european corporate governance institute

Higher Purpose, Banking and Stability

Finance Working Paper N° 729/2021
February 2021

Stuart Bunderson
Washington University in St. Louis

Anjan Thakor
Washington University in St Louis, FTG, WFA-CFAR and ECGI

© Stuart Bunderson and Anjan Thakor 2021. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

This paper can be downloaded without charge from:
https://doi.org/10.67929/ecgi-fin-729-2021

european corporate governance institute

ECGI Working Paper Series in Finance

Higher Purpose, Banking and Stability

Working Paper N° 729/2021
February 2021

Stuart Bunderson
Anjan Thakor

© Stuart Bunderson and Anjan Thakor 2021. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

Abstract

This paper provides survey evidence on higher purpose for individuals and organizations and develops a theoretical model consistent with the evidence. The survey of 1,019 individuals in the U.S. sought to learn about their commitment to and perceived value from personal and organizational higher purpose. One striking finding from the survey is that when an organization has a written statement of higher purpose, its employees tend to trust their leaders to not only be socially responsible, but also to make better business decisions, i.e. corporate governance is perceived to be better by the employees. We then develop a simple theoretical model that provides an economic rationale for this finding. In the model, an investment in higher purpose credibly signals the firm owner's ability/marginal productivity and elicits higher employee effort. When put in a banking context, the model shows that optimal contracting within a bank that pursues a higher purpose leads to higher wages for employees, higher monitoring effort and a lower probability of bank failure when the bank has more equity capital, even though the bank's capital does not affect the bank's higher purpose investment. Even absent a signaling motivation for investing in higher purpose, these results are qualitatively sustained if the bank's employees care about its purpose. Additionally, in this case, banks that invest more in higher purpose pay lower wages, elicit higher employee effort and have lower failure probabilities for any given capital ratio. Banks with higher capital ratios still pay higher wages, but the effect of capital on wages becomes weaker as the bank's higher purpose investment increases. The decrease in the exposure of the deposit insurer due to higher capital goes beyond the direct impact of capital on the bank's probability of failure.

Keywords: higher purpose, banks, capital, financial stability.

JEL Classifications: G20, G21, G28.

Stuart Bunderson
George & Carol Bauer Professor of Organizational Ethics & Governance
Washington University in St. Louis, Olin business School
One Brookings Drive
Saint Louis, MO 63130-4899, United States
phone: +1 (314) 935-4943
e-mail: bunderson@wustl.edu

Anjan Thakor*
John E. Simon Professor of Finance
Washington University in St. Louis, Olin Business School
One Brookings Drive
St Louis, MO 63130, United States
phone: +1 314-935-7197
e-mail: thakor@wustl.edu

*Corresponding Author

October 29, 2020

Revised, Wednesday, February 10, 2021

HIGHER PURPOSE, BANKING AND STABILITY

by

Stuart Bunderson[*]

and

Anjan V. Thakor [**]

[*] George and Carol Bauer Professor of Organizational Ethics and Governance and Director of the Bauer Leadership Center.

[**] John E. Simon Professor of Finance, Director of the WFA-CFAR, research associate ECGI, FTG Fellow and MIT-LFE Affiliate.

ABSTRACT

This paper provides survey evidence on higher purpose for individuals and organizations and develops a theoretical model consistent with the evidence. The survey of 1,019 individuals in the U.S. sought to learn about their commitment to and perceived value from personal and organizational higher purpose. One striking finding from the survey is that when an organization has a written statement of higher purpose, its employees tend to trust their leaders to not only be socially responsible, but also to make better business decisions, i.e. corporate governance is perceived to be better by the employees. We then develop a simple theoretical model that provides an economic rationale for this finding. In the model, an investment in higher purpose credibly signals the firm owner's ability/marginal productivity and elicits higher employee effort. When put in a banking context, the model shows that optimal contracting within a bank that pursues a higher purpose leads to higher wages for employees, higher monitoring effort and a lower probability of bank failure when the bank has more equity capital, even though the bank's capital does not affect the bank's higher purpose investment. Even absent a signaling motivation for investing in higher purpose, these results are qualitatively sustained if the bank's employees care about its purpose. Additionally, in this case, banks that invest more in higher purpose pay lower wages, elicit higher employee effort and have lower failure probabilities for any given capital ratio. Banks with higher capital ratios still pay higher wages, but the effect of capital on wages becomes weaker as the bank's higher purpose investment increases. The decrease in the exposure of the deposit insurer due to higher capital goes beyond the direct impact of capital on the bank's probability of failure.

I. INTRODUCTION

How is organizational higher purpose related to business decisions, how does it interact with capital in banking, and what does it imply for banking stability? These are the research questions we address. They are motivated by the recent surge of research interest in the economics of higher purpose. Although there is no settled definition of higher purpose in the literature, there are common elements which suggest that it is a contribution goal that is related to the firm's day-to-day business but reaches beyond profit maximization and represents the company's *raison d'etre*. A number of papers have explored this issue theoretically and empirically. See, for example, Bartlett and Ghoshal (1994), Gartenberg, Prat and Serafeim (2019), Grant et al (2007), Henderson and Van den Steen (2015), and Oehmke and Opp (2020). Since the 2007-09 financial crisis, there are also signs that the growing research interest in corporate culture (e.g. Van den Steen (2010)) has been accompanied by bank regulators in Europe and in the U.S. beginning to take an interest in the softer issues of bank culture and organizational higher purpose as important determinants of bank behavior and hence potentially consequential for banking risk; see, for example, Lo (2016), Song and Thakor (2019), Thakor (2019). The link between organizational higher purpose and bank risk is straightforward and has been demonstrated in past research: purpose shapes culture (e.g. Henderson and Van den Steen (2015), Quinn and Thakor (2019), Sheridan (2019), and Thakor (forthcoming)), and culture has been empirically shown to impact risk taking (e.g. Ellul and Yerramilli (2013)). Organizational higher purpose provides the "why" of culture, the ends toward which cultural beliefs, values and routines are oriented (Schein (2017)). The "culture" we are referring to here is organizational/corporate culture, which is clearly more amenable to change than national culture

which reflects societal values and religious beliefs shaped over centuries (e.g. Guiso, Sapienza and Zingales (2006). [1]

Nonetheless, we lack a good theoretical and empirical understanding of *why* organizational higher purpose changes employee behavior and how this change in behavior can lead to lower risk-taking in banks. This paper takes a step in that direction by coming at the problem from two angles – by providing survey-based evidence, and then developing a theoretical model consistent with the evidence. The survey involved 1,109 U.S. individuals and enquired about personal and organizational higher purpose (see Bunderson and Thakor (2020)). The goal of the survey was to improve our understanding of what personal higher purpose means to individuals, how it is related to the higher purpose statements of the organizations they work for, and how it influences their behavior. The survey generated three noteworthy results (1) Employees of organizations with (written) higher purpose statements were more likely to have personal higher purpose statements, were more proud of working for their organizations, and were happier. (2) Organizational higher purpose statements were more effective when they emphasized society, customers, and employees than when they emphasized shareholders. (3) When the organization had a written statement of higher purpose, employees trusted its leaders to not only be more socially responsible, but also to make better business decisions.

These findings help to better explain two key elements of existing theories of higher purpose. One is that while organizational higher purpose need *not* be prosocial (e.g. Gartenberg, Prat and Sarafeim (2019)), some statements of higher purpose are, and those that are not

[1] Nonetheless, it is clear that national culture influences corporate outcomes because it works in tandem with corporate culture. For example, Dal Maso, Liberateri and Mazzi (2017) document that stakeholder engagement increases market-to-book ratios, but the effect depends on national culture. Chui, Lloyd and Kwak (2002) find that firms in countries whose national culture scores higher on conservatism and "mastery" have lower debt ratios.

explicitly prosocial end up focusing on stakeholders other than shareholders (e.g. Quinn and Thakor (2019)). The other is that organizational higher purpose enhances the utility employees derive from their work (e.g. Henderson and Van den Steen (2015)). But a third finding raises a question that has *not* been addressed by existing theories: why do employees trust their leaders to make better *business* decisions when the organization has a higher purpose? While higher purpose often refers to prosocial contribution goals that influence the firm's business decisions, it is not clear why having an organization higher purpose should lead to greater employee trust in the leaders of the firm to make better *business* decisions.

In the second part of the paper, we address this issue with a theoretical model in which the firm has a higher purpose that the owner/principal values. In contrast to previous theories of higher purpose (e.g. Henderson and Van den Steen (2015), and Thakor and Quinn (2020)), the employee/agent is assumed to derive no utility from organizational higher purpose *per se*, although our results are stronger if the employee does.[2] The owner's ability and the employee's effort jointly determine the distribution of output. The owner knows her ability privately and the employee chooses effort that is unobservable to the owner. Using a standard optimal contracting model, we show that when the owner's ability is correlated with the utility she derives from the pursuit of the chosen higher purpose, the firm's investment in purpose acts as a signal of the owner's ability. Thus, firms that have higher-ability owners invest more in higher purpose.

We then examine the implications of the model for a bank that is pursuing a higher purpose and has an owner/CEO who is contracting with an agent/employee. The bank's output depends both on the owner's ability—which is privately known to the owner—and the

[2] Our survey evidence indicates that individuals do, in fact, value the higher purpose of the organization. We present a subset of our survey results here. See Bunderson and Thakor (2020) for a complete description.

employee's choice of (hidden) effort. The owner's ability affects the efficiency with which the bank conducts screening to improve the odds of lending only to creditworthy borrowers. The employee's effort represents monitoring to increase the borrower's repayment probability. Having higher equity capital in the bank leads to higher employee wages, higher effort and a lower failure probability, even when the level of capital by itself does *not* directly affect the failure probability. That is, the effect of capital is through its impact on the optimal wage contract, and not the mechanical effect of capital on the failure probability. The analysis thus highlights how higher purpose interacts with capital in banking, and what this implies for banking stability. We then show that if the bank's employee cares about its purpose, the main results are qualitatively sustained even if the bank owner's ability is common knowledge so there is no signaling motivation for investing in higher purpose. In this case, all banks will invest in purpose and banks that invest more in it enjoy lower wages, higher employee effort and lower failure probabilities, for any given capital ratio; an increase in purpose investment dampens the effect of capital on wages.

