p-value=0.75), therefore suggesting that firms that ultimately hire VBL-oriented CEOs have similar performance trends relative to firms that hire low-VBL CEOs. In figure 5, we provide an additional test of this assumption by plotting coefficients and confidence intervals from a flexible version of equation 2 that interacts the high-VBL indicator with dummies for each time period. It shows that relatively to the pre-appointment period, the difference between firms that hire VBL-oriented CEOs and firms that hire low-VBL CEOs is close to zero and stable before the appointment, and materializes in the years following the appointment. Figure 10 plots coefficients from a similar analysis, but in which the VBL *indicator* is replaced by

VBL-oriented CEO and 80 a low VBL-oriented CEO.

the VBL *factor*, and shows the same pattern. This alleviates the concern that the positive effect of VBL is mainly the result of pre-appointment shocks to performance.

Table 5, columns 2 to 4, reports the results obtained when estimating equation 2. Column 2 only includes firm fixed effects, and column 3 and 4 add year fixed effects and time-varying controls for firm size. The parameter estimate is positive, significant, and stable across specifications (β=0.045, significant on a 5% level in the most restrictive specification in column 4). Columns 5 and 6 test the robustness of the results to alternative independent and dependent variables, respectively. In column 5, we use the VBL index instead of the VBL factor and assign 1 if the CEO is above the sample median. In column 6, we use the ratio of the net income to total assets as an alternative measure of firm performance. Coefficients remain of similar magnitude and significance.

Interpretation of β The positive estimated effect indicates that firms hiring a VBL-oriented CEO experience greater increase in their performances following the appointment, compared to firms hiring a low-VBL CEO. Specifically, taking the parameter estimate in column 4, hiring a VBL-oriented CEO results in a 4.5 ppt greater increase in OROA (a 52% change relative to the pre-appointment performance) compared to hiring a low-VBL CEO. Note that the counterfactual in our regressions are firms that hire a low-VBL CEO, and the β parameter captures the positive effect of switching to a VBL-oriented CEO *compared* to the negative effect of switching to a low-VBL CEO (though this effect is not significant in our results). Including the VBL factor as a continuous instead of an indicator variable does not qualitatively change our results. The parameter estimate is 0.014, which corresponds to a 16% change in performance, significant on the 10% level (results not reported).

Taken together, these within-firm results strongly suggest that VBL positively and causally impact firm performance. It is worth emphasizing that our lack of evidence for outgoing CEOs' VBL score is likely to bias our results downwards. Since at least some of the firms in this analysis replaced a VBL-oriented leader by another VBL-oriented leader we conjecture that our estimates are lower bounds for the impact of value-based leadership on firm performance.

We are able to abstract from concerns related to time-invariant firm heterogeneity, and from concerns related to time-varying heterogeneity correlated with performance *before* the CEO appointment. However, the analysis does not fully account for time-varying heterogeneity correlated with performance *after* the CEO appointment. For instance, it could be the case that firms anticipate an increase in performance and appoint the CEO in consequences. Though this is quite unlikely in our sample of small and medium-size firms, in the next exercise, we ensure that our results are robust to this concern by employing a research design that allows to keep the CEO-firm match constant.

4.2.2 Evidence from CEO hospitalizations

Though previous results strongly suggest a positive impact of VBL on firm performance, we cannot fully account for the endogeneity of CEOs' turnover. As pointed out in Fee et al. (2013), CEOs effects identified from CEO turnover events might reflect other factors determining the CEO appointment and termination decisions, such as changes in the strategic orientation. Though this concern is mitigated by the relatively small size of our average firm, [26] we follow Bennedsen et al. (2020b) and employ an alternative identification strategy based on CEO hospitalization events.

The main intuition behind this test is that hospitalization events affect the CEOs' ability to manage the firm as they cannot be present at the firm and have reduced capacity due to their health condition. While hospitalization events are rare and therefore reduce the sample of analysis, this research design presents several advantages. First, it provides for a source of variation in exposure to the CEO while keeping the firm-CEO match constant. Second, Bennedsen et al. (2020b) provide evidence that past performance do not predict CEOs hospitalization, and that they are unlikely to be strategically planned, therefore supporting the assumption that hospitalization events are largely exogenous to firm performance. Third, even short hospital stays are likely to translate into long periods of absence, therefore negatively impacting performance. Bennedsen et al. (2020b)

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[26]Only approximately half of the firms in our sample have a board, and the process leading to CEO change is more likely to be informal and less likely to be driven by strategic concerns and formal decision-making of supervisory boards.

report that an hospitalization from one to three days typically corresponds to an absence spell of 23 days on average, and that hospitalization events cause a negative shock to performance that materializes in the year of the event.

We investigate whether the impact of hospitalization events is correlated to the VBL score of the hospitalized CEO. To implement this analysis, we use data from the National Patient Register, which contains all public and private health care interactions in Denmark. Similar to the previous analysis, we restrict the sample to firms in which the survey answering CEO was hospitalized at least once, and retrieve register-based accounting data before and after the event.[27] We obtain 447 hospitalization events,[28] and only keep firm-year observations for which the survey answering CEO was already at the helm of the company.

We compare the hospitalization-induced decline in performance in firms led by a high-VBL CEO to the decline in firms led by a low-VBL CEO. If VBL impacts performances positively, we should see that firms led by CEOs with a higher VBL score experience a larger decline in performance following an hospitalization shock. We estimate the following model:

$$y_{ift} = \delta \mathbb{I}\{Hosp\}_{i,t} + \beta \mathbb{I}\{Hosp\}_{i,t} \times \hat{\theta}_i + \gamma \mathbf{X_{f,t}} + \lambda_f + \nu_t + \epsilon_{ift} \tag{3}$$

in which y_{ift} is OROA of firm f led by CEO i in year t. $\hat{\theta}_i$ is the VBL score of the CEO at the helm of the firm, $\mathbb{I}\{Hosp\}_{i,t}$ is an indicator variable equal to 1 if CEO i was hospitalized in year t, $\mathbf{X_{f,t}}$ is a vector of time-varying controls for firm size. ν_t and λ_f are year and firm fixed effects. Note that $\hat{\theta}_i$ is omitted in the specification of equation (3) since it is absorbed by firm fixed effects. We control for the firm-CEO match by restricting our sample to firm-year observations in which the current CEO was already present, therefore we do not need to include CEO fixed effects. Standard errors are robust and

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[27]Similar to the previous analysis, we consider hospitalization events in a 6-year period before the year of the survey, and retrieve data on performance up to 5 years before and after the event. In addition, in order to avoid events caused by chronic illness and that may affect the firm more generally, we exclude CEOs who have been hospitalized three times or more during the sample period.

[28]We observe 238 hospitalization events for VBL-oriented and 209 for low-VBL CEOs, respectively.

clustered at the firm level, and the coefficient of interest, β, captures the differential effect of hospitalization shocks in firms led by CEOs with higher VBL scores.

[INSERT TABLE 6 ABOUT HERE]

Before estimating equation (3), we provide a visualization of the performance trends around hospitalization events. Figure 6 plots the coefficients and confidence intervals from a different version of equation (3), in which time periods vary relatively to and are centered around the event period,[29] and are interacted with the VBL factor. Relatively to the pre-hospitalization period, firms led by a high-VBL CEO do not differ from firms led by a low-VBL CEO two periods before the hospitalization, but they under-perform in the year of hospitalization.[30] This pattern suggests that all sample firms follow similar performance trends prior to the hospitalization shock, therefore supporting the causal interpretation of the result.

Table 6 shows the results obtained when estimating equation (3). Column 1 includes firm fixed effects, year fixed effects, and time-varying controls for firm size are added in columns 2 and 3. The parameter estimate of the interaction term between hospitalization and VBL is negative and stable across specifications, and significant at the 5% level in the most restrictive specification (β=-0.014, p-value=0.044). In column 4, we replace the VBL factor by the VBL index. As in table 4, the parameter estimate increases in magnitude, which corresponds to the same economic effect since the VBL index ranges in a narrower set of values than the VBL factor. In column 5, we re-estimate our most restrictive specification using the ratio of the net income to total assets as a dependent variable. In all specifications, the impact of hospitalization at the baseline - i.e, for CEOs with low VBL score - is not significantly different from zero. By contrast, the interaction between CEO hospitalization and the VBL score enters negatively, suggesting that the harmful impact of hospitalizations increases in the VBL score. Economically, the parameter estimates suggests that the CEO hospitalization results in a 1.4 ppt greater decrease

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[29]The event period is normalized to 0.

[30]The difference is not significant in this specification due to the use of fewer years of data for the estimation.

21

in OROA (a 22% change relatively to pre-hospitalization OROA) when the VBL factor increases by one unit.

4.2.3 Placebo test

[INSERT TABLE 7 ABOUT HERE]

To confirm that causality runs from hospitalizations to performance, we conduct a placebo test by investigating the impact of *future* hospitalizations on current performances. We are both interested in if future hospitalization has an impact on current performance per se and if this effect depend on the VBL level of the CEO. In this analysis, we focus on first-time events to avoid capturing the effect of prior hospitalizations in our regressions.

Table 7 shows the results of regressions based on a modified version of equation (3), in which we replace the indicator for hospitalization in the current year by an indicator equal to one if the first hospitalization occurred one and two year after the current year, respectively. In this analysis, the coefficient on the interactions between future hospitalization variables and the VBL factor are close to 0 and not statistically significant (β=-0.004, p-value=0.58 for hospitalizations in t+1, and β=-0.001, p-value=0.91 for hospitalizations in t+2, respectively). Thus, we exclude that the positive correlation between value-based leadership and operating performance is due to reverse causality, lending even more support to a causal interpretation.

4.3 Robustness checks

Adding richer controls In this section, we address the concern that VBL is correlated with other personal characteristics by including controls for the CEO's other values, family structure, and professional characteristics. As shown from Figure 2, the VBL factor correlates positively with political engagement, altruism and trust, and negatively with tolerance for dishonesty. We therefore include the 6 other values constructed from our survey (political engagement, altruism, trust, religiosity, nationalism, and dishonesty tolerance) as additional controls. For family structure, we include marital status, number of

22

children, and number of daughters. The latter has been suggested as a proxy for having a more social perspective (Dahl et al. (2012); Cronqvist and Yu (2017)). Finally, we also add income and tenure, that is the income of the CEO and a dummy for if the CEO has been 10 years or more in the position, as controls for the CEO's professional characteristics. We reproduce Table 4 and include these additional controls in every specifications.

[INSERT TABLE 8 ABOUT HERE]

Results are showed in Table 8, and closely resemble results in Table 4. The coefficients on the VBL factor have similar level of statistical significance and economic magnitude, even after the inclusion of this extensive set of controls.

5 What do value-based leaders do? Value-based leadership and firm policy

We have established, which types of leaders are more value-based, and that value-based leadership creates more firm value. In this section we investigate what value-based leaders do differently from other leaders. We will focus on four areas: Resilience in times of crisis, organizational climate in normal times, selection of employees and use of incentives.

5.1 Value-based Leadership and resilience in pandemic crisis

We noticed in the introduction that personal values of leaders can be guidelines for decision making in general and in particular in unprecedented situations, where experience-based decision making is less efficient. We document this using the context of the unprecedented pandemic crisis the world is experiencing now. We are in particular interested in whether CEOs with strong values differs in their priorities and in their policy choices during the pandemic crisis.

To do this we have developed a self-respondent survey that was sent out on 23 April 2020 to 44,374 firms; effectively the entire population of private-sector firms with

more than 3 employees in Denmark.[31] We received 10,642 responses by June 1 2020 yielding a response rate of 24 percent. With register data, we verify that the respondents are representative of the population of firms with respect to both firm size and industry. In the following we focus on 455 firms that both answered this crisis survey and are in the sample we use to study value-based leadership.

The survey included 23 questions, on basic firm characteristics (such as employment in January, and revenue change since January), and on main priorities, government aid take-up and labor demand choices during the crisis. Survey respondents were asked to indicate what their main priorities were during the first 6 months of the pandemic crisis, among local community, employees, customers, and/or survival of the business. In addition, all firms were asked to report the number of employees they furloughed and laid off as a result of the pandemic. Our main results are based on answers reported by the respondents in the survey, and the questions used for variables definition are reported in Table 13.

[INSERT TABLE 9 ABOUT HERE]

In Table 9 we present how value-based leadership correlates with priorities, use of government programs and dismissal of employees. We control for gender, age and education of CEO and for the size of the firm. First notice that leaders with high VBL factor have more focus on the local community (Column 1), employees (Column 2) and customers (Column 3) than leaders with lower VBL factor. Thus, value-based leaders are more stakeholder oriented and care more about the environment which they operate during this unprecedented crisis. The effect is statistical significant at the 5 % level for all three stakeholder group. It is worth remarking that high value-based leaders' stakeholder focus do not make them less focused on survival of their business as seen in Column 4.

Second, Column 5 shows that value-based leaders less frequently accept government aid programs to furlough their employees. The effect of value-based leadership on take-up of programs is economically high: Moving from the 10th to 90th percentile in

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[31]For a detailed description of the survey and an analysis of the impact of government programs on retaining employees, see Bennedsen et al. (2020a).

VBL is associated with a reported 82 pct reduction in the use of furlough compensation (-0.026 x (1.27 - (-1.57))/0.09). The effect is also statistical significant at a 5 % level.

Finally, even though value-based leaders use less government programs they also fire less employees. Again they are able to keep significant more employees: Moving from the 10th to 90th percentile in VBL is associated with a reported 77 pct reduction in employee dismissal. This is statistically significant at a 10 % level.

It is noteworthy that value-based leaders on the same time are able to use less government programs *and* lay off fewer employees. Since the government furlough programs typically works as an alternative to lay off employees, the stakeholder focus of the value-based leaders appear to help avoiding layoffs without the government aid. This is consistent with the notion that value-based leadership function as a guideline in unprecedented situations where experience based leadership is less valuable.

5.2   Value-based Leadership and organizational climate in normal times

Value-based leadership does not only help as a guidance in unprecedented times, it also serves as a coordination device in normal times. When the CEOs have strong values that penetrate the firms they lead, it serves as a cultural focus point and become a benchmark for what is expected from employees in the firm.

[INSERT TABLE 10 ABOUT HERE]

Table 10 shows the relationship between value-based leadership and organizational climate in the firm. We reproduce the specification of equation 1, with measures of organizational climate as our dependent variables. We control for the CEO's age, gender, and a dummy for whether she holds a university degree, as well as for the firm number of employees, total assets, and 1-digit industry fixed effects. All time-varying variables are averaged based on years 2013-2015, and variables definitions are given in table 13. Our first climate measure is a variable based on a survey question that asked the CEO to indicate whether there had been serious conflicts in the firm in the last three years. Column (1) shows that the VBL factor is statistically significant at the 1 % level and is economically meaningful. Moving from the 10th to 90th percentile on the VBL factor is associated

with a 7 ppt (83%) reduction in reported serious conflicts (-0.025 x (1.27 - (-1.57))/0.086). In Column (2) we confirm this result using the VBL index.

While it is remarkable that value-based leaders report less conflicts, we investigate this relationship using objective proxies for organizational climate. We focus on employee turnover, excluding from this measure employees with top management positions. We claim that employee turnover is a good proxy for organizational climate since lower turnover implies that there are less employees leaving the firm. As an additional measure, we build an indicator variable equal to one if the firm experienced a high turnover event (turnover rate > 50%) at some point during the sample period.

Columns (3) and (4) of Table 10 show the correlation between employee turnover and value-based leadership. There is a negative correlation between the VBL factor and employee turnover, significant at the 5 % level. This result is confirmed by the use of the VBL index. The relationship is economically meaningful: moving from the 10th to 90th percentile is associated with a 8% reduction in employee turnover (-0.008 x (1.27 - (-1.57))/0.28). We then study high turnover events in Column (5) and (6) and again find a negative correlation between the VBL factor and high turnover events. Moving from the 10th to 90th percentile on the VBL factor is associated with a 16% reduction in the frequency of high turnover events (-0.015 x (1.27 - (-1.57))/0.27). The result is similar when using the VBL index.

To sum up, value-based leadership provides a more harmonious work environment in normal time. This is consistent with the notion that leaders' values can contribute to the formation of an homogeneous – and therefore less conflictual – corporate culture (Kotter and L (1992); Kreps (1990)).

5.3 Value-based Leadership and selecting and incentivizing employees

We next investigate to what extent value-based leaders differ in the employees they hire, and the types of incentives they provide to them. We employ the same specification as equation (1), and investigate a range of outcomes. As in the previous section, we control for the CEO's age, gender, and a dummy for whether she holds a university degree, as well as for the firm number of employees, total assets, and 1-digit industry fixed ef-

fects. All time-varying variables are averaged based on years 2013-2015, and variables definitions are given in table 13.

[INSERT TABLE 11 ABOUT HERE]

First, we explore correlations with gender, age and quality of employees. Results are shown in Table 11. Column (1) and (2) show that value-based leaders are more likely to hire women, even when we control for the sexe of the CEO. The association is statistically significant at the 5% level, and economically meaningful: moving from the 10th to the 90th percentile in VBL factor is associated with a 12% increase in the proportion of female employees (0.015 x (1.27 - (-1.57))/0.34). Columns (3) to (6) show that employees in value-based led firms do not differ in terms of age or quality[32].

[INSERT TABLE 12 ABOUT HERE]

Second, we investigate whether value-based leadership is associated with different types of organizational structures and the use of wage as an incentive device. In the introduction, we suggested that value-based leadership may reduce coordination costs and the need for monitoring in the organization. If this is true, we should observe that value-based leaders run flatter organizations. We document this in Columns (1) and (2) of Table 12. We measure hierarchy through the number of hierarchical layers in the firm[33], and find a negative correlation with the VBL factor. The effect is statistically significant for both measures and implies that moving from the 10th to 90th percentile on the VBL factor is associated with a 6% reduction in the number of hierarchical layers (-0.044 x (1.27 - (-1.57))/2.193). This is consistent with organizational values serving as a coordination device, and thus substituting to formal governance captured through hierarchical structures.

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[32]We use a measure of predicted quality based on earnings regressions for employees at our sample firms. We use the same method to obtain an estimation of the CEO's quality, and describe the method in section 3.1.

[33]For each employees, we use a variable indicating their level of responsibility in the firm, going from 1 (top manager) to 7 (unskilled worker). To obtain a measure of hierarchy, we count the total number of layers represented at the firm level.

In the rest of Table 12, we analyze the correlation between value-based leadership and wage levels (columns (3) and (4)), wage growth (columns (5) and (6)) and wage dispersion (columns (7) and (8)), and find no meaningful impact of stronger values on any of these measures.

6 Conclusion

We have documented that the strength of top leaders' personal values and how these values penetrate the firms they run has important consequences. We argued that value-based leadership is a unique trait of leadership that is higher in family firms and in firms with female leaders. We also documented that it is not correlated with management practice nor with other dimensions of the leader's quality, such as intelligence.

Value-based leadership is positively correlated with firm performance and we find evidence for this being a causal relationship. In our preferred specification, we find that moving up from the 10th to 90th percentile in our value-based leadership measure improves firm performance by 22%.

We provided suggestive evidence that value-based leadership may improve firm performance through several channels. First, value-based leadership can be a guideline for decision-making in unprecedented times. We find value-based led organizations to be more resilient in the current pandemic crisis. Second, value-based leadership creates a more homogeneous work environment in normal times, thus reducing conflicts and employee turnover. Finally, value-based leadership is correlated with a flatter organizational structure, which is consistent with the view that organizational values reduces coordination costs and substitute to formal monitoring of employees.

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7 Tables and Figures

Table 1: Summary Statistics

Panel A of this table reports summary statistics for CEOs in the final sample. Panel B reports summary statistics for corresponding firms. CEO-level characteristics are measured in 2015, and firm-level characteristics are averaged between 2013 and 2015. See Table 13 for definition of variables.

	N	Mean	Med	S.d.
	(1)	(2)	(3)	(4)
Panel A - CEO-Level Characteristics				
Women (%)	1557	.12	0	.33
Age	1557	53.65	53	9.68
Years of education	1543	14.3	14.42	2.2
No degree (%)	1543	.13	0	.34
Student degree (%)	1543	.55	1	.5
University degree (%)	1543	.32	0	.47
Tenure > 10 years	1551	.84	1	.37
Income (K DKK)	1557	534.29	454.64	873.39
Log(income)	1540	6.13	6.12	.64
VBL factor	1557	-.05	.13	1.19
Panel B - Firm-Level Characteristics				
OROA	1447	.08	.07	.13
Net income/ assets	1447	.06	.05	.1
Firm age (years)	1557	17.06	14	10.83
A/S type (%)	1557	.41	0	.49
Assets (K DKK)	1447	15100.87	4608.33	80931.88
Log(assets)	1447	8.57	8.44	1.22
Number of employees	1557	14.34	7.33	56.43
Log(employees)	1557	2.14	1.99	.83
Board of directors (%)	1557	.49	0	.5
Founder CEO (%)	879	.74	1	.44
3 family directors (%)	884	.26	0	.44

Table 2: VBL and founder/ family-managed firms

This table shows correlations between the VBL factor and firm characteristics. All columns report linear regressions in which the dependent variable is the VBL factor. All regressions include 1-digit industry fixed effects. Clustered standard errors at the industry level. *, **, and *** denote significance at 10%, 5%, and 1% respectively.

Dependent Variable:	VBL factor (1)	VBL index (2)	VBL factor (3)	VBL index (4)	VBL factor (5)	VBL index (6)
Log(av. employees)	0.055 (0.051)	0.022 (0.023)	0.073 (0.065)	0.022 (0.028)	0.037 (0.055)	0.009 (0.021)
Log(av. assets)	0.011 (0.029)	0.000 (0.014)	-0.013 (0.024)	-0.016 (0.014)	0.027 (0.021)	0.015 (0.010)
Firm Age	0.003 (0.001)	0.001 (0.001)	-0.003 (0.006)	-0.003 (0.003)	0.003 (0.002)	0.002 (0.001)
Board of directors	-0.011 (0.063)	-0.007 (0.031)	-0.062 (0.088)	-0.031 (0.035)	-0.066 (0.124)	-0.013 (0.068)
Founder			0.155* (0.074)	0.052 (0.041)		
3 family directors					0.181**	0.082*
1-digit industry F.E	✓	✓	✓	✓	✓	✓
Mean of D.V	-.049	4.233	-.049	4.233	-.049	4.233
Adj. R2	.006	.005	.003	.005	.002	0
Firms	1447	1447	815	815	817	817

35

Table 3: VBL, relational contracts, and management practices

Columns 1 to 5 of this table shows the results from an ordered logit model in which the dependent variable is the CEO's response to the question "As a director of your company, how loyal do you feel to the following stakeholders in the company?". Possible responses are: 5 Agree a lot; 4 Agree; 3 Neither nor; 2 Disagree, 1 Disagree a lot. Panel A shows estimated coefficients, and Panel B shows the marginal effect of the VBL factor on the probability to answer "Agree a lot" to the question. In column 6, the dependent variable is the management score, and the model is estimated using OLS. All columns include controls for the CEO's gender, age, level of education, as well as other personal values. Robust standard errors. *, **, and *** denote significance at 10%, 5%, and 1% respectively.

Panel A: Regression coefficients

Dependent variable:	Relational contracts					Management score	
	Customers	Employees	Owners	Suppliers	Banks		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VBL factor	0.677***	0.598***	0.407**	0.330***	0.258**	0.004	
	(0.157)	(0.156)	(0.174)	(0.124)	(0.120)	(0.014)	
VBL index							0.000
							(0.024)
Women	1.079	-0.359	0.080	-0.492	-0.726	-0.091**	-0.089**
	(0.879)	(0.529)	(0.795)	(0.441)	(0.443)	(0.042)	(0-042)
Age	-0.012	-0.013	-0.025	0.007	0.023	-0.002	-0.002
	(0.022)	(0.021)	(0.021)	(0.019)	(0.018)	(0.001)	(0.001)
Education	-0.064	-0.004	0.021	-0.124	-0.101	0.009*	0.009*
	(0.087)	(0.090)	(0.084)	(0.078)	(0.083)	(0.005)	(0.005)
Dishonesty	-0.141	-0.348**	-0.148	-0.090	0.033	0.007	0.007
	(0.138)	(0.141)	(0.139)	(0.113)	(0.142)	(0.010)	(0.010)
Altruism	0.106	0.398**	0.124	0.304	0.410**	0.007	0.007
	(0.214)	(0.187)	(0.187)	(0.190)	(0.192)	(0.014)	(0.014)
Nationalism	0.003	-0.139	0.028	-0.185	-0.162	-0.016	-0.016
	(0.149)	(0.162)	(0.161)	(0.129)	(0.142)	(0.011)	(0.011)
Religiosity	-0.070	0.109	-0.051	0.211	0.072	-0.016	-0.016
	(0.198)	(0.215)	(0.198)	(0.150)	(0.133)	(0.011)	(0.011)
Trust	0.214	-0.107	-0.030	-0.025	0.112	-0.001	-0.000
	(0.138)	(0.129)	(0.138)	(0.116)	(0.118)	(0.008)	(0.008)
Politics	-0.081	-0.041	0.151	-0.183	-0.130	0.032***	0.033***
	(0.175)	(0.162)	(0.189)	(0.163)	(0.157)	(0.011)	(0.011)

Panel B: Corresponding marginal effects on Pr(answer=5)

VBL factor	**0.130***	**0.115***	**0.074**	**0.063***	**0.054**		
	(0.025)	(0.026)	(0.030)	(0.024)	(0.026)		

Observations	175	175	175	175	175	175	175
Pseudo R2	0.098	0.095	0.041	0.047	0.047		
Adj R2						0.060	0.060

Table 4: VBL and firm performance

Table 4 shows correlations between VBL and measures of firm performance. In columns (1) to (5), the dependant variable is the firm average OROA based on years 2013-2015. In column (6) and (7), the dependant variable is the firm average ratio of net income to the total value of assets, based on years 2013-2015. In column (8) and (9), the dependant variable is the standard deviation of OROA based on years 2013-2015. The VBL factor is our measure of VBL based on factor analysis, and the VBL index is our measure of VBL based on the average of survey questions. Columns (2) to (9) include the CEO's gender, age, level of education, as well as the firm's total assets, number of employees, and 2-digit industry fixed effects. Standard errors are clustered at the industry level. *, **, and *** denote significance at 10%, 5%, and 1% respectively.

Dependent variable:	OROA					Net income/ assets		sd(OROA)	
	All firms	All firms		10+ employees firms		All firms		All firms	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VBL Factor	0.006***	0.005**		0.012**		0.004**		-0.004*	
	(0.002)	(0.002)		(0.005)		(0.002)		(0.002)	
VBL Index			0.010***		0.023**		0.008***		-0.005
			(0.003)		(0.009)		(0.003)		(0.003)
gender		0.015	0.015	0.033**	0.033**	0.012	0.012	0.006	0.006
		(0.010)	(0.010)	(0.015)	(0.015)	(0.009)	(0.009)	(0.007)	(0.007)
Age		-0.002***	-0.002***	-0.001**	-0.001*	-0.001***	-0.001***	0.000	0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
University Degree		-0.005	-0.005	-0.011	-0.011	-0.002	-0.002	0.014***	0.014***
		(0.007)	(0.007)	(0.009)	(0.009)	(0.006)	(0.006)	(0.004)	(0.004)
Log(av. assets)		0.003	0.003	0.004	0.004	0.005	0.005	-0.023***	-0.023***
		(0.007)	(0.007)	(0.007)	(0.007)	(0.006)	(0.006)	(0.004)	(0.004)
Log(av. employees)		0.005	0.005	-0.001	-0.001	0.001	0.001	0.012**	0.012**
		(0.008)	(0.008)	(0.011)	(0.011)	(0.007)	(0.007)	(0.005)	(0.005)
2-digit industry F.E		✓	✓	✓	✓	✓	✓	✓	✓
Mean of D.V	.077	.077	.077	.077	.077	.057	.057	.088	.088
Adj. R2	.003	.08	.081	.068	.07	.075	.076	.071	.069
Firms	1447	1435	1435	523	523	1435	1435	1332	1332

Table 5: CEO appointment and change in performance

This table reports change in performances following the appointment of an above-median versus below-median VBL CEO. The sample is restricted to 163 firms for which we observe a change in CEO in the period 2009 to 2015. In columns (1) to (5), the dependent variable is the firm OROA, and in column (6), it is the firm ratio of net income to total assets. In column (1), the analysis is restricted to pre-appointment years, and in columns (2) to (6), the analyses use all available years of data in the pre- and post appointment periods. Firm controls include the logarithm of number of employees and total assets. Standard errors are clustered at the firm level. *, **, and *** denote significance at 10%, 5%, and 1% respectively.

Dependent variable:	OROA					Net income/ assets
	(1)	(2)	(3)	(4)	(5)	(6)
Trend	-0.003 (0.005)					
VBL indicator	-0.007 (0.023)					
Trend × VBL indicator	0.004 (0.008)					
After appointment		-0.016 (0.014)				
After appointment × VBL indicator		0.043* (0.022)	0.043* (0.022)	0.045** (0.022)		0.042** (0.018)
After appointment × VBL indicator (index)					0.049** (0.022)	
Firm F.E		✓	✓	✓	✓	✓
Period F.E			✓	✓	✓	✓
Firm controls				✓	✓	✓
Mean of D.V.	.095	.095	.095	.095	.095	.071
Adj. R2	-.004	.003	.002	.008	.008	.009
Observations	704	1253	1253	1236	1236	1235
Firms	161	163	163	163	163	163

Table 6: Effect of CEO hospitalization

This table reports the effect of hospitalization of VBL-oriented versus low VBL CEOs. We keep the same sample period as in the previous analysis (2009 to 2015) and restrict the sample to firm-year observations in which the current CEO was at the helm of the firm. We further restrict the sample to 380 firms where the CEO was hospitalized at least once but no more than twice during the sample period. In columns (1) to (4), the dependent variable is the firm OROA, and in column (5), it is the firm ratio of net income to total assets. Firm controls include the logarithm of number of employees and total assets. Standard errors are clustered at the firm level. *, **, and *** denote significance at 10%, 5%, and 1% respectively.

Dependent variable:	OROA				Net income/ assets
	(1)	(2)	(3)	(4)	(5)
Hospitalization event, t	-0.008 (0.007)	-0.001 (0.007)	-0.000 (0.007)	0.016 (0.011)	0.001 (0.006)
Hospitalization event, t $\times$ VBL factor	-0.013* (0.007)	-0.013* (0.007)	-0.014** (0.007)		-0.014** (0.006)
Hospitalization event, t $\times$ VBL index				-0.030** (0.015)	
Firm F.E	✓	✓	✓	✓	✓
Year F.E		✓	✓	✓	✓
Firm controls			✓	✓	✓
Mean of D.V.	.063	.063	.063	.063	.049
Adj. R2	.001	.027	.034	.034	.035
Observations	3114	3114	3071	3071	3068
Firms	380	380	380	380	380

Table 7: Placebo analysis

This table reports the effect of future first-time hospitalization of VBL-oriented versus low VBL CEOs. We further restrict the sample to first-time hospitalization events, which corresponds to 323 firms out of the 380 under study previously. The dependent variable is the firm OROA. Firm controls include the logarithm of number of employees and total assets. Standard errors are clustered at the firm level. *, **, and *** denote significance at 10%, 5%, and 1% respectively.

Dependent variable:	OROA	
	(1)	(2)
Hospitalization event, t+1	0.002	
	(0.009)	
Hospitalization event, t+1 × VBL factor	-0.004	
	(0.007)	
Hospitalization event, t+2		0.007
		(0.010)
Hospitalization event, t+2 × VBL factor		-0.001
		(0.008)
Firm F.E	✓	✓
Year F.E	✓	✓
Firm controls	✓	✓
Mean of D.V.	.064	.064
Adj. R2	.026	.026
Observations	2566	2566
Firms	323	323

Table 8: VBL and firm performance, controlling for additional personal characteristics

Table 8 shows correlations between VBL and measures of firm performance. In columns (1) to (5), the dependant variable is the firm average OROA based on years 2013-2015. In column (6) and (7), the dependant variable is the firm average ratio of net income to the total value of assets, based on years 2013-2015. In column (8) and (9), the dependant variable is the standard deviation of OROA based on years 2013-2015. The VBL factor is our measure of VBL based on factor analysis, and the VBL index is our measure of VBL based on the average of survey questions. Columns (2) to (9) include the CEO's gender, age, level of education, as well as the firm's total assets, number of employees, and 2-digit industry fixed effects. All columns include other values from the survey, marital status, number of children, number of daughters, income, and an indicator variable for whether the CEO's tenure is above 10 years. Standard errors are clustered at the industry level. *, **, and *** denote significance at 10%, 5%, and 1% respectively.

Dependent variable:	OROA					Net income/ assets		sd(OROA)	
	All firms	All firms		10+ employees firms		All firms		All firms	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VBL Factor	0.008***	0.006**		0.011**		0.005**		-0.003	
	(0.002)	(0.003)		(0.005)		(0.002)		(0.003)	
VBL Index			0.012***		0.021**		0.010**		-0.004
			(0.004)		(0.008)		(0.004)		(0.005)
gender		0.015	0.015	0.031*	0.031**	0.010	0.010	-0.000	-0.000
		(0.011)	(0.011)	(0.016)	(0.015)	(0.011)	(0.011)	(0.007)	(0.007)
Age		-0.002***	-0.002***	-0.001**	-0.001**	-0.001***	-0.001***	0.000	0.000
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
University Degree		-0.008	-0.008	-0.017*	-0.017*	-0.004	-0.005	0.015***	0.015***
		(0.007)	(0.007)	(0.009)	(0.009)	(0.006)	(0.006)	(0.004)	(0.004)
Log(av. assets)		-0.004	-0.004	-0.006	-0.006	-0.001	-0.001	-0.025***	-0.025***
		(0.006)	(0.006)	(0.008)	(0.008)	(0.005)	(0.005)	(0.005)	(0.005)
Log(av. employees)		0.003	0.004	-0.004	-0.004	-0.000	-0.000	0.010*	0.010*
		(0.008)	(0.008)	(0.012)	(0.012)	(0.007)	(0.007)	(0.005)	(0.005)
2-digit industry F.E		✓	✓	✓	✓	✓	✓	✓	✓
Other values		✓	✓	✓	✓	✓	✓	✓	✓
Family characteristics		✓	✓	✓	✓	✓	✓	✓	✓
Professional characteristics		✓	✓	✓	✓	✓	✓	✓	✓
Mean of D.V	.077	.077	.077	.077	.077	.057	.057	.088	.088
Adj. R2	.038	.101	.102	.091	.093	.095	.096	.079	.078
Firms	1303	1294	1294	484	484	1294	1294	1202	1202

Table 9: VBL and resilience in pandemic crisis

This table shows the results of models relating VBL and management during the COVID19 crisis. In columns (1) to (4), the dependent variable is the CEO's response to the question "Which of the following considerations has been important in your management decisions during the COVID19 crisis?". Possible responses are: 1 Not at all important; 2 not important; 3 important; 4 very important; and the regressions are estimated using an ordered logit model. In columns (5) and (6), the dependent variables are a dummy for whether the CEO used the possibility of being exempted of sickness contribution and for whether one or more employees were dismissed during the crisis, respectively. The regressions are estimated using a logit model. Panel A displays regression coefficients, and panel B displays corresponding marginal effect of the VBL factor on the probability of answering "Very important" to the question in columns (1) to (4) and on the probability of being exempted of sickness contribution, and on the probability of dismissal in columns (5) and (6), respectively. Robust standard errors. *, **, and *** denote significance at 10%, 5%, and 1% respectively.

Panel A: Regression coefficients						
Dependent variable:	Priorities				Sick Package	Dismissal
	Community	Employees	Customers	Survival		
VBL factor	0.308***	0.198**	0.201**	0.102	-0.338**	-0.290*
	(0.090)	(0.083)	(0.081)	(0.090)	(0.139)	(0.150)
Women	0.264	0.162	0.181	0.046	0.517	-0.136
	(0.283)	(0.304)	(0.279)	(0.316)	(0.460)	(0.542)
Age	-0.022**	-0.010	-0.020*	-0.011	-0.005	-0.025
	(0.011)	(0.011)	(0.011)	(0.012)	(0.021)	(0.019)
Education	-0.005	-0.006	0.001	0.007	0.001	0.011
	(0.004)	(0.004)	(0.004)	(0.005)	(0.007)	(0.007)
Log(N employees)	-0.200**	-0.091	-0.090	-0.050	0.542***	0.517***
	(0.082)	(0.087)	(0.086)	(0.126)	(0.133)	(0.135)
Panel B: Marginal effects on Pr(dummy=1)						
VBL factor	0.063***	0.047**	0.048**	0.020	-0.026**	-0.029**
	(0.018)	(0.019)	(0.019)	(0.017)	(0.011)	(0.015)
1-digit industry F.E	✓	✓	✓	✓	✓	✓
Observations	453	451	453	452	455	403
Pseudo R2	0.051	0.027	0.018	0.047	0.087	0.094

Table 10: VBL and organizational climate

Table 10 shows correlations between VBL and measures of organizational climate. All time-varying variables are averaged based on years 2013-2015. In column (1) and (2), the dependent variable is an indicator equal to 1 if the CEO reported conflicts in the firm (information based on the following survey question: *"Have there been serious conflicts between owner(s) and management that have significantly affected the company's operations, eg by blocking effective decision making?"*). In column (3) and (4), the dependent variable is the turnover rate of employees, excluding employees with management responsibilities. In column (5) and (6), the dependent variable is a dummy equal to one if the firm experienced a high turnover event (turnover rate > 50%) at some point during the sample period. All columns include the CEO's gender, age, level of education, as well as the firm's total assets, number of employees, and 1-digit industry fixed effects. *, **, and *** denote significance at 10%, 5%, and 1% respectively. Standard errors are clustered at the industry level.

Dependent variable:	Conflict		Turnover (exc. top management)		High turnover event	
	(1)	(2)	(3)	(4)	(5)	(6)
VBL Factor	-0.025***		-0.008**		-0.015*	
	(0.006)		(0.003)		(0.007)	
VBL Index		-0.041**		-0.021**		-0.036**
		(0.012)		(0.007)		(0.015)
Sexe	0.004	0.003	0.021	0.022	0.058	0.059
	(0.031)	(0.030)	(0.014)	(0.015)	(0.034)	(0.034)
Age	-0.001	-0.001	0.000	0.000	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
University Degree	0.024	0.024	-0.004	-0.004	0.018	0.018
	(0.027)	(0.027)	(0.018)	(0.018)	(0.022)	(0.022)
Log(av. assets)	0.013*	0.013*	-0.029	-0.030	-0.038	-0.039
	(0.006)	(0.006)	(0.017)	(0.017)	(0.025)	(0.025)
Log(av. employees)	0.013	0.013	0.014	0.014	-0.036	-0.036
	(0.014)	(0.014)	(0.025)	(0.025)	(0.040)	(0.040)
1-digit industry F.E	✓	✓	✓	✓	✓	✓
Mean of D.V.	.086	.086	.277	.277	.268	.268
Adj. R2	.022	.02	.028	.03	.041	.042
Firms	1407	1407	1310	1310	1310	1310

Table 11: VBL and selection of employees

Table 11 shows correlations between VBL and the composition of employees along several dimensions. All time-varying variables are averaged based on years 2013-2015. In column (1) and (2), the dependent variable is the proportion of female employees. In column (3) and (4), the dependent variable is the average age of employees. In column (5) and (6), the dependent variable is the average predicted quality of employees based on earnings regressions. All columns include the CEO's gender, age, level of education, as well as the firm's total assets, number of employees, and 1-digit industry fixed effects. *, **, and *** denote significance at 10%, 5%, and 1% respectively. Standard errors are clustered at the industry level.

Dependent variable:	Prop. women		Av. age		Av. predicted quality	
	(1)	(2)	(3)	(4)	(5)	(6)
VBL Factor	0.015**		-0.220		0.001	
	(0.006)		(0.223)		(0.005)	
VBL Index		0.031**		-0.483		0.004
		(0.012)		(0.431)		(0.010)
Sexe	0.185**	0.184**	2.038***	2.046***	-0.052	-0.052
	(0.057)	(0.056)	(0.325)	(0.323)	(0.028)	(0.028)
Age	0.003***	0.003***	0.195***	0.195***	0.001	0.001
	(0.001)	(0.001)	(0.023)	(0.023)	(0.001)	(0.001)
University Degree	0.037	0.037	0.081	0.084	0.031	0.031
	(0.031)	(0.031)	(0.525)	(0.525)	(0.025)	(0.025)
Log(av. assets)	-0.031*	-0.031*	2.388***	2.386***	0.114**	0.114**
	(0.016)	(0.016)	(0.560)	(0.560)	(0.040)	(0.040)
Log(av. employees)	0.013	0.013	-3.517**	-3.520**	-0.098	-0.098
	(0.022)	(0.022)	(1.019)	(1.026)	(0.062)	(0.062)
1-digit industry F.E	✓	✓	✓	✓	✓	✓
Mean of D.V.	.344	.344	40.774	40.774	12.293	12.293
Adj. R2	.24	.241	.164	.165	.195	.195
Firms	1435	1435	1434	1434	1432	1432

Table 12: VBL and organizational incentives

Table 12 shows correlations between VBL and measures of organizational structure and incentives. All time-varying variables are averaged based on years 2013-2015. In columns (1) and (2), the dependent variable is the number of hierarchical layers in the firm. In columns (3) and (4), the dependent variable is the logarithm of the average real wage in the firm. In columns (5) and (6), the dependent variable is real wage growth in the firm. In columns (7) and (8), the dependent variable is the standard deviation of real wages in the firm. All columns include the CEO's gender, age, level of education, as well as the firm's total assets, number of employees, and 1-digit industry fixed effects. *, **, and *** denote significance at 10%, 5%, and 1% respectively. Standard errors are clustered at the industry level.

Dependent variable:	Hierarchy		Log(av. wage)		Av. wage growth		Wage dispersion	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VBL Factor	-0.044**		0.002		0.004		-0.000	
	(0.017)		(0.009)		(0.003)		(0.009)	
VBL Index		-0.082**		0.009		0.007		0.004
		(0.026)		(0.015)		(0.005)		(0.014)
Sexe	0.099	0.099	-0.105*	-0.106*	-0.024**	-0.024**	0.008	0.008
	(0.071)	(0.071)	(0.052)	(0.052)	(0.008)	(0.008)	(0.017)	(0.018)
Age	0.004**	0.004**	0.001	0.001	-0.002***	-0.002***	-0.003	-0.003
	(0.002)	(0.002)	(0.001)	(0.001)	(0.000)	(0.000)	(0.002)	(0.002)
University Degree	0.181***	0.182***	0.036	0.036	0.001	0.001	0.044	0.044
	(0.042)	(0.042)	(0.066)	(0.066)	(0.009)	(0.009)	(0.044)	(0.044)
Log(av. assets)	0.170***	0.169***	0.191***	0.191***	-0.035**	-0.035**	-0.079*	-0.079*
	(0.033)	(0.034)	(0.049)	(0.049)	(0.013)	(0.013)	(0.036)	(0.036)
Log(av. employees)	1.079***	1.078***	-0.088	-0.088	0.072**	0.072**	0.085	0.084
	(0.117)	(0.118)	(0.058)	(0.057)	(0.021)	(0.021)	(0.046)	(0.046)
1-digit industry F.E	✓	✓	✓	✓	✓	✓	✓	✓
Mean of D.V.	2.193	2.193	12.461	12.461	.122	.122	.767	.767
Adj. R2	.632	.632	.271	.271	.104	.104	.053	.053
Firms	1352	1352	1435	1435	1420	1420	1412	1412

Table 13: Definition of Variables

Variable	Description	Source
CEO characteristics		
Women	Variable is equal to 1 if the CEO is a woman, and 0 if it is a man	Administrative registers
Age	CEO's age	Administrative registers
Years of education	Total duration of education in years	Administrative registers
No degree	Variable is equal to 1 if the CEO does not have any degree, and 0 otherwise	Administrative registers
Student degree	Variable is equal to 1 if the CEO has a student degree, and 0 otherwise	Administrative registers
University degree	Variable is equal to 1 if the CEO has a university degree, and 0 otherwise	Administrative registers
Tenure $\geq$ 10	Variable is equal to 1 if the CEO has spent 10 years or more in the company, and 0 otherwise	Business registers
Income	CEO's total income	Administrative registers
Log(income)	Logarithm of the CEO's total income	Administrative registers
VBL factor	Value-based leadership score, based on factor analysis	CEO survey
VBL index	Value-based leadership score, based on average of survey questions	CEO survey
Politics factor	Political engagement score, based on factor analysis	CEO survey
Altruism factor	Altruism score, based on factor analysis	CEO survey
Trust	Trust score, based on factor analysis	CEO survey
Religiosity	Religiosity score, based on factor analysis	CEO survey
Nationalism	Nationalism score, based on factor analysis	CEO survey
Dishonesty	Dishonesty tolerance score, based on factor analysis	CEO survey
Hospitalization event	Variable equal to 1 if the CEO was hospitalized in a given year, and 0 otherwise	Administrative registers
Priority: community	Answer to the question: "Which of the following considerations has been important in your management decisions during the COVID19 crisis? Community - 1: Not at all important - 2: not important - 3: important - 4: very important	Covid survey
Priority: employees	Employees' health and economy - 1: Not at all important - 2: not important - 3: important - 4: very important	Covid survey
Priority: customers	Customers - 1: Not at all important - 2: not important - 3: important - 4: very important	Covid survey
Priority: survival	Company's survival - 1: Not at all important - 2: not important - 3: important - 4: very important	Covid survey
Firm characteristics		
OROA	Ratio of pre-tax earnings on the book value of total assets	Accounting register
Net Income/Assets	Ratio earnings net of taxes to the book value of total assets	Accounting register
Firm's age	Age of the firm	Business register
A/S type	Variable equal to 1 if the firm is an A/S, and 0 if it is an ApS	Business register
Assets	Book value of total assets	Accounting register
Log(av. assets)	Logarithm of the book value of total assets	Accounting register
Employees	Number of employees	Accounting register
Log(av. employees)	Logarithm of the number of employees	Accounting register
Board of directors	Variable equal to 1 if the firm has a board of directors, and 0 otherwise	Business register
Founder CEO	Variable equal to 1 if the CEO is the founder of the firm, and 0 otherwise	Business register
3 family directors	Variable equal to 1 if 3 or more family members seat at the board of directors, and 0 otherwise	Business register
Sick package	Variable equal to one if the CEO has indicated that the company used government aid programs to furlough employees during the COVID crisis, and 0 otherwise	Covid survey
Dismissal	Variable equal to one if the CEO has indicated that the company dismissed employees during the COVID crisis, and 0 otherwise	Covid survey
Conflict	Variable equal to 1 if the CEO answered "yes" to the question: "Have there been serious conflicts that have significantly affected the company's operations, e.g. by blocking effective decision making?", and 0 otherwise	CEO survey
Turnover	Employees turnover rate, excluding top management	Accounting register
High turnover event	Variable equal to 1 if the company experienced a high turnover event (turnover rate > 50%) during the sample period, and 0 otherwise	Accounting register
Proportion women	Share of women among the company's employees	Accounting+Administrative registers
Average age	Average age of the company's employees	Accounting+Administrative registers
Average predicted quality	Average predicted quality of the company's employees, based on earnings regressions	Accounting+Administrative registers
Hierarchy	Number of hierarchical layers in the company	Accounting+Administrative registers
Log(av. wage)	Logarithm of average wage at the company	Accounting register
Average wage growth	Average wage growth at the company	Accounting register
Wage dispersion	Wage dispersion at the company	Accounting register

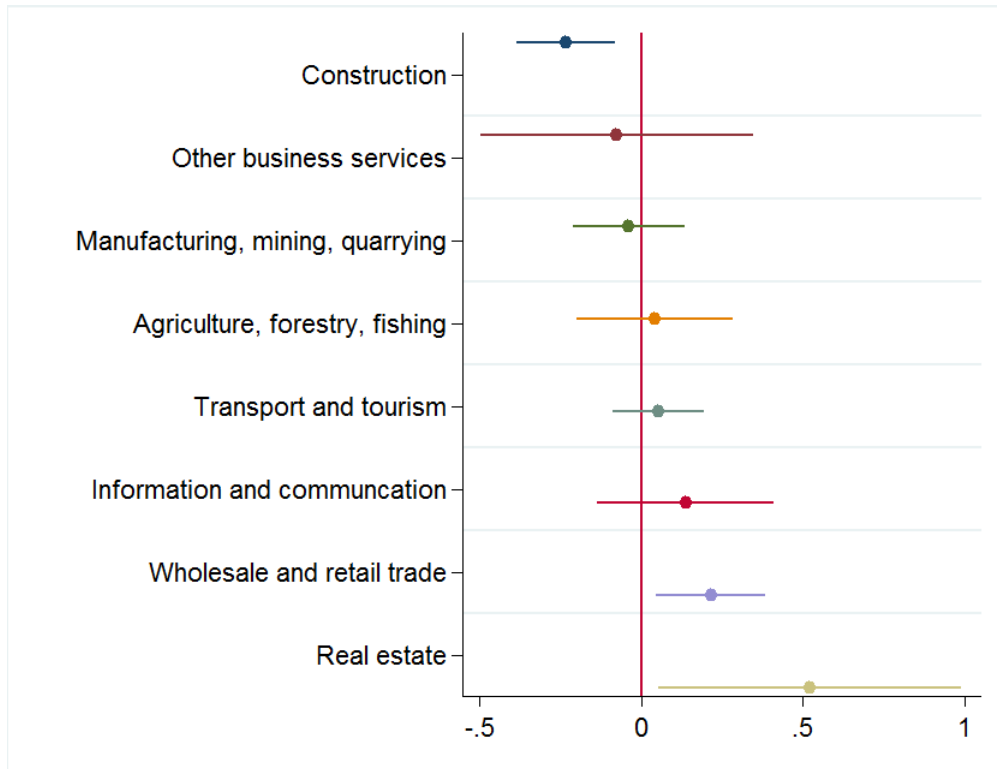## Figure 1: Average VBL factor by 1-digit industry

Figure 1 plots the coefficients and 95% confidence intervals from a projection of VBL factor on a complete set of sector dummies without a constant.

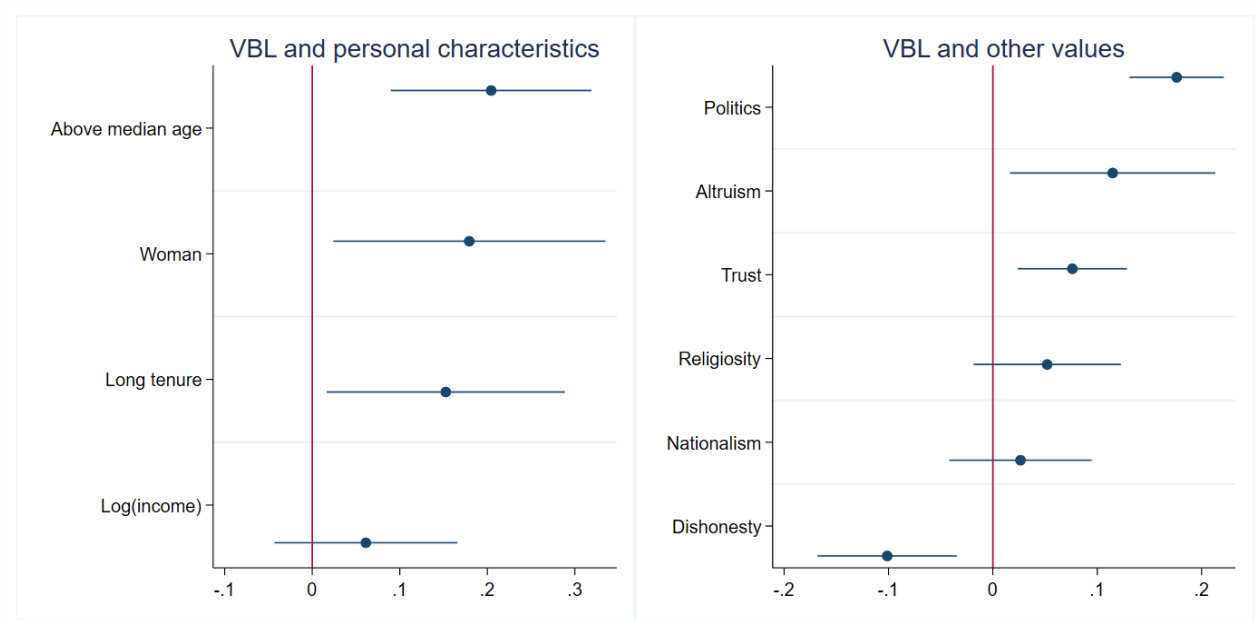Figure 2: VBL, personal characteristics, and values

Figure 2 shows coefficients and 95% confidence intervals obtained when regressing the VBL factor on each variable separately. All regressions include 1-digit industry fixed effects. Standard errors clustered at the industry level.

Figure 3: VBL and CEO ability - binned scatter plots of regression results
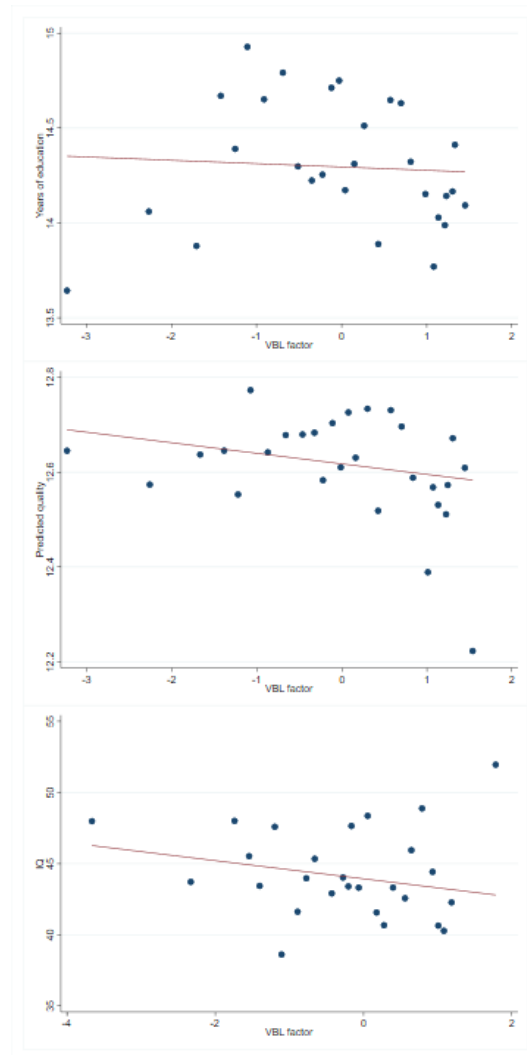
Figure 3 shows binned scatter plots that correspond to the regressions or different measures of the CEO's ability on the VBL factor. All regressions include 1-digit industry fixed effects. Data are plotted using bins by 20 quintiles sorted on the VBL factor. The red lines plots the predicted values from bivariate linear regressions. The first, second, and third rows display regressions of the number of years of education, the predicted quality, and a measure of IQ, respectively.

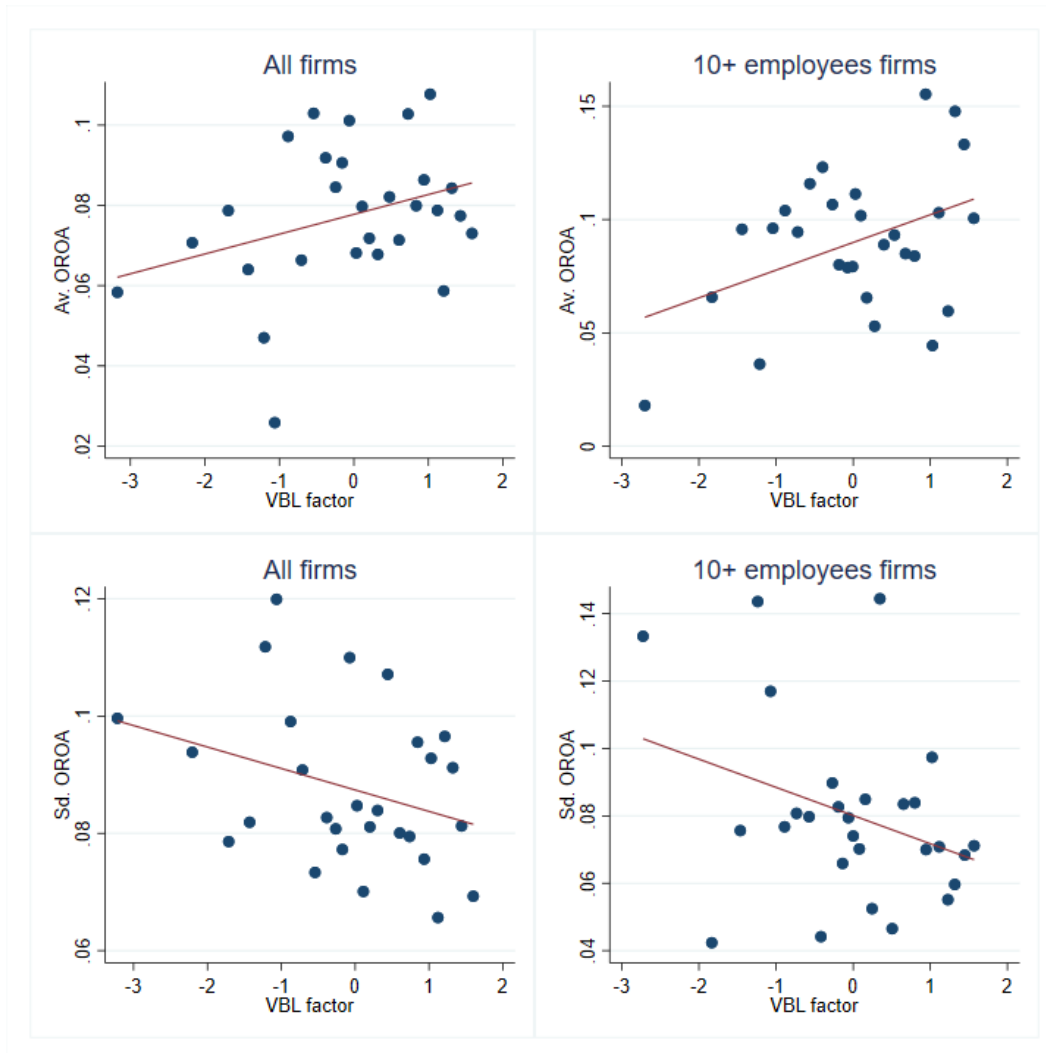Figure 4: VBL and firm performance - binned scatter plots of regression results

Figure 4 shows binned scatter plots that correspond to the regressions in table 4. Data are plotted using bins by 20 quintiles sorted on the VBL factor. The red lines plots the predicted values from bivariate linear regressions. Regressions of average OROA and standard deviation of OROA on the VBL factor are displayed in the first and second row, respectively. Graphs on the left display results using all firms in the sample, and graphs on the right display results using only firms with at least 10 employees.

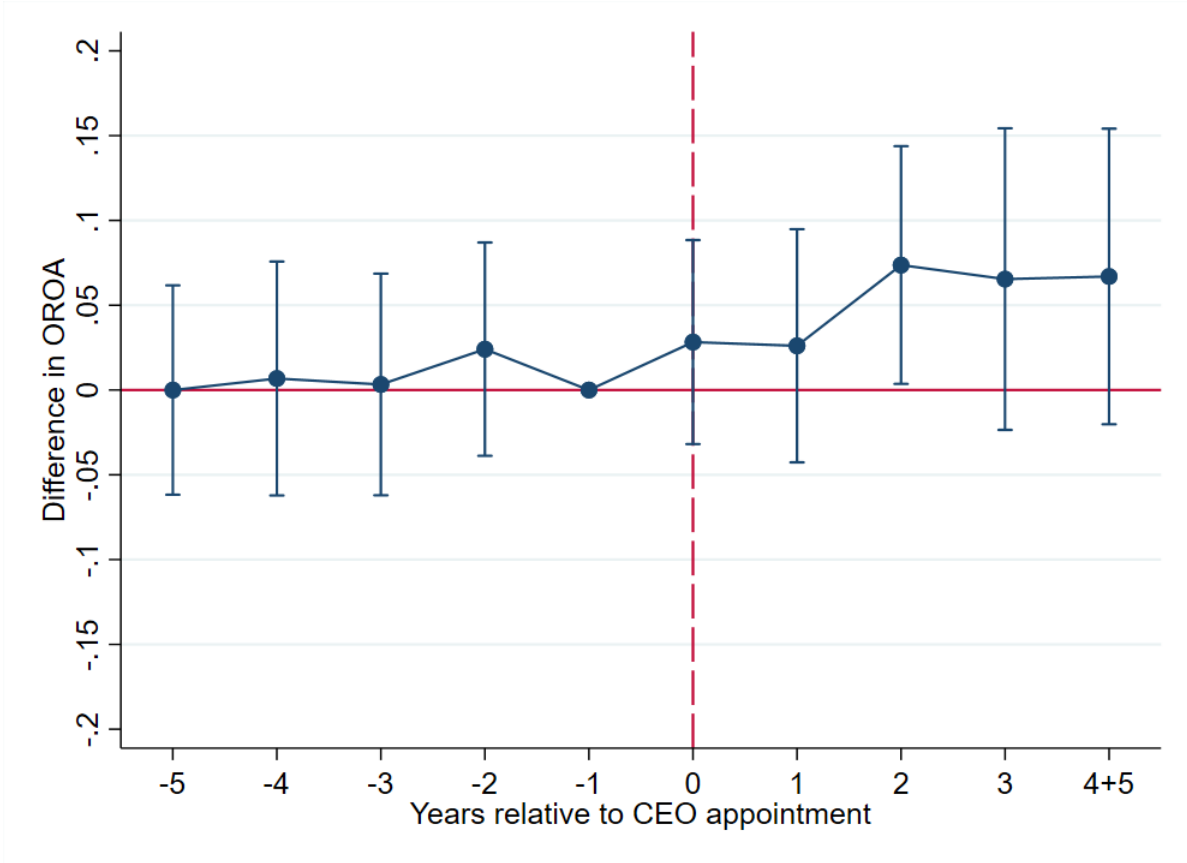Figure 5: Difference in OROA between firms hiring a high-VBL and a low-VBL CEO

Figure 5 shows coefficients and 95% confidence intervals from a regression of OROA on the high-VBL indicator interacted with each time-period dummy. The reference period is -1, i.e, 1 year before the CEO was appointed. The model includes time-varying controls for firm size (logarithm of total assets and number of employees), period fixed effects and firm fixed effects. Standard errors are clustered at the firm level. Due to low number of observations, time periods 4 and 5 (respectively 4 and 5 years after the CEO appointment) are pooled together

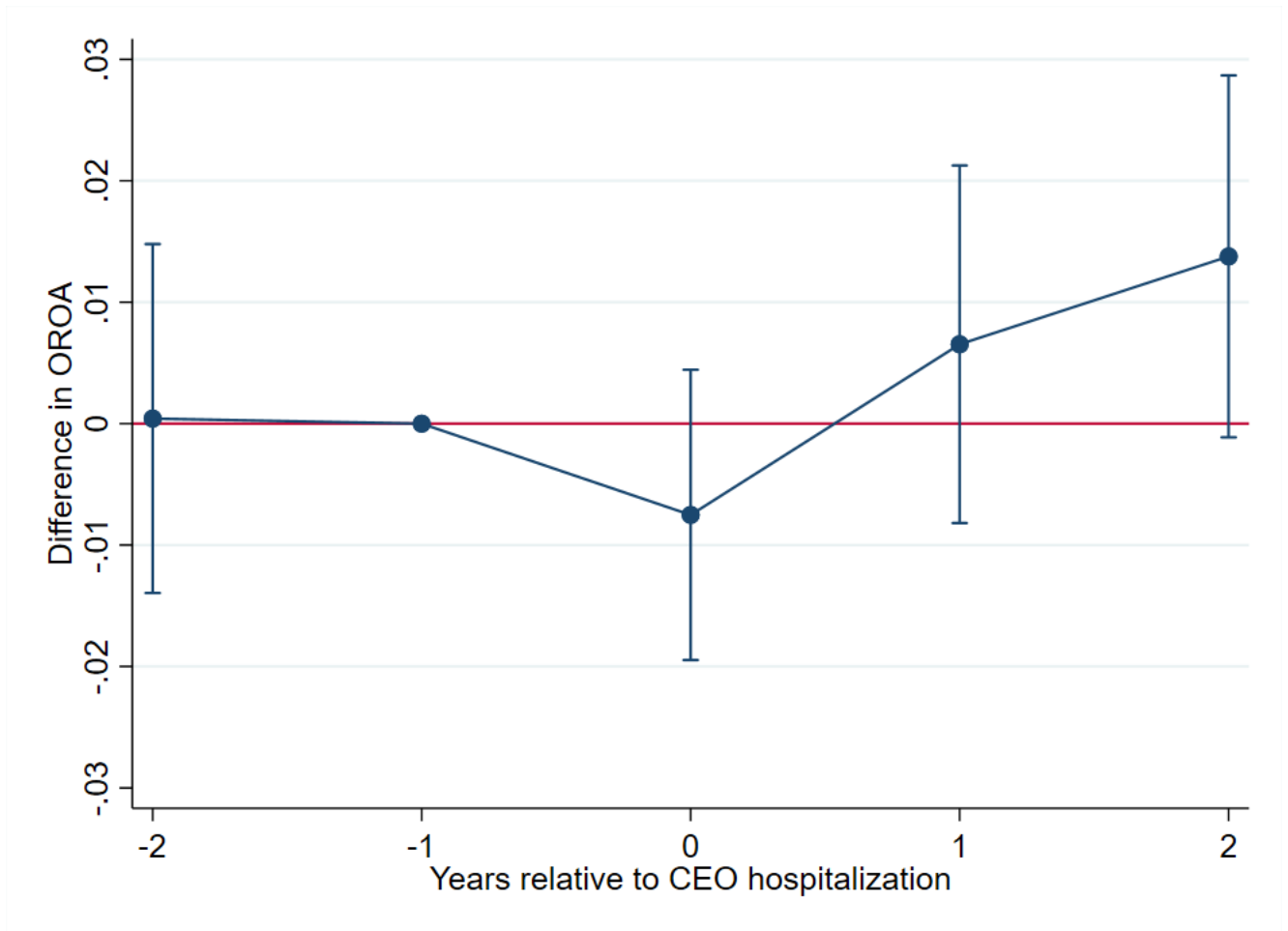Figure 6: Difference in OROA between VBL-oriented and low-VBL CEOs around hospitalization events

Figure 10 shows coefficients and confidence intervals from a regression of OROA on the VBL factor interacted with each time-period dummy. The reference period is -1, i.e, 1 year before the CEO was hospitalized. The model includes the logarithm of number of employees and total assets, as well as year fixed effects. Standard errors are clustered at the firm level.

Appendix A   Survey questions

Table 14: Survey questions

Values Section	Scale
To what extent is there a clear, focused and well-defined leadership in this company?	1: Not at all - 5: Greatly
To what extent are the management values visible to the employees and are present in the company?	1: Not at all - 5: Greatly
To what extent do you think that your personal values are important to the company's operation?	1: Not at all - 5: Greatly
To what extent do you think that your children and other family members share your values?	1: Not at all - 5: Greatly
To what extent do you consider yourself as religious?	1: Not at all - 5: Greatly
To what extent is your family cohesive and united?	1: Not at all - 5: Greatly
To what extent is the business operation based on strong moral values, eg. keeping words, treating employees, customers and suppliers well?	1: Not at all - 5: Greatly
To what extent are each of the following areas important to your life? - Work	1: Not at all - 5: Greatly
To what extent are each of the following areas important to your life? - Family	1: Not at all - 5: Greatly
To what extent are each of the following areas important to your life? - Friends and acquaintances	1: Not at all - 5: Greatly
To what extent are each of the following areas important to your life? - Leisure	1: Not at all - 5: Greatly
To what extent are each of the following areas important to your life? - Politics	1: Not at all - 5: Greatly
To what extent are each of the following areas important to your life? - Religion	1: Not at all - 5: Greatly
To what extent do you approve these actions? To receive social benefits that you are not entitled to	1: Not at all - 10: Greatly
To what extent do you approve these actions? To cheat with taxes if you have the option	1: Not at all - 10: Greatly
To what extent do you approve these actions? To drive a car that belongs to someone else	1: Not at all - 10: Greatly
To what extent do you approve these actions? That married men and women have a relationship outside marriage	1: Not at all - 10: Greatly
To what extent do you approve these actions? To receive bribery in connections with one's work area	1: Not at all - 10: Greatly
How proud are you to be Danish?	1: Not at all - 5: Greatly
According to you, to what extent each of the following thing is important for a happy marriage? Fidelity	1: Not at all - 5: Greatly
According to you, to what extent each of the following thing is important for a happy marriage? Sufficiently high income	1: Not at all - 5: Greatly
According to you, to what extent each of the following thing is important for a happy marriage? You are from the same social layer	1: Not at all - 5: Greatly
According to you, to what extent each of the following thing is important for a happy marriage? Children	1: Not at all - 5: Greatly
To what extent are you interested in politics?	1: Not at all - 5: Greatly
Where do you want to place your own political stance?	1: Left wing - 10: Right wing
What do you think the government should do? "Let anyone who wants it come into the country"; "Let people come here as long as there are available jobs"; "Have limits on how many foreigners may enter the country"; "Ban people from other countries to enter the country"	1 unique choice among the 4 options

Table 15: Survey questions

Please tell us where on the 1-10 scale your point of view is: immigrants take jobs from Danes?	1: Not at all - 10: Greatly
Please tell us where on the 1-10 scale your point of view is: the country's culture is being undermined by the immigrants?	1: Not at all - 10 :Greatly
Please tell us where on the 1-10 scale your point of view is: immigrants make the problems with crime worse?	1: Not at all - 10: Greatly
To what extent do you agree with the following statement? "Politics today is too little about creating better conditions for small and medium-sized companies in Denmark"	1: Not at all - 5: Greatly
To what extent do you agree with the following statement? "Politics today rarely rely on the Grundvigian tradition of free debate based on man and community"	1: Not at all - 5: Greatly
To what extent do you agree with the following statement? Politics today is too little about social and equality issues	1: Not at all - 5: Greatly
Was politics discussed a lot in your childhood home?	1: Not at all - 5: Greatly
How will you characterize your childhood home politically?	1: Left wing - 10: Right wing
To what extent do you agree with the following statement? "My childhood home was religious and religion was a major part of my childhood"	1: Not at all - 5: Greatly
To what extent do you feel the living conditions of the following groups concern you? Your closest family	1: Not at all - 5: Greatly
To what extent do you feel the living conditions of the following groups concern you? People in the area you live in	1: Not at all - 5: Greatly
To what extent do you feel the living conditions of the following groups concern you? Your countrymen	1: Not at all - 5: Greatly
To what extent do you feel the living conditions of the following groups concern you? Europeans	1: Not at all - 5: Greatly
To what extent do you feel the living conditions of the following groups concern you? The mankind	1: Not at all - 5: Greatly
To what extent do you agree with the following statement? "I would like to give a part of my income if I could make sure the money was spent on preventing pollution"	1: Strongly agree - 5: Strongly disagree
To what extent do you agree with the following statement? Human ingenuity will ensure that it will still be possible to live on earth in 100 years	1: Strongly agree - 5: Strongly disagree
To what extent do you agree with the following statement? If the current tendencies continue we will soon exerience a major environmental disaster	1: Strongly agree - 5: Strongly disagree
To what extent do you trust the following institutions? Humanitarian organizations	1: Not at all - 10: Greatly
To what extent do you trust the following institutions? Unions	1: Not at all - 10: Greatly
To what extent do you trust the following institutions? The police	1: Not at all - 10: Greatly
To what extent do you trust the following institutions? The Danish parliament	1: Not at all - 10: Greatly
To what extent do you agree with the following statement? Adult children have their own lives and should not sacrifice their own well-being for the sake of their parents	1: Strongly agree - 5: Strongly disagree
To what extent do you agree with the following statement? Marriage or a stable relationship is a condition for happiness	1: Strongly agree - 5: Strongly disagree
If we need more information we would like to contact you again, can we do that?	1: Yes agree - 2: No

Appendix B   Factor Analysis

We start by exploring the main underlying dimensions of the variation in survey answers. The survey includes a relatively high numbers of questions, and our prior is that they are multiple noisy measurements of fewer underlying constructs. A question is then, how can we efficiently make use of the available data?

We perform an Exploratory Common Factor Analysis (ECFA) using all items included in the "Values" section of the survey. ECFA is a data reduction technique that extracts the main underlying dimensions from a set of variables while preserving the variance (Gorsuch (2003))[34]. Intuitively, ECFA helps to find variables that correlate sufficiently such that they are measuring the same construct. ECFA has several advantages in our setting. First, it allows to test the existence of underlying constructs in the data. Second, by combining several variables into a unique factor, we are able to use the entirety of the survey in our regressions while reducing problems arising from multicollinearity and measurement error.

Table 16 shows the results of ECFA for the 50 survey items. We obtain seven latent factors with an eigenvalue higher than one[35]. Each cell of table 16 corresponds to a given factor loading on a given item[36]. Factor loadings display a clear pattern: the seven factors have distinct sets of loadings, and few survey items have high loadings on multiple factors. These results are indicative of a clear underlying structure in the data, and support the grouping of survey questions in seven unique factors. In what follow, we discuss the salience and measurement of VBL in the data, and shortly describe the six other factors [37].

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[34]Factor analysis is most commonly employed in the psychology literature, but has also been used by economists to study, for instance, managerial traits (Kaplan et al. (2012)), and human capital (Cunha and Heckman (2008); Attanasio et al. (2018)).

[35]A variety of methods are available to select the number of factors. Here we use the Eigenvalue's rule developed by Kaiser(1960). An eigenvalue above one means that the extracted factor has more explanatory power than any of the original variables by itself.

[36]To ease interpretation of factors, factor loadings are obtained after performing an *oblique promax* rotation. The rotation step is extremely common in factor analysis, and leads to a structure such that measures mainly load heavily on one factor. Several rotating methods are available. We choose a type of rotation (*oblique*) that allows for correlations between factors.

[37]Other factors include dishonesty, altruism, nationalism, religiosity, trust, and interest for politics.

Table 16: Exploratory Factor Analysis: rotated loadings

This table presents the results of the exploratory factor analysis based on 50 survey questions for 1,389 CEOs. Each column corresponds to one factor (ordered by eigenvalue), and the table displays share of variance explained and rotated factor loadings for each of the 7 retained factors. Factors are selected according to Kaiser's method (1960). Rotated factor loadings are estimated using an *oblique promax* rotation and ordered by strength of loading. Loadings lower than .2 are left blank. The rotation allows to identify variables loading heavily on a given factor. Blue cells indicate that the variable is selected to be included in the measurement system for the factor in question. Exact wording of survey questions is available in table 15.

	Fact. 1	Fact. 2	Fact. 3	Fact. 4	Fact. 5	Fact. 6	Fact. 7
Eigenvalue	4.37	3.50	2.92	1.79	1.72	1.34	1.23
Variance explained	0.19	0.17	0.15	0.13	0.12	0.10	0.10
Cheating: bribery	0.930						
Cheating: car	0.886						
Cheating: social benefits	0.858						
Cheating: taxes	0.846						
Cheating: marriage	0.566						
Concerns: European		0.828					
Concerns: Countrymen		0.821					
Concerns: neighbours		0.692					
Concerns: Mankid		0.678					
Concerns family		0.349					
Immigrants: culture			0.783				
Immigrants: crime			0.764				
Immigrants: job			0.517				
Reinforce borders			0.462				
Trust: humanitarian org.			-0.449			0.307	
Right-wing			0.356				0.347
Proud to be Danish			0.352				
Would not give money for environment		-0.221	0.299				
Too little discussions: small businesses			0.294				
Imortant in marriage: high income			0.217			0.208	
Clear values				0.711			
Clear leadership				0.700			
Personal values				0.515			
Strong values				0.423			
Values shared				0.380			
Importance: family		0.214		0.275		0.229	
Importance: friends		0.233		0.270		0.200	
Importance: work				0.246			
Importance: leisure		0.203		0.239			
Importance: religion					0.824		
Religious					0.829		
Religious childhood home					0.595		
Too little Grundvigian tradition					0.282		
Trust: police						0.571	
Trust: Danish parliament						0.549	
Imortant in marriage: children						0.302	
Cohesive family				0.269		0.269	
Imortant in marriage: same social layer						0.267	
Human progress will not ensure life on earth						-0.226	
Trust: unions				-0.224		0.219	
Interested in politics							0.695
Importance: politics							0.560
Politics discussed at home							0.436
Right-wing childhood home							0.317
Too little discussion: equality							-0.259
Unconcerned: environment							0.220
Imortant in marriage: fidelity							
Children should not sacrifice for parents							
Marriage is essential for happy life							
Willingness to be contacted again							

B.1 Value-based Leadership Factor

The ECFA suggests that the strength of values in leadership is an important underlying construct in the data. All questions related to the interplay between values and leadership load highly and uniquely on the fourth factor (eigenvalue $= 1.79$, capturing 13% of the variation), suggesting that they are different measurements of a unique construct. The question with highest loading on the factor measures the salience of management values in the company: "To what extent are the management values visible to the employees and present in the company?". The variable measuring the transparency of leadership ("To what extent is there a clear, focused, and well-defined leadership in the company?") has second highest loading, followed by variables measuring the role of the CEO's values in the management ("To what extent do you think that your personal values are important to the company's operation?") and the role for ethical values in the company ("To what extent is the business operation based on strong moral values, e.g keeping words, treating all stakeholders well?"). Though our survey was designed to measure other important constructs such as political orientation or environmental concern (see table 15 for related questions), the interplay between values and leadership stands out as having more explanatory power in our data.

As a more formal test, we calculate the Cronbach's alpha of variables with high and unique loading on factor four[38]. Cronbach's alpha is a widely used measure of internal consistency, that relies on intercorrelations among items supposedly corresponding to the same construct. We find that retained variables have an alpha of 0.7[39], which supports the interpretation of these variables as different measures of VBL. Consequently we use these variables to generate a score for VBL for all CEOs. The score is predicted as a weighted sum of standardized versions of the variables[40], which accounts for how salient

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[38]We retain "Clear values", "Clear Leadership", "Personal values" and "Strong values" as measurements of VBL. We follow what is standard in the literature and only consider variables that are clearly related to only one factor as potential candidates for measuring constructs. Blue cells in table 16 indicate retained variables.

[39]Typically, the range of 0.6 - 0.8 is required for constructs to be considered as reliable in EFA.

[40]This procedure is usually referred to as factor scoring and is standard in factor analysis. After the extraction of the main underlying constructs, each of them is separately predicted as a linear combination of the observed variables. The system of factors' and coefficients' scores is estimated using using Maximum Likelihood.

each variable is to the concept being measured. Table 17 reports the estimated weights used to generate the VBL factor [41]. The factor is then standardized to have zero mean and a standard deviation of approximately 1. We call this measure the VBL "factor": a more VBL-oriented leadership style is reflected in higher scores of the VBL factor. As an alternative measure, we also use a simple average of the four variables, which we refer to as "VBL index" in the rest of the analysis. Figure 7 and 8 show the distribution of answers for each variable used to generate the VBL factor score, and the distribution of the VBL factor and index, respectively.

In Figure 9 and Table 18 we investigate the persistence of VBL over time using questions from the survey on the impact of COVID conducted in 2020. For a subsample of approximately 450 CEOs, we are able to confront the 2015 measure of VBL and a 2020 measure based on the two following questions: "To what extent are the management values visible to the employees and present in the company?" and "To what extent do you think that your personal values are important to the company's operation?"[42]. Though measured 5 years apart and under different economic circumstances, VBL displays a clear pattern of persistence. The coefficient of 0.24 means that a CEO who scores 1 point higher on the 2015 VBL factor will score on average 0.24 point higher on the 2020 VBL factor (see Figure 9). In Table 18, we show that similar correlations are found on each of the two VBL-related questions.

Though the predictiveness of the VBL factor is sizable, especially considering that the two measures were taken 5 years apart, the correlation is not close to 1. This may be partly due to measurement error[43], variation in leadership style over time due to important life events or changes in economic conditions [44], as well as differences in the number of questions used in the construction of the 2015 and 2020 VBL indexes.

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[41]Table 19 reports Cronbach alphas and weights for other factors in the data.

[42]Space limitation in the survey questionnaire prevented us to ask the four questions used in the measure of VBL in 2015. We therefore decided to include questions with highest loading on the 2015 VBL factor and most intuitive interpretation.

[43]Measurement error can occur when respondents need to answer multiple questions, especially when they are subjective (Bound et al. (2001)).

[44]Guiso et al. (2018) show that attitudes and preferences can change in response to important, traumatic events such as the 2008 financial crisis.

Table 17: VBL factor scoring

This table shows the variables retained as measures for the VBL factor and their associated weights in the VBL factor.

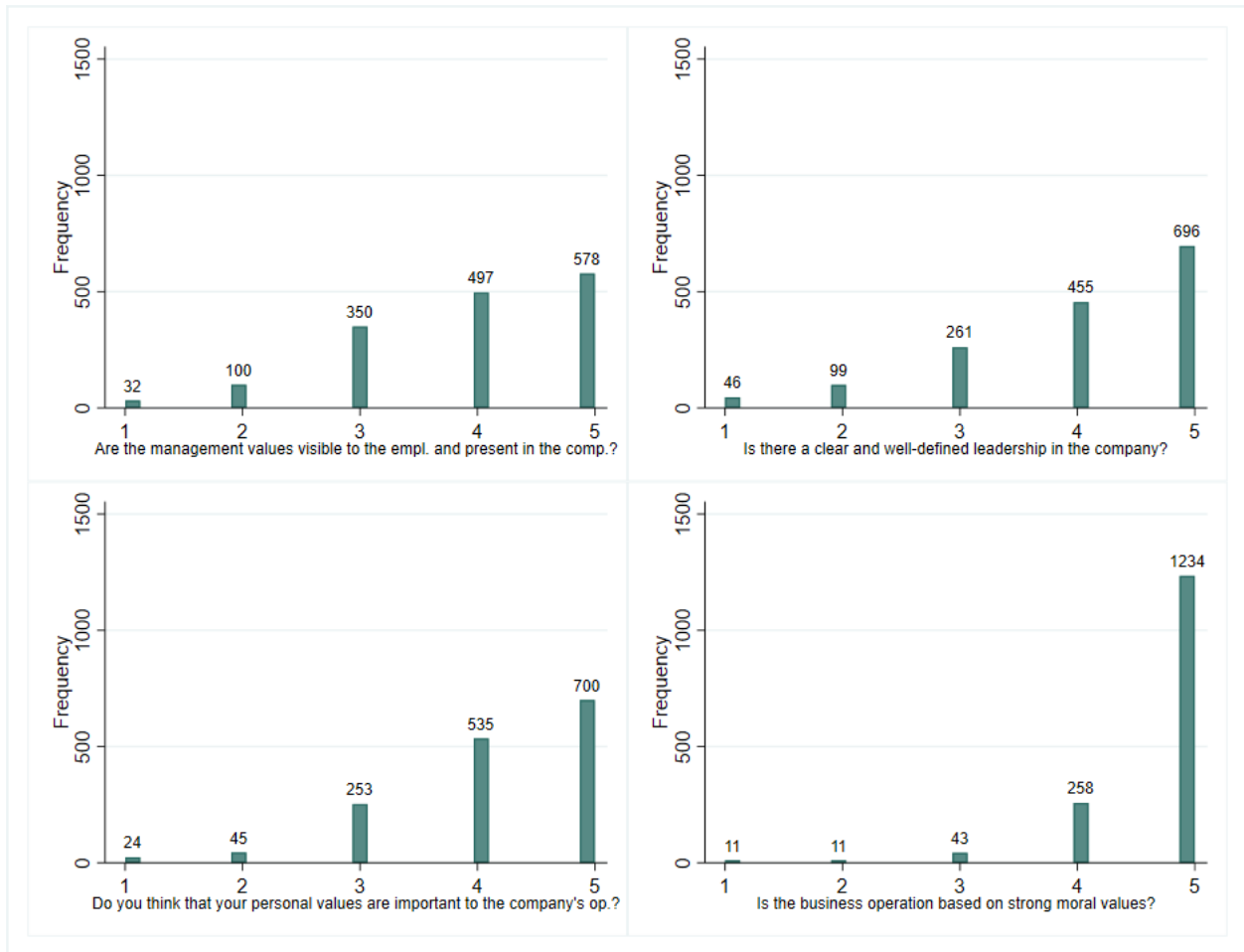| Factor	Variables	Weights
Value-based Leadership ($\alpha = 0.7$)	To what extent are the management values visible to the employees and present in the company?	0.60
	To what extent is there a clear, focused and well-defined leadership in the company?	0.58
	To what extent do you think that your personal values are important to the company's operation?	0.15
	To what extent is the business operation based on strong moral values, eg. keeping words, treating employees, customers and suppliers well?	0.12

Figure 7: Distribution of survey answers

Figure 7 shows the distribution of answers to questions used in the scoring of the VBL factor. Questions are ordered based on their salience to the VBL construct and are, from upper left to lower right: "To what extent are the management values visible to the employees and present in the company?"; "To what extent is there a clear, focused, and well-defined leadership in the company?"; "To what extent do you think that your personal values are important to the company's operation?"; "To what extent is the business operation based on strong moral values, e.g keeping words, treating all stakeholders well?".
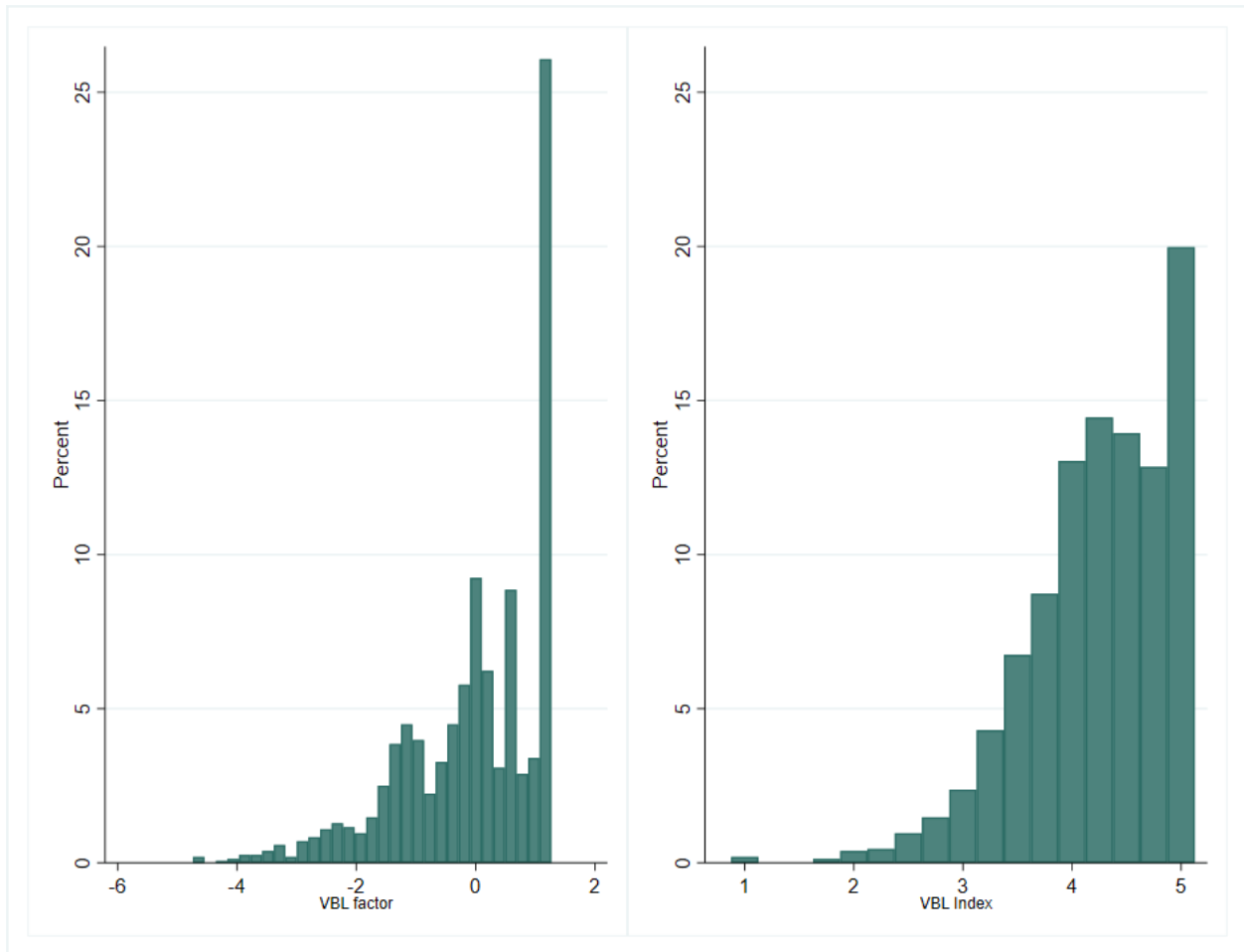
Figure 8: Distribution of factor scores

Figure 8 shows the distribution of the VBL factor and the VBL index.

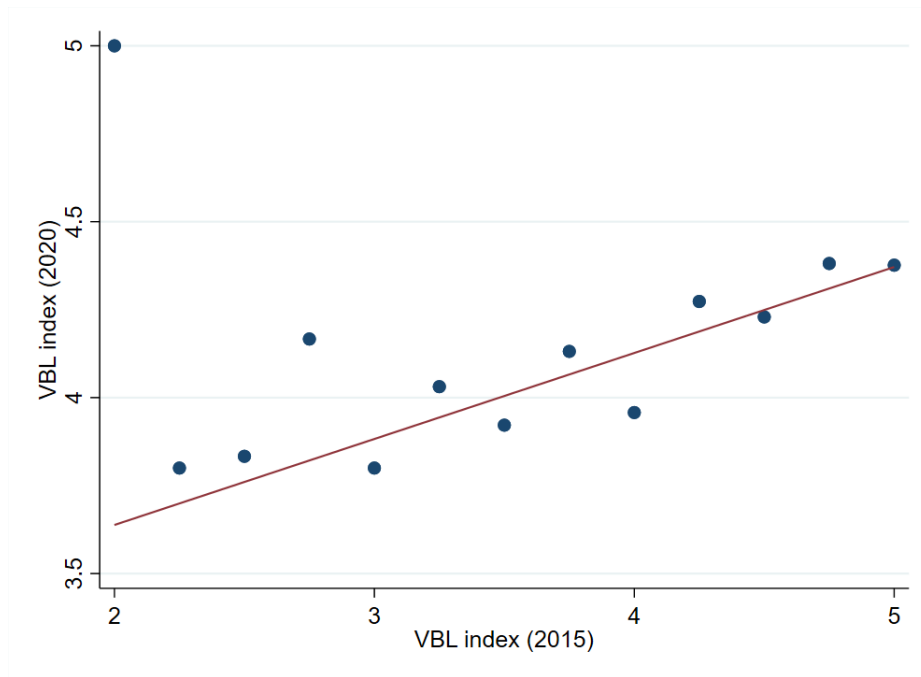Figure 9: Binned scatter plots of 2020 VBL index on 2015 VBL index

Figure 9 shows binned scatter plots of a 2020 VBL index on the 2015 VBL index used throughout this paper with no controls. The coefficient and robust standard error of the corresponding regression are 0.24 and (0.048), respectively.

Table 18: Persistence of VBL

This table shows correlations of VBL in 2015 and VBL in 2020. In the first column, the dependent variable is the VBL index computed based on questions from the 2020 survey (a simple average of the 2 questions) and the independent variable is 2015 VBL index. In the second column, the dependent and independent variables are the question "To what extent are the management values visible to the employees and present in the company?" in 2020 and 2015, respectively. In the third column, the dependent and independent variables are the question "To what extent do you think your personal values are important to the company's operation?" in 2020 and 2015, respectively. Robust standard errors. *, **, and *** denote significance at 10%, 5%, and 1% respectively.

Dependent Variable:	VBL index (2020)	Management values (2020)	Personal values (2020)
	(1)	(2)	(3)
VBL index (2015)	0.243***		
	(0.054)		
Management values (2015)		0.161***	
		(0.033)	
Personal values (2015)			0.103**
			(0.041)
Observations	448	449	450
Adjusted R^2	0.23	0.21	0.18

B.2 Additional Factors

Factor 1 (Propensity to cheat): it explains 19% of the variance and captures the CEO's propensity to cheat. It loads very highly and uniquely on all questions measuring the CEO's propensity to cheat or break different kind of rules and norms, such as receiving undue social benefits, cheating taxes, driving someone else's car, cheating in marriage or receiving briberies.

Factor 2 (Other-regarding concerns): it captures 17% of the variance and has positive and high loadings on all questions capturing other-regarding concerns for different reference groups. We interpret it as the strength of concern for specific others, and others in general.

Factor 3 (Nationalism): it captures 15% of the variance and can be interpreted as nationalist values. The factor captures both a preference for Denmark versus the rest of the world, and attitudes of fear regarding immigration. It has high positive loadings on preference for reinforcing Denmark's borders, and thinking that immigrants worsen economic and crime problems, and undermine Danish culture.

Factor 5 (Religiosity level): it captures 11% of the variance and loads highly and uniquely on questions capturing the importance of religion in the CEO's life, and in her childhood home. We interpret this factor as the religiosity level of the CEO.

Factor 6 (Propensity to trust): it explains 10% of the variation and has its highest loads on questions measuring the CEO's level of trust towards different institutions: humanitarian organizations, Danish unions, Danish parliament, and the police. We interpret this factor as a measure of the CEO's level of trust.

Factor 7 (Political interest): it explains 10% of the variance, has its highest loads on questions measuring the significance of politics in the CEO's life. We interpret this factor as the tendency to be interested in and to follow political affairs.

Table 19: Additional factors scoring

This table shows the variables retained as measures for each factor and their associated weights.*, **, and *** denote significance at 10%, 5%, and 1% respectively.

Factor	Variable	Weight
Honesty ($\alpha = 0.9$)	To what extent do you approve these actions? To receive bribery in connections with one's work area.	0.44
	- To drive a car that belongs to someone else.	0.27
	- To receive social benefits that you are not entitled to.	0.21
	- To cheat with taxes if you have the option.	0.18
	- That married men and women have a relationship outside marriage.	0.04
Altruism ($\alpha = 0.8$)	To what extent do you feel the living conditions of the following groups concern you? Europeans.	0.49
	- Your countrymen.	0.38
	- People in the area you live in.	0.20
	- The mankind.	0.18
Nationalism ($\alpha = 0.7$)	Please tell us where on the 1-10 scale your point of view is: The country's culture is being undermined by the immigrants?	0.55
	- Immigrants make the problems with crime worse?	0.50
	Immigrants take jobs from Danes? -	0.17
	What do you think the government should do with the country's borders?	0.12
Religion ($\alpha = 0.8$)	To what extent do you consider yourself as religious?	0.54
	To what extent are each of the following areas important to your life? - Religion	0.53
	To what extent do you agree with the following statement? "My childhood home was religious and religion was a major part of my childhood"	0.17
Trust ($\alpha = 0.5$)	To what extent do you trust the following institutions? The police	0.85
	To what extent do you trust the following institutions? The parliament	0.85
Political Interest ($\alpha = 0.7$)	To what extent are you interested in politics?	0.70
	To what extent are each of the following areas important to your life? - Politics	0.50
	Was politics discussed a lot in your childhood home?	0.17

Appendix C   Selection Analysis

Table 20: Selection Analysis

All columns report a probit model in which the dependent variable is a dummy indicating 1 if the survey was answered at least partially. Marginal effects are reported, and standard errors are in parenthesis. In column (1) and (2), we characterize selection bias using the full sample. In column (4) and (5), we use only firms with an average of at least 3 employees. Robust standard errors. *, **, and *** denote significance at 10%, 5%, and 1% respectively.

	All sampled firms		Average N. empl> 3	
	(1)	(2)	(3)	(4)
Women	-0.0265***	0.0315**	0.0165	0.0320*
	(0.006)	(0.0130)	(0.0172)	(0.019)
Age	0.0052***	0.0063***	0.0055***	0.0059***
	(0.0001)	(0.0004)	(0.0005)	(0.0006)
Years of education	0.0081***	0.0094***	0.0082***	0.0093***
	(0.0009)	(0.0019)	(0.0026)	(0.0027)
Log(income)	0.0158***	0.0231***	0.0231***	0.0243**
	(0.0028)	(0.0073)	(0.0087)	(0.0011)
Log(Assets)		0.0020		-0.00004
		(0.0037)		(0.0060)
Log(employees)		0.0072		-0.0036
		(0.0046)		(0.0083)
Firm age (years)		-0.0010**		-0.0008
		(0.0004)		(0.0006)
OROA		0.0008***		0.001***
		(0.0002)		(0.0004)
N Firms	46,080	10,925	6,226	5,462

Appendix D   Additional Figures

Figure 10: Difference in OROA between firms hiring a VBL-oriented and a low-VBL CEO (continuous factor)
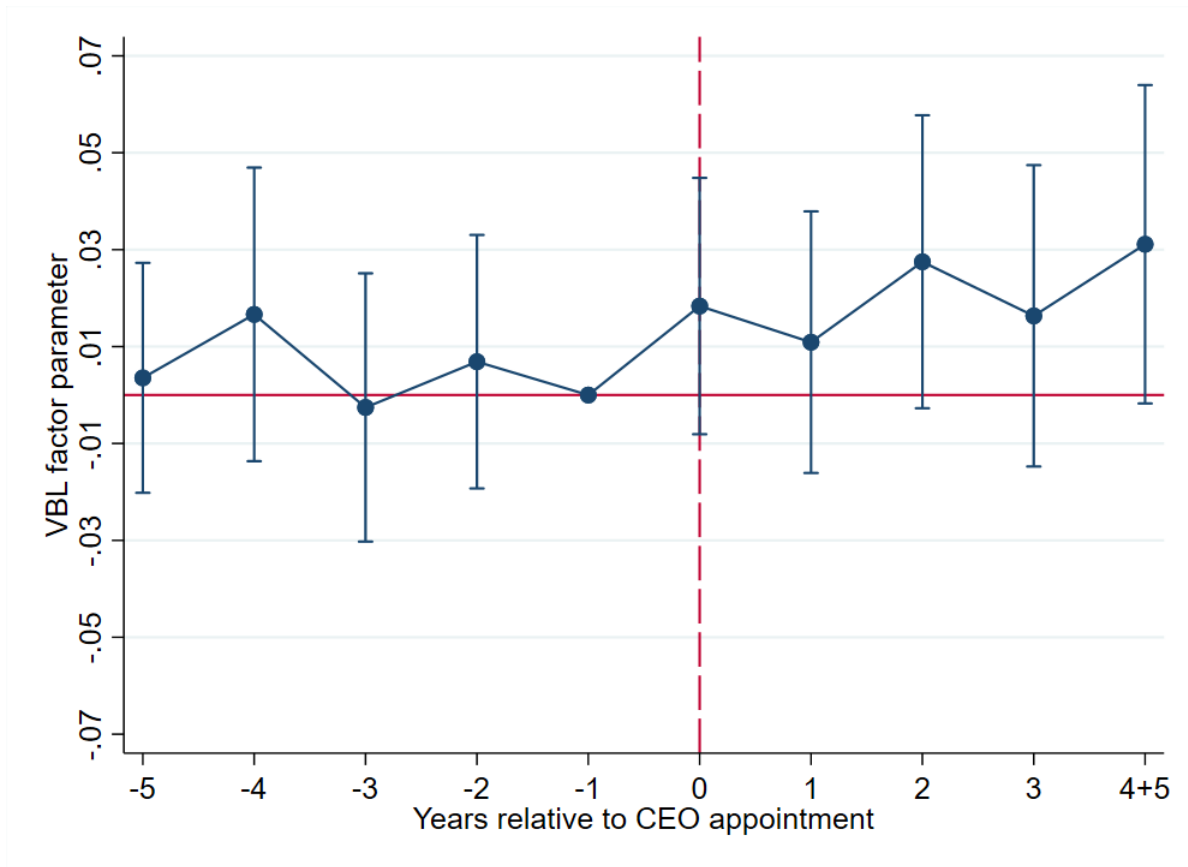

Figure 10 shows coefficients and confidence intervals from a regression of OROA on the VBL factor interacted with each time-period dummy. The reference period is -1, i.e, 1 year before the CEO was appointed. The model includes time-varying controls for firm size (logarithm of total assets and number of employees), period fixed effects and firm fixed effects. Standard errors are clustered at the firm level. Due to low number of observations, time periods 4 and 5 (respectively 4 and 5 years after the CEO appointment) are pooled together.