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Value-Based Leadership*

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ABSTRACT

We measure value-based leadership (VBL) – the strength of personal values and to what extent they penetrate firms' organization – in a survey of 1,500 Danish CEOs. First, VBL is more common in family firms and women CEOs. It is not correlated with the CEO's IQ or management practices. Second, VBL correlates with firm performance; CEO turnover and hospitalizations establish the causality of this link. Third, firm policies are different: (i) during the pandemic, VBL firms have lower employee turnover; (ii) in normal times, they have flatter organizational structures. Fourth, factor analysis confirms robustness of the findings. Other factors derived from a deep survey on CEO characteristics and opinions do very little to explain firm outcomes. We conclude that value-based leadership contributes in explaining the value added of CEOs for firms.

Keywords: CEOs, Values, Leadership, Performance

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"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 (cited from Bennedsen and Cadbury (2015))

1 Introduction

Are top leaders more effective when their management style is grounded in strong personal values that penetrate the firms they govern? We investigate this question with a unique data set of 1,500 Danish CEOs and their firms. We find that value-based leadership correlates with firm performance. Using the replacement of CEOs and hospitalization events, we provide causally interpretable evidence that values of leaders matter. We also find that firm policies of leaders with strong values are different, in particular, during the COVID pandemic, they are less conflict-oriented and lead to less employee turnover.

Value-based leadership (henceforth: VBL) is a popular concept in the business press and management literature[1] but has played, if any, a small role in economics and finance research. While it is well-established that the identity of the CEO is of importance for firm performances (see Bertrand and Schoar (2003) and Bennedsen et al. (2007) and Bennedsen et al. (2020)), there is a knowledge gap in our understanding of what separates good and bad managers, and, in particular, what role managers values may play. We identify empirically the strength of personal values and to what extent they penetrate corporations' organizational structures as a novel channel through which CEO identity matters for the outcomes and policies of firms.

Before explaining our research design and findings, a prominent example of strong value-based leadership is useful. In 1837, John Cadbury founded its chocolate

[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 specialized peer-reviewed journal *Journal of Values-Based Leadership*.

firm. Cadbury was a dedicated Quaker who taught in Sunday schools, advocated against social injustice and saw the new cocoa business as an affordable and healthier alternative to alcohol. The Quaker values of the Cadbury family penetrated the company; its growth catalyzed investment reaching from courses improving employees' and their families' health and education to active engagement in the antislavery movement. The values of the Quaker religion made many of their firms successful because Quakers were known to be trustworthy.[2] More than 150 years later, Adrian Cadbury – the last family chairman and CEO of the Cadbury company – was appointed chairman of the UK Committee of the Financial Aspects of Corporate Governance. The resulting Cadbury Report has inspired more than 70 country codes and several supranational reports on the practice of good corporate governance. Although Quaker values were never specified in the Cadbury Report, for Adrian Cadbury they were essential as the introducing quote to this paper eloquently states. (Bennedsen and Cadbury (2015)).

The example of Cadbury and other Quaker businesses illustrate how strong, socially-minded, often religiously driven personal values penetrate companies and shape firm culture. Following Schein (2010), one of the most cited books on leadership and culture, firm culture is shaped and maintained by the fundamental assumptions and values of leaders. Culture guides the behavior of the organization's members, provides guidelines for decision-making in general and, in particular, for unprecedented situations, where experience-based decision making is less efficient.[3] Strong values can hence mitigate the adverse consequences of incomplete contracts (Guiso et al. (2015); Frydlinger and Hart (2019)). Moreover, when the values of the top leaders penetrate the organization (as Schein posits) and create culture, an identity for the firm and its stakeholders and formal or informal code of conducts are established.[4] Strong corporate culture may increase

[2]Quaker firms were particularly successful in the financial sector where trust was highly sought after during the early industrial revolution in the UK in the 19th century. Banks like Barkleys and Lloyds were founded by their namesake Quaker families.

[3]A famous example of value-based strategic decision-making is luxury brand Hermès. In the 1960s, facing increasing competitive pressure from products made of synthetic material, the CEO, Robert Dumas-Hermès, refused to develop similar products. He chose to stick to the strict use of leather and silk and made this decision in the name of the company's historical attachment to craftsmanship, quality, and patience, even at the cost of short-term business opportunities. (Bennedsen et al. (2014)).

[4]The history of the Mulliez family - owners of more than 20 retails chains including Auchan and Decathlon - is a powerful example of how values penetrate organizations and create a homogenous culture:

firm performance (Kotter and Heskett (1992); Kreps (1990)) but evidence for this is rare.[5] When leaders' values penetrate the organization, this also reduces coordination costs and may involve flatter organizational structures and different types of firm policies. (Steen (2010)).[6]

Our paper shows the effect of strong values of leaders on profitability and also documents to what extent the policies of VBL firms differ from others, thus providing evidence on both the effects and potential channels of VBL and complementing the literature on corporate culture. To do so, we use three large surveys and Danish registry data: a) the 2015 CEO value and policies survey, b) the 2018 management practices survey, c) the 2020 Covid survey.

We consider a firm to have value-based leadership (VBL) when decision-making and governance in a firm mirror personal values of the individual in charge (Bennedsen and Fan (2014)). In the 2015 CEO value and policies survey, we asked CEOs four questions to construct our index of VBL. Two of them are meant to measure whether the CEO's values are clear and visible in the organization, and two of them whether the CEO has strong personal and moral values.[7] We are interested in the strength of leadership values and their penetration in the firm, and abstain from judging these values in terms of their moral desirability. We complement the four questions on the VBL with questions from the World Value Survey and carry out additional analysis to learn more about leaders'

"In conformity with the Mulliez philosophy, employees were expected to take responsibility for their own behaviour and choices, contributing to the greater good of the company. In turn, the Mulliez family pledged to nurture employee development, avoid layoffs whenever possible by finding other or more appropriate jobs, and to share information, power and profits. As with the family, the binding force was their shared Catholic faith or ethos. Anyone not with the programme, explained the long time family leader Gérard Mulliez, would eliminate themselves under psychological pressure" (Bennedsen et al. (2015))

[5]Sørensen (2002) provides one of the rare empirical tests of the relationship between the strength of the corporate culture and performance, and finds that, in stable environments, strong-culture firms performance is more reliable.

[6]Below we document that family firms on average are more value driven. Thus, the argument that value based leadership reduces coordination cost is consistent with the notion family firms on average have less formal governance structures and less checks an balances in place (see for example Bennedsen and Fan (2014).

[7]The questions are: To what extent are the management values visible to the employees and present in the company? To what extent do you think that your personal values are important to the company's operation? To what extent is there a clear, focused and well-defined leadership in this company? To what extent is the business operation based on strong moral values, e.g., keeping promises and treating employees, customers and suppliers well?

values and their impact. The four questions on VBL constitute the core of the survey and turn out to be the empirically most meaningful measures.

Our first contribution is to characterize value-based leaders and their firms. We document that the VBL index is, on average, larger in business service firms and information and communication, and smaller in construction firms. It is also larger in family firms (that is, firms in which multiple family members are involved in the board or when the CEO is the founder). VBL is not correlated with market power. We also measured management practices in 2018, in line with the method of Bloom and Van Reenen (2007), and find that VBL and management practices are uncorrelated.

Our second contribution is to show how VBL relates to personal characteristics. Female CEOs score higher on our VBL scale than male CEOs; higher income and age correlate positively with VBL. CEOs with higher VBL scores also have higher scores on political engagement, altruism, trust in institutions, religiosity and honesty. We measure all these dimensions by the questions from the World Values Survey.[8] Furthermore, we examine the relationship between VBL and education level, as well as VBL and GPA. For a subset of male CEOs, we also analyze the correlation between IQ and VBL using military conscription data, which is available only for men. Our results indicate no significant correlation between VBL and IQ or GPA. These findings support our claim that VBL is a novel, independent, and meaningful dimension of leadership. Below we describe how factor analysis strengthen this claim for originality.

Third, does VBL correlate to firm performance? The answer is positive: we document a positive and economically significant relationship between VBL and firm performance measured in operating return on assets (OROA). In the baseline specification,one standard deviation increase in value-based leadership is associated with an increase of about 0.069 standard deviations in OROA. We also use gross profit margins – a more noisy performance measure - and find positive, but less precisely estimated.

Although we can measure CEOs' VBL only once (in our 2015 survey), we have the panel data on work spells across years of the CEOs thanks to the use of Danish registered data. Hence, we can look at a subsample of CEOs (n = 139) who change firms. We

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

find that when a firm hires a new CEO who has above-median VBL, firm performance increases over the following years. So, VBL creates corporate value; however, it could be that value-based leaders might be more likely to be hired by high-performance firms.

To respond to this challenge, we use the methodology of Bennedsen et al. (2020) and apply firm-CEO fixed effects into a sample of more than 400 firms in which the CEO was hospitalized at least once. We find that when a CEO with a VBL score above the median is hospitalized, firm performance decreases. We do not find any performance effect for CEOs with below-median VBL. We believe this to be a powerful identification strategy because hospitalization is an exogenous shock to the CEO-firm match. To rule out reverse causality between hospitalization and performance, we show that future hospitalization events of high-VBL leaders do not impact current performance.[9]

Do value-based leaders operate their companies in a different way than other CEOs? In 2015, we asked whether there were conflicts that may have affected the effectiveness of decision-making, and the number of hierarchical levels in the firms. Registry data were used for employee turnover, the proportion of women and young people in the firm and wages. We find that VBL firms have less conflict, smaller turnover of non-managerial staff and flatter hierarchies. They also employ younger employees.

To further develop this question, we add a survey on the impact of the COVID-19 crisis on firms (Bennedsen et al. (2023)). We document that high-VBL score leaders are more stakeholder-oriented, that is, they prioritize more the well-being of communities, employees and customers. Furthermore, relative to low-VBL score leaders, they were less likely to fire employees and took less frequently the governmental furlough programs available during the early period of the pandemic crisis in the spring of 2020. This is consistent with VBL being used as guiding principles in novel business situations where experience-based leadership is less useful.

We then proceed to analyze leadership behavior in non-crisis periods and find that firms run by CEOs with a high-VBL score experience fewer internal conflicts and

[9]It is worth highlighting that our results shows a causal impact of VBL on the average firm. We do not claim that all value based leaders create firm and societal values. For example, Purdue Pharma was a family firm lead pharma company driven by value based family leaders and they ended up going bankrupt after being pivotal in creating and the opiod crisis in the US.(Bennedsen and Henry (2023)).

lower employee turnover. This is consistent with the notion that VBL contributes to a more homogeneous corporate culture. Next, we show that VBL is correlated with a less hierarchical organizational structure, which is consistent with the notion that VBL reduces coordination costs. Finally, introducing a survey-based measure of employee monitoring, we find a positive correlation between VBL and monitoring. Thus, our findings do not support the view that VBL is a substitute for monitoring.

The bulk of the paper reports the results of regressions in which we use a simple VBL index constructed from four questions. The unique richness of our data, however, makes it possible to do more by letting the data speak through a factor analysis on the total of 50 questions in our survey that are related to personal values.

This factor analysis, first, shows that the four items indeed load on the same construct and that no other question loads significantly on it. This confirms the robustness of our index; furthermore, running all regressions on this VBL factor rather than the index does not change results much. Hence, the index is a robust measure of VBL. Second, the factor analysis contributes substantially in investigating what other value constructs might matter for firms. There are only six other factors: (i) Honesty, (ii) Altruism, (iii) Nationalism, (iv) Religiosity, (v) Trust, and (vi) Political Engagement. When we run regressions using each of these rather than the VBL factor on the variables of interest, we find that they have much smaller and mostly statistically insignificant effects on firm outcomes. We believe that this is an important test against the potential concern that VBL actually masks the effects of other values.

The paper contributes to a substantial and growing literature on the interaction between top leaders' individual traits and firm performance (for example: Bertrand and Schoar (2003); Bennedsen et al. (2007); Malmendier and Tate (2008); Malmendier and Tate (2009); Kaplan et al. (2012); Bandiera et al. (2020b)). It has been shown that prior corporate and non-corporate experience matters (Schoar and Zuo (2016); Schoar and Zuo (2017); Benmelech and Frydman (2015)), and that networks created during education are correlated with firm policies and firm outcomes (Nguyen (2012); Kramarz and Thesmar (2013); Shue (2013)). It has also been shown that different types of CEO's have different time use patterns (Bandiera et al. (2020a)) arguably reflecting their personality and firm

contingencies. Related to all of these papers, we propose that top leaders' personal values are a channel through which the identity of the CEO matters for performance and show how they differ in the policies they implement.

Many of the firms in our samples are small and medium-sized firms. This makes it interesting and relevant to also relate to a literature that has looked at the effect of non-CEO managers on productivity and worker well-being. Lazear et al. (2015) computed the value of managers in terms of their team's performance, Hoffman and Tadelis (2021) showed that the people-management skills of managers matter for many outcomes, and Friebel et al. (2022) showed how super market managers' behaviors vis-a-vis their workers affects their turnover in a large RCT. Other papers measure the impact of treatments on managers to increase mutual trust, psychological safety (Castro et al. (2022)). Delfino and Espinosa (2025) show that value dissonance between managers and workers leads to lower productivity. Taken together, it appears that managers matter on many levels in the organization and that their values, policies and behaviors are likely to affect important firm outcomes.

What our paper adds is the detailed account of CEOs values and beliefs and to what extent these constitute guiding principles of employee behavior. The uniquely detailed data of Danish firms provide detailed performance information, and the shocks we use help in causally identifying the effect of VBL.

The literature review would be incomplete without considering the broad theoretical literature on leadership our paper provides empirical support for. Economists [10] have modelled how managers' characteristics (Steen (2005); Bolton et al. (2013); Dessein and Santos (2021); Steen (2018))[11] and leadership style (Rotemberg and Saloner (1993); Rotemberg and Saloner (1994); Rotemberg and Saloner (2000); Hermalin (1998); Hermalin (2007))[12] can help to monitor business activities and solve coordination issues. In par-

[10]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).

[11]Dessein and Santos (2021) 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 fact that strategies reflect the leader's background is attributable to the need for credibility and confidence in the execution of strategies.

[12]Rotemberg and Saloner (1993) and Rotemberg and Saloner (2000) mainly study how certain dimensions

ticular, Steen (2005) suggests 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 employees, which in turn aligns their incentives and increases performance.

The rest of this paper is organized as follows: In Sections 2 and 3 we describe our data and provide sample statistics. In Section 4 we identify firm and personal characteristics that are correlated with higher VBL scores. Section 5 documents the causal relationship between value-based leadership and firm performance. In Section 6 we do robustness checks including the analysis using the VBL factor instead of the index. In Section 7 we analyze what leaders with strong values that penetrate their firms do differently. Section 8 concludes. We elaborate on the data construction, the factor analyses and provide additional robustness analyses in the Appendix.

2 Data and sample construction

2.1 The CEO survey: Quantifying leadership values

Our primary data source for quantifying leadership values comes from a survey we conducted in 2015 in Denmark.[13] The survey contained 50 questions divided into three main sections: a section about social and leadership values, 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 which 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)).

We also asked the CEOs four questions to measure VBL: To what extent are the management values visible to the employees and present in the company? To what ex-

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 misaligned incentives problem by working hard to signal the high payoff of effort to followers.

[13] Appendix A, Table A.1 lists all questions asked in the survey.B lists Tables and Figures.

tent do you think that your personal values are important to the company's operation? To what extent is there a clear, focused and well-defined leadership in this company? To what extent is the business operation based on strong moral values, e.g., keeping promises and treating employees, customers and suppliers well?

2.2 Survey answers: meaningfulness and little bias

We conducted a selection analysis; results are in Table A.2 in Appendix A.Overall, CEOs are more likely to respond if they are female, older, more educated, and have a higher income. On the firms' side, better-performing firms are marginally more likely to respond. Focusing on our main sample of firms with more than three employees, we notice similar patterns both with respect to CEO and firm characteristics.

We also use a revealed-preference approach to showing that the survey answers correlate with behavior. We test whether the self-reported views on family, religion, altruism, and political engagement in our survey correlate with objective information from registers and from survey information regarding social behavior. This is possible only because of the unique nature of Danish data that can be matched on the individual level. In Appendix A.3 we provide the results; details are presented in Table A.3. The responses to family-related questions are statistically highly correlated with whether CEOs are married and how many children the CEO has. Responses to our religious questions are statistically highly correlated with paying church tax to the official Danish protestant church. The answers to the question on concerns about the CEO's neighborhood are also correlated with Statistic Denmark's survey on who does volunteer work. Finally, there is a statistically significant negative correlation between those who respond that they are not interested in politics and to what extent they consume news media and participate in the public debate as measured by Statistic Denmark. We believe that Table A.3 provides strong evidence that CEOs answer our survey truthfully as they are in line with measured behavior in register data and in other surveys.

We also investigate whether CEOs values are persistent. In April 2020, we surveyed CEOs about their firms' response to the COVID crisis. In that survey, we asked the same four questions about VBL again (and many other things that we will talk about

later, in particular, in section 7.1). A total of 120 CEOs participated in both the 2015 and the 2020 surveys. We report a strong positive association between VBL measures in 2015 and 2020 (see Figure A.1 in Appendix A). This is consistent with the view that management styles are shaped by early life factors and persistent over time (Schoar and Zuo (2017)) and also with the sociology and psychology literature. Here, personal values are considered to be persistent, because they are formed early in childhood and adolescence (Whitbeck and Gecas, 1988; Döring et al., 2015) and do not often change significantly over a lifetime Cieciuch et al. (2016); Sagiv et al. (2017).

2.3 Other survey data

We occasionally combine the VBL measures based on the 2015 survey with a survey (conducted in 2018) on management and organizational practices (MOPS). This will be used in Section 4.4 to understand whether there are covariations in value-based leadership and management practices. The survey was answered by about 5,000 CEOs in Denmark. We included the same questions as in the US based Management and Organizational Practices Survey (MOPS) (Bloom et al., 2019) and additional sections on innovation, dividends, and relational contracts. We reproduce all questions from the monitoring, targets, and incentives sections in MOPS. [14] As in Bloom et al. (2019), we build a single "structured management" score, which is the unweighted average of the answers to the 15 questions coded on a scale from 0 to 1 (see Bloom et al. (2019)). The management score therefore ranges from 0 (most unstructured management practices) to 1 (most structured management practices).

The second additional survey is about COVID-19 in 2020 that we referred to before. This was conducted in April and May 2020 during the first phase of the pandemic and the lockdown of businesses in Denmark. It sheds light on how VBL correlates with differences in firm policies (see Section 7.1 below). The survey was sent out on April 23, 2020, to 44,374 firms; effectively the entire population of private-sector firms with

[14] The only exception is the question: Where are display boards showing service quality, output, and other key performance indicators located in your firm? The reason why this was not asked is that this is not a typical practice in Denmark.

more than three employees in Denmark.[15] 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.

2.4 Register-based data sources

Unique CEO and firm identifiers allow us to merge the CEO values survey and the two additional surveys with Danish administrative records from *Statistics Denmark*. The unique personal identification number also 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 CEOs, such as gender, age, education, income, etc. We used this for the validation exercise before.

Similarly, the unique firm identification number allows to retrieve information on many aspects of the firms from Danish registers. Our main data sources are the Accounting Statistics Register (FIRE) and the General Company Statistics Register (FIRM). The FIRE register records income and balance sheet statements for all active firms in Denmark, and the FIRM register records additional statistics on labor forces and firm background information. From these registers, we obtain financial information (such as firms' earnings, capital, and debt) and other firm characteristics (such as age, legal type, number of employees, and industry code).

Accounting data are collected for all active firms in Denmark that have market activities, that is, excluding financial firms, public administration, and health- and education-related activities. To ensure that firms are not simply registered but are actually active, *Statistics Denmark* defines a firm with registered payments for at least one employee's wage and/or pension as being active.

[15] For a detailed description of the survey and an analysis of the impact of government programs on retaining employees, see Bennedsen et al. (2023).

2.5 Sample construction

The 2015 survey was conducted in collaboration with the Danish National Statistical Agency (*Statistics Denmark*), which sent out the survey and collected the responses.[16] All limited-liability companies in Denmark were contacted provided that they were active and had employees. They represent 39.3% of the active 280,000 companies in the Danish Business Register (Source: *Statistics Denmark*). We additionally required that we were able to merge them with accounting data (also provided by Statistic Denmark) and to identify a contact email for the CEO. This reduced the sample to 49,799 firms that received the invitation to participate in the survey. We received 13,593 answers, resulting in a rather high final response rate of approximately 27%.[17]

Because we are interested in firms where leadership is relevant, we limited our sample to firms with at least three employees over the 3 years before the survey.[18] Excluding public administrations, we have 1558 firms. We have firm-level accounting data for 93 percent of these firms, which gives us 1448 firms. We lose additional 19 firms when adding other data requirements. For some firms, we lack some information about the CEO's social and personal background. Hence, the sample we use for the analyses varies from 1428 to 1340. [19]

We complement this by data on ownership and management from business registers provided by the Danish Business Authorities (*Erhvervsstyrelsen*). We use the 1-digit category Danish Industry Code nomenclature (*DB07*) for Figure 3 in Section 4.2. In the rest of the paper, we use the European Union nomenclature (*NACE*). We allocate each firm to its two-digit category. We have 67 distinct two-digit industries. Out of these, 7

[16] *Statistics Denmark* 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 were given the opportunity to answer the questionnaire in a phone interview.

[17] Response rate for CEO surveys usually range between 9% and 16% (Graham et al. (2013)). This comparison has to be taken with caution, because our original sample includes a large share of firms with only one or two employees. We sent out the survey to these micro firms because we wanted to learn more about entrepreneurship and start-ups. This is less relevant to the current study.

[18] We do so to smooth out fluctuations in employee numbers due to idiosyncratic factors.

[19] The objective of the survey was partly to study entrepreneurship. Hence, there was no initial restriction on number of employees in the surveyed firms. The relatively small sample size is 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 fewer than five employees and less than DKK 5 million in total assets (Source: Bennedsen and Meisner Nielsen (2015)).

industries have only 1 firm (representing 0.45% of the sample of firms). 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.

Table 9 shows the list of variables.

3 Sample statistics

Summary statistics are presented in Table 1. The actual number of firms used in the different parts of the analysis below may vary due to additional data requirements.

[INSERT TABLE 1 ABOUT HERE]

Panel A of Table 1 shows that sample CEOs are 53 years old on average, and only 12% are women.[20] CEO educational level varies significantly, with 32% holding a bachelor or higher degree. Most CEOs have been in the same firm for a long time, with almost one in four having over 15 years of tenure. The average salary level is around 70,000 EUR per year, a relatively low number that may reflect both that the average firm is small and that many CEOs are owner-managers who take out a small salary. CEOs are almost all of Danish origin, a clear majority are married, and they have, on average, 2.29 children.

Panel B displays summary statistics at the firm level. Our preferred measure of firm performance is operating return over assets (OROA) because we are interested in how much value value-based CEOs create for all the firm's investors. Thus, we focus on both returns to owners and to other financial investors, which for the firms in this sample mostly means banks. Operating returns are defined as the profit from operations that excludes financial and other extraordinary incomes and expenses. Thus, it is the gross profit that can be used both to increase the value for the owners (through dividends and retained earnings) and the value for financial investors through financial expenses. We

[20] The share of women is similar to the share of female CEOs among all Danish companies, see Bennedsen and Meisner Nielsen (2015).

then divide the operating return by the book value of the firm's assets. This includes both equity and debt, so the denominator is consistent with the numerator in including the interests of both owners and debt holders.

Operating return over asset is a common performance metric in studies of small and medium sized private firms (see e.g. Bennedsen et al. (2007), Cronqvist and Fahlenbrach (2008) and Bennedsen et al. (2020)). To mitigate the effect of outliers, we winsorize OROA at the 1% level. We will sometimes complement OROA with gross profit margin as an additional performance measure. This measure subtracts financial expenses from the ordinary result. The disadvantage of using net income over assets is that it is affected by the firm's capital structure through the split between equity and debt. In contrast, return on assets has the advantage that the measure is unaffected by the debt-equity split (see further discussion in Amore and Bennedsen (2013)).

The mean OROA is 8%, which is similar to other studies of small and medium-sized firms in Denmark (see for instance Bennedsen et al. (2007)). The average age of the firms is almost 18 years. The mean asset size is 13 million DKK and the mean number of employees is slightly over 14. Notice, both these measures are highly skewed because of a few very large firms. Thus, we will use the logarithm of these variables in our analysis.

In Denmark, there are two types of firm structure: limited liability firms for smaller firms where boards are optional (denoted APS), and public limited companies for relatively larger firms where boards are mandatory (denoted AS). We note that six out of ten firms are incorporated as APS, the incorporation for smaller firms. One out of two firms has 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.

4 What characterizes value-based leaders and their firms?

4.1 Measures of value-based leadership

Alongside selected items from the World Values Survey (see Table A.1), our questionnaire included four tailored questions aimed at capturing value-based leadership. CEOs were asked whether

1. The management values are visible to the employees and present in the company.
2. There is clear, focused, and well-defined leadership in the company.
3. His or her own personal values are important to the company's operation.
4. The business operation is based on strong moral values, e.g., keeping promises and treating all stakeholders well.

Following Bennedsen and Fan (2014), we define value-based leadership as a leadership style where decision-making and governance reflect the personal values of the individual in charge. The first two questions assess the visibility and clarity of these values within the organization, while the latter two capture the strength of the CEO's personal and moral convictions. These four items jointly form the basis of our VBL index, which serves as our primary measure of value-based leadership throughout the paper.

Our focus is on the strength and organizational penetration of leadership values, and we intentionally refrain from making normative judgments about the content of those values. Figure 1 presents the distribution of responses to each of the four questions.

[INSERT FIGURE 1 ABOUT HERE]

For clarity, we also display the aggregated components — clear visible values (Questions 1 and 2) and strength of personal values (Questions 3 and 4)— as well as the overall VBL index in Figure 2. All distributions are right-skewed, indicating that CEOs generally self-report high levels of value-based leadership.

[INSERT FIGURE 2 ABOUT HERE]

Although we concentrate on this broad concept of VBL, we also construct indexes capturing specific CEO values—such based on the structure of the survey. We identify these values as i) altruism, ii) trust, iii) religion, iv) nationalism, v) (dis)honesty and vi) political engagement. These are introduced as robustness checks in Section 6, where we repeat the core analyses controlling for these values. These robustness checks also serve a second purpose: to demonstrate that the effects we observe are uniquely associated with value-based leadership, rather than reflecting general CEO values or personality traits.

4.2 Value-based leadership, industry and firm characteristics

We now investigate which firm and industry characteristics correlate with value-based leadership. On the left-hand side of Figure 3, we find that VBL CEOs are distributed unevenly across industries. Statistically significant higher mean VBL is found in the Business Services industry, and statistically significant lower mean VBL index is found in construction. The rest of the industries also show variations in mean VBL, but this is not statistically significant.[21]. These average differences line up intuitively with parts of the economy in which interpersonal interactions are more likely to play a crucial role in business operations.

Turning to firm characteristics, the right-hand side of Figure 3 shows that the VBL factor is not strongly correlated to firm age, the presence of a corporate board or size measured by assets or the number of employees. The VBL index is higher in family firms (That is, where the CEO is the founder or 3 or more family members sit in the board of directors). The founder effect remains significant when we control for other firm observable characteristics, and both correlations remain largely unchanged when we control for CEO characteristics (results available upon request). Founders have a unique impact on their firm because they make critical decisions when the firm is highly malleable, and thus have the tools to reflect their preferences and values in the structure of the firm. Founders' family values are commonly accepted as one of the core assets of family firms (Bertrand and Schoar (2006); Bennedsen and Fan (2014)). They originate in family history, regional

[21]We note that in the Financial and Insurance, and the Real Estate sectors, averages are based on a small number of observations.

culture, or religions, and are embodied by family members playing an active role in the firm.

4.3 Value-based leadership and CEO characteristics

Figure 4 shows correlations between CEO characteristics and the VBL factor index. We run a separate regression controlling for industries for each CEO characteristic and show the 90% confidence interval for the estimate.

The left-hand side of the figure is based on register variables collected by Statistics Denmark. We notice that women and older CEOs score higher on the VBL index. There is also a positive significant correlation between VBL index and above median income levels. The VBL index is not significantly correlated with experience in the industry or with tenure in the firm. Later in the paper, we control for the CEO's gender, age, education, and tenure in all of our specifications.

The right-hand side of Figure 4 shows correlations with other personal values. These six variables are constructed from the same survey and represent six other indexes (see Section 6). The VBL index positively correlates with being engaged in politics, having higher altruism, and a higher level of trust. Expressing the importance of religion in life is also positively correlated with VBL. Not surprisingly, VBL is negatively correlated with acceptance of dishonesty. That the measures of other types of personal values originate from the same survey as our VBL measure confirms that the survey is able to measure CEOs' personal values.

Next, we document the extent to which value-based leadership correlates with traditional measures of CEO quality. In the top left panel of Figure 5, we have a dummy indicating whether the CEO has an university degree as a measure of quality on the vertical axis and the VBL index on the horizontal axis. We bin the observations and see a slightly downward relationship, but there is no statistically significant correlation between the two measures.

In the top right panel of Figure 5, we estimate CEO quality from Mincer wage regressions (Mincer, 1958). 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, a slightly positive relationship can be observed in the plot, but this correlation is not statistically significant.

In the middle left panel of Figure 5, we proxy CEO quality with CEO IQ. We do this for a subset of firms where we can find military draft data for the CEO. The military draft admission process has included a compulsory IQ test for the last three decades. Since the test is taken by men at the age of 18, we do not have the data for more than 110 of our sample CEO. We notice a slightly negative trend between CEO IQ and value-based leadership, though the relationship is not statistically significant at conventional levels.

In the middle right panel of Figure 5, we proxy CEO quality with CEO GPA. We do this for the subset of firms where the CEO finished high school. This GPA is an aggregated grade obtained at the last year of high school and that can be used to apply to university. We notice a slightly negative trend between CEO GPA and value-based leadership, though the relationship is not statistically significant at conventional levels.

Finally, in the bottom left corner of Figure 5, we measure quality based on AKM person fixed effects (Abowd et al., 1999). The AKM method was initially developed in labor economics and has been used in finance and organizational economics, including in studies on CEOs' style and compensation Bertrand and Schoar (2003), Graham et al. (2012). Using data on the universe of employees in Denmark between 1995 and 2008, we run a log-wage regression on time, person, firm fixed effects, age, education, and experience. The intuition is that the estimated person fixed effects capture the residual individual contribution to wages conditional on firms and observable characteristics, and can be interpreted as the unobserved component of individual ability. We observe a positive relationship between VBL scores and AKM person fixed effects, statistically significant at the 1% level.

We thus conclude that VBL is not correlated with traditional measures of CEO quality, such as educational attainment, IQ, GPA, or returns to experience. However, there is a positive correlation when quality is measured using the person-fixed effects from an AKM model, indicating that VBL is related to skills that cannot be captured by education, age, or experience. The fact that we find no relationship between VBL scores and IQ test

scores suggests that VBL scores capture a soft skills component of the residual ability, rather than hard skills.

4.4 Value-based Leadership, management practices, stakeholder loyalty and market power

Next, we investigate whether value-based leadership is correlated with other measures of management and organizational practices and/or is correlated with a broader stakeholder view through relational contracts. We do this by merging our sample with our 2018 survey of management practices discussed in Section 2. The survey was answered by approximately 5,000 Danish CEOs, among whom 169 also participated in the 2015 value survey. The results are shown and elaborated on Appendices C and D and we only provide a short discussion here.

In Appendix C, Table C.1, Panel A, we show that 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 2018 survey. Thus, we can see that value-based leadership as defined in this paper is not the same as or correlated with the overall management score. Following Bloom and Van Reenen (2007), we also look at specific elements of management practice, notably employee monitoring, performance targets, and incentives. We do not find any statistically significant correlation between the VBL factor score and these subgroups of management practice.

We repeated two key questions of the 2015 CEO value survey in our 2020 COVID-19 survey. From this, we can construct a VBL index and exploit the fact that the 2020 sample has a larger overlap with the 2018 management practice survey. Thus, in Panel B of table C.1, we confirm that there is no statistically significant correlation between the VBL index (measured in 2020) and the overall management practice measure (from 2018). However, in this sample, we do find positive correlations between the VBL index and two subcategories of management practices: employee monitoring and performance targets.

In Appendix D we analyze the relationship between value-based leadership and CEOs' stakeholder loyalty. In the 2018 management practices survey, we asked about

CEOs' loyalty to different groups of stakeholders. The exact question we asked was "As a director of your company, how loyal do you feel to the following stakeholders in the company?" and possible responses included loyalty towards employees, suppliers, customers, owners, and banks. 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. Thus, it is not surprising that VBL-oriented leaders are more likely to be loyal to any type of stakeholder, but even more so to employees and customers. This correlation is documented in Table D.1.

Finally, we explore whether value-based leadership is associated with market power, addressing the concern that only firms with significant competitive advantages can afford to prioritize values in their leadership. The fear is that while many leaders may aspire to lead based on values, only those in dominant market positions can realistically do so. To investigate this in Appendix E Table E.1 we examine the relationship between the VBL index and three common measures of market competition. Following Bloom and Van Reenen (2007), Aghion et al. (2005), and Nickell (1996), we include the Lerner Index as a proxy for firm-level market power, the Herfindahl-Hirschman Index (HHI) at the NACE 2 four-digit industry level, and the industry concentration ratio of the top 8 firms. Across specifications —with and without additional controls— we find no statistically significant association between industry concentration and value-based leadership. This suggests that VBL is not limited to firms with high market power.

To sum up, value-based leadership is more common in founder-run firms, under female leadership, and is associated with a broader stakeholder-oriented view of the corporation. However, it does not correlate with (most) conventional measures of CEO quality—such as IQ or education—nor with aggregate management practice scores. Furthermore, we find no evidence that value-based leadership is confined to firms with greater market power: it does not appear to be significantly associated with industry concentration or firm-level competition measures.

5 Value-based leadership and firm performance

This section investigates the relationship between value-based leadership (VBL) and corporate performance. Our baseline analysis (Subsection 5.1) establishes a robust, strong and economically significant correlation between VBL factor scores and firm performance measures. We document that this relationship is causal through two additional exercises: a firm-fixed effects model using CEO turnover data and a firm-CEO fixed effect model using CEO hospitalization data (Subsection 5.2). We further strengthen our findings through adding additional robustness checks by including firm and CEO specific controls, a factor analysis of all the questions on values from the survey, and a set of regressions including the six other values (Subsection 6).

5.1 Baseline results

We start by analyzing whether value-based leadership correlates with firm performance. To this end, we match our measure of value-based leadership with register-based accounting data, keeping data in a 3-year period around the year in which we observe VBL for the CEO. We further restrict our sample to firm-year observations for which the current CEO is at the helm of the company. Using OLS, we estimate the following regression:

$$y_{ifs} = \alpha + \beta\hat{\theta}_i + \gamma_1 \mathbf{X_i} + \gamma_2 \mathbf{X_f} + \upsilon_s + \epsilon_{ifs}. \quad (1)$$

Here, y_{ifs} is the outcome of interest (OROA) in firm f, led by CEO i and industry s. $\hat{\theta}_i$ is the VBL index of CEO i, $\mathbf{X_i}$, and $\mathbf{X_f}$ are vectors of CEO and firm characteristics, respectively. $\mathbf{X_i}$ includes age, gender, a dummy for whether the CEO holds a university degree, and a dummy for long-term tenure at the helm of the company, and $\mathbf{X_f}$ includes the logarithm of the number of employees and the logarithm of total assets. All time-varying variables are averaged based on years 2014-2016, and definitions of the variables are given in Table 9. υ_s is two-digit industry fixed effect. 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 index score and the various outcomes of interest.

[INSERT TABLE 2 ABOUT HERE]

The results of the estimation of Equation (1) are shown in Table 2. These results include CEO and firm controls. Column 1 presents the results of the overall VBL index. A one-unit increase on the VBL index score is associated with a 0.126 percentage point higher OROA, significant at the 1% level. This effect is economically meaningful since it implies that one standard deviation increase in VBL is associated with an expected increase of 0.0665 standard deviations in OROA (0.0083x(0.9668/0.1243). Another way to interpret it is that moving from the 10% to the 90% percentile in our VBL measure improves OROA by 15.6% (0.0083×(5-3.5)/0.08).

Columns 2 and 3 split the 4 VBL questions in the two subgroups of VBL. Both coefficients are statistically significant at the 5% level. One standard deviation increase in the visibility of values is associated with an increase of 0.0646 standard deviations in OROA; and one standard deviation increase in the importance of moral values is associated with an increase of 0.0475 standard deviations in OROA.

We illustrate the positive correlation between VBL and firm performance in Figure 6. The three panels show the binned scatter plots for regression results of Columns 1, 2 and 3 of Table 2. Thus, the upper figures use OROA in the vertical axis and the Visibility index, the strong important values index and the VBL index in that order.

In summary, the baseline analysis consistently demonstrates a strong, statistically significant, and economically meaningful positive correlation between VBL and firm performance across various specifications and measures.

5.2 Causal evidence of VBL's impact on performance

In this subsection, we provide evidence for a causal interpretation of the documented correlation between VBL and firm performance. Causal identification is challenged by our survey approach to measure VBL and the fact that we only have one observation of each CEO value. This rise a number of potential identifications problems. First, the

correlation documented in our baseline analysis could be the result of firm heterogeneity: For instance, in Figure 3 we noticed that the mean VBL factor score is higher in founder-managed and family firms, which in many studies have been shown to outperform non-family firms (see, for instance, Anderson and Reeb (2003) and Sraer and Thesmar (2007)).[22] Second, there can be reverse causality arising if well-performing firms can afford to have VBL leaders but poor performing firms choose non-vbl leaders. Our two approaches below addresses these challenges by exploiting variation in firm exposure to VBL 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 a causal interpretation, i.e. that VBL creates firm value.

5.2.1 CEO appointments

Our first approach is to investigate whether the change in performance following appointment of a CEO is related to the VBL index score of the incoming CEO.[23] To be specific, we denote the CEOs that answered our survey for the incoming CEOs and we focus on firms where we can observe when the incoming CEO started in the firm. The ideal test would be to measure the change in performance around the change in CEO against the difference between the VBL index score of the incoming and outgoing CEOs. Unfortunately, we do not have the VBL index score of the outgoing CEOs, since we only did the survey once in 2015.

Instead, we categorize incoming CEOs into high- and low-VBL CEOs, depending on whether the VBL index score is above or below the median value. Thus, we compare the *change* in performance in firms hiring a high-VBL CEO versus performance 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

[22]Scholars have suggested relations-specific family assets as drivers of performance in founder-managed and 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.

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

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 high-VBL 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 high-VBL CEO.

To perform the main analysis, we restrict the sample to a subset of firms for which we observe the appointment of the CEO who was at the helm of the firm in 2015. We obtain 163 CEO appointments in total[24] and merge this subsample with register-based accounting data up to 5 years before and after the appointment.[25] In order to investigate the change in performance following the appointment of a high-VBL CEO, we estimate the following difference-in-differences model:

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

Here, y_{ift} is OROA of firm f in period t where the CEO i was appointed. 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 index score of the appointed CEO is higher than or equal to the sample median of the VBL index, $\mathbf{X_{f,t}}$ 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 $\mathbb{I}\{\hat{\theta}_i \geq \underline{\hat{\theta}}\}_i$ 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 performance.

[INSERT TABLE 3 ABOUT HERE]

[24] 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 do not go further back in time in order to avoid the immediate consequences of the 2008 financial crisis. Of the 163 appointments, 83 concern a high VBL-oriented CEO and 80 a low VBL-oriented CEO. See Appendix F Figure F.1 for the distribution of turnover events over time.

[25] The number of events goes to 139 after merging with performance data.

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 3 reports the results of regressing the firm OROA before the CEO appointment on a trend, the VBL index, and the trend interacted with the VBL index of the appointed CEO ($\mathbb{I}\{\hat{\theta}_i \geq \underline{\hat{\theta}}\}$). The estimated coefficient on the interaction effect is -0.0065 and not statistically significant at any conventional level. This suggests that firms that ultimately hire high-VBL CEOs have similar performance trends relative to firms that hire low-VBL CEOs. In figure 7, 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 index with dummies for each time period. It shows that relative to the pre-appointment period, the performance difference between firms that hire high-VBL CEOs and firms that hire low-VBL CEOs is close to zero and stable before the appointment, and become positive in the years following the appointment. This alleviates the concern that the positive effect of VBL is mainly the result of pre-appointment shocks to performance.

Columns 2 to 5 in Table 3 report the results obtained when estimating equation 2. Columns 2 only include firm fixed effects, and Columns 3 to 5 include period fixed effects and time-varying controls for firm size. Column 3 interacts with the overall VBL index, and Columns 4 and 5 with the Index of clear visible values and the Index of Strong personal values, respectively. The parameter estimate is positive, significant for the aggregated index (β=0.053 significant at the 5% level), but lacks statistical power to be significant at conventional levels in the sub-indexes.

Interpretation of β: The positive estimated effect indicates that firms hiring a VBL-oriented CEO experience a greater increase in their performances following the appointment, compared to firms hiring a low-VBL CEO. Specifically, taking the parameter estimate in Column 3, hiring a VBL-oriented CEO results in a 5.6 percentage point greater increase in OROA compared to hiring a low-VBL CEO. Note that the counterfactual in our regressions is 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.

Taken together, these within-firm results strongly suggest that VBL positively and causally impacts firm performance. It is worth emphasizing that our lack of evidence for outgoing CEOs' VBL index score is likely to bias our results downwards. Since at least some of the firms in this analysis replaced a VBL-oriented leader with 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 a high-VBL CEO as a consequence. Though this is quite unlikely in our sample of small and medium-sized firms, in the next exercise, we ensure that our results are robust to this concern by employing a research design that allows us to keep the CEO-firm match constant.

5.2.2 CEO hospitalization events

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), CEO 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. (2020) 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

[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.

a source of variation in exposure to the CEO while keeping the firm-CEO match constant. Second, Bennedsen et al. (2020) provide evidence that past performance does 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. (2020) report that a 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 with the VBL index score of the hospitalized CEO. To implement this analysis, we use data from the National Patient Register, which contains all public and private healthcare 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] In addition, in order to avoid events caused by chronic illness that may affect the firm more generally, we exclude CEOs who have been hospitalized three times or more during the sample period.[28] We obtain 533 hospitalization events,[29] 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 performance positively, we should see that firms led by CEOs with a higher VBL score experience a larger decline in performance following a hospitalization shock. We estimate the following model:

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

As before, y_{ift} is OROA of firm f led by CEO i in year t. $\hat{\theta}_i$ is the VBL score of

[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.

[28] Appendix F FigureF.2 shows the distribution of hospitalization events over time.

[29] We observe 287 hospitalization events for VBL-oriented and 246 for low-VBL CEOs, respectively.

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 and, therefore, we do not need to include CEO fixed effects. That is, firm fixed effects within a given CEO spell is the same as a firm-CEO fixed effect. Standard errors are robust and 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 4 ABOUT HERE]

Table 4 shows the results obtained when estimating equation (3). Column 1 includes firm fixed effects.[30] Year fixed effects and time-varying controls for firm size are added in columns 2 to 5. The parameter estimates of the interaction term between hospitalization and VBL index is negative and significant at the 1% level. When the index is splitted between the two subindexes, the Index of clear visible values is significant at the 5% level but the Index on strong values is not statistically significant at conventional levels. Economically, The negative and significant interaction between CEO hospitalization and VBL implies that the higher a CEO's value-based leadership index, the more harmful their absence becomes to organizational return on assets (OROA). While CEO hospitalization is only mildly disruptive when the CEO has low VBL (e.g., a marginal effect of -0.0186 when VBL = 1), it becomes substantially detrimental at higher levels of VBL (-0.2014 when VBL = 5). This suggests that value-based leaders have a stronger positive influence on performance —so when they are forced to be absent, their absence is more deeply felt, possibly because such leaders play more central or irreplaceable roles in setting the vision, motivating staff, or steering day-to-day operations.

[30] Since the CEO is the same in the estimation period, firm and firm-CEO fixed effects are identical.

5.2.3 Placebo test: Reverse causality in the hospitalization-performance link

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 whether future hospitalization has an impact on current performance per se and whether this effect depends 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.

[INSERT TABLE 5 ABOUT HERE]

Table 5 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 with an indicator equal to one if the first hospitalization occurred one and two years after the current year. In this analysis, the coefficients on the interactions between future hospitalization variables and the VBL index and the grouped question close to 0 and not statistically significant. Their p-values range between 0.597 and 0,981. 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.

6 Robustness

6.1 Factor analysis

To confirm the reliability of our VBL index, we conduct an Exploratory Common Factor Analysis (ECFA) on all of the 50 survey items. Appendix B describes the methodology used to calculate these factor scores. The analysis identifies a total of seven latent factors with eigenvalues greater than one. The factor loadings display a clear structure: each factor is characterized by distinct sets of high-loading survey items. Only a few items load substantially on more than one factor.

The ECFA confirms, first of all, that the four survey items used to construct our VBL index represent a common underlying structure. This latent dimension reflects the

degree to which CEOs' personal values influence firm behavior, consistent with the concept of value-based leadership. But ECFA does more; it finds six other factors along the following value dimensions: (i) Honesty, (ii) Altruism, (iii) Nationalism, (iv) Religiosity, (v) Trust, and (vi) Political Engagement. The items that compose the factors all stem from the World Value Survey. As with the VBL index, the distribution of the VBL factor score is right-skewed, indicating that CEOs generally self-report high levels of value-based leadership. Section B.3 replicates the main analyses of this study using the VBL factor score instead of the original VBL index. The results remain qualitatively unchanged, confirming the robustness of our findings.

[INSERT TABLE 6 ABOUT HERE]

Most importantly, we can compare the effect of VBL against the other values. We first interact VBL with the other values and find that there is a positive association between OROA and VBL in all the specification of Table 6. Table 6 shows that Value-Based Leadership (VBL) is positively and significantly associated with firm performance (OROA) across all specifications. The interaction terms between VBL and the other CEO value factors are generally small in magnitude and statistically insignificant, suggesting that the positive relationship between VBL and performance is robust across different value profiles. Only nationalism exhibits a weak direct negative association with performance, independent of VBL. The point estimates of VBL move very little when including different values.

Appendix G further explores the role of individual values by presenting OLS regressions using the full set of survey questions and illustrating how they are grouped into broader categories. The results show that Honesty and Altruism are positively associated with higher OROA, whereas Trust, Nationalism, and Religion are negatively correlated with performance. However, only Altruism and Nationalism exhibit statistically significant relationships at conventional levels.

Taken together, it seems that it is fair to say that VBL is an important factor in explaining the value added of CEOs and that it operates independently from most other values as measured in the World Values Survey.

6.2 Additional controls

In this section, we address the concern that VBL is correlated with other personal and firm characteristics. We include controls for family structure and professional characteristics. For family structure, we include marital status, number of 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)). Additionally, we add the CEO income and AKM person fixed effects from labor market histories as controls for professional characteristics. In Appendix H, we replicate the results of Table 2, Table 3 and Table 4.

The replication of Table 2 with additional CEO controls is shown in Table H.1. The coefficients on the VBL index score and on the Index of clear visible values have similar levels of statistical significance and economic magnitude, even after including this extensive set of controls. The main difference is that the coefficients of the Importance of personal and moral values, that stops being statistically significant at conventional levels.

Next, we add the same additional controls to our causal analysis. In Appendix H, Table H.2, we provide the results of the CEOs' appointment exercise in Table 3 with additional CEO controls. We compare the last three columns and notice that the coefficients are marginally higher when we add additional CEO controls. Furthermore, our result on our two sub indexes are now statistically significant at the 10% level.

Finally, in Table H.3, we replicate the hospitalization exercise of Table 4 with the additional CEO controls. The first column of Table 4 is not replicated as that one did not include controls. We notice that the coefficients for the VBL index and subindexes are marginally more negative but have lower statistical significance.

In conclusion, our findings provide robust evidence of a positive causal relationship between value-based leadership (VBL) and firm performance. This relationship remains consistent across various model specifications, including the inclusion of additional control variables. Our causal analyses, utilizing CEO appointments and hospitalization events, strengthen the causal interpretation of these results. Our analysis further highlights the unique role of VBL among other CEO value factors, as we find no significant link between firm performance and the other value dimensions identified in our

factor analysis.

7 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. We next analyze what value-based leaders do differently from other leaders. In the introduction, we discussed that the theoretical literature has highlighted that: 1) Values may provide guidelines for leadership, particularly in unprecedented situations where experience is lacking; 2) VBL may create a more homogeneous firm culture; and, 3) VBL may reduce coordination costs resulting in less hierarchical organizational structures and less monitoring. In this section, we provide evidence for the existence of all three channels through which leadership based on strong personal values may impact corporate policy.

7.1 Values provide guidelines for leadership in unprecedented times

The personal values of leaders can be guidelines for decision-making in general and particularly in unprecedented situations, where experience-based decision-making is less efficient. We test this using the context of the unprecedented COVID-19 pandemic crisis. We are especially interested in whether VBL is correlated with different leadership priorities and firm policies during crisis.

For the analysis, we use the COVID-19 survey described in Section 2.3. The survey included 23 questions on basic firm characteristics, main priorities, government aid take-up, and labor demand choices during the first part of the COVID-19 crisis in Denmark in 2020.[31] Survey respondents were asked to indicate what their main priorities were during the first 6 months of the pandemic crisis among the local community, employees, customers, and for the survival of the business. In addition, the survey was complemented with register-based information on the number of employees furloughed

[31]The first cases of COVID-19 were reported in Denmark in late January 2020, and the first lockdown of the country was in mid-March 2020. See Bennedsen et al. (2023) for details.

and laid off due to the pandemic and whether the firm took up the early government support programs.

[INSERT TABLE 7 ABOUT HERE]

In Table 7 we present how VBL correlates with priorities, use of government programs and dismissal of employees. We include the same controls as in our main analysis (CEO gender, age, level of education, tenure, firm size measured as number of employees and assets, and 2-digit industry fixed effects), and add revenue change during COVID-19 to account for the heterogeneous impact of the COVID-19 crisis. In Panels A and B our sample is the intersection of the 2015 value survey and the 2020 COVID-19 survey. There are only 120 CEOs who were in the same firm in 2015 and 2020 and who answered both surveys. Despite the small sample size, we notice that value-based leadership is correlated with placing higher priority on stakeholders, especially on the health of employees and their financial situation as well as customers, the local community and, to a lesser extent, owners' interests. The increased focus on the employees' health and financial situation is statistically significant at the 5% level when we use the VBL index score. The other results are not statistically significant at conventional levels.

Motivated by the analysis of the 2015 CEO value survey, we added two key leadership value questions to the 2020 COVID-19 survey.[32]. This allows us to construct a simplified VBL index (simple average of the two questions) for all CEOs that responded to the 2020 survey. The benefit of this is that it increases the sample to 5300 CEOs for whom we have information on VBL and their policy choices during the early part of the COVID-19 crisis. The results of this analysis are presented in Panel B of Table 7.

First, we notice that in this analysis, leaders with a high VBL index also focus more on employees' health and financial situation (Column 1) as well as customers (column 2), and the local community (Column 3) than leaders with a lower VBL index. The effects are economically larger that the coefficients obtained using the 2015 VBL index and are significant at the 1% level. Thus, value-based leaders were more stakeholder-oriented and cared more about the environment in which they were operating during the crisis. It

[32] *"To what extent are your personal values important to the company's operations?" and "To what extent is the business operation based on strong moral values?"*

is worth noting that value-based leaders' focus on stakeholders does not make them less focused on their business, as can be seen from Columns 5 and 6.

Second, value-based leaders did not accept government provided aid programs to furlough employees or help with operational costs more frequently than other leaders (Columns 7 and 8), but they managed to dismiss fewer employees (Column 9). A one-unit increase in the VBL index is associated with a 0.6 percentage point reduction in the share of dismissed workers, significant at the 5% level. Economically, moving from the 10th to the 90th percentile in VBL is associated with a reported 5.95% reduction in employee dismissal.

It is noteworthy that value-based leaders were able to lay off fewer employees without using more help from government programs. Since the government furlough programs typically work as an alternative to laying off employees, the stakeholder focus of the value-based leaders appears to help avoid layoffs without government aid. This is consistent with the notion that VBL functions as a guideline in unprecedented situations where experience-based leadership is less valuable.

7.2 Value-based leadership in normal times: Organizational culture, hierarchies and monitoring

VBL not only helps as guidance in unprecedented times, it also serves as a coordination device in normal times. When the CEOs have strong values that infuse the firms they lead, it serves as a cultural focus point and becomes a benchmark for what is expected from employees in the firm.

[INSERT TABLE 8 ABOUT HERE]

Panel A in Table 8 shows the relationship between VBL and the organizational climate in the firm. We reproduce the specification of equation 1, with measures of organizational climate as our dependent variables. We include the same controls as in our main analysis (CEO gender, age, level of education, tenure, firm size measured as the number of employees and assets, and 2-digit industry fixed effects). Our first organizational climate measure is a variable based on a survey question from the 2015 survey that asked

the CEO to indicate whether there had been serious conflicts in the firm in the last three years. Column 1 shows a negative relationship between VBL and serious conflict that is statistically significant at the 5% level.

While it is remarkable that value-based leaders report fewer conflicts, we investigate this relationship using an objective proxy 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 fewer employees leave the firm. Columns 2 and 3 of Panel A in Table 8 show the relationship between employee turnover and VBL. There is a negative correlation between the VBL factor score and employee turnover, though it is not statistically significant. In order to reduce the noise associated with employee turnover measurements in very small firms, in columns 5 and 6, we reproduce our analysis using only firms with at least 5 employees. The negative relationship between VBL and employee turnover becomes stronger in magnitude and statistically significant at the 5% level. Economically, this implies that one standard deviation increase in VBL associated with 0.1416 standard deviation decrease in turnover (-0.037(0.9668/0.25245)).

To sum up, that VBL lead firms have fewer conflicts and less employee turnover can be interpreted as meaning that VBL provides a more harmonious work environment in normal times. Hence, these results are consistent with the notion that leaders' values can contribute to the formation of a homogeneous corporate culture (Kotter and Heskett (1992); Kreps (1990)).

We next investigate the extent to which value-based leaders differ in the employees they hire, and the types of incentives they provide them. We employ the same specification as equation (1) and include the same control variables as in the previous analyses.

First, we explore correlations with gender, age, and quality of employees. The results are shown in Panel B of Table 8. Columns 1 and 2 show that value-based leaders tend to hire more women (not significant at conventional levels) and younger people (significant at the 10% level), even when we control for the sex and age of the CEO. Though the coefficients are weakly significant, the relationship shows that one unit increase in

VBL associates with a decrease of 1.5 percentage points in the proportion of employees below 40 years old. In Columns 3, we use the same measure of quality based on predicted earnings as in Section 4.3 and detect no differences in the quality of employees between value-based leaders and others.

Second, we investigate whether VBL is associated with different types of organizational structures and the use of wages as an incentive device. In the introduction, we suggested that VBL may reduce coordination costs allowing for less hierarchical organizational structures and less employee monitoring. We test whether value-based leaders run flatter organizations in Column 1 of Panel C in Table 8. We measure hierarchy through the number of hierarchical layers in the firm,[33] and find a negative correlation with the VBL index score, which is significant at the 1% level. The effect implies that one standard deviation increase in VBL is associated with a 0.065 SD decrease in the number of hierarchical layers (-0.094*(0.9668/1.3925)). This is consistent with organizational values serving as a coordination device, and thus substituting for formal governance captured through hierarchical structures.

Third, theoretically it can be argued that through reducing coordination costs VBL induces less employee monitoring. It is worth mentioning that as VBL also induces flatter hierarchical structures, it may may increase the need for direct employee monitoring. In Section 4.4 and Appendix C we document a positive correlation between VBL and survey questions about employee monitoring in the 2020 management practice survey. We therefore conclude that there is no evidence that VBL reduces monitoring of employees.

In the rest of Panel C in Table 8, we analyze the correlation between VBL and wage levels (Column 2) and wage dispersion (column 3) and find no statistically significant or economically meaningful relationships between stronger values and any of these measures.

[33]For each employee, 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.

8 Conclusion

We document that the strength of top leaders' values and how these values are infused into the firms they run have important consequences. We argue that VBL is a unique trait of leadership that is higher in founder-led firms and firms with female leaders. We also document that VBL is not correlated with management practices nor with other dimensions of the leader's quality, such as intelligence.

VBL is positively correlated with firm performance, and we find evidence that this relationship is causal. In our preferred specification, we find that moving from the 10th to the 90th percentile in our VBL measure improves firm performance by 15.6%.

We provide suggestive evidence that VBL improves firm performance through several channels. First, VBL may provide guidelines for decision-making in unprecedented times. We find that value-based led organizations were more resilient in the COVID-19 pandemic crisis and gave more priority to the health of their employees and the community. Second, VBL creates a more homogeneous work environment in normal times, thus reducing conflicts and employee turnover. Finally, VBL is correlated with a flatter organizational structure, which is consistent with the view that organizational values reduce coordination costs.

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9 Tables and Figures

Table 1: Summary Statistics

Table 1 Panel A reports summary statistics for CEOs in the final sample. Panel B reports summary statistics for corresponding firms. CEO-level characteristics included are measured in 2015, and firm-level characteristics are averaged between 2014 and 2016. See Table 9 for definitions of the variables

	N	Mean	Med	S.d.
	(1)	(2)	(3)	(4)
Panel A - CEO-Level Characteristics				
Women (%)	1428	.12	0	.33
Age	1428	52.98	52.5	9.59
Years of education	1416	14.34	14.42	2.18
No degree (%)	1416	.13	0	.33
Student degree (%)	1416	.55	1	.5
University degree (%)	1416	.33	0	.47
Tenure $>$ 16 years	1428	.23	0	.42
Income (DKK)	1428	523147.5	454695	869015.3
Log(income)	1416	13.03	13.03	.62
Immigrant	1428	.03	0	.17
Married	1428	.76	1	.43
N. Children	1340	2.29	2	.85
N. Daughters	1340	1.12	1	.86
VBL Index	1428	4.23	4.25	0.66
Panel B - Firm-Level Characteristics				
OROA	1428	.08	.08	.12
Gross profit margin	1428	17.93	15	10.9
Net income/ assets	1428	.06	.06	.1
Firm age (years)	1428	17.93	15	10.9
A/S type (%)	1428	.41	0	.49
Assets (K DKK)	1428	13185.16	4770.75	30486.55
Log(assets)	1428	8.58	8.47	1.22
Number of employees	1428	14.33	7	58.56
Log(employees)	1428	2.13	1.95	.83
Board of directors (%)	1428	.49	0	.5
Founder CEO (%)	803	.74	1	.44
2 family directors (%)	781	.63	1	.48
3 family directors (%)	781	.27	0	.44

Table 2: VBL and firm performance

Table 2 shows correlations between VBL and measures of firm performance. In columns 1 to 3, the dependent variable is firm average OROA based on years 2014-2016. In columns 4 to 6, the dependent variable is the standard deviation of OROA based on years 2014-2016. The VBL index is our measure of VBL leadership on the average of relevant survey questions identified in a factor analysis. Columns 1 to 6 include CEO gender, age, level of education, a dummy equal to one if the CEO's tenure is above 16, and the logarithm of firm total assets and number of employees. See Table 9 for definition of variables. Industry dummies are 67 two-digit NACE codes. Standard errors are clustered at the industry level. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
		OROA			sd(OROA)	
VBL	0.0126***			-0.0025		
	(0.0044)			(0.0027)		
Clear and visible values		0.0083**			-0.0039*	
		(0.0034)			(0.0019)	
Important personal and moral values			0.0096**			0.0028
			(0.0047)			(0.0022)
Female	0.0182	0.0172	0.0183	0.0084	0.0081	0.0066
	(0.0119)	(0.0115)	(0.0124)	(0.0061)	(0.0063)	(0.0062)
Age	-0.0008	0.0004	0.0008	0.0023	0.0031	0.0030
	(0.0029)	(0.0029)	(0.0030)	(0.0019)	(0.0019)	(0.0019)
Age squared	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
University degree	0.0136	0.0174*	0.0167*	0.0121***	0.0141***	0.0136***
	(0.0086)	(0.0090)	(0.0092)	(0.0037)	(0.0038)	(0.0038)
Tenure>16	-0.0120*	-0.0144**	-0.0152**	-0.0110***	-0.0116***	-0.0115***
	(0.0062)	(0.0063)	(0.0063)	(0.0039)	(0.0039)	(0.0040)
Log(av employees)	0.0019	0.0016	0.0020	0.0112***	0.0125***	0.0122***
	(0.0062)	(0.0062)	(0.0061)	(0.0037)	(0.0037)	(0.0037)
Log(av assets)	0.0037	0.0048	0.0047	-0.0243***	-0.0260***	-0.0260***
	(0.0058)	(0.0058)	(0.0057)	(0.0030)	(0.0030)	(0.0030)
Constant	0.0460	0.0283	0.0063	0.2152***	0.2123***	0.1866***
	(0.0897)	(0.0848)	(0.0961)	(0.0532)	(0.0503)	(0.0512)
Mean of D.V	0.085	0.085	0.085	0.084	0.084	0.084
Observations	1416	1460	1454	1378	1413	1407
Adjusted R^2	0.023	0.025	0.023	0.097	0.108	0.105

Table 3: CEO appointment and change in performance

Table 3 reports changes in performance following the appointment of an above-median versus below-median VBL CEO. The sample is restricted to 139 firms for which we observe a change in CEO in the period 2009 to 2015. The dependent variable is the firms operating return over assets (OROA) in Panel A and the gross profit margin in Panel B. In column 1, the analysis is restricted to pre-appointment years, and in columns 2 to 5, the analyses use all available years of data in the pre- and post-appointment periods. Firm controls include the logarithm of firm total assets and number of employees. See Table 9 for definitions of variables. Standard errors are clustered at the firm level. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)
			OROA		
Trend	-0.0065				
	(0.0058)				
VBL indicator	-0.0139				
	(0.0261)				
Trend x VBL indicator	0.0058				
	(0.0088)				
After appointment		-0.0281*	-0.0198	-0.0337	-0.0775
		(0.0160)	(0.0261)	(0.0516)	(0.0707)
After appointment x VBL index		0.0560***	0.0532**		
		(0.0202)	(0.0205)		
After appointment x Index clear visible values				0.0142	
				(0.0117)	
After appointment x Index Strong personal and moral values					0.0224
					(0.0149)
Observations	600	1206	1185	1215	1208
Adjusted R^2	-0.003	0.009	0.011	0.007	0.007

Table 4: Effect of CEO hospitalization

Table 4 reports the effect of hospitalization of VBL-oriented CEOs. We keep the same sample period as in the previous analysis (2009 to 2016) 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 406 firms where the CEO was hospitalized at least during the sample period. The dependent variable is the firm OROA. Firm controls include the logarithm of firm total assets and number of employees. See Table 9 for variables definitions. Standard errors are clustered at the firm level. *, **, and *** denote significance at 10%, 5%, and 1% respectively.

	(1)	(2)	(3)	(4)	(5)
Dependent variable:			**OROA**		
Hospitalization event, t	-0.0090	-0.0026	0.0271**	0.0602*	0.0264
	(0.0069)	(0.0071)	(0.0114)	(0.0311)	(0.0498)
Hospitalization event, t x VBL index			-0.0457***		
			(0.0143)		
Hospitalization event, t x Index clear visible values				-0.0175**	
				(0.0074)	
Hospitalization event, t x Index Strong personal and moral values					-0.0064
					(0.0110)
Observations	3594	3533	3533	3746	3649
Adjusted R^2	0.002	0.030	0.031	0.002	0.027
Firms	406	406	406	406	406
CEO controls		✓	✓	✓	✓

Table 5: Placebo analysis

Table 5 reports the effect of future first-time hospitalization of VBL-oriented versus low VBL CEOs. We keep the same sample period as in the previous analysis (2009 to 2016) 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 first-time hospitalization events, which corresponds to 342 firms out of the 406 in the study previously. The dependent variable is the firms operating return over assets (OROA) in columns 1 to 3 and the gross profit margin in columns 4 to 6. Firm controls include the logarithm of number of employees and total assets. See Table 9 for definitions of variables. Standard errors are clustered at the firm level. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

Dependent variable:	**OROA**		
	(1)	(2)	(3)
Hospitalization event, t+1	0.0302	0.0312	0.0454
	(0.0506)	(0.0318)	(0.0564)
Hospitalization event, t+1 x VBL index	-0.0078		
	(0.0118)		
Hospitalization event, t+1 x Index clear and visible values		-0.0082	
		(0.0076)	
Hospitalization event, t+1 x Index Strong personal and moral values			-0.0104
			(0.0124)
Observations	2952	3069	3038
Adjusted R^2	0.023	0.023	0.023
Firm F.E.	✓	✓	✓
Year F.E.	✓	✓	✓
Firm controls	✓	✓	✓

Table 6: VBL and other values

Table 6 shows correlations between OROA and different measures of values. Columns 1 to 7 shows multivariate regressions including VBL, another value, and their interaction. Column 7 shows a multivariate regression including all values. Columns 1 to 7 include CEO gender, age, level of education, a dummy equal to one if the CEO's tenure is above 16, and the logarithm of firm total assets and number of employees. See Table 9 for definition of variables. Industry dummies are 67 two-digit NACE codes. Standard errors are clustered at the industry level. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
				OROA			
VBL	0.0116**	0.0123***	0.0127***	0.0130***	0.0129***	0.0141***	0.0134**
	(0.0046)	(0.0044)	(0.0045)	(0.0044)	(0.0044)	(0.0050)	(0.0052)
VBL x Altruism	0.0005						-0.0010
	(0.0031)						(0.0042)
Altruism	0.0052						0.0054
	(0.0039)						(0.0041)
VBL x Trust		-0.0030					-0.0059
		(0.0052)					(0.0054)
Trust		-0.0021					-0.0042
		(0.0040)					(0.0043)
VBL x Religion			-0.0009				-0.0030
			(0.0056)				(0.0060)
Religion			-0.0015				-0.0006
			(0.0027)				(0.0027)
VBL x Nationalism				-0.0010			-0.0013
				(0.0029)			(0.0030)
Nationalism				-0.0029*			-0.0030*
				(0.0016)			(0.0017)
VBL x Honesty					-0.0025		-0.0013
					(0.0073)		(0.0077)
Honesty					-0.0046		-0.0042
					(0.0066)		(0.0067)
VBL x Political engagement						0.0058	0.0085
						(0.0041)	(0.0059)
Political engagement						-0.0004	-0.0009
						(0.0030)	(0.0028)
Female	0.0180	0.0194	0.0182	0.0174	0.0177	0.0185	0.0172
	(0.0117)	(0.0117)	(0.0117)	(0.0119)	(0.0122)	(0.0119)	(0.0118)
Age	-0.0005	-0.0005	-0.0007	-0.0008	-0.0008	-0.0008	-0.0007
	(0.0028)	(0.0027)	(0.0029)	(0.0029)	(0.0029)	(0.0029)	(0.0028)
Age squared	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
University degree	0.0135	0.0141	0.0134	0.0107	0.0135	0.0137	0.0117
	(0.0085)	(0.0085)	(0.0087)	(0.0079)	(0.0086)	(0.0085)	(0.0080)
Tenure >16	-0.0158**	-0.0153**	-0.0114*	-0.0123*	-0.0122*	-0.0118*	-0.0149**
	(0.0062)	(0.0061)	(0.0062)	(0.0064)	(0.0062)	(0.0062)	(0.0061)
Log(av employees)	0.0022	0.0022	0.0021	0.0020	0.0019	0.0016	0.0016
	(0.0059)	(0.0061)	(0.0062)	(0.0062)	(0.0064)	(0.0062)	(0.0060)
Log(av assets)	0.0045	0.0045	0.0037	0.0038	0.0038	0.0038	0.0045
	(0.0057)	(0.0057)	(0.0058)	(0.0058)	(0.0058)	(0.0058)	(0.0058)
Constant	0.0876	0.0835	0.0969	0.0987	0.0983	0.0974	0.0934
	(0.0809)	(0.0783)	(0.0829)	(0.0826)	(0.0818)	(0.0835)	(0.0803)
Observations	1384	1380	1412	1396	1416	1414	1379
Adjusted R^2	0.025	0.025	0.022	0.025	0.022	0.022	0.024

Table 7: VBL and crisis management during COVID-19

Table 7 shows correlations between VBL and measures of crisis management during the COVID-19 pandemic. In columns 1 to 6, the dependent variable is an indicator variable equal to one if the CEO responded, that the area is important or very important in their management decisions during the COVID-19 crisis (*"How important have the following considerations been in your management decisions during the COVID-19 crisis?"*). In columns 7 and 8, the dependent variable is an indicator variable for whether the firm took up the government aid package for labor and fixed costs (based on register data). In column 9, the dependent variable is the share of employees dismissed during spring 2020 (based on register data). All columns include CEO gender, age, level of education, a dummy equal to one if the CEO's tenure is above 16 years (only in Panels A and B), the logarithm of firm total assets and number of employees, industry fixed effects (1-digit codes in Panels A and B, and two-digit NACE codes in Panel C), and revenue change due to the COVID-19 crisis as a percentage. In Panels A and B, results are reported for the sample of CEOs included in the main study who also answered the 2020 COVID-19 survey. In Panel C, results are reported for all CEOs included in the 2020 COVID-19 survey. Standard errors are clustered at the industry level. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

Dependent variable:	**Priorities in management decisions during crisis:**						**Use of government aid:**		**Labor cut**
	Employees' health & economy	Customers	The community	Owners' interest	Growth & bottom line	The companies' survival	Labour cost	Fixed costs	Share dismissed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: 2015 Survey, VBL index									
VBL Index (2015)	0.131**	0.138	0.153	0.121	-0.066	0.020	-0.039	-0.045	-0.032
	(0.061)	(0.085)	(0.117)	(0.133)	(0.072)	(0.084)	(0.081)	(0.040)	(0.031)
Mean of Dependent Variable	.483	.449	.336	.597	.547	.692	.342	.175	.2
Adj. R^2	.214	.205	.246	.183	.146	.155	.363	.479	.316
Firms	118	118	119	119	117	120	114	114	120
Panel B: 2020 Survey, VBL index									
VBL Index (2020)	0.146***	0.125***	0.120***	0.048***	0.031***	0.082***	-0.006	-0.001	-0.006**
	(0.007)	(0.008)	(0.008)	(0.009)	(0.009)	(0.008)	(0.006)	(0.006)	(0.003)
Mean of Dependent Variable	.503	.474	.358	.544	.587	.703	.31	.189	.202
Adj. R^2	.085	.068	.071	.045	.054	.092	.4	.447	.135
Firms	5272	5258	5244	5187	5201	5257	5303	5303	5303
Sex	✓	✓	✓	✓	✓	✓	✓	✓	✓
Age	✓	✓	✓	✓	✓	✓	✓	✓	✓
University Degree	✓	✓	✓	✓	✓	✓	✓	✓	✓
Long Tenure (Panels A and B)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Log(av. assets)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Log(av. employees)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Revenue change (%)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Industry F.E.	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table 8: What do VBL leaders do?

Table 8 shows correlations between VBL and measures of the organizational climate (Panel A), employee composition (Panel B), organizational incentives (Panel C). All time-varying variables are averaged based on the years 2014-2016 (except the employee turnover rate, which is based on years 2014-2015). In Panel A, the dependent variables are: an indicator for whether the CEO reported conflicts in the firm (survey question: *"Have there been serious conflicts between owner(s) and management that have significantly affected the company's operations, e.g., by blocking effective decision making?"*, columns 1 and 2) and employee turnover rate excluding the management level (columns 3 to 6). In Panel B, the dependent variables are: the proportion of female employees (columns 1 and 2), the proportion of employees younger than 40 (columns 3 and 4) and the employees' average predicted quality based on earnings regressions (columns 5 and 6). In Panel C, the dependent variables are: the number of hierarchical layers in the firm (columns 1 and 2), the average hourly wage in Danish kroners (columns 3 and 4) and the standard deviation of hourly wages in Danish kroners (columns 5 and 6). All columns include CEO gender, age, level of education, a dummy equal to one if the CEO's tenure is above 16, the logarithm of firm total assets and number of employees, 2-digit industry fixed effects. Standard errors are clustered at the industry level. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

Panel A: Organizational climate			
Dependent variable:	Conflict	Turnover (excl. top management)	Turnover (excl. top management) 5+ employees firms
	(1)	(2)	(3)
VBL Index	-0.035**	-0.021	-0.037**
	(0.015)	(0.013)	(0.016)
Mean of Dependent Variable	.083	.272	.272
Adj. R^2	.03	.088	.15
Firms	1369	1187	920
Panel B: Selection of employees			
Dependent variable:	Prop. women	Prop. below 40 y.o.	Av. predicted quality
	(1)	(2)	(3)
VBL Index	0.024	0.015*	-0.004
	(0.015)	(0.008)	(0.005)
Mean of Dependent Variable	.351	0.472	11.092
Adj. R^2	.393	.177	.333
Firms	1400	1398	1395
Panel C: Hierarchy and wages			
Dependent variable:	Hierarchy	Log(av. wage)	Wage dispersion
	(1)	(2)	(3)
VBL Index	-0.094**	0.804	0.243
	(0.035)	(1.123)	(0.861)
Mean of Dependent Variable	2.345	188.488	47.095
Adj. R^2	.618	.377	.153
Firms	1100	1397	1358
2-digit industry F.E.	✓	✓	✓

Table 9: 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
High School degree	Variable is equal to 1 if the CEO has a high school 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
Long tenure	Variable is equal to 1 if the CEO has spent 16 years or more in the company, and 0 otherwise	Business registers
Income	CEO's salary income	Administrative registers
Log(income)	Logarithm of the CEO's salary income	Administrative registers
Immigrant	Variable is equal to 1 if the CEO is afirst- or second-generation immigrant, and 0 otherwise	Administrative registers
Married	Variable is equal to 1 if the CEO is married, and 0 otherwise	Administrative registers
No. Children	Number of children	Administrative registers
No. Daughters	Number of daughters	Administrative registers
IQ score	IQ test score recorded during men's military service	Administrative registers
Predicted log earnings	Logarithm of predicted earnings based on gender, age, education, and second-order polynomial in experience. Coefficients are obtained based on Mincer regressions estimated for the universe of workers in Denmark between 1995 and 2010.	Administrative registers
AKM fixed effects	Person fixed effects estimated in AKM regressions including fourth-order polynomials in age and experience and second-order polynomials in tenure and years of education for the universe of workers in Denmark between 1990 and 2006.	Administrative registers
VBL factor score	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	Political engagement score, based on factor analysis	CEO survey
Altruism	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
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
Assets	Book value of total assets	Accounting register
Log(assets)	Logarithm of the book value of total assets	Accounting register
Employees	Number of employees	Accounting register
Log(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 sit on the board of directors, and 0 otherwise	Business register
Family firm	Variable equal to 1 if i) 3 or more family members sit on the board of directors or ii) the CEO is the founder	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-19 crisis, and 0 otherwise	COVID-19 survey
Dismissal	Variable equal to one if the CEO has indicated that the company dismissed employees during the COVID-19crisis, and 0 otherwise	COVID-19survey
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: Distribution of survey answers

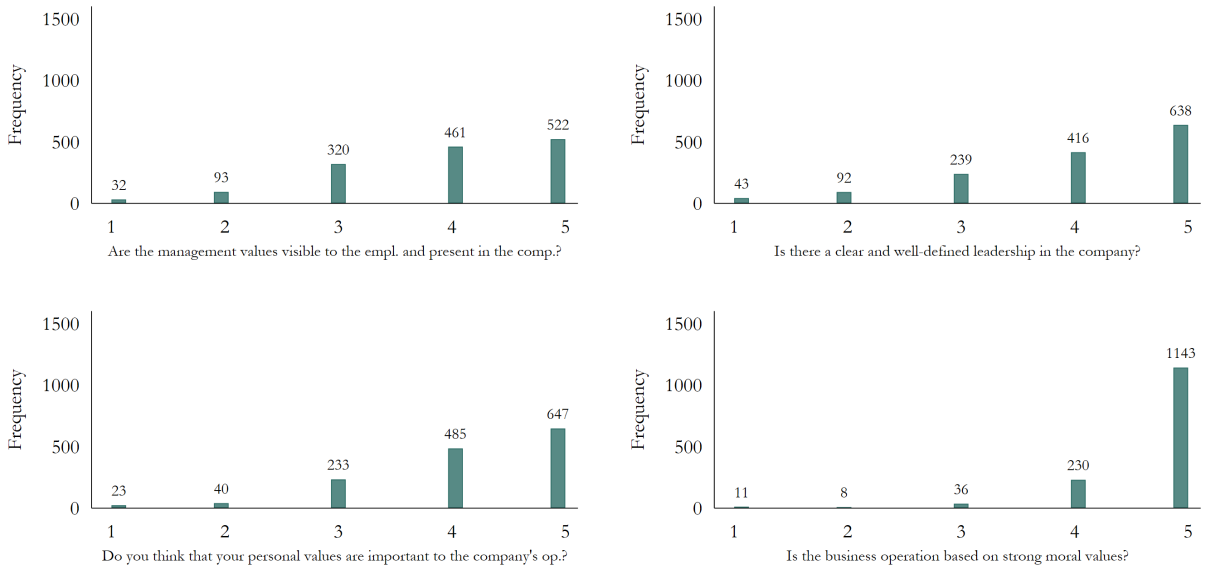

Figure 1 shows the distribution of answers to questions used in the scoring of the VBL index and the VBL factor. Questions are ordered based on their salience to the VBL construct and are, from upper left to lower right: "To what extent are the management values visible to the employees and present in 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 promises, and treating all stakeholders well?".

Figure 2: Distribution of index scores

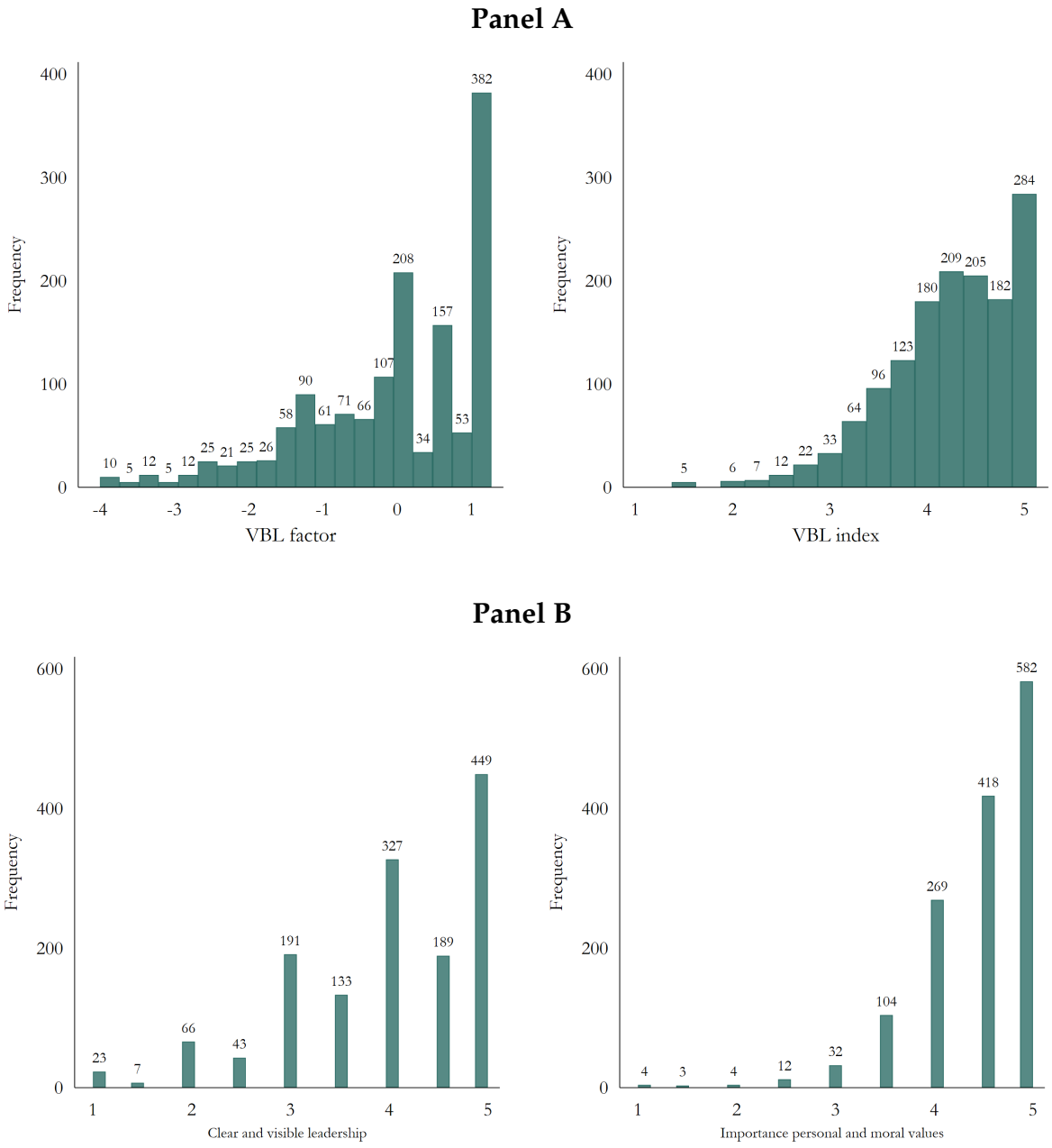

Figure 2 Panel A shows the distributions of the VBL factor score and the VBL index. Panel B shows the distribution of the indexes "Clear and visible leadership" and "Importance of personal and moral values ".

Figure 3: VBL and firm characteristics

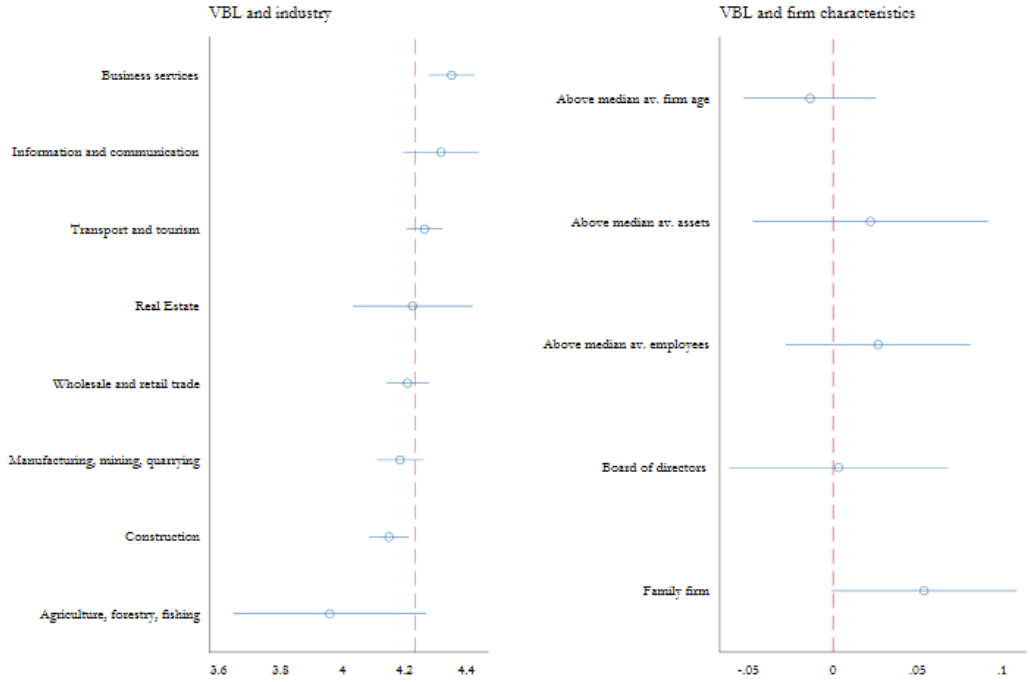

Figure 3: The left-hand side graph plots the coefficients and 90% confidence intervals of a multivariate regression with the VBL index as the LHS variable; no constant is used. The right-hand side graph plots the coefficients and 90% confidence intervals of univariate regressions. See Table 9 for definitions of the variables. Robust standard errors.

Figure 4: VBL and CEO characteristics

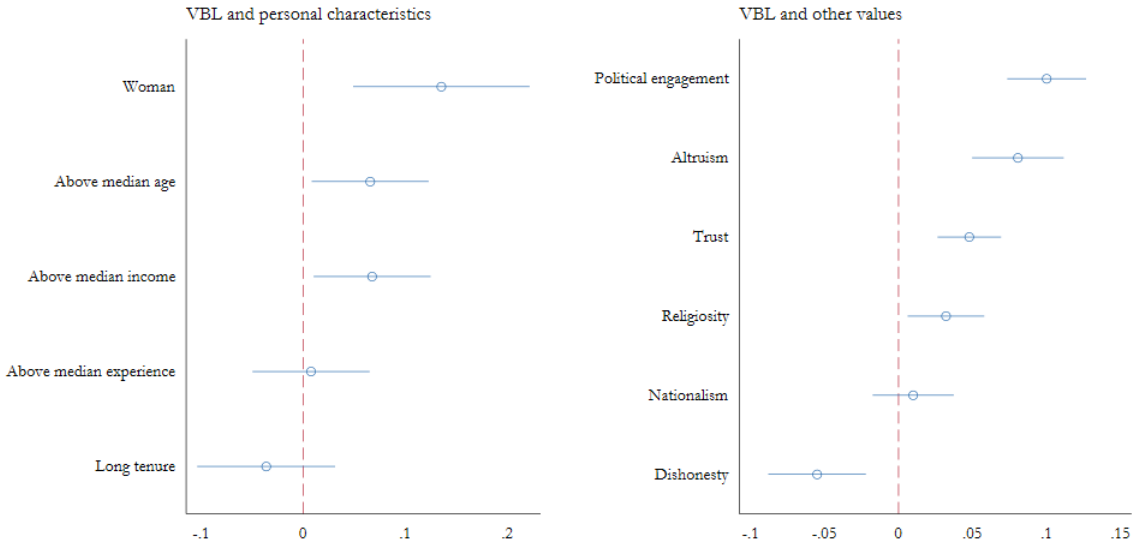

Figure 4: The Left-hand side graph plots the coefficients and 90% confidence intervals of univariate regressions using VBL index as the LHS variable. The right-hand side graph plots the coefficient and 90% confidence intervals of univariate regressionsusing VBL index as the LHS variable and the RHS are simple indices of answers to questions relating political engagement, altruism, trust towards institutions, religiosity, nationalism and dishonesty. Table 9 lists each questionnaire item. Robust Standard errors.

Figure 5: VBL and CEO quality

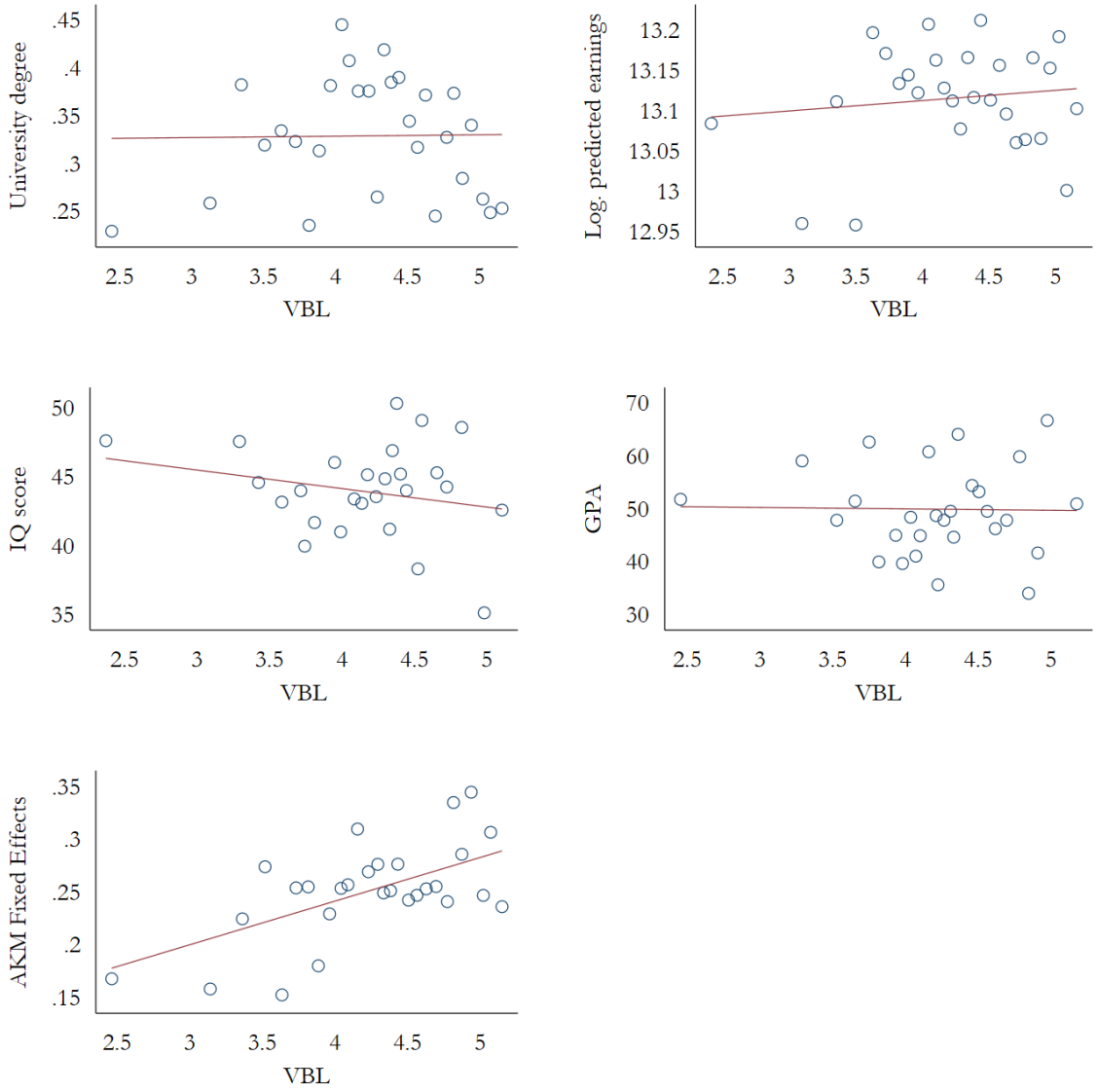

Figure 5: Binned scatter plots corresponding to regressions of different measures of CEO ability on the VBL index score and CEO gender, age, and 2-digit industry fixed effects. Data are plotted using bins of residualized outcomes sorted on the VBL index score and the red lines plot the predicted values. In the first graph, the outcome is a dummy indicating whether the CEO has a university degree. In the second graph, the outcome is the logarithm of predicted earnings based on out-of-sample Mincer regressions. In the third graph, the outcome is the IQ test score available for a subsample of male CEOs who attended the military draft session. In the fourth graph, the outcome is the GPA at last year of high schoool. In the fifth graph, the outcome is the person fixed effect estimated in AKM regressions for the full Danish active population between 1995 and 2007. See Table 9 for more details of the definitions of the variables.

Figure 6: VBL and firm performance

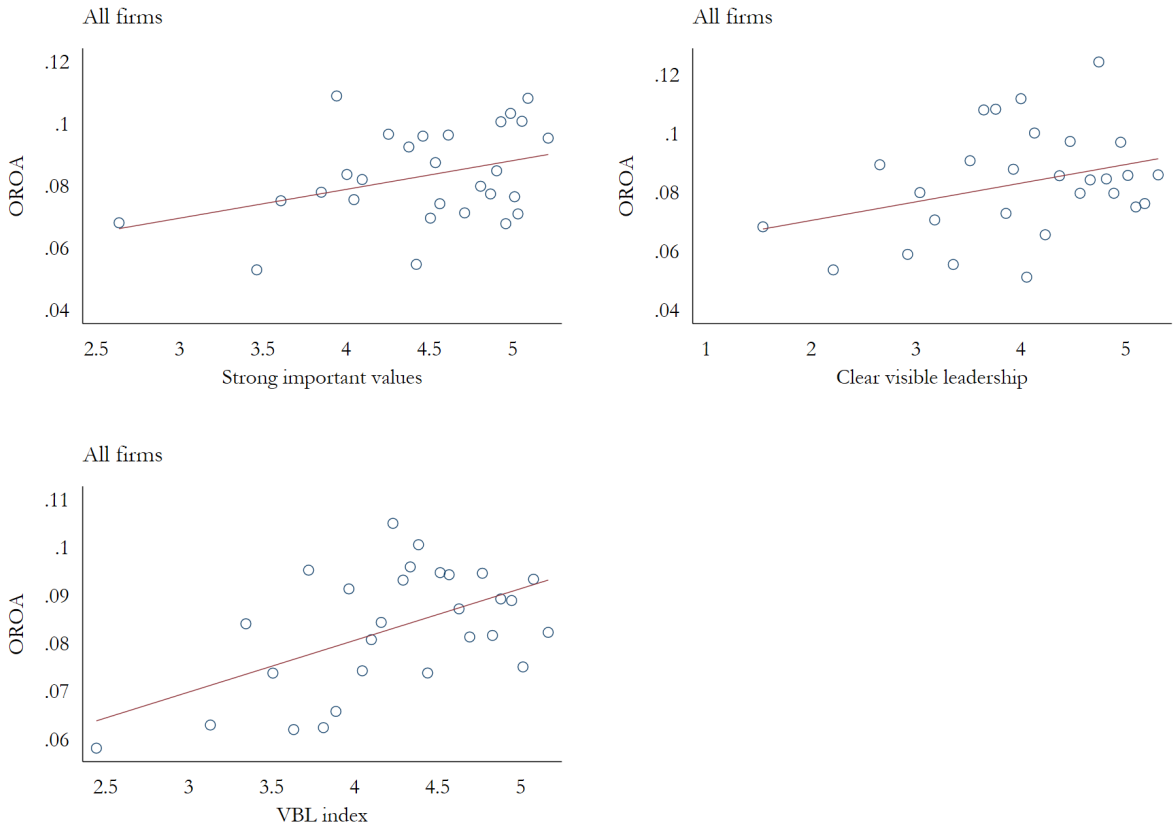

Figure 6: Binned scatter plots corresponding to OLS regressions of firm average OROA on the Strong important values index, the clear visible leardership index and the Value based leadership index, respectively. These regressions control for CEO gender, age, level of education, a dummy equal to one if the CEO's tenure is above 16 years, the logarithm of firm total assets and number of employees, and 2-digit industry fixed effects. Data are plotted using bins of residualized outcomes sorted on the indexes, and the red lines plot the predicted values. See Table 9 for the definitions of the variables.

Figure 7: Difference in OROA between firms hiring a high-VBL and a low-VBL CEO

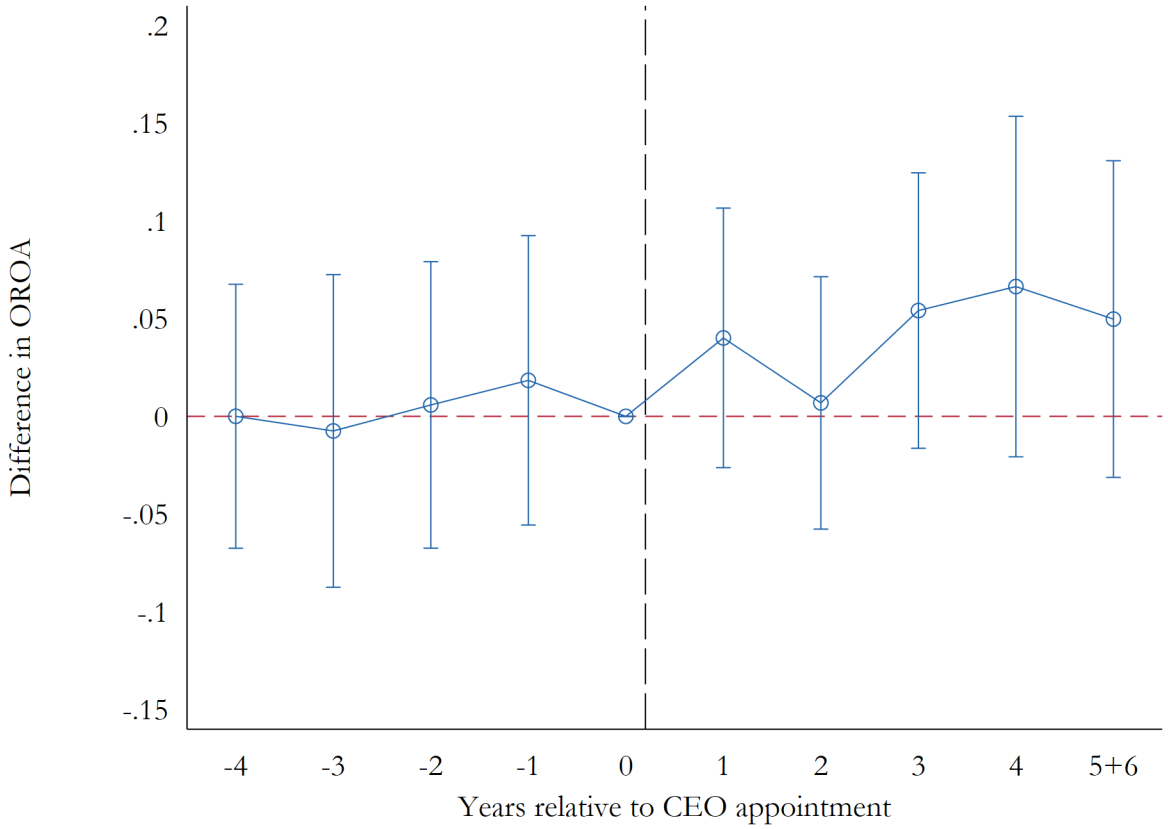

Figure 7 shows coefficients and 95% confidence intervals from a regression of OROA on the high-VBL index interacted with each time-period dummy. The reference period is 0, i.e., 1 year before the CEO was observed at the helm of the company for the first time. The model includes time-varying controls for firm size (logarithm of firm total assets and number of employees), period fixed effects and firm fixed effects. Standard errors are clustered at the firm level. Due to the low number of observations, time periods 5 and 6 are pooled together. See Table 9 for the definitions of the variables.

Appendix A Survey questions, respondent bias and verification of answers

A.1 List of Survey Questions

Table A.1: 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 to be 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 promises and treating employees, customers and suppliers well?	1: Not at all - 5: Greatly
To what extent is each of the following important in your life? - Work	1: Not at all - 5: Greatly
To what extent is each of the following important in your life? - Family	1: Not at all - 5: Greatly
To what extent is each of the following important in your life? - Friends and acquaintances	1: Not at all - 5: Greatly
To what extent is each of the following important in your life? - Leisure	1: Not at all - 5: Greatly
To what extent is each of the following important in your life? - Politics	1: Not at all - 5: Greatly
To what extent is each of the following important in your life? - Religion	1: Not at all - 5: Greatly
To what extent do you approve of the following 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 om taxes if you have the option	1: Not at all - 10: Greatly
To what extent do you approve of the following actions? To drive a car that belongs to someone else without his/her permission	1: Not at all - 10: Greatly
To what extent do you approve of the following actions? That married men and women have a relationship outside marriage	1: Not at all - 10: Greatly
To what extent do you approve of the following actions? To receive bribes in connection 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 is the following important for a happy marriage? Fidelity	1: Not at all - 5: Greatly
According to you, to what extent each is the following important for a happy marriage? Sufficiently high income	1: Not at all - 5: Greatly
According to you, to what extent each is the following 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 is the following 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 place your own political stance?	1: Left wing - 10: Right wing
What do you think the government should do? "Let anyone into the country anyone who wants to come"; "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 from entering the country"	1 unique choice among the 4 options

Table A.1: Survey questions

On a scale of 1 to 10, please indicate the extent to which you agree with the following statement: immigrants take jobs from Danes?	1: Not at all - 10: Greatly
On a scale of 1 to 10, please indicate the extent to which you agree with the following statement: the country's culture is being undermined by the immigrants?	1: Not at all - 10 :Greatly
On a scale of 1 to 10, please indicate the extent to which you agree with the following statement: immigrants make the problems with crime worse?	1: Not at all - 10: Greatly
On a scale of 1 to 5, please indicate the extent to which 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
On a scale of 1 to 5, please indicate the extent to which 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
On a scale of 1 to 5, please indicate the extent to which 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
On a scale of 1 to 10, how would you characterize your childhood home politically?	1: Left wing - 10: Right wing
On a scale of 1 to 5, please indicate the extent to which 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 group concerns you? Your closest family	1: Not at all - 5: Greatly
To what extent do you feel the living conditions of the following group concerns 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 group concerns you? Your countrymen	1: Not at all - 5: Greatly
To what extent do you feel the living conditions of the following group concerns you? Europeans	1: Not at all - 5: Greatly
To what extent do you feel the living conditions of the following group concerns you? The Mankind	1: Not at all - 5: Greatly
To what extent do you agree with the following statement? I would like to donate 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

A.2 Selection analysis in survey answers

The survey on leadership values was sent out to 49.799 CEOs. These were all CEOs of active limited liability companies with at least one employee according to data from the Ministry of Business (E&S dataset) and from Statistics Denmark (the FIRE dataset). We received 13,593 answers, resulting in a final response rate of approximately 27%. However, the majority of answers were from CEOs who manage firms with 1-3 employees. Therefore, the size our sample of responding CEOs who manage firms with more than 3 employees for whom we have additional firm and personal socio-economic variables is 1,428, which is the sample we use in the main analysis.

In Table A.2 we provide a selection analysis focusing on the extent to which there is a bias in the types of CEOs who answered our survey. In Column 1 we look at all CEOs who were sent the survey and for whom we can identify age, years of education and income in our registers. This leaves us with 46,080 CEOs. In Column 2 we look at the subsample where we are able to identify firm variables on size, employees, age and performance. This reduces the sample to 10,925 CEOs. In Column 3 we focus on those CEOs who run firms with more than 3 employees (6,227 CEOs) and in Column 4 we introduce firm controls which reduces the sample to 5,462 CEOs.

We notice that among all CEOs who received a survey there is a tendency for males to answer more frequently. Furthermore, older and more educated CEOs with higher earnings are also more likely to answer. The gender bias is reversed when we add firm controls, then women are more likely to answer our survey. We also notice a small bias in firm age and performance: CEOs of younger firms and better performing firms are more likely to answer. Analyzing firms with more than three employees, we see that the gender bias is statistically weak (and absent without firm controls) but that the bias on CEO age, education and income is very similar to the entire sample. With respect to firm characteristics, we notice that the age bias disappears but we still have that CEOs of better performing firms are marginally more likely to answer our survey.

Table A.2: 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 columns 1 and 2, we characterize selection bias using the full sample. In columns 3 and 4, 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 No. 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

A.3 Revealed-preference validation

Do self-reported views on family, religion, altruism, and political engagement correlate with objective information recorded in the registers and survey information regarding behaviors? For family values, we use the population registers that include information on marital and family situation and use dichotomous variables for the following questions: "To what extent is family important in your life?" (Family is important in my life), "To what extent is your family cohesive and united?" (My family is united), "Do you agree with the following statement? Marriage or a stable relationship is a condition for happiness" (Stable relationship is important for happiness), "To what extent do you think that children are important for a happy marriage?" (Children are important in a marriage).

For religious and altruistic values, we use the church register that includes information on church membership for the entire Danish population, and a survey conducted by Statistics Denmark in which respondents were asked to report whether they volunteered in any capacity in the last 3 months. As outcomes, we use dichotomous variables for the following questions: "To what extent is religion important in your life?" (Religion is not important in my life), "To what extent do you consider yourself to be religious?", and "To what extent do you feel that living conditions of people in your area concern you?" (I am concerned about living conditions of people in my area). For political attitudes, we use surveys conducted by Statistics Denmark in which respondents were asked to report how frequently they read, listened, or watched the news in the past week and whether they participate in the public debate. The outcome is a dichotomous variable of the question "To what extent are you interested in politics?" (I am not interested in politics).

Table A.3: Validation of survey questions

Table A.3 shows correlations between survey questions and corresponding register-based variables using the unrestricted survey sample. Panel A reports associations between views on family and family situation. Panel B, reports associations between religiosity and church membership, and between concerns for living conditions in one's local area and volunteering. Panel C reports the association between interest in politics and news consumption and participation in the public debate. Robust standard errors. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

Panel A: Views on family				
Dependent variable:	**Family is important in my life**	**My family is united**	**Stable relationship is important for happiness**	**Children are important in marriage**
	(1)	(2)	(3)	(4)
Married	0.128***	0.207***	0.154***	
	(0.010)	(0.010)	(0.012)	
No. Children				0.053***
				(0.006)
Mean of Dependent Variable	.778	.487	.576	.596
Adj. R^2	.016	.029	.017	.008
Observations	12307	12091	9600	11087
Panel B: Religiosity and altruism towards neighbors				
Dependent variable:	**Religion is not important in my life**	**I am not religious at all**	**I am concerned by living conditions of people in my area**	
	(1)	(2)	(3)	
Church membership	-0.205***	-0.254***		
	(0.013)	(0.013)		
Volunteering			0.272***	
			(0.061)	
Mean of Dependent Variabl	.49	.46	.453	
Adj. R^2	.019	.029	.073	
Observations	12414	12410	247	
Panel C: Interest in politics				
Dependent variable:	**I am not interested in politics**	**I am not interested in politics**		
	(1)	(2)		
News consumption: once a day or more	-0.389**			
	(0.163)			
Participation in the public debate		-0.176***		
		(0.064)		
Mean of Dependent Variable	.147	.2		
Adj. R^2	.101	.048		
Observations	109	150		

Panel A of Table A.3 shows a statistical and numerically very strong correlation between being married (measured through register data) and having stronger family values (measured as answers to our survey). Married CEOs respond that family life is more important, that his or her family is more united and that a stable relationship is more important for happiness relative to unmarried CEOs. There is also a strong correlation between having more children (measured through register data) and survey answers of Children being important in marriage. All these correlations are statistically significant at a 1% level.

Panel B of Table A.3 depicts a strong correlation between register measured prox-

ies of religiosity and survey answers of being religious. Our register measure is whether a CEO is member of the official protestant church in Denmark (which means paying church tax which is registered at Statistic Denmark) and the answers to our two survey questions on the importance of religion in the CEO' life. We see a statistically very strong correlation, CEOs who are not a member of the official church are less likely to state that religion is important in their life.

Panel B also verifies CEOs answers to concern about living conditions in the local neighborhood. This survey question is strongly correlated with the frequency of CEOs engagement in volunteer work. The latter is a variable in the register that is based on a national culture survey conducted by Statistics Denmark.

We apply the same culture survey to verify our CEOs' answers to two political questions in Panel C. We see a strong statistical correlation between consumption of news and participating in the public debate (measured in the national cultural survey) and our CEOs interest in politics (measured in our value survey).

To sum up, Table A.3 yields strong evidence that validates our survey answers through correlating CEO answers with proxies for the same questions in Statistics Denmark's registers.

A.4 Persistence of CEO values through survey repetition

In April 2020 we conducted a survey on the short-term consequences of COVID-19 on Danish firms. The survey was sent out to 44,374 firms and yielded a response rate of about 25%. In the survey we included two of the four questions from Table B.2 that are part of our value-based leadership definition. The two questions were; "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?"[34].

To check the persistence of VBL over time, we build an index of VBL in 2020 as the average of these two questions and focus on the sample of CEOs in our main sample

[34]Space limitation in the survey questionnaire prevented us from asking all four questions used in the measure of the VBL factor score in 2015. We therefore decided to include questions with the highest loading on the 2015 VBL factor score, which are also those with the most intuitive interpretation.

of almost 1,500 CEOs who also answered the 2020 survey (N=120). Results are displayed in Figure A.1.

Figure A.1: Binned scatter plots of 2020 VBL index on 2015 VBL index

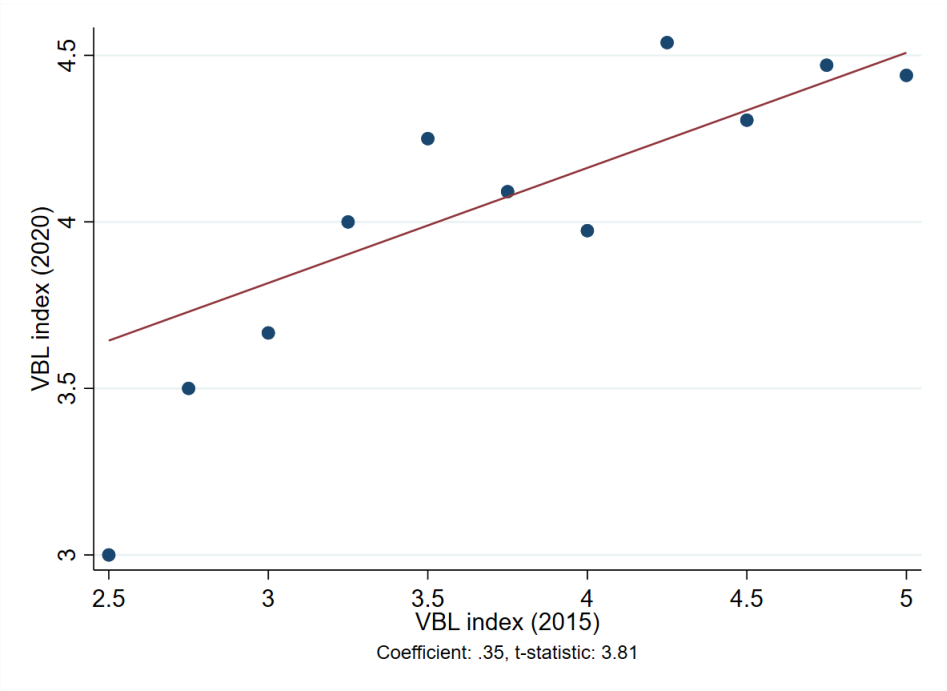

Figure A.1 shows binned scatter plots corresponding to regressions of the 2020 VBL index on the 2015 VBL index. N=120.

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 score will score, on average, 0.24 point higher on the 2020 VBL factor score (see Figure A.1). This correlation is statistically significant at all conventional levels.

Though the predictiveness of the VBL factor score is sizable, especially considering that the two measures were taken 5 years apart, the correlation is not 1. This may be partly due to measurement error,[35] variation in leadership styles over time due to important life events or changes in economic conditions[36] as well as differences in the number

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

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

of questions used in the construction of the 2015 and 2020 VBL indexes.

Appendix B Factor analysis

We start by exploring the main underlying dimensions of the variation in survey answers. The survey includes a relatively high number of questions, and our prior is that they are multiple noisy measurements of fewer underlying constructs.

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)).[37] 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 us 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 B.1 shows the results of ECFA for the 50 survey items. We obtain seven latent factors with an eigenvalue higher than one.[38] Each cell of table B.1 corresponds to a given factor loading on a given item.[39] Factor loadings display a clear pattern: seven factors have distinct sets of loadings, and a 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 follows, we discuss the salience and measurement of VBL in the data, and below we describe the six other factors that cover dishonesty, altruism, nationalism, religiosity, trust, and political engagement.

[37] 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)).

[38] 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 themselves.

[39] 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.

Table B.1: 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 the 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 identification of 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 A.1.

	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: neighbors		0.692					
Concerns: Mankind		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 discussion: small businesses			0.294				
Important 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	
Important in marriage: children						0.302	
Cohesive family				0.269		0.269	
Important 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
Important in marriage: fidelity							
Children should not make sacrifices 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 the 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 that measures the transparency of leadership ("To what extent is there a clear, focused, and well-defined leadership in the company?") has he second highest loading, followed by variables that measure 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 promises, treating all stakeholders well?"). Though our survey was designed to measure other important constructs, such as political orientation or environmental concerns (see Table A.1 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 a high and unique loading on factor four[40]. 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,[41], 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,[42] which accounts for how salient each variable is to the concept being measured.

[40] 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 B.1 indicate retained variables.

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

[42] 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 factor and coefficient scores is estimated using Maximum Likelihood.

Table B.2 reports the estimated weights used to generate the VBL factor score [43]. The factor score is standardized to have zero mean and a standard deviation of approximately 1. We call this measure the VBL "factor score": A more VBL-oriented leadership style is reflected in higher VBL factor scores.

Table B.2: VBL factor scoring

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

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, e.g., keeping promises, treating employees, customers and suppliers well?	0.12

[43] Table B.3 reports Cronbach alphas and weights for other factors in the data.

B.2 Additional factors

Our factor analysis identified 7 underlying factors in our CEO survey. Whereas our analysis focuses on value-based leadership which is well-defined as one of the 7 factors, it is worth briefly define the other 6 factors. We do this in Table B.3:

Table B.3: 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 of the following actions?	
	- To receive bribes in connections with one's work area.	0.44
	- To drive a car without permission that belongs to someone else.	0.27
	- To receive social benefits that you are not entitled to.	0.21
	- To cheat on 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
	- Mankind.	0.18
Nationalism ($\alpha = 0.7$)	On a scale of 1-10, please indicate the extent to which you agree with the following statements:	
	- 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 to be religious?	0.54
	To what extent is religion important in your life?	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
	- The parliament	0.85
Political Engagement ($\alpha = 0.7$)	To what extent are you interested in politics?	0.70
	To what extent is politics important in your life?	0.50
	Was politics discussed a lot in your childhood home?	0.17

Factor 1 (Propensity to cheat): This 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 on taxes, driving someone else's car without permission, cheating in marriage or receiving bribes.

Factor 2 (Concern for others): This captures 17% of the variance and has positive and high loadings on all questions capturing concern for various reference groups. We interpret this as the strength of concern for specific others, and other people in general.

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

Factor 5 (Religiosity level): This 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): This 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 engagement): This explains 10% of the variance and 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.

B.3 Factor analysis for robustness check

We reproduce all the results from Tables 2 to 7 using the VBL factor instead of the index. The results remain qualitatively the same, indicating that our main conclusions hold regardless of the measure used. Here listed as tables B.4 to B.9.

Table B.4: VBL and firm performance

Table B.4 shows correlations between VBL and measures of firm performance. In columns 1 to 3, the dependent variable is firm average OROA based on years 2014-2016. In columns 4 to 6, the dependent variable is the gross profit margin. The VBL index is our measure of VBL leadership on the average of relevant survey questions identified in a factor analysis. Columns 1 to 6 include CEO gender, age, level of education, a dummy equal to one if the CEO's tenure is above 16, and the logarithm of firm total assets and number of employees. See Table 9 for definition of variables. Industry dummies are 67 two-digit NACE codes. Standard errors are clustered at the industry level. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

	(1)	(2)
	OROA	
VBL factor	0.0063**	0.0064**
	(0.0028)	(0.0027)
Female		0.0184
		(0.0118)
Age		-0.0008
		(0.0029)
Age squared		-0.0000
		(0.0000)
University degree		0.0137
		(0.0086)
Tenure>16		-0.0119*
		(0.0062)
Log(av employees)		0.0018
		(0.0062)
Log(av assets)		0.0038
		(0.0058)
Constant	0.0837***	0.1017
	(0.0057)	(0.0822)
2-digit industry Fixed Effects	✓	✓
Observations	1428	1416
Adjusted R^2	0.003	0.022

Table B.5: CEO appointment and change in performance

Table B.5 reports changes in performance following the appointment of an above-median versus below-median VBL CEO. This VBL is now calculated based on the factor analysis. The sample is restricted to 139 firms for which we observe a change in CEO in the period 2009 to 2015. In columns 1 and 2, the dependent variable is the firm OROA, and in column 3, it is the firm ratio of net income to total assets. Firm controls include the logarithm of firm total assets and number of employees. CEO controls include CEO AKM fixed effects, the logarithm of salary income, an indicator variable for immigration status, an indicator variable for whether the CEO is married, number of children, number of daughters, and all value factors (honesty, altruism, nationalism, religion, trust, and political interest) as well as their interactions with the after appointment indicator variable. See Table 9 for definitions of the variables. Standard errors are clustered at the firm level. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)
		OROA	
Trend	-0.0065		
	(0.0058)		
VBL indicator	-0.0139		
	(0.0261)		
Trend x VBL indicator	0.0058		
	(0.0088)		
After appointment		-0.0145	-0.0062
		(0.0143)	(0.0251)
After appointment x VBL factor		0.0383*	0.0369*
		(0.0200)	(0.0201)
Firm F.E		✓	✓
Period F.E			✓
Firm Contols			✓
Observations	600	1206	1185
Adjusted R^2	-0.003	0.004	0.006
firms	137	139	139

Table B.6: Effect of CEO hospitalization

Table B.6 reports the effect of hospitalization of VBL-oriented versus low VBL CEOs. This VBL is calculated based on the factor analysis. We keep the same sample period as in the previous analysis (2009 to 2016) 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 406 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 firm total assets and number of employees. See Table 9 for variables definitions. Standard errors are clustered at the firm level. *, **, and *** denote significance at 10%, 5%, and 1% respectively.

Dependent variable:	**OROA**		
	(1)	(2)	(3)
Hospitalization event, t	-0.009	-0.003	0.027**
	(0.007)	(0.007)	(0.011)
Hospitalization event, t × VBL factor	-0.014**	-0.015**	
	(0.006)	(0.006)	
Firm F.E.	✓	✓	✓
Year F.E.		✓	✓
Firm controls		✓	✓
Mean of D.V.	.066	.066	.066
Adj. R2	.002	.03	.031
Observations	3594	3533	3533
Firms	406	406	406

Table B.7: Placebo analysis

Table B.7 reports the effect of future first-time hospitalization of VBL-oriented versus low VBL CEOs. We keep the same sample period as in the previous analysis (2009 to 2016) 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 first-time hospitalization events, which corresponds to 342 firms out of the 406 in the study previously. The dependent variable is the firms operating return over assets (OROA). See Table 9 for definitions of variables. Standard errors are clustered at the firm level. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

	(1)	(2)
	OROA	
Hospitalization event, t+1	-0.003	
	(0.008)	
Hospitalization event, t+1 × VBL factor	-0.005	
	(0.006)	
Hospitalization event, t+2		0.008
		(0.009)
Hospitalization event, t+2 × VBL factor		0.005
		(0.008)
Adj. R2	.023	.024
Observations	2952	2952
Firms	342	342

Table B.8: VBL and crisis management during COVID-19

Table B.8 shows correlations between VBL and measures of crisis management during the COVID-19 pandemic. In columns 1 to 6, the dependent variable is an indicator variable equal to one if the CEO responded, that the area is important or very important in their management decisions during the COVID-19 crisis (*"How important have the following considerations been in your management decisions during the COVID-19 crisis?"*). In columns 7 and 8, the dependent variable is an indicator variable for whether the firm took up the government aid package for labor and fixed costs (based on register data). In column 9, the dependent variable is the share of employees dismissed during spring 2020 (based on register data). All columns include CEO gender, age, level of education, a dummy equal to one if the CEO's tenure is above 16 years (only in Panels A and B), the logarithm of firm total assets and number of employees, industry fixed effects (1-digit codes in Panels A and B, and two-digit NACE codes in Panel C), and revenue change due to the COVID-19 crisis as a percentage. In Panels A and B, results are reported for the sample of CEOs included in the main study who also answered the 2020 COVID-19 survey. In Panel C, results are reported for all CEOs included in the 2020 COVID-19 survey. Standard errors are clustered at the industry level. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

Dependent variable:	**Priorities in management decisions during crisis:**						**Use of government aid:**		**Labor cut**
	Employees' health & economy	Customers	The community	Owners' interest	Growth & bottom line	The companies' survival	Labour cost	Fixed costs	Share dismissed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: 2015 Survey, VBL index									
VBL Factor (2015)	0.057**	0.052	0.068	0.067	-0.020	-0.007	-0.031	-0.17	-0.012
	(0.032)	(0.047)	(0.062)	(0.065)	(0.034)	(0.045)	(0.038)	(0.021)	(0.015)
Mean of Dependent Variable	.483	.449	.336	.597	.547	.692	.342	.175	.2
Adj. R^2	.207	.194	.238	.186	.142	.154	.365	.477	.310
Firms	118	118	119	119	117	120	114	114	120
Sex	✓	✓	✓	✓	✓	✓	✓	✓	✓
Age	✓	✓	✓	✓	✓	✓	✓	✓	✓
University Degree	✓	✓	✓	✓	✓	✓	✓	✓	✓
Long Tenure (Panels A and B)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Log(av. assets)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Log(av. employees)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Revenue change (%)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Industry F.E.	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table B.9: What do VBL leaders do?

Table B.9 shows correlations between VBL and measures of the organizational climate (Panel A), employee composition (Panel B), organizational incentives (Panel C). All time-varying variables are averaged based on the years 2014-2016 (except the employee turnover rate, which is based on years 2014-2015). In Panel A, the dependent variables are: an indicator for whether the CEO reported conflicts in the firm (survey question: *"Have there been serious conflicts between owner(s) and management that have significantly affected the company's operations, e.g., by blocking effective decision making?"*, columns 1 and 2) and employee turnover rate excluding the management level (columns 3 to 6). In Panel B, the dependent variables are: the proportion of female employees (columns 1 and 2), the proportion of employees younger than 40 (columns 3 and 4) and the employees' average predicted quality based on earnings regressions (columns 5 and 6). In Panel C, the dependent variables are: the number of hierarchical layers in the firm (columns 1 and 2), the average hourly wage in Danish kroners (columns 3 and 4) and the standard deviation of hourly wages in Danish kroners (columns 5 and 6). All columns include CEO gender, age, level of education, a dummy equal to one if the CEO's tenure is above 16, the logarithm of firm total assets and number of employees, 2-digit industry fixed effects. Standard errors are clustered at the industry level. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

Panel A: Organizational climate			
Dependent variable:	Conflict	Turnover (excl. top management)	Turnover (excl. top management) 5+ employees firms
	(1)	(2)	(3)
VBL Factor Score	-0.022**	-0.008	-0.017**
	(0.008)	(0.007)	(0.008)
Mean of Dependent Variable	.083	.272	.272
Adj. R^2	.032	.086	.146
Firms	1369	1187	920
Panel B: Selection of employees			
Dependent variable:	Prop. women	Prop. below 40 y.o.	Av. predicted quality
	(1)	(2)	(3)
VBL Factor Score	0.011	0.009*	-0.002
	(0.008)	(0.004)	(0.003)
Mean of Dependent Variable	.351	0.472	11.092
Adj. R^2	.393	.177	.333
Firms	1400	1398	1395
Panel C: Organizational incentives			
Dependent variable:	Hierarchy	Log(av. wage)	Wage dispersion
	(1)	(2)	(3)
VBL Factor Score	-0.048***	0.187	-0.192
	(0.018)	(0.657)	(0.492)
Mean of Dependent Variable	2.345	188.488	47.095
Adj. R^2	.617	.377	.153
Firms	1100	1397	1358
2-digit industry F.E.	✓	✓	✓

Appendix C Value-based leadership is not management practices

In April 2018 we conducted a survey on management practices that was answered by about 5,000 companies in Denmark. We included the same questions as in the Management and Organizational Practices Survey (MOPS) (Bloom et al., 2019) and additional sections on innovation, dividends, and relational contracts. Specifically, we reproduced all questions from the monitoring, targets, and incentives sections in MOPS except for the question "Where are display boards showing service quality, output and other key performance indicators located in your firm?"[44]. Following the authors, we create three scores measuring these categories of management scores ranging from 0 (most unstructured management practices) to 1 (most structured management practices).

The monitoring score includes:

- What best describes what happens at your firm when a problem in the production process arises?
- How many key performance indicators are monitored in your firm?
- How frequently are key performance indicators typically reviewed by managers at your firm?
- How frequently are key performance indicators typically reviewed by non-managers at your firm?

The targets score includes:

- What best describes the time frame of operational targets at your firm?'
- How easy or difficult is it in your firm for people to typically achieve their operational targets?'

[44]The only exception is the question: Where are display boards showing service quality, output, and other key performance indicators located in your firm? The reason why this was not asked is that this is not a typical practice in Denmark.

- Who was aware of the operational targets at your firm?

The incentives score includes:

- What are non-executives' performance bonuses based on in your company?
- What percentage of non-managers receive a performance bonus when most or all KPIs are met in your business?
- What are managers' performance based on in your company?
- What percentage of managers receive a performance in your company if KPIs are being met?
- How are non-executives usually promoted in your company?
- How are executives usually promoted in your company?
- When does an ineffective non-manager get transferred or dismissed in your company?
- When does an ineffective non-manager get transferred or dismissed in your company?

Additionally, following Bloom et al. (2019) we build a single "structured management" score, which is the unweighted average of the answers to the 15 questions coded on a scale from 0 to 1 (see Bloom et al. (2019) for details).

We explore the correlations between VBL and structured management practices in Table C.1. In Panel A, we focus on the sample of CEOs who are included in our study and who also answered the 2018 survey (N=167). We construct each of the sub-categories for all CEOs who answered at least one question in the specific category. Only for the subcategory of targets are there CEOs who did not answer any of the three questions. Thus, in this subcategory we only have 109 CEOs. We construct the overall measure if a CEO has answered at least one question in any of the categories, thus this measure is based on 167 CEO answers.

In order to increase the sample size, we also use our measure of VBL obtained from the 2020 COVID-19 survey[45] and correlate it with the management practice measures from the 2018 survey as well. This covers a sample of 667 CEOs.

Table C.1 Panel A shows the OLS regression between VBL and management practices. The correlation coefficients for both the overall management practice score and the three sub-components are close to zero and not statistically significant at any conventional levels.

Table C.1, Panel B, shows the correlation between the two value-based questions in the 2020 COVID survey and the management practice measures from the 2018 survey. We notice again, that only for the 3 questions about targets there are CEOs who do not answer them. Thus, the target measure is based on 520 CEO answers. Again we notice that the overall management practice measure from 2018 is uncorrelated with the index based on the two leader-value questions from 2020. When we look at correlations with the individual components, we notice that there is a positive correlation between the two value questions and the measures of monitoring and targets and these correlations are statistically significant at the 5% level.

[45]This survey is described in Appendix A.4) and further used in Appendix D

Table C.1: VBL and management practices

Table C.1 shows correlations between VBL and management practices. In column 1, the dependent variable is the structured management practices score. In columns 2, 3, and 4, the dependent variable is the score related to monitoring, targets, and incentives practices, respectively. In Panel A, results are reported for the sample of CEOs included in the main study and who also answered the 2018 survey. This covers a sample of 167 CEOs. In Panel B, results are reported for the CEOs who participated in the 2020 COVID-19 survey and who also answered the 2018 survey. This covers a sample of 667 CEOs. Robust standard errors. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

Dependent variable:	**Management**	**Monitoring**	**Targets**	**Incentives**
	(1)	(2)	(3)	(4)
Panel A: 2015 Survey				
VBL Index (2015)	0.010	0.014	0.003	-0.003
	(0.032)	(0.030)	(0.035)	(0.036)
Mean of Dependent Variable	.4	.475	.709	.322
S.d. of Dependent Variable	.224	.217	.181	.265
Adj. R^2	.002	.003	.002	0
Firms	167	167	109	167
Panel B: 2020 Survey				
VBL Index (2020)	0.020	0.036***	0.028**	0.010
	(0.014)	(0.012)	(0.013)	(0.018)
Mean of Dependent Variable	.499	.524	.742	.441
S.d. of Dependent Variable	.218	.183	.181	.28
Adj. R^2	.003	.015	.009	0
Firms	667	667	520	667

Appendix D Stakeholder loyalty

In the 2018 survey discussed in Appendices B and C, we also included a survey question that targets leaders' loyalty to various groups of stakeholders. The question is, "As a director of your company, how loyal do you feel to the following stakeholders in the company?" and the CEOs were asked to answer on a scale from 1 to 10 for each of the following groups: employees, suppliers, customers, owners, banks. We use these answers as a proxy for the strength of relational contracts between CEOs and their stakeholders. We explore the correlations between VBL and stakeholder loyalty in Table D.1. We analyze the relationship between value-based leadership and loyalty towards each of the stakeholder groups in columns (2) to (6). We also build an aggregate stakeholder loyalty measure by summing across the 5 sub-questions, and we analyze how it correlates with VBL in column (1).

Table D.1: VBL and stakeholder loyalty

Table D.1 shows correlations between VBL and relational contracts. In column 1, the dependent variable is the relational contract score. In columns 2 to 6, the dependent variables are single survey questions measuring loyalty in relational contracts with different stakeholders. In Panel A, the results are reported for the sample of CEOs included in the main study and who also answered the 2018 survey. In Panel B, results are reported for the CEOs who participated in the 2020 COVID-19 survey and who also answered the 2018 survey. Robust standard errors. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

Dependent variable:	**Overall**	**Employees**	**Suppliers**	**Customers**	**Owners**	**Banks**
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: 2015 Survey						
VBL Factor Score (2015)	0.042***	0.039***	0.043**	0.039***	0.023	0.064***
	(0.013)	(0.016)	(0.018)	(0.017)	(0.016)	(0.021)
Mean of Dependent Variable	.796	.886	.707	.88	.909	.596
S.d. of Dependent Variable	.173	.193	.25	.199	.185	.327
Adj. R^2	.067	.048	.034	.045	.017	.045
Firms	167	167	167	167	167	167
Panel B: 2020 Survey						
VBL Index (2020)	0.032***	0.040***	0.050***	0.021**	0.027***	0.025
	(0.008)	(0.010)	(0.014)	(0.010)	(0.009)	(0.019)
Mean of Dependent Variable	.795	.894	.692	.898	.921	.572
S.d. of Dependent Variable	.137	.164	.235	.157	.156	.312
Adj. R^2	.022	.023	.018	.007	.012	.003
Firms	667	667	667	667	667	667

In Table D.1 Panel A we use the sample of the 167 CEOs who answered both the 2015 and the 2018 survey. We observe a very strong correlation between loyalty to stakeholders and VBL. Leaders who have stronger leadership values feel more loyal to employees, suppliers, customers and banks and these effects are all statistically significant at all conventional levels. It is interesting to notice that the only stakeholder group where their excess loyalty is not statistically different from CEOs who are less value based is the owners. Given the strong correlation between VBL and five out of six stakeholder groups, it is not surprising that VBL is also statistically strongly correlated to our overall loyalty measure.

In Panel B of Table D.1 we use the sample of CEOs who answered the 2018 sur-

vey and the two value questions in the 2020 study. We see a very similar pattern, i.e., CEOs with higher value-based leadership feel more loyal to all stakeholder groups. This time, however, the loyalty towards owners is indeed statistically significant but the loyalty towards banks is not.

Appendix E Value based leadership and market concentration

A potential problem is that only firms with large market power can afford to lead their firms based on values. Table E.1 investigate this by examining the relationship between our measure of value based leadership and three measures of competition. Following Bloom and Van Reenen (2007), Aghion et al. (2005) and Nickell (1996) we measure the Lerner index of competition. We also include the Industry Herfindahl-Hirschman Index on industry concentration with the NACE 2 four digits classification, and Concentration ratio of the top 8 firms in the industry. With and without controls, we find there is no significant association between Industry concentration and value based leadership.

Table E.1: Market concentration

Table E.1 presents the coefficients from OLS regressions between VBL and several measures of market concentration. The sample is a single cross-section. The Lerner index of competition is constructed following Bloom and Van Reenen (2007), Aghion et al. (2005), and Nickell (1996), as the mean of 1-$\frac{\text{profit}}{\text{sales}}$ by 4-digit industry. HHI is constructed as HHI $= \sum_{i=1}^{N} \left(\frac{s_i}{100}\right)^2$, where s_i is the industry share of firm i. CR8 is the concentration ratio of the top 8 firms in terms of share. CEO controls include the log of the wage, a dummy for being married, a dummy for being Danish, a dummy if the individual has a university degree, gender, tenure and number of children. It also controls for the other 6 factors. Standard errors are clustered at the industry level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

	(1) VBL	(2) VBL	(3) VBL	(4) VBL	(5) VBL	(6) VBL
Lerner index, lag 5	-0.0448	-0.5653				
	(0.1855)	(0.4502)				
HHI			-0.0000	-0.0000		
			(0.0000)	(0.0000)		
Concentration ratio top 8					0.0007	-0.0007
					(0.0007)	(0.0013)
Observations	1532	1214	1543	1220	1543	1220
Adjusted R^2	-0.001	0.074	-0.001	0.072	0.000	0.071

Appendix F Distribution of CEO entry and CEO hospitalization events over time

Figure F.1: Distribution of CEO entry events

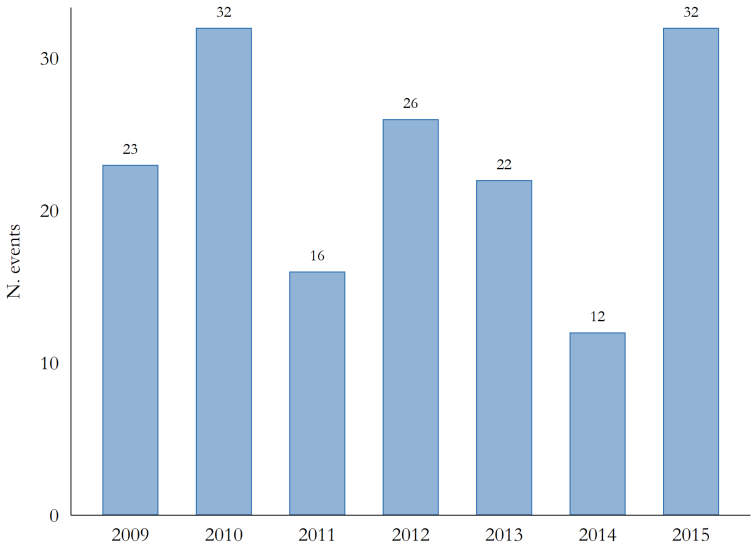

Figure F.1 shows distribution of the CEO entry events over time.

Figure F.2: Distribution of CEO hospitalization events

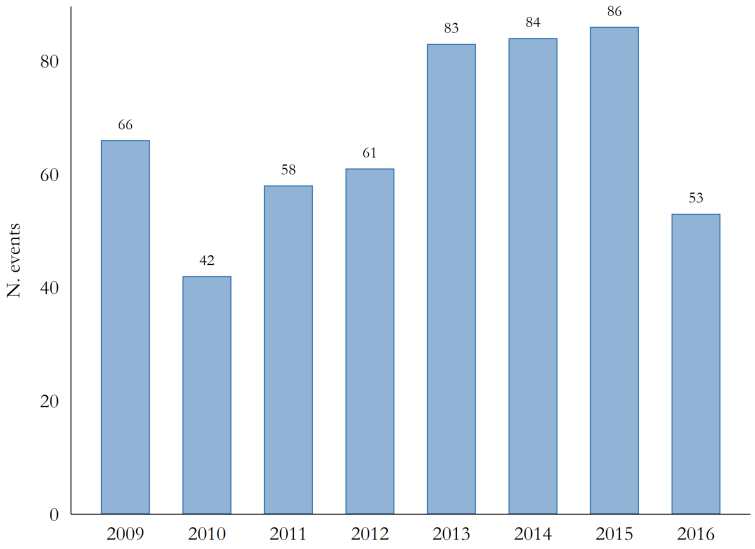

Figure F.2 shows distribution of the CEO hospitalization events over time.

Appendix G Other values and firm performance

Table G.1: Honesty and OROA

This table presents correlations between OROA and honesty. The responses were recoded so a higher score reflects higher honesty (so 1 becomes 5, 2 became 4, 4 became 2 and 5 became 1). The first column is the average result of the variables selected in the factor exploratory analysis. The other columns use each of these answers as independent variable. Industry dummies are 67 two-digit NACE codes. Standard errors are clustered at the industry level. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
			OROA			
Honesty	0.0004					
	(0.0070)					
Honesty social benefits		0.0001				
		(0.0030)				
Honesty taxes			0.0017			
			(0.0033)			
Honesty car				-0.0015		
				(0.0029)		
Honesty marriage					-0.0006	
					(0.0022)	
Honesty bribery						-0.0004
						(0.0030)
Female	0.0180	0.0191*	0.0197	0.0185	0.0178	0.0189
	(0.0120)	(0.0107)	(0.0126)	(0.0125)	(0.0118)	(0.0126)
Age	-0.0013***	-0.0012***	-0.0013***	-0.0013***	-0.0013***	-0.0013***
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
University degree	0.0168*	0.0016	0.0168*	0.0167*	0.0165*	0.0166*
	(0.0093)	(0.0072)	(0.0095)	(0.0094)	(0.0091)	(0.0094)
Tenure larger than 16	-0.0142**	-0.0122*	-0.0136**	-0.0149**	-0.0143**	-0.0147**
	(0.0066)	(0.0061)	(0.0065)	(0.0066)	(0.0065)	(0.0066)
Log(av employees)	0.0018	0.0033	0.0015	0.0019	0.0018	0.0018
	(0.0062)	(0.0066)	(0.0062)	(0.0062)	(0.0062)	(0.0062)
Log(av assets)	0.0044	0.0042	0.0044	0.0044	0.0045	0.0045
	(0.0058)	(0.0056)	(0.0058)	(0.0058)	(0.0058)	(0.0058)
Constant	0.1041*	0.1066**	0.0924*	0.1195**	0.1104**	0.1097**
	(0.0560)	(0.0488)	(0.0545)	(0.0503)	(0.0509)	(0.0497)
Observations	1446	1441	1439	1440	1445	1440
Adjusted R^2	0.020	0.072	0.021	0.021	0.020	0.020

Table G.2: Trust and OROA

This table presents correlations between OROA and trust. The first column is the average result of the variables selected in the factor exploratory analysis. The other columns use each of these answers as independent variable. Industry dummies are 67 two-digit NACE codes. Standard errors are clustered at the industry level. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
	OROA			
Overall trust	-0.0012			
	(0.0044)			
Trust parliament		0.0003		
		(0.0023)		
Trust police			-0.0033	
			(0.0033)	
Trust unions				0.0017
				(0.0032)
Female	0.0222*	0.0221*	0.0228*	0.0205*
	(0.0121)	(0.0125)	(0.0121)	(0.0105)
Age	-0.0013***	-0.0013***	-0.0013***	-0.0013***
	(0.0003)	(0.0003)	(0.0003)	(0.0003)
University degree	0.0167*	0.0163*	0.0172*	0.0023
	(0.0092)	(0.0090)	(0.0092)	(0.0072)
Tenure larger than 16	-0.0177***	-0.0183***	-0.0178***	-0.0153**
	(0.0064)	(0.0064)	(0.0065)	(0.0062)
Log(av employees)	0.0029	0.0032	0.0030	0.0043
	(0.0061)	(0.0061)	(0.0061)	(0.0066)
Log(av assets)	0.0047	0.0046	0.0047	0.0045
	(0.0058)	(0.0058)	(0.0057)	(0.0057)
Constant	0.1053**	0.1022**	0.1143**	0.0996**
	(0.0450)	(0.0435)	(0.0440)	(0.0389)
Observations	1402	1398	1402	1402
Adjusted R^2	0.024	0.025	0.025	0.074

Table G.3: Altruism and OROA

This table presents correlations between OROA and Altruism. The first column is the average result of the variables selected in the factor exploratory analysis. The other columns use each of these answers as independent variable. Industry dummies are 67 two-digit NACE codes. Standard errors are clustered at the industry level. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)
			OROA		
Overall altruism	0.0068*				
	(0.0040)				
Care about people in my area		0.0042			
		(0.0037)			
Care about compatriots			0.0046		
			(0.0033)		
Care about mankind				0.0033	
				(0.0029)	
Care about Europeans					0.0064
					(0.0042)
Female	0.0199	0.0192*	0.0207	0.0203	0.0196
	(0.0122)	(0.0104)	(0.0125)	(0.0125)	(0.0119)
Age	-0.0013***	-0.0012***	-0.0013***	-0.0013***	-0.0013***
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
University degree	0.0161*	0.0023	0.0165*	0.0165*	0.0160*
	(0.0092)	(0.0074)	(0.0092)	(0.0091)	(0.0092)
Tenure larger than 16	-0.0184***	-0.0159**	-0.0186***	-0.0180***	-0.0183***
	(0.0063)	(0.0061)	(0.0063)	(0.0064)	(0.0063)
Log(av employees)	0.0027	0.0046	0.0026	0.0028	0.0028
	(0.0059)	(0.0065)	(0.0059)	(0.0059)	(0.0059)
Log(av assets)	0.0047	0.0041	0.0047	0.0046	0.0046
	(0.0056)	(0.0055)	(0.0057)	(0.0056)	(0.0056)
Constant	0.0837*	0.0925**	0.0879*	0.0936**	0.0876*
	(0.0463)	(0.0422)	(0.0458)	(0.0421)	(0.0441)
Observations	1407	1407	1407	1407	1407
Adjusted R^2	0.025	0.074	0.025	0.024	0.026

Table G.4: Nationalism and OROA

This table presents correlations between OROA and nationalism. The first column is the average result of the variables selected in the factor exploratory analysis. The other columns use each of these answers as independent variable. Industry dummies are 67 two-digit NACE codes. Standard errors are clustered at the industry level. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)
			OROA		
Nationalism	-0.0030*				
	(0.0015)				
Immigrants take jobs		-0.0022*			
		(0.0011)			
Immigrants thread culture			-0.0019		
			(0.0012)		
Immigrants increase crime				-0.0009	
				(0.0010)	
Mistrust humanitarian organizations					-0.0003
					(0.0018)
Female	0.0198	0.0206*	0.0202	0.0225*	0.0219*
	(0.0128)	(0.0111)	(0.0130)	(0.0134)	(0.0120)
Age	-0.0013***	-0.0012***	-0.0012***	-0.0012***	-0.0013***
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
University degree	0.0134	0.0003	0.0141	0.0150*	0.0164*
	(0.0085)	(0.0069)	(0.0086)	(0.0088)	(0.0092)
Tenure 16	-0.0147**	-0.0122*	-0.0148**	-0.0155**	-0.0177***
	(0.0065)	(0.0061)	(0.0065)	(0.0066)	(0.0064)
Log(av employees)	0.0026	0.0041	0.0022	0.0030	0.0028
	(0.0062)	(0.0065)	(0.0060)	(0.0060)	(0.0062)
Log(av assets)	0.0041	0.0036	0.0041	0.0036	0.0048
	(0.0058)	(0.0057)	(0.0057)	(0.0056)	(0.0058)
Constant	0.1242***	0.1175***	0.1176**	0.1136**	0.1034***
	(0.0451)	(0.0398)	(0.0445)	(0.0433)	(0.0386)
Observations	1420	1416	1415	1415	1402
Adjusted R^2	0.023	0.073	0.023	0.021	0.024

Table G.5: Religion and OROA

This table presents correlations between OROA and religion. The first column is the average result of the variables selected in the factor exploratory analysis. The other columns use each of these answers as independent variable. Industry dummies are 67 two-digit NACE codes. Standard errors are clustered at the industry level. *, **, and *** denote significance at 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
	OROA			
Overall religion	-0.0031			
	(0.0023)			
Being religious		-0.0044*		
		(0.0022)		
Religion importance			0.0015	
			(0.0023)	
Religious childhood				-0.0030
				(0.0025)
Female	0.0193	0.0190*	0.0188	0.0207
	(0.0122)	(0.0106)	(0.0123)	(0.0124)
Age	-0.0012***	-0.0012***	-0.0013***	-0.0012***
	(0.0003)	(0.0003)	(0.0003)	(0.0003)
University degree	0.0163*	0.0011	0.0163*	0.0166*
	(0.0093)	(0.0070)	(0.0092)	(0.0093)
Tenure larger than 16	-0.0142**	-0.0114*	-0.0139**	-0.0169**
	(0.0065)	(0.0061)	(0.0066)	(0.0065)
Log(av employees)	0.0021	0.0040	0.0021	0.0030
	(0.0061)	(0.0064)	(0.0062)	(0.0063)
Log(av assets)	0.0046	0.0042	0.0046	0.0041
	(0.0058)	(0.0055)	(0.0058)	(0.0059)
Constant	0.1071**	0.1121***	0.1012**	0.1112**
	(0.0421)	(0.0371)	(0.0425)	(0.0426)
Observations	1447	1445	1444	1407
Adjusted R^2	0.021	0.074	0.020	0.023

Appendix H Robustness checks with additional controls

Table H.1: Value based leadership and OROA

Table H.1 shows correlations between VBL and OROA. The VBL index is our measure of VBL leadership based on the average of relevant survey questions together with the two subindexes of Clear visible values and Important personal values. Columns 1 to 6 include CEO gender, age, level of education, a dummy equal to one if the CEO's tenure is above 16, and the logarithm of firm total assets and number of employees. Additionally, it includes as controls a dummy if the person is married, number of children, number of daughters, total income, the AKM person fixed effect and the other values. Industry dummies are 67 two-digit NACE codes. Standard errors are clustered at the industry level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
		OROA			sd(OROA)	
Value based leadership	0.0113**			-0.0024		
	(0.0049)			(0.0042)		
Clear and visible values		0.0087**			-0.0041	
		(0.0041)			(0.0027)	
Important personal and moral values			0.0041			0.0053
			(0.0049)			(0.0037)
Female	0.0134	0.0164	0.0175*	0.0147*	0.0142*	0.0129*
	(0.0095)	(0.0106)	(0.0104)	(0.0080)	(0.0078)	(0.0077)
Age	-0.0012***	-0.0013***	-0.0012***	0.0001	0.0001	0.0001
	(0.0004)	(0.0004)	(0.0004)	(0.0003)	(0.0003)	(0.0003)
University degree	-0.0088	-0.0069	-0.0073	0.0121**	0.0123**	0.0122**
	(0.0075)	(0.0078)	(0.0080)	(0.0059)	(0.0060)	(0.0061)
Tenure >16	-0.0121*	-0.0139**	-0.0143**	-0.0114**	-0.0120**	-0.0120**
	(0.0064)	(0.0069)	(0.0069)	(0.0046)	(0.0047)	(0.0047)
Log(av employees)	0.0028	0.0038	0.0045	0.0131**	0.0144***	0.0144***
	(0.0069)	(0.0065)	(0.0065)	(0.0049)	(0.0047)	(0.0047)
Log(av assets)	-0.0023	-0.0026	-0.0028	-0.0262***	-0.0274***	-0.0274***
	(0.0061)	(0.0057)	(0.0056)	(0.0048)	(0.0048)	(0.0049)
AKM fixed effects	-0.0161	-0.0157	-0.0161	0.0032	0.0046	0.0040
	(0.0103)	(0.0114)	(0.0109)	(0.0066)	(0.0068)	(0.0067)
Total income	0.0362***	0.0351***	0.0348***	0.0023	0.0017	0.0013
	(0.0056)	(0.0054)	(0.0055)	(0.0036)	(0.0036)	(0.0036)
Immigrant	0.0086	0.0062	0.0058	0.0068	0.0053	0.0061
	(0.0193)	(0.0191)	(0.0187)	(0.0216)	(0.0217)	(0.0221)

Married	0.0028	0.0014	0.0023	-0.0090	-0.0099	-0.0105*
	(0.0075)	(0.0069)	(0.0066)	(0.0055)	(0.0060)	(0.0056)
Number children	0.0067	0.0092	0.0094*	-0.0038*	-0.0034	-0.0033
	(0.0055)	(0.0057)	(0.0055)	(0.0022)	(0.0023)	(0.0024)
Number daughters	-0.0083	-0.0108*	-0.0113**	0.0028	0.0029	0.0031
	(0.0057)	(0.0057)	(0.0056)	(0.0024)	(0.0026)	(0.0025)
Altruism	0.0074*	0.0080**	0.0085**	-0.0003	0.0002	-0.0006
	(0.0041)	(0.0039)	(0.0039)	(0.0021)	(0.0022)	(0.0024)
Trust	-0.0038	-0.0038	-0.0034	-0.0000	-0.0003	-0.0007
	(0.0045)	(0.0046)	(0.0047)	(0.0032)	(0.0031)	(0.0033)
Religion	0.0000	-0.0013	-0.0014	0.0001	0.0004	0.0004
	(0.0030)	(0.0027)	(0.0027)	(0.0022)	(0.0021)	(0.0022)
Nationalism	-0.0000	0.0002	0.0004	0.0002	0.0001	-0.0001
	(0.0016)	(0.0016)	(0.0016)	(0.0012)	(0.0012)	(0.0013)
Honesty	-0.0038	-0.0032	-0.0018	0.0001	0.0003	-0.0004
	(0.0072)	(0.0076)	(0.0076)	(0.0036)	(0.0035)	(0.0035)
Political engagement	0.0009	-0.0003	0.0009	-0.0016	-0.0024	-0.0035
	(0.0031)	(0.0033)	(0.0030)	(0.0021)	(0.0020)	(0.0021)
Constant	-0.2797**	-0.2522**	-0.2545**	0.2994***	0.3198***	0.3070***
	(0.1235)	(0.1220)	(0.1213)	(0.0536)	(0.0556)	(0.0535)
Observations	1236	1254	1255	1203	1213	1214
Adjusted R^2	0.092	0.092	0.089	0.097	0.104	0.104

Table H.2: Effect of CEO hospitalization with additional controls

Table H.2 reports the effect of hospitalization of VBL-oriented CEOs. We keep the same sample period as in the previous analysis (2009 to 2016) 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 406 firms where the CEO was hospitalized at least during the sample period. The dependent variable is the firm OROA. Firm controls include the logarithm of firm total assets and number of employees. CEO controls include gender, age, level of education, a dummy equal to one if the CEO's tenure is above 16, a dummy if the person is married, number of children, number of daughters, total income, the AKM person fixed effect and the other six values. See Table 9 for variables definitions. Standard errors are clustered at the firm level. *, **, and *** denote significance at 10%, 5%, and 1% respectively.

	(1) OROA	(2) OROA	(3) OROA	(4) OROA	(5) OROA
Trend	-0.0065				
	(0.0058)				
VBL indicator	-0.0139				
	(0.0261)				
Trend x VBL indicator	0.0058				
	(0.0088)				
After appointment		0.0536	0.0556	0.0178	-0.0693
		(0.2183)	(0.2219)	(0.2319)	(0.2573)
After appointment x VBL index		0.0607***	0.0589**		
		(0.0228)	(0.0234)		
After appointment x Index visible clear leadership				0.0221*	
				(0.0128)	
After appointment x Index strong clear values					0.0333*
					(0.0172)
Observations	600	1050	1031	1031	1031
Adjusted R^2	-0.003	0.019	0.021	0.016	0.015

Table H.3: Effect of CEO hospitalization with additional controls

Table H.3 reports the effect of hospitalization of VBL-oriented CEOs. We keep the same sample period as in the previous analysis (2009 to 2016) 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 406 firms where the CEO was hospitalized at least during the sample period. The dependent variable is the firm OROA. Firm controls include the logarithm of firm total assets and number of employees. CEO controls include gender, age, level of education, a dummy equal to one if the CEO's tenure is above 16, a dummy if the person is married, number of children, number of daughters, total income, the AKM person fixed effect and the other six values. See Table 9 for variables definitions. Standard errors are clustered at the firm level. *, **, and *** denote significance at 10%, 5%, and 1% respectively.

	(1)	(2)	(3)
		OROA	
Hospitalization event, t	0.1696	0.1355	0.2104
	(0.1654)	(0.1661)	(0.1726)
Hospitalization event, t x VBL index	-0.0458***		
	(0.0164)		
Hospitalization event, t x Index clear visible leadership		-0.0183*	
		(0.0098)	
Hospitalization event, t x index strong important VBL			-0.0188
			(0.0127)
Observations	2940	2985	2940
Adjusted R^2	0.034	0.003	0.032