In both the general model and its adaptation to a bank, we focus on *organizational* higher purpose, which leaves open the question of how *national* culture may affect the results.[3] For example, Ahern, Daminelli and Fracassi (2015) document that the volume of cross-border mergers and the combined announcement of returns are lower when merging partners are from countries that are more culturally distant. Kanagaretnam, Lim and Lobo (2011) emphasize that firms in countries with national cultures emphasize high individualism and high masculinity and

[3] Dartey-Baah (2013) and Schneider (1988) emphasize that both national and organizational culture matter for organizational outcomes, and point out how differences between what the national culture values and what the organizational culture emphasizes can hinder the effectiveness of the organizational culture.

exhibit low uncertainty avoidance engage in more earnings management, and Kanagaretnam, Lim and Lobo (2014) find that banks in such countries take more risk and fail more often.

To accommodate the potential effect of national culture, we interpret the value the firm's owners attach to a specific purpose as being influenced by national culture. We find that our results hold in this case when the (type-dependent) divergence between the value attached to higher purpose by the higher-ability owner and the lower-ability owner is sufficiently great, i.e., when the national culture has sufficient diversity in the social values people attach to different higher purposes. When the national culture is relatively homogenous – so that owners attach similar values to a given higher purpose –higher-purpose investments decline and our result that employees trust their leaders to make better business decisions when the firm invests in a higher purpose does not hold. That is, cross-sectional heterogeneity in the value firms' owners attach to higher purpose is essential for our results.

We end the paper with a discussion of the regulatory policy implications of our analysis.

Our paper is related to the growing literature on higher purpose and how it affects economic outcomes. See, for example, Bartlett and Ghoshal (1994), Gartenberg, Prat and Serafeim (2019), Grant et al (2007), Hedblom, Heckman and List (2019), Henderson and Van den Steen (2015), and Oehmke and Opp (2020). Our marginal contribution relative to this literature is threefold. First, we provide the most recent survey-based evidence on higher purpose and its effect on individuals. Second, we provide a theory which explains why employees in organizations trust their leaders to make better business decisions when the organization has a higher purpose. Third, to the best of our knowledge, ours is the first paper to formally examine the implications of higher purpose for banking stability.

There is voluminous literature on corporate social responsibility (CSR) that indicates the business benefits of CSR. See for example, Bolton (2013), Dai, Liang, and Ng (forthcoming), Drago, Carnevale and Gallo (2019), and Green and Roth (2020). We do not discuss that literature in detail here because CSR is distinct from organizational higher purpose. See Gartenberg, Prat and Serafeim (2019) and Thakor and Quinn (2020) for extensive discussions of this. The main point is that while there are some higher-purposes that are explicitly prosocial and thus overlap with CSR, an organizational higher purpose need not be prosocial.[4]

Our use of a survey to generate stylized facts connects our paper to the literature on survey-based evidence in finance, such as Lintner (1956) and Graham and Harvey (2001). Lintner (1956) deepened our understanding of corporate dividend policy, whereas Graham and Harvey (2001) surveyed 392 Chief Financial Officers to provide insights into the way in which firms make capital budgeting and security issuance decisions. Recently, Graham, Grennan, Campbell and Rajgopal (2019) provide survey-based evidence that over 90% of corporate executives consider corporate culture to be important and that improving it would increase firm value. Like our paper, these surveys involved U.S respondents. Nonetheless, one should be cautious in extrapolating our survey results to other countries because differences in national culture may lead to differences in the responses of individuals.

Our paper is also related to the literature on bank stability and capital, which is too vast to cover exhaustively here. Examples are Allen, Carletti and Marquez (2011), Berger and Bouwman (2013), Laeven, Ratnovski and Tong (2014), Carlson, Shan and Warusawitharana (2013), Merton (1977), and Merton and Thakor (2019, forthcoming), and Thakor (2021).

[4] For example, Quinn and Thakor (2019) provide examples of higher purpose statements that focus on stakeholders like customers and employees rather than articulating an explicitly prosocial higher purpose. These purpose statements would not qualify as CSR as commonly understood.

Reviews appear in Thakor (2014, 2018). While this literature emphasizes the beneficial effect of bank capital in enhancing bank stability, none of the papers in this literature has examined the interaction between higher purpose and bank capital and its implication for bank stability, which we do in this paper.

The rest of the paper is organized as follows: Section II presents the results of the survey. Section III presents the model and its analysis. Section IV takes up a discussion of the effect of politics and the implications for non-banks. Section V concludes. Appendix A has the survey instrument. All proofs are in the Appendix B.

II. THE SURVEY

The sample of respondents for this survey was deliberately designed to capture a broad and representative cross-section of the American working population[5]. verified in future research. There is existing evidence, however, that corporate purpose matters to employees in European companies as well; see Krueger, Metzger and Wu (2020), for example.

We worked with an external polling organization to specifically recruit a balanced sample of respondents in terms of gender, ethnicity, income, and geographic region of the United States. Respondents also varied broadly in terms of education, work experience, managerial experience, and industry. The following table summarizes key sample demographic.

[5] Our focus on sampling from the U.S. is consistent with the survey-based evidence provided by previous research (e.g. Graham and Harvey (2001), and Graham, Grennan, Harvey and Rajgopal (2019)). While it is possible that perceptions of purpose might vary across countries, we would expect these differences to most strongly affect the elements of purpose rather than the consequences of having/not having a purpose. Moreover, past research suggests that national culture explains very little of the variance in organizational culture (Gerhart and Fang (2007) and Gerhart (2015)). We expect organizational higher purpose to behave similarly, although caution is advisable until this is verified in future research. There is existing evidence, however, that corporate purpose matters to employees in European companies as well; see Krueger, Metzger and Wu (2020), for example. Ultimately, this is a logical next step in this research program.

Table 1: Demographics of Respondents

Gender	Distribution: 48.7% male, 51.3% female [46.8% female in U.S. working population]
Age	Median: 35 to 44. Distribution: 18 to 24 = 7.4% [10.6%]; 25 to 34 = 21.1% [22.9%]; 35 to 44 = 23.5% [21.8%]; 45 to 54 = 19.1% [20.6%]; 55 to 64 = 23.3% [17.4%]; 65 or older = 5.7% [6.7%]
Race	Distribution: 71% White [78%]; 17% Hispanic [17.6%]; 13% Black [12.1%]; 3% Asian [6.4%]; 1% American Indian [No Data]
Education Level	Median: Bachelor's degree. Distribution: Some High School = 0.7%; High School or Equivalent = 12.0%; Trade School = 2.5%; Some college = 15.6%; Associate's = 11.8%; Bachelor's = 33.9%; Master's = 17.7%; Doctorate = 5.5%
Years of Work Experience	Median: 10-15 years. Distribution: <5 = 15.4%; 5-10 = 23.1%; 10-15 = 19.6%; 15-20 = 13.2%; >20 = 28.8%
Title	Median: Associate Distribution: Intern = 1.5%; Entry Level = 17.2%; Analyst/Associate = 33.0%; Manager = 24.2%; Senior Manager = 6.3%; Director = 5.7%; VP = 1.8%; SVP = 1.2%; C-Level = 2.4%; President or CEO = 2.4%; Owner = 4.5%
Years of Management	Median: 5-10 years Distribution: None = 27.8%; <5 = 25.5%; 5-10 = 18.5%; 10-15 = 11.2%; 15-20 = 7.9%; >20 = 9.1%
Salary	Median: $50,000 to $100,000 Distribution: <$25K = 9.0%; $25K to $50K = 30.9%; $50K to $100K = 32.6%; $100K to $200K = 15.1%; >$200K = 7.8%
Organizational Type	Distribution: For profit = 49.9%; Non-profit = 8.1%; Government = 10.1%; Health Care = 12.2%; Education = 12.2%
Organization Size	Median: 500-999 employees Distribution: 1 = 4.1%; 2-9 = 6.9%; 10-24 = 8.5%; 25-99 = 13.6%; 100-499 = 16.2%; 500-999 = 10.9%; 1000-4,999 = 14.2%; 5,000+ = 25.5%

* For gender, age, and race, bracketed numbers are the percentage of each group in the U.S. working population based on 2020 Bureau of Labor Statistics data (https://www.bls.gov/cps/cpsaat03.pdf).

We made sure that every respondent had a job, so they could respond to questions about both personal and organizational higher purpose. Our respondents on average have a college education, are in managerial positions, are middle-income individuals split almost evenly

between being employed by for-profit and other types of organizations, and are generally representative of the U.S. working population in terms of gender, race, and age (see population percentages in *Table 1*).

The table below summarizes responses to our questions about personal higher purpose. All of the differences in percentages across the three groups (no personal higher purpose, personal higher purpose not written down, and personal higher purpose written down) are statistically significant at $p < .001$.

Table 2: Responses on Personal Higher Purpose

	A	B	C
1. Do you have a statement of personal higher purpose, and is it written down?	No 41.5%	Yes but not written down 44%	Yes and written down 14.5%
2. Are you totally committed to your higher purpose?	---	18% of those in 1B above said yes.	33% of those in 1C above said yes.
3. Does your higher purpose help you cope with the Covid-19 global health crisis and its requirement for social isolation and remote work?	---	16% of those in 1B said that it has been an invaluable anchor.	30% of those in 1C said that it has been an invaluable anchor.
4. How would you describe your state of personal happiness and well-being?	7% of those in 1A said they were extremely happy.	10% of those in 1B said they were extremely happy.	35% of those in 1C said they were extremely happy.

The findings summarized in *Table 2* provide a number of insights. Compared to those with no personal higher purpose statement, those with a purpose statement are happier and better able to cope with the Covid-19 crisis. Among those with a personal higher purpose, those with a *written* purpose statement show a stronger commitment to their purpose, are better able to cope with the Covid-19 crisis and are happier. Respondents with a personal statement of higher purpose also tended to be younger, more educated, and more likely to be in management

(differences were significant at $p < .001$ in all cases). We found no significant relationship between income and a personal higher purpose statement.

We also asked respondents whether the organization they worked for had a statement of higher purpose. Fifty-seven percent of respondents reported that their employing organization had a higher purpose, with 35.3% reporting that their organization had a written purpose statement and 21.2% reporting that their organization's purpose statement was unwritten. Larger organizations were significantly more likely to have a statement of higher purpose ($p < .001$) and to have written that statement down (whereas less than 12% of respondents working in organizations with fewer than 25 employees reported that their organization had a written statement of higher purpose, over 42% of those working in organizations with more than 100 employees reported that their organization's purpose statement was written). Finally, respondents working in not-for-profit, health care, education, and government were significantly more likely to report that their employer had a statement of higher purpose than respondents working in for-profit organizations (pairwise differences were significant at $p < .001$ in all cases).

Because many organizational higher purpose statements typically articulate ways in which the work of an organization benefits either society in general or particular organizational stakeholders, we asked our respondents to tell us which stakeholders are explicitly mentioned in their organization's statement of higher purpose. *Table 3* summarizes their responses.

Table 3: Elements of Organizational Higher Purpose

	A	**B**	**C**
Element	Percentage of Organizations With Unwritten Higher Purpose Stating This as an Element of their Higher Purpose	Percentage of Organizations With Written Higher Purpose Stating this as an Element of their Higher Purpose	Statistical Significance of Difference Between A & B
Shareholders	22%	27%	not significant
Employees	60%	62%	not significant
Customers	51%	60%	$p < .05$
Community	34%	54%	$p < .001$
Society	18%	32%	$p < .001$
Environment	20%	20%	not significant

We see from *Table 3* that employees, customers and community are the top three elements of organizational higher purpose statements, both written and unwritten. This is consistent with prior research differentiating higher purpose from CSR initiatives. Organizational higher purpose initiatives may be explicitly prosocial but (unlike CSR) they need not be so. Moreover, higher purpose statements are further distinguished from general CSR initiatives by virtue of being linked to the firm's day-to-day decision-making, as evidenced by, for example, a higher purpose statement that focuses on employees or customers.[6]

It is interesting that the focus of higher purpose statements on stakeholders *outside* the organization (customers, community, society) is significantly higher in organizations that have a written higher purpose than in those in which the higher purpose statement is unwritten. One possible explanation for this finding is that organizations that include external stakeholders in their statement of higher purpose may opt to write that statement down so that it can be shared with those external stakeholders, both for external relations and accountability reasons.

[6] See, for example, Gartenberg, Prat and Serafeim (2019), Quinn and Thakor (2018, 2019), and Thakor and Quinn (2020).

We asked respondents to tell us how inspiring their organization's purpose statement was to them personally, i.e., "[If your organization has a purpose statement], to what extent is your organization's higher purpose inspiring and meaningful to you personally?". Response options ranged from 1 = "Not at all meaningful" to 5 = "Extremely meaningful". Respondents who felt that their organization's statement of higher purpose emphasized the community ($r = .14$, $p < .001$), the environment ($r = .19$, $p < .001$), or the broader society ($r = .11$, $p < .01$) scored significantly higher on this question whereas an emphasis on shareholders was negatively related to feelings of meaning and inspiration ($r = -.11$, $p < .05$).

We also compared the attitudes of employees in organizations without a stated higher purpose to those in organizations with a stated higher purpose. These results are shown in *Table 4* below. Percentage differences between columns are statistically different (at $p < .01$ or better).

Table 4: Employee Attitudes in Organizations Without a Stated Higher Purpose Versus Those in Organizations With a Stated Higher Purpose

Effect	**Percentage of Organizations Without Organizational Higher Purpose in Which Employees Strongly Agreed With the Statement**	**Percentage of Organizations With Unwritten Higher Purpose in Which Employees Strongly Agreed with the Statement**	**Percentage of Organizations With Written Higher Purpose in Which Employees Strongly Agreed with the Statement**
1) I am proud to work for my organization	19%	31%	41%
2) To what extent do you trust your organization's top leaders to make intelligent and well-informed business decisions?	16% said "to a great extent"	20% said "to a great extent"	26% said "to a great extent"
3) To what extent do you trust your organization to make socially-responsible business decisions?	15% said "to a great extent"	24% said "to a great extent"	29% said "to a great extent"

Tables 3 and 4 highlight several important patterns in these data. First, organizational higher purpose appears to create greater pride in employees and also greater trust in leaders. As per *Table 4*, a significantly higher percentage of employees who work in purpose-driven organizations say they are proud to work for their organizations compared to employees in organizations that do not have a stated higher purpose, and this effect is stronger in organizations with a written statement of higher purpose. Interestingly, employees in purpose-driven organizations also trust their leaders to make both better business decisions and more socially responsible decisions, compared to employees in organizations without a stated higher purpose. The effect is stronger when the organizational higher purpose statement is written down.

Our research also uncovered an interesting correlation between personal higher purpose and organizational higher purpose. Seventy percent of those individuals with a written personal higher purpose statement work for organizations with a written organizational higher purpose statement. This relationship may be due to one of two—not necessarily mutually exclusive—reasons: an influence effect and a selection effect. The influence effect refers to the impact of the organization on the individual. If employees have experienced organizational higher purpose, it may encourage them to develop their own personal higher purpose statements. It may also reflect a sorting or selection effect. Organizations with a higher purpose may tend to attract or consciously select individuals with higher purpose to work for them[7]. Importantly, with the exception of an observed difference ($p < .05$) between respondents working in health care firms and respondents working in for-profit firms, the type of organization in which a respondent worked had little effect on whether the respondent had a personal statement of higher purpose.

[7] This need not be an explicit question like" Do you have personal higher purpose?" Rather, an individual with a personal higher purpose may provide subtle cues in the interview process that the organization finds attractive.

Although our research suggests that personal higher purpose and organizational higher purpose are connected, we also found that personal and organizational higher purpose had independent and cumulative effects on an individual's utility/personal happiness. We asked each respondent the following question, "How would you describe your state of personal happiness and well-being?" Response options ranged from 1 = "Extremely unhappy" to 5 = "Extremely happy". We found that utility was higher for those individuals who had a written personal higher purpose statement and was higher yet if that individual also worked for an organization that had a written organizational higher purpose statement (ΔR^2 significant at $p < .001$). In other words, personal utility is enhanced not only when individuals have a clear "why", but also when they feel that their employing organizations have a clear "why". Moreover, a written personal and organizational higher purpose statement contributed to personal utility over and above the effects of salary and title (ΔR^2 significant at $p < .001$).

III. THEORETICAL MODEL AND ANALYSIS

This section develops a simple principal-agent contracting model with two frictions: private information about type (ability) and hidden action chosen by the agent. The twist is the introduction of type-dependent value attached by the firm owner to the firm's higher purpose. This model helps to address the question raised by our survey about why employees trust their leaders more when the firm pursues a higher purpose. The model is then adapted to a bank with insured deposits. The section closes with a discussion of the bank regulatory policy implications of the model.

A. The Model

Consider a two-date model with a firm which has an owner who is the principal in the contracting relationship with an agent who we will refer to as "employee". Everyone is risk neutral and the riskless rate is zero.

The owner approaches the employee at date $t = 0$ and offers an output-contingent wage contract, the wage contract must give the employee at least his reservation utility of zero in order to satisfy his participation constraint. If the employee accepts the contract and is hired at $t = 0$, then he chooses effort $e \in [\underline{e}, \overline{e}]$. Given this effort choice, which is privately observed by the agent and cannot be contracted upon, the output at $t = 1, x$, is $X > 0$ with probability $q(\tau, e) \in (0,1)$ and 0 with probability$1 - q(\tau, e)$, where $\tau \in \{T, U\}$ is the owner's type. Here "*T*" represents talented and "*U*" stands for untalented. It is common knowledge that the probability is $\lambda \in (0,1)$ that $\tau = T$. The owner privately knows her type. This means that the firm's output depends both on the owner's privately known type and the agent's hidden effort. We assume that $q(\tau, e)$ is separable in the following way:

$$q(\tau, e) = g(\tau)e \tag{1}$$

with

$$g(\tau) = \begin{cases} 1 \ \ if \ \ \tau = T \\ k \in (0,1) \ \ if \ \ \tau = U \end{cases} \tag{2}$$

The output at $t = 1$ is observable and can be contracted upon. The employee's utility is

$$U(w, e) = w - \frac{e^2}{2} \tag{3}$$

where *w* is the employee's wage. Wages must be non-negative.

It is clear that, if the only variable that can be contracted upon is the output, then the agent will be paid $w > 0 \ if \ x = X \ and \ w = 0$ if $x = 0$.

The owner enjoys a utility from pursuing an organizational higher purpose. The pursuit of higher purpose requires a diversion of some fraction of $\propto \in [0,1]$ of output, net of the employee's wage, for investment in the purpose. When the output is $x = X$, the owner's utility from this higher purpose pursuit is $\propto V_\tau[\,X - w]$where $1 > V_T > V_U \geq 0$. When $x = 0$, the owner derives no utility for the investment in purpose. In addition, there is a benefit, $\boldsymbol{I}(\boldsymbol{x})\ \Omega(\propto [x - w])$, where $\boldsymbol{I}$ **(x)** = 1 if x=X and 0 if x=0, from higher purpose that does not accrue to the owner or the firm's employees. We assume that $\Omega(0) = 0$ and $\Omega(\propto [X - w])$ strictly increasing in its argument. This can be a benefit that arises from a prosocial purpose like reducing pollution or global warming, in which case higher purpose coincides with CSR. But it may also be a benefit that is not explicitly prosocial, like a benefit to the firm's customers or employees.

The assumption that $V_\tau < 1 \forall \tau$ means that the owner's utility from higher purpose is less than the monetary value of the higher purpose investment, implying that this investment is *costly* to the owner and the firm. The idea that higher purpose pursuit is costly to the firm is consistent with prior theoretical research on purpose (e.g. Henderson and Van den Steen (2015), Thakor and Quinn (2020)). Practical examples of this abound. Hobby Lobby gives a 10% in-store discount to churches, schools and national charitable organizations. This is closely related to the firm's higher purpose, is part of their day-to-day operations and reduces profit. Heineken defines its purpose as "Brew a Better World" and uses it to ensure that the company is run with socially and environmentally responsible principles (see Mainwaring (2019)).[8] The Development Bank of Singapore defines its higher purpose as "Making Banking Joyful", and has invested resources in

[8] Bunderson, Quinn, Thakor and Wellinghoff (2020) describe how a former Heineken executive, Stacey Tank, successfully used her purpose statement developed at Heineken to guide her leadership agenda at another company.

redesigning branches and developing apps for customers to implement the purpose (se Quinn and Thakor (2019)). White (2016) provides the example of U.S. Healthcare retailer CVS deciding to be consistent with its higher purpose and stop selling cigarettes at an estimated revenue sacrifice of $2 billion per year. And Chick-fil-A loses as much as $1 billion per year by closing its stores on Sunday in order to be consistent with its higher purpose (Taylor (2019)).

This model has three features that deserve comment. One is that the owner's type matters for the firm's output. This is meant to capture the idea that the owner is the CEO and her ability impacts the firm's output. The second is that the owner gets a positive utility from the organization's higher purpose. This is realistic and quite common. For example, Tree T-Pee states its higher purpose as helping farmers conserve water and energy in farming, and its business is to sell a water and nutrient containment system to farmers. The founder, Johnny Georges, started the company because of a strong personal preference to help farmers and the environment, and therefore kept the selling price well below what some of the potential investors in the firm wanted.[9] A second example is 4ocean, a firm started by two surfers to fish plastic garbage out of the ocean because of a strong personal desire to clean up the ocean that has defined the higher purpose of the company. Third, because the higher purpose investment generates a utility for the owner that is less than the cost of the investment to the owner, the privately optimal investment in purpose will be zero, absent signaling considerations. Moreover, if Ω was absent, the social planner's investment would be zero as well. Thus, in a first best, whether the social planner's investment in the chosen purpose is positive will depend on whether Ω plus the owner's utility from purpose exceeds the investment. Our set-up is thus general enough to accommodate a variety of settings, including those in which the higher purpose may

[9] These were investors on the show "Shark Tank". See Quinn and Thakor (2019).

be prosocial or not, and where it increases social welfare or not. The owner has two endogenous choice variables: the wage *w* and the higher purpose diversion.

B. Sequence of Moves and Equilibrium Concept

This is a game in which the informed firm owner moves first by choosing a higher purpose and investment in that purpose (which is announced and can be credibly verified), and then offers a wage contract to the uninformed employee that satisfies the employee's participation constraint.[10] The equilibrium is Bayesian Perfect Nash Equilibrium (BPNE) and we focus on separating equilibria. Although we do not provide the details here, the separating equilibrium is sequential and satisfies the Cho and Kreps (1987) Intuitive Criterion.

C. Analysis

The owner of type τ solves the following problem

$$\max_{w,\propto}\{g(\tau)e\{[1-\propto][X-w]+\propto V_\tau[X-w]\}\} \tag{4}$$

Subject to

$$e \in argmax\left\{g(\tau)ew-\frac{e^2}{2}\right\} \tag{5}$$

$$g(\tau)ew-\left(\frac{e^2}{2}\right)\geq 0 \tag{6}$$

The solution to this problem is presented below.

Proposition 1: *For any given α, the optimal wage contract pays the employee $w^*=\frac{X}{2}\ if\ x=X, and\ 0\ if\ x=0$, regardless of the owner's type $\tau\in\{T,U\}$ and whether the employee knows the owner's type or not.*

[10] The firm is informed about the owner's type, which the employee is uniformed about.

It is interesting that the owner uses the same optimal wage contract regardless of her type. The next result is the main result of this section.

Proposition 2: *Assume $k > V_U$. If V_T is high enough, then the type-T owner prefers to separate from the type-U owner in a BPNE by choosing to divert a fraction*

$$\propto_T^* = \frac{1-k}{1-V_U} \qquad (7)$$

to higher purpose pursuit. The type-U owner chooses $\propto_U^* = 0$. The employee in the type-T owner's firm works harder and has a higher success probability than the type-U owner's firm.

This proposition shows that the type-*T* owner prefers to invest enough in higher purpose to ensure the type-*U* owner will not mimic. The reason why separation is possible is that the pursuit of higher purpose is less costly for the type-*T* owner due to the higher utility she enjoys from it. The intuition for why separation is preferred is that it enables the type-*T* owner to elicit higher effort from the employee with the same wage contract than would be possible with pooling. This is because the employee works harder when he knows the owner is type *T* (which happens in a separating outcome) than when he is uncertain about the owner's type (as in a pooling outcome). The employee behaves this way because, given any feasible wage contract, the employee's private marginal return to effort is higher when the owner is type *T* than when the owner is type *U*.

The result means that when the firm pursues a higher purpose, employees will believe the CEO/owner has higher ability. This provides an explanation for our survey evidence that employees have greater confidence in the ability of their leaders to make better business decisions when they pursue a higher purpose.

D. The Possible Effect of National Culture

Our model does not speak to the mediating influence of national culture. It is natural, however, to think that the value that is assigned to a higher purpose may be affected by the values embedded in the national culture. To account for this, suppose η represents national culture and $V_T(\eta)$ and $V_U(\eta)$ are both functions of η.

Definition*: A national culture η_2 is more homogeneous than a national culture η_1 if:*

$$V_T(\eta_2) - V_U(\eta_2) < V_T(\eta_1) - V_U(\eta_1) \tag{8}$$

Suppose the cross-section of national cultures is described by a continuum $[\eta_\ell, \eta_m]$ where η_ℓ means the "least homogeneous" and η_m means the "most homogeneous". Higher values of η represent greater homogeneity. Assume that $V_T(\eta_m) - V_U(\eta_m) = 0$, so in the most homogeneous culture all agents value a purpose equally[11]. Then we have:

Corollary 1*: Suppose there exists a national culture η_1 in which the type-T firms invest in higher purpose and type-U firms do not. In every national culture $\eta < \eta_1$ there is separation with type-T firms investing in higher purpose and type-U firms not investing. There also exists a national culture $\eta_2 > \eta_1$ such that in all national cultures $\eta \geq \eta_2$, no firm invests in higher purpose.*

The basic idea is that if the national culture is sufficiently homogeneous, the spread between V_T and V_U is too small to permit separation, so no firm uses higher purpose to signal and

[11] What matters here is not just the cross-sectional heterogeneity in the values attached to a higher purpose in a given national culture, but the correlation between this value and the owner's ability. In our two-type model, higher cross-sectional heterogeneity also coincides with the gap in valuation between types *T* and *U* being higher in the more heterogeneous national culture. With a continuum of types, we may have two countries, say A and B, such that the unconditional distribution of *V* is the same in both countries, but the distributions conditional on the firm's types differ. In country A there is no correlation between the firm's type and the value attached to higher purpose, whereas in country B the higher types value purpose more. Then we can have signaling equilibrium in country B, but there will not be one in country A.

$\propto = 0$ for all firms. Thus, sufficient *heterogeneity* within the national culture is needed for higher purpose investments by some firms[12].

E. Extension to a Continuum of Types

Since we have presented a two-type model, a natural question is: can it be extended to a continuum of types in which there is a perfectly separating BPNE? The conditions under which this is possible are analyzed below.

Define the owner's utility as

$$\pi(\tau, \propto) = g(\tau)e\{[1-\propto][X-w]+\propto V_\tau[X-w]\} \quad (9)$$

$$= g(\tau)e[X-w][1-\propto+\propto V_\tau]$$

Now suppose both τ and $\propto$ each lies in a continuum. We now have the following result.

Lemma 1*: With τ lying in a continuum, a perfectly separating BPNE, in which firms with higher values of τ choose higher values of $\propto$, exists if:*

$$-g'(\tau)e[X-w][1-V_\tau] + g(\tau)e[X-w]V_\tau' > 0 \quad (10)$$

This condition is satisfied with many functions, e.g. $g(\tau) = k\tau$, $\tau\epsilon[1, \frac{1}{k}]$, $V_\tau = \jmath\tau$ *and* $\jmath\epsilon(0.5, k), k < 1$.

Thus, our analysis readily extends to a continuum of types. The end points of the continuum in which τ lies correspond to *U* and *T* in our two-type model. Basically, (10) ensures that the single-crossing property holds in our model.

F. Firms as Banks with Insured Deposits

Now suppose the firm is a bank with completely insured deposits. While the focus of this analysis is on the interaction between capital, wages, the bank's higher purpose investment and

[12] Past research suggests that such heterogeneity is likely, since there is considerable variation in organizational culture across firms that cannot be explained by national culture (e.g. Gerhart (2015)).

bank risk, we recognize that bank risk is affected by many factors that are not part of our analysis.[13] To model banks, we recognize three (of the many) special features that distinguish banks from non-financial firms. First, they have insured deposits in their capital structure. Second, in part due to the use of insured deposits, they are subject to regulation, the most important of which for our model is capital requirements, and which are binding for many banks. Third, consistent with the screening-based theories of financial intermediation (e.g. Boyd and Prescott (1986), Coval and Thakor (2005), and Ramakrishnan and Thakor (1984)), they screen loan applicants to determine whether their project attributes make them creditworthy, and they monitor them to influence their success/repayment probability (consistent with Holmstrom and Tirole (1997)).

To model screening, suppose there are two types of borrowers: good borrowers (who are creditworthy) and bad borrowers (who are not creditworthy). If the bank lends to a good borrower, the probability that the bank will be repaid is e, where e is the monitoring effort chosen by the bank, i.e., $x = X$ with probability e for good borrowers. If the bank lends to a bad borrower, the probability that the bank will be repaid is 0, regardless of its monitoring effort. Banks are heterogeneous in the talents of their owners. If the owner's type is $\tau = T$ (talented), the bank's screening identifies a borrower's type correctly with probability 1, and if the owner's type is $\tau = U$, the bank correctly identifies the borrower's type with probability $k\epsilon(0,1)$. Thus, conditional on lending, the type-dependent probability that the bank will lend to a good borrower is given by $g(\tau)$ in (2). We assume that the prior probability that a borrower is good is $\xi\epsilon(0,1)$ and this is common knowledge. No one, including the borrower, knows the borrower's type *ex*

[13] For example, Martynova, Ratnovski and Vlahu (2020) show that higher bank profitability can lead to more risk taking by loosening leverage constraints, and Thakor (2021) shows theoretically how politics can affect bank risk through the capital structure channel.

ante – it is only discovered by the bank after screening.[14] The bank needs to hire an employee to provide monitoring effort for the loan. The bank will hire an employee with a wage contract only if its screening reveals the loan applicant to be creditworthy.

Thus, in this set-up, the bank's owner screens the loan, and based on this the bank decides whether to lend, if it decides to lend, the bank raises equity capital and deposits to finance the loan and offers a wage contract to hire an employee to monitor the loan. The precise sequence of events is as follows. First, nature randomly pairs up a loan applicant with a bank.[15] One can think of this as a spatial setting in which borrowers are geographically constrained to approach certain banks. Second, the bank screens the loan applicant. If it decides to extend a loan, it raises the financing needed to fund the loan, with a mix of deposits and equity that is exogenously specified. Third, the bank hires an employee for monitoring the borrower and gives the employee a payoff-contingent wage contract. Fourth, the bank announces its (verifiable) higher purpose investment. Finally, the employee monitors the borrower and the borrower's project outcome is realized.

Let D represent deposits and E represent equity capital in the bank. Now, for a given capital structure, conditional on having decided to make the loan, the goal of the owner (assume to represent all shareholders in the bank) becomes:[16]

$$\max_{w,\propto}\{\, g(\tau)e\{[1-\propto][X-w-D]+\propto V_{\tau}[X-w-D]\}-E\} \tag{11}$$

[14] For simplicity, we assume a zero marginal cost of screening.

[15] This is to avoid the complexities of a search model with potential selection issues related to borrower's choosing banks based on their higher purpose investments.

[16] The program below assumes that the equilibrium is separating with the *T* and *U* banks separating themselves through their $\propto$ choices.

subject to

$$e \in argmax \left\{g(\tau)ew - \frac{e^2}{2}\right\} \tag{12}$$

$$g(\tau)ew - \left[\frac{e^2}{2}\right] \geq 0 \tag{13}$$

Here *D* is also the bank's repayment obligation to depositors, and we assume that the deposit insurance premium is zero.[17] Given a zero riskless rate, the interest on deposits is also zero. We take the bank's capital structure as given, so it may be useful to think of *E* as arising from a binding regulatory capital requirement.[18] Note that (12) is the Incentive compatibility (IC) constraint and (13) is the employee's Individual rationality (IR) constraint. For a bank with asset size *A*, the balance sheet identity will be $D + E = A$.

This now leads to:

Proposition 3: *As in Proposition 2, the type-T owner's bank chooses* $\propto_T^* > 0$ *and the Type-U owner's bank chooses* $\propto_U^* = 0$ *in a separating PBNE. The type-T bank owner's optimal wage contract has* w_T^* *decreasing in D. The employee's optimal effort choice in such a bank is also decreasing in D. Thus, higher equity capital in the bank leads to a lower probability of failure for the bank.*

This result says that higher leverage in the bank leads to an optimal contract that elicits lower effort from the employee. This then leads to a lower success probability for the bank. Put

[17] This assumption is innocuous.

[18] Under Basel III, banks are subject to both capital and liquidity requirements (Net Stable Funding Ratio and Liquidity Coverage Ratio). We do not model liquidity requirements. These requirements rely on the argument that during times of stress, institutions may find liquidity drying up, so either an injection of liquidity (as in Bergman, Iyer and Thakor (2020)) or a regulation-induced liquidity stockpile can help to cope with the stress. See Thakor (2014) for an extensive discussion of the relative merits of liquidity and capital requirements. Capital requirements limit the bank's insolvency risk and can have significant real effects. See, for example, the evidence in Mayordomo, Moreno, Ongena and Rodriguez-Moreno (2021).

differently, if equity capital E in the bank increases (and thus D falls), the bank's success probability rises.

It is worth noting that the bank's higher purpose investment here is driven by the signaling motivation of the bank with the type T owner to separate from the bank with the type U owner. Absent a regulatory capital requirement, each bank would finance entirely with deposits which are cheaper than equity due to deposit insurance and the "moneyness premium" associated with deposits.[19] But when banks have equity capital on their balance sheets, the level of deposits affects the bank's tradeoff. The higher the level of deposit financing, the lower is the net payoff going to shareholders and thus the lower marginal benefit to the bank of an additional unit of employee effort. This explains why the optimal wage contract offered by type T bank is designed to incent lower effort when D is higher. This then leads to a lower effort and hence a lower success probability when the bank has lower equity capital. Since the expected value of the benefit of the higher purpose investment that the bank does not account for is $e^*\Omega(\propto_T^* [X - w_T^* - D])$ for the type T bank, we see that the total expected social value of the higher purpose investment (which also includes the value to the bank owner) is also increasing in the bank's capital. Thus, the link between bank capital and higher purpose is somewhat indirect in that higher bank capital enhances the value of the bank's higher purpose investment through the employee-wage and incentives channel.

G. Extension to Case in which Employee Values Higher Purpose:

One might argue that assigning only a signaling role to higher purpose ignores the positive effect of organizational purpose on employee motivation that has been documented

[19] Note that the repayment obligation on deposits in (11) is the same as the amount of deposits raised. See, for example, Donaldson, Piacentino and Thakor (forthcoming) who make a similar assumption about deposits providing banks with a cheaper source of financing than possible with other forms of debt or equity. Nagel (2016) estimates a substantial moneyness premium that lowers the cost of bank deposits.

empirically (e.g. Gartenberg, Prat and Serafeim (2019), and Grant et al (2007)), and suggested in our survey results. So in this section we provide an analysis which does not rely on signaling and show that our main results still obtain if we assume that the bank owner's ability is common knowledge but the bank's employee derives a positive utility from the bank's purpose. Now suppose the bank's employee assesses this purpose-related utility to be $H\propto max\{0, x -- D\}$, so it will be $H\propto [X - D]$ when $x=X$ and 0 if $x = 0$. Assume that $0 < H < 1$. Like everyone else, the employee knows the bank owner's type before joining the bank. No generality is lost in assuming that $V_U = 0$, $V_T > 0$. The owner thus maximizes (11) as before, except that the IC and IR constraints are now replaced by:

$$e \in argmax \left\{g(\tau)e[w+\propto H(X-D)] - \frac{e^2}{2}\right\} \tag{14}$$

$$g(\tau)e[w+\propto H(X-D)] - \left[\frac{e^2}{2}\right] \geq 0 \tag{15}$$

Moreover, there is no non-mimicry constraint since each bank owner's type is common knowledge. In what follows, we assume that

$$1 < 2H < [1- V_T]\,[1+3H] \tag{16}$$

This condition is essentially a restriction that the value attached to purpose by the employee is not too small or too large.

This now leads to:

Proposition 4: *When the bank's employee values its higher purpose, the type-T owner's bank chooses* $\propto_T^* > 0$ *and the type-U owner's bank chooses* $\propto_U^* > 0, with\ \propto_T^* > \propto_U^*$. *For both types of banks, the employee's wage is decreasing and effort is increasing in the bank's capital E and its higher purpose investment, wage is decreasing in capital and higher purpose investment, and the higher purpose investment is increasing in H and* V_τ. *The effect of the bank's capital on the employee's wage is smaller when its higher purpose investment is bigger.*

The intuition is as follows. Because the employee values the bank's purpose, he is willing to provide higher effort for a lower promised wage—essentially, the utility from purpose acts as a non-pecuniary compensation. This induces each type of bank to invest in purpose, even if the owner does not value the purpose personally. The type-*T* owner invests more because of the greater value attached to purpose than in the case of the type-*U* owner. The effect of capital on wages and effort has the same intuition as in the previous analysis. The reason why the impact of capital on wages diminishes when purpose investment is higher is that the efficacy of the wage in incenting effort is stronger when the bank's purpose investment is higher, so the bank finds it optimal to offer a smaller increase in wage when its capital increases; in a sense, purpose acts as a partial substitute for a performance bonus in incenting higher employee effort. Thus, both capital and higher purpose investment reduce the bank's failure probability, but this effect is not mechanical, i.e., it is not driven by the fact that a more highly leveraged bank has a bigger debt repayment obligation and is therefore less likely to be able to meet it. It is also not the usual skin-in-the-game argument of more capital leading to more bank monitoring (e.g. Holmstrom and Tirole (1997) and Mehran and Thakor (2011)), although it is related to it.

H. Higher Purpose in Banking

At this point, we step back and briefly discuss what higher purpose may look like in banking. Thakor (forthcoming) discusses numerous examples, and here we rely in part on that discussion. An excellent example is The Bank of Bird-in-the-Hand in Southern Pennsylvania. Its higher purpose – which intersects its main business as a full-service bank – is to provide banking services to the underbanked Amish community and thereby foster local economic development. Another example is Bank of America. Like the Development Bank of Singapore example provided earlier, Bank of America states a customer-centric higher purpose, which is

"...to help make our clients' lives better through the power of every connection we can make". Yet another example is Sandler, O'Neill and Partners, a privately-owned investment bank which lost a third of its workforce in the 9/11 terrorist attacks in New York. It defined its higher purpose as being employee-centric (see Quinn and Thakor (2019)). Yet another example of a purpose-driven bank is Robobank Agrifinance in The Netherlands. The customer-oriented statements of purpose correspond to the Ω in our model.

I. Regulatory Policy Implications:

Our paper has several important regulatory policy implications.

First, regulators may want to encourage banks to focus on higher purpose. Thakor (forthcoming) provides an extensive discussion of why regulators may wish to do this. One reason is the damage done to trust in the banking industry as a result of the 2007-09 crisis. Indeed, evidence presented by Lins, Servaes and Tamayo (2017) suggests that higher level of "social capital" would have helped banks cope more effectively with the stresses of the crisis. While stricter regulation since the financial crisis has helped to some extent to rebuild trust in banks (e.g. see Thakor and Merton (2020), and Zoega (2018)), the process is far from complete. An authentic commitment to higher purpose by the industry and salient examples of the practice of higher purpose by large banks may go a long way in facilitating trust restoration, with banks being viewed once again in a more positive light. There is already progress on this front. For example, the Dutch Corporate Governance Code, adopted in December 2016, emphasizes bank culture and requires banks to report their values and code of conduct.[20]

Second, when banks focus on higher purpose, they do so at the expense of profits conditional on success, says our model. The traditional view is that lower profitability often

[20] Shakeel, Bangassa and Akbar (2020) point out that improved information disclosure and enhanced transparency can also improve trust in banking.

leads to riskier asset choices by banks because lower profits are synonymous with lower charter values (e.g. Keeley (1990)), although Martynova, Ratnovski and Vlahu (2020) have recently challenged this view and provided evidence that higher profitability may lead to more risk taking by loosening the bank's leverage constraint. Moreover, tighter post-crisis regulation has made such risk-shifting less likely. While we do not have risk-shifting moral hazard in our model, our analysis does suggest that, despite the lower profit conditional on success, higher purpose pursuit lowers the bank's failure probability through its mediating influence on optimal wage contracts.[21] Thus, bank capital contributes to financial stability through a novel channel when the bank is investing in higher purpose.

Third, even when employees do not attach personal utility to the bank's higher purpose, they are still willing to work harder to reduce the bank's failure probability when the bank invests in a higher purpose. Thus, the overall effect of higher purpose pursuit by banks is an improvement in financial stability. [22] When the bank's employees value its purpose, all banks invest in purpose, the ones that invest more experience a bigger decline in wages and the probability of failure, and a bigger improvement in employee effort.

Finally, the analysis generates two testable predictions. First, an increase in the regulatory capital requirement, E, will lead to higher wages for bank employees (Proposition 3). We are not aware of any existing evidence corresponding to this prediction, but it represents a

[21] This is not necessarily a prescription for higher capital requirements. Using higher capital requirements may be tricky when only a subset of banks in the country are investing in purpose or when banks in some countries are investing more than banks in other countries and regulators care about a level competitive playing field. An alternative approach that may be better is for regulators to reduce cost of regulation for banks investing in (authentic) higher purpose. One area is the risk-sensitive pricing of deposit insurance—since banks pursuing authentic higher purpose have lower failure probabilities, they should be charged lower premia (e.g. Chan, Greeenbaum and Thakor (1992)).

[22] This is because the banks that do not invest in higher purpose have employees choosing the same effort, with the same success probability for the bank.

topic for future research. Second, an increase in higher purpose investment will lower the bank's failure probability.

IV. ADDITIONAL CONSIDERATIONS

In this section, we take up two additional issues: the potentially corrosive influence of politics, and banks versus non-banks.

Encouraging banks to pursue higher purpose has the potential for increasing the commingling of politics and banking. As Calomiris and Haber (2014) clarify, politics is intertwined with banking in most countries. Bank CEOs may be tempted to engage in "political catering" – investing in projects favored by politicians with whom they want to curry favor and dressing up these as higher purpose investments. This is the "dark side" of purpose pursuit that is inauthentic. Bank CEOs can gain private political benefits while preaching the pursuit of higher purpose. Thakor and Quinn (2020) formally examine this and show that this results in an across-the-board reduction in higher purpose investments by *all* firms. More generally, this highlights the importance of *authenticity* in higher purpose pursuit and the need for shareholder vigilance to ensure that the CEO is not investing in private-benefit projects masquerading as higher purpose investments. Investments in private benefit projects that are disguised as higher purpose projects may lull regulators into being less vigilant in monitoring banks, especially if these projects involve political catering that shields banks from regulatory pressure. If this happens, banking stability will suffer.

On the issue of banks versus non-banks, Chernenko, Erel and Prilmeier (2019) document that a significant portion of lending in the U.S. is done by non-banks. Donaldson, Piacentino and Thakor (forthcoming) provide a theory in which banks and non-banks co-exist in general equilibrium even though non-banks have a higher cost of capital than banks, and Cerqueiro,

Ongena and Roszbach (2020) provide evidence that banks are unique in the lending process. In our model, deposits are insured, so banks have a funding-cost advantage over non-banks, as in Donaldson, Piacentino and Thakor (forthcoming). This means leverage is not as attractive for non-banks as it is for banks, and non-banks may operate with higher capital and have lower failure probabilities. However, non-banks may not be subject to the same regulatory capital requirements as banks. This means they may operate with lower capital, and have higher failure probabilities. Whether the equilibrium success probability makes the expected value of a higher purpose investment lower or higher for non-banks than for banks will then depend on which lender has higher capital.

V. CONCLUSION

This paper has provided recent survey data on personal and organizational higher purpose which indicates that individuals who work in organizations that have written statements of higher purpose are happier and trust their leaders to not only be more socially responsible but also to make better business decisions. We then develop a theoretical model of higher purpose investments in an optimal wage contracting framework and explain this finding. The intuition is that when the firm's owner has utility from organizational higher purpose that is correlated with the owner's ability and this ability is output-relevant, higher purpose investments act as a signal of ability.[23] However, this finding can also be obtained when the investment in purpose does not act as a signal, if the firm's employee values its purpose.

We then extend the model to view the firm as a bank that is pursuing a higher purpose and show that banks with higher capital pay their employees more and elicit higher employee

[23] Thakor and Merton (2020) develop a theory of trust in banks in which they define "trust" as being determined by "trustworthiness" and "ability". This is consistent with the conceptualization of trust as perceptions of ability as well as things like integrity and benevolence (see Mayer, Davis and Schoorman (1995)).

effort, which leads to a lower failure probability for the bank. The predicted relationship between bank capital and wages is testable. The result that the bank pursuing a higher purpose experiences a lower failure probability with higher capital – an effect generated via optimal labor contracting – has regulatory policy and stability implications of potentially considerable import.

We believe the issue of organizational higher purpose is very important in banking. The relevance of "soft" behavioral issues in influencing bank behavior is increasingly being recognized by bank regulators, and this has led to more research on corporate culture (e.g. Graham, Grennan, Harvey and Rajgopal (2019), Lo (2016), and Thakor (forthcoming)). This is a step in the right direction, but culture is not the same thing as purpose. Purpose is the *why* and culture is the *how*. Our paper is a modest first step in highlighting the importance of higher purpose in banking, but it has only scratched the surface. Future research should survey individuals globally to assess their attitudes on purpose and engage in more theoretical and empirical work on examining how purpose influences behavior and economic outcomes in banking. We will also need to see empirical work that is careful about identification and attempts to uncover causal links between higher purpose and banking outcomes. These topics offer tantalizing possibilities for extending the traditional boundaries of banking research in the future, and for moving us beyond providing theoretical justifications for what we already know to research aimed at elevating banking conduct and measuring its impact.

REFERENCES

Ahern, Kenneth, Daniele Daminelli, and Cesare Fracassi, "Lost in Translation? The Effect of Cultural Values on Mergers Around the World", *Journal of Financial Economics* 117-1, 2015, pp. 165-189.

Allen, F., E. Carletti and R. Marquez, "Credit Market Competition and Capital Regulation", *Review of Financial Studies* 24, 2011, pp. 983-1018.

Bartlett, Christopher A., and Sumantra Ghoshal, "Beyond Strategy to Purpose", *Harvard Business Review*, November-December 1994.

Berger, Allen and Christa Bouwman, "How Does Capital Affect Bank Performance During Financial Crisis?" *Journal of Financial Economics*, 109, 2013, pp. 146-176.

Begrman, Nittai, K., Raj Iyer and Richard Thakor, "The Effect of cash Injections : Evidence form the 1980s Farm Credit Crisis", *Review of Financial Studies* 22(11), 2020, 5092-5130.

Bolton, Brian J., "Corporate Social Responsibility and Bank Performance", June 11, 2013, available at SSRN: https://ssrn.com/abstract=2277912

Boyd, John and Edward C. Prescott, "Financial Intermediary-Coalitions", *Journal of Economic Theory* 38-2, April 1986, pp. 211-232

Bunderson, Stuart and Anjan V. Thakor, "Personal and Organizational Higher Purpose: Survey Results", working paper, Washington University in St. Louis, June 2020.

Bunderson, Stuart, Robert Quinn, Anjan Thakor, and Brian Wellinghoff, "Organizational Higher Purpose", *See Far*, 2020.

Calomiris, Charles. W., and Stephen H. Haber, *Fragile by Design: The Political Origins of Banking Crises and Scarce Credit*, Princeton University Press, 2014.

Carlson, Mark A, Hui Shan and Missaka Warusawitharana, "Capital Ratios and Bank Lending: A Matched Bank Approach", *Journal of Financial Intermediation* 22 (4), 2013, pp. 663-687.

Cerquieiro, Geraldo, Steven Ongena, and Kasper Roszbach, "Collateral Damaged? Priority Structure, Credit Supply, and Firm Performance", *Journal of Financial Intermediation*, October 2020.

Chan, Yuk-Shee, Stuart Greenbaum and Anjan Thakor, "Is Fairly Priced Deposit Insurance Possible?" *Journal of Finance* 47-1, March 1992, 227–246.

Chernenko, Sergey, Isil Erel, and Robert Prilmeier, "Nonbank Lending", WP 2018-13, Ohio State Univ., 2019.

Cho, In-Koo and David Kreps, "Signaling Games and Stable Equilibria", *The Quarterly Journal of Economics* 102(2), May 1987, pp. 179-221.

Chui, Andy C., Alison E. Lloyd and Chuck Cykwok, "The Determination of Capital Structure: Is National Culture a Missing Piece to the Puzzle?" *Journal of International Business Studies* 33, 2002, pp. 99-127.

Coval, Josh and Anjan V. Thakor, "Financial Intermediation as a Beliefs Bridge Between Optimists and Pessimists", *Journal of Financial Economics* 75-3, March 2005, pp. 535-570.

Dai, Rui, Hao Liang, and Lilian Ng, "Socially responsible Corporate Customers", forthcoming, *Journal of Financial Economics*.

Dal Maso, Lorenzo, Giovanni Liberatore and Francesco Mazzi, "Value Relevance of Stakeholder Engagement: The Influence of National Culture", *Corporate and Social Responsibility and Environmental Management* 24, 2017, pp. 44-56.

Donaldson, Jason, Giorgia Piacentino and Anjan Thakor, "Intermediation Variety", forthcoming, *Journal of Finance.*

Drago, Danilo, Concetta Carnevale, and Raffaele Gallo, "Do Corporate Social Responsbility Ratings Affect Credit Default Swaps?" *Corporate Social Responsibility and Environmental Management* 26(3), May/June 2019, pp. 644-652.

Ellul, Andrew and Vijay Yerramilli, "Stronger Risk Controls, Lower Risk: Evidence from U.S. Bank Holding Companies", *Journal of Finance 68-5*, October 2013, pp. 1757-1803.

Gartenberg, Claudine, Andrea Prat and George Serafeim, "Corporate Purpose and Financial Performance", *Organization Science* 30(1), January-February 2019, 1-18.

Gerhart, B. "How Much Does National Culture Constrain Organizational Culture?" *Management and Organization Review*, 5(2), 2015, pp. 241-259.

Gerhart, B., & Fang, M.. "National culture and human resource management: Assumptions and Evidence." *International Journal of Human Resource Management*, 16(6), 2005, pp. 975-990.

Graham, John R. and Campbell R. Harvery, "The Theory and Practice of Corporate Finance: Evidence from the Field", *Journal of Financial Economics* 60, 2001, pp. 187-243.

Graham, John R, Jillian Grennan, Campbell Harvey and S. Rajgopal,"Corporate Culture: Evidence from the Field", working paper, Duke University, 2019.

Grant, Adam M., Elizabeth M. Campbell, Grace Chen, Keenan Cottone, David Lapedis, and Karen Lee, "Impact and the Art of Motivation Maintenance: The Effects of Contact with Beneficiaries on Persistence Behavior", *Organization Behavior and Human Decision Processes* 103-1, May 2007, 53-57.

Green, Daniel and Benjamin Roth, "The Allocation of Socially Responsible Capital", working paper, Harvard Business School, December 2020.

Guiso, Luigi, Paola Sapienza and Luigi Zingales, "Does Culture Affect Economic Outcomes?" *Journal of Economics Perspectives* 20, 2006, pp. 23-48.

Hedblom, Daniel, Brent R. Hickman and John A. List, "Toward an Understanding of Corporate Social Responsibility: Theory and Field Experimental Evidence", working paper, University of Chicago, March 26, 2019.

Henderson, Rebecca and Eric Van den Steen, "Why Do Firms Have "Purpose"? The Firm's Role as a Carrier of Identity and Reputation", *American Economic Review: Papers & Proceedings* 105-5, May 2015, 326-330.

Holmstrom, M. and J. Tirole, "Financial Intermediation, Loanable Funds, and the Real Sector", *Quarterly Journal of Economics* 112, 1957, pp. 663-689.

Kanagaretnam, Kiridaran, Chee Yeow Lim, and Gerald J. Lobo, "Effects of national culture on earnings quality of banks", *Journal of International Business Studies*, 42(6), 2011, pp. 853-874.

Kanagaretnam, Kiridaran, Chee Yeow Lim, and Gerald J. Lobo, "Influence of National Culture on Accounting Conservatism and Risk-Taking in the Banking Industry", *The Accounting Review* 89, 2014, pp. 1115-1149.

Keeley, Michael, C., "Deposit Insurance, Risk, and Market Power in Banking", *American Economic Review* 80(5), December 1990, pp. 1183-1200.

Krueger, Philipp, Daniel Metzger and Jiaxin Wu, "The Sustainability Wage Gap", working paper, Swiss Finance Institute, August 2020.

Laeven, Luc, Lev Ratnovski and Hui Tong, "Bank Size, Capital Requirements and Systemic Risk: Some International Evidence", IMF Working Paper, March 2014.

Lins, Karl. V, Henri Servaes and Ane Tamayo, "Social Capital, Trust, and Firm Performance: The Value of Corporate Social Responsibility During the Financial Crisis", *The Journal of Finance* 72, August 2017, pp. 1785-1824

Lintner, John, "Distribution of Income of Corporations Among Dividends, Retained Earnings, and Taxes", *American Economic Review*, 1956, pp. 97-113.

Lo, Andrew, "The Gordon Gekko Effect: The Role of Culture in the Financial Industry", *Economic Policy Review* 22-1, August 2016, Federal Reserve Bank of New York.

Mainwaring, Simon, "3 Lessons from Heineken on How to Run a Purpose-Driven Business", *Forbes*, March 8, 2017.

Martynova, Natalya, Lev Ratnovski and Razvan Vlahu, "Bank Profitability, Leverage Constraints and Risk Taking", *Journal of Financial Intermediation* 44-4, October 2020.

Mayer, Roger C., James H. Davis and David Schoorman, "An Integrative Model of Organizational Trust", *The Academy of Management Review* 20-3, July 1995, pp. 709-734.

Mayordomo, Sergio, Antonio Moreno, Steven Ongena and Maria Rodriguez-Moreno, "Bank Capital Requirements, Loan Guarantees and Firm Performance", *Journal of Financial Intermediation* 45-1, January 2001.

Mehran, Hamid and Anjan Thakor, "Bank Capital and Value in the Cross-Section", *The Review of Financial Studies* 24 (4), 2011, pp. 1019-1067.

Merton, Robert C., "An analytic derivation of the cost of deposit insurance and loan guarantees", *Journal of Banking & Finance* 1, June 1977, pp. 3-11.

Merton, Robert C. and Richard Thakor, "Customers and Investors: A Framework for Understanding the Evolution of Financial Institutions", *Journal of Financial Intermediation* 39, July 2019, pp. 4-18.

Merton, Robert C., and Richard Thakor, "No-fault Default, Chapter 11 Bankruptcy, and Financial Institutions:" NBER WP # 28341, January 2021, forthcoming, *Journal of Banking and Finance*.

Nagel, Stefan, "The Liquidity Premium of Near-money Assets", *Quarterly Journal of Economics* 4, 2016, pp. 1927-1971.

Oehmke, Martin and Marcus Opp, "A Theory of Socially Responsible Investment", Swedish House of Finance Research Paper No 20-2, March 2020.

Quinn, Robert E. and Anjan V. Thakor, "Creating a Purpose-Driven Organization", *Harvard Business Review*, July-August 2018, 78-85

Quinn, Robert E. and Anjan V. Thakor, *The Economics of Higher Purpose*, Barret-Koehler Press, 2019.

Ramakrishnan, RTS and Anjan V. Thakor, "Information Reliability and a Theory of Financial Intermediation", *Review of Economic Studies* 51(3), July 1984, pp. 415-432.

Shakeel, Ahmed, Kenbata Bangassa and Saeed Akbar, "A Study on Trust Restoration Efforts in the UK Retail Banking Industry", *The British Accounting Review* 52(1), 2020.

Schein, E.H. *Organizational Culture and Leadership* (5th ed.)., 2017, NJ: John Wiley & Sons.

Schneider, Susan C., "National vs. corporate culture: Implications for human resource management", *Human Resource Management* 27, Summer 1988, pp. 231-246.

Sheridan, Richard, "How Purpose Shapes Culture", *The Loan Enterprise Institute*, April 17, 2019.

Song, Fenghua and Anjan Thakor, "Bank Culture", *Journal of Financial Intermediation* 39, July 2019, pp. 59-79.

Taylor, K. 2019. "Chick-fil-A likely loses out on more than $1 billion in sales every year by closing on Sundays — and it's a brilliant business strategy", *Business Insider*, July 29, 2019.

Thakor, Anjan, V., "Bank Capital and Financial Stability: An Economic Tradeoff or Faustian Bargain?", *Annual Review of Financial Economics* 6, 2014, pp. 185-223.

Thakor, Anjan, V., "Ethics, Culture and Higher Purpose in Banking: Post-Crisis Governance Developments", forthcoming, *International Journal of Central Banking*.

Thakor, Anjan V., "Politics, Credit Allocation and Bank Capital Requirements", *Journal of Financial Intermediation* 45-1, January 2021.

Thakor, Anjan, "Post-Crisis Regulatory Reform in Banking: Address Insolvency Risk, Not Illiquidity", *Journal of Financial Stability*, 37, 2018, pp. 107-111.

Thakor, Anjan, *The Purpose of Banking: Transforming Banking for Stability and Economic Growth*, The Oxford University Press, July 2019.

Thakor, Anjan and Robert E. Quinn, "Higher Purpose, Incentives, and Economic Performance", working paper, Washington University in St. Louis, May 2020.

Thakor, Richard and Robert C. Merton, "Trust in Lending", NBER Working Paper, No. 24778, 2020.

Van den Steen, Eric, "On the Origin of Shared Beliefs (and Corporate Culture)", *RAND Journal of Economics* 41(4), 2010, pp. 617-648.

White, Andrew," Lessons from Companies that Put Purpose Ahead of Short-Term Profits", *Harvard Business Review*, June 9, 2016.

Zoega, Gylfi, "Restoring Confidence in the Aftermath of Iceland's Financial Crisis", *The Return of Trust? Institutions and the Public after the Icelandic Financial Crisis*, T.O. Sigurjonsson, D.L. Schwarzkopf and M. Bryant (eds.) Emerald Publishing Limited, 2018.

APPENDIX A

Our Survey Questions

PERSONAL HIGHER PURPOSE:

(1) A statement of personal higher purpose is a personal statement about WHY you do what you do in your work and professional life. It goes beyond a description of your job or your monetary or promotion goals. It is central to what motivates you in your work. For example, a teacher stated: "It is my purpose to teach every student as if they were my own daughter." Do you have a statement of personal higher purpose?

1 = No
2 = Yes, but not written down
3 = Yes, I have a written purpose statement

(2) If you answered YES (option 2 or 3) to question #1 how strongly committed are you to your personal higher purpose?
1 = not at all and 5 = total commitment (it gives you passion and drives most of your decisions):

1 2 3 4 5

(3) If you answered YES (option 2 or 3) to question #1, how has your personal higher purpose helped you to cope with the COVID-19 global health crisis and its requirement for social isolation and remote work? (choose one)

1. It did not help me at all in coping with this crisis
2. It was of limited usefulness in coping with this crisis
3. It was somewhat useful in coping with this crisis
4. It was quite useful in coping with this crisis
5. It has been an invaluable anchor to my professional and personal life through this crisis

(4) How would you describe your state of personal happiness and well-being (1 = very unhappy and 5 = very happy):

1 2 3 4 5

(5) What is your level of anxiety about the future? (1 = not anxious at all and 5 = very anxious):

1 2 3 4 5

ORGANIZATIONAL HIGHER PURPOSE:

(6) A statement of organizational higher purpose captures the higher social or human purpose served by an organization, beyond just the business objectives of the enterprise. That is, a statement of higher purpose makes it clear to all how the business of the organization helps society. For example, organizational purpose may be about solving a societal problem or operating with deep respect for the dignity of each employee. Does the organization you work for have a statement of higher purpose?

1 = No
2 = Yes, but not formally written down
3 = Yes, we have a written purpose statement

(7) If you answered YES (option 2 or 3) to question #6, which of the following are beneficiaries of your organization's purpose? (Check all that apply)

a. Shareholders
b. Employees
c. Customers
d. The local community
e. The broader society
f. The environment
g. Other

(8) If you answered YES (option 2 or 3) to question #6, to what extent is your organization's higher purpose inspiring and meaningful to you personally?

1 2 3 4 5

(9) If you answered YES (option 2 or 3) to question #6, to what extent does your organization's purpose influence the decisions you make as a member of the organization?

1 2 3 4 5

(10) If you answered YES (option 2 or 3) to question #6, has your experience during the COVID-19 global health crisis made you more or less committed to your organization's higher purpose?

1 = much less committed
2 = somewhat less committed
3 = neither more nor less committed
4 = somewhat more committed
5 = much more committed

(11) If you answered YES (option 2 or 3) to question #6, to what extent has your organization's statement of higher purpose served as a compass in guiding your organization's response to the COVID-19 global health crisis?
(1 not an effective compass; 5 has been a meaningful guide for our co-workers, management and organization)

1 2 3 4 5

(12) To what extent do you agree or disagree with the following statement: My employing organization is profitable and financially successful.

1 2 3 4 5

(13) To what extent do you agree or disagree with the following statement: I am proud to work for my employing organization.

1 2 3 4 5

(14) To what extent do you trust your organization's top leaders to make intelligent and well-informed business decisions?

1 2 3 4 5

(15) To what extent do you trust your organization's top leaders to make socially responsible business decisions?

1 2 3 4 5

APPENDIX B: PROOFS

Proof of Proposition 1: Consider the problem (4)-(6) solved by the type-t owner. The first-order condition that determines the employee's choice of effort, e^*, is (using (5)):

$$g(\tau)w - e^* = 0 \tag{A-1}$$

And the second-order condition is satisfied:

$$-1 < 0 \tag{A-2}$$

Now substitute for e^* into (4) and write:

$$g(\tau)^2 w\{[1-\propto +\propto V_\tau][X - w]\} \tag{A-3}$$

The owner maximizes (A-3) with respect to w. The first order condition is:

$$g(\tau)^2[1-\propto +\propto V_\tau][X - 2w^*] = 0 \tag{A-4}$$

which yields

$$w^* = \frac{X}{2} \tag{A-5}$$

an expression that is independent of $\propto$ and τ. It is obvious that the second-order condition hold ■

Proof of Proposition 2: Consider first an outcome in which the type-*T* owner pools with the type-*U* owner. Since $V_T < 1$**,** it follows that in this case the type-*T* owner will choose $\propto = 0$.

The analog of (A-1) now leads to

$$e_p^* = \{\lambda + [1-\lambda]k\}w_p \tag{A-6}$$

where w_p is the wage paid for success in the pooling outcome and e_p^* is the employee's effort choice, given that wage contract.

The owner of type *T* now chooses

$$w_p^* = \frac{X}{2} \tag{A-7}$$

and the firm's expected profit is

$$\pi_p = e_p^*[X - w_p^*]$$

$$= \{\lambda + [1-\lambda]k\}\left[\frac{X^2}{2} - \frac{X^2}{4}\right]$$

$$= \{\lambda + [1-\lambda]k\}\left\{\frac{X^2}{4}\right\} \tag{A-8}$$

Now for any given $\propto$ that achieves a separating outcome in which the type-T owner chooses $\propto > 0$ and the type-U owner chooses $\propto = 0$, the expected utility of the type-T owner is

$$\pi_s = \{[1-\propto]+\propto V_T\}\left\{\frac{X^2}{4}\right\} \tag{A-9}$$

Now compare (A-8) and (A-9). We see that

$$\pi_s > \pi_p \tag{A-10}$$

if V_T is sufficiently high. If $V_T = 1$, then (A-10) obviously holds for any $\propto$. So, by continuity, it holds for V_T high enough.

Now we solve for the $\propto_T^*$ needed to achieve separation. Since $V_T < 1$, it follows that *T* will choose $\propto$ high enough to achieve separation by satisfying the type *U*'s non-mimicry constraint, but no higher.

If the type-*U* owner mimics the type-*T* owner by choosing $\propto = \propto^*$, then the expected utility of the type *T* is:

$$ke_T^*[1-\propto][X-w] + ke_T^* V_U \propto [X-w]$$

$$= kw_T^*[X-w_T^*]\{[1-\propto]+\propto V_U\}$$

$$= \{[1-\propto]+\propto V_U\}k\left[\frac{X^2}{4}\right] \tag{A-11}$$

where w_T^* is the wage contract chosen by the type *T* and e_T^* is the employee's effort choice in response to that contract, and we use the earlier result (recall (A-1)) that $e_T^* = w_T^*$ and that $w_T^* = \frac{X}{2}$ (recall (A-5)).

Now if the type-*U* owner chooses $\propto = 0$ and thus does not mimic the type *T* owner, her expected utility is:

$$ke_U^*[X-w_U^*]$$

$$= k^2\left[\frac{X}{2}\right]\left[X-\frac{X}{2}\right]$$

$$= k^2\frac{X^2}{4} \tag{A-13}$$

The non-mimicry constraint is that the expression in (A-13) is at least as large as the expression in (A-11). Comparing (A-11) and (A-13), we see that by treating the non-mimicry constraint as binding, the optimal $\propto$ to achieve separation is:

$$\propto_T^* = \frac{1-k}{1-V_U} \tag{A-14}$$

Note that $\propto_T^* \in (0,1)$ since $k > V_U$. Moreover, it is also clear that, given the optimal separating contracts, the success probability of the type-*T* firm exceeds that of the type-*U* firm. It is

straightforward to verify that this is a BPNE with the out-of-equilibrium belief that a bank choosing $\propto \notin \{\propto_T^*, 0\}$ is type *U* with probability one. ■

Proof of Corollary 1: The proof follows from the fact that is separation is achieved for η then for any $\hat{\eta} < \eta_1$, it must be true that $V_T(\hat{\eta}) - V_U(\hat{\eta}) > V_T(\eta_1) - V_U(\eta_1)$, so the incentive compatibility (IC) constraint for separation with $\hat{\eta}$ will be satisfied. The existence of $\eta_2 > \eta_1$, such that the IC constraint for separation will not be satisfied with $\eta_2 \epsilon [\eta_\ell, \eta_m]$ is guaranteed by the fact that $V_T(\eta_m) - V_U(\eta_m) = 0$. ■

Proof of Lemma 1: As we know from well-established results, a perfectly separating BPNE as described in the lemma will exist if the single-crossing property holds. That is, we need

$$\partial^2 \pi(\tau, \propto)/\partial\tau\partial \propto > 0 \tag{A-15}$$

Using (9), we see that (A-15) will hold if (10) holds. If we substitute the specific functional forms for $g(\tau)$ and V_τ given in the lemma, (9) becomes

$$j\tau > \frac{1}{2} \ \forall \ \tau \tag{A-16}$$

The minimum value of τ is 1, so a sufficient condition for (A-16) to hold for all τ is $j > 0.5$. Moreover, since we also need $V_\tau < 1 \forall \tau$, it is necessary to have sup $V_\tau < 1$, or $j \ / \ k < 1 \ or \ j < k$. Thus, $j \epsilon (0.5, k)$ is a necessary condition. ■

Proof of Proposition 3: The proof of a separating BPNE is along the same lines as Proposition 2**.** Using steps similar to those in the previous proofs, we see that

$$w_T^* = \frac{[X-D]}{2} = e_T^* \tag{A-17}$$

in a separating outcome. It is clear that $\frac{dW_T^*}{dD} < 0$, $\frac{de_T^*}{dD} < 0$. Since the bank's success probability is e_T^*, a lower *D* (and hence a higher *E*) leads to a higher success probability for the bank. ■

Proof of Proposition 4: Using (14), the first-order condition (FOC) for the employee's optimal effort yields

$$e^*(\tau) = g(\tau)\big[w + \propto H[X - D]\big] \tag{A-18}$$

Verification that the second-order condition (SOC) holds is straightforward. We can now substitute for *e* in (11) and write the owner's objective function as

$$\pi(\tau, w, \propto) = [g(\tau)]^2 [1 - \propto + \propto V_\tau]\{[X - w - D][w + \propto H[X - D]]\} \tag{A-19}$$

The FOC to determine the optimal wage yields

$$w^*(\tau, \propto) = \frac{[X-D][1-\propto H]}{2} \forall \tau \tag{A-20}$$

Verification of the SOC is straightforward. Now using the Envelope Theorem, the FOC on $\propto$ yields:

$$\propto_{\tau}^{*} = \frac{H[X-D]-w[1-V_{\tau}]}{2H[X-D][1-V_{\tau}]} \tag{A-21}$$

Substituting for *w* from (A-20) in (A-21) gives us:

$$\propto_{\tau}^{*} = \frac{2H-[1-V_{\tau}]}{3H[1-V_{\tau}]} \tag{A-22}$$

It is clear that $\partial \propto_{\tau}^{*} / \partial V_{\tau} > 0$, so $\propto_{T}^{*} > \propto_{\mho}^{*}$. It is also clear from (A-22) that $\propto_{U}^{*} > 0$, and (16) ensures that both $\propto_{T}^{*}$ and $\propto_{U}^{*}$ lie in (0, 1*)*. The comparative status in the proposition are apparent from (A-18), (A-20) and (A-21). Note that using $A = D + E$, we can write using (A-20) as:

$$w^{*}(\tau, \propto) = \frac{[X+E-A][1-2H]}{2} \tag{A-23}$$

so

$$\partial W^{*}(\tau, \propto)/\partial E = \frac{[1-\propto H]}{2} > 0$$

and $\frac{d}{d\propto}[\partial w^{*}(\tau, \propto)/\partial E] = -\frac{H}{2} < 0.$ ■

european corporate governance institute

about ECGI

The European Corporate Governance Institute has been established to improve *corporate governance through fostering independent scientific research and related activities.*

The ECGI will produce and disseminate high quality research while remaining close to the concerns and interests of corporate, financial and public policy makers. It will draw on the expertise of scholars from numerous countries and bring together a critical mass of expertise and interest to bear on this important subject.

The views expressed in this working paper are those of the authors, not those of the ECGI or its members.

www.ecgi.global

european corporate governance institute

ECGI Working Paper Series in Finance

Editorial Board

Editor — Mike Burkart, Professor of Finance, London School of Economics and Political Science

Consulting Editors — Franklin Allen, Nippon Life Professor of Finance, Professor of Economics, The Wharton School of the University of Pennsylvania

Julian Franks, Professor of Finance, London Business School

Marco Pagano, Professor of Economics, Facoltà di Economia Università di Napoli Federico II

Xavier Vives, Professor of Economics and Financial Management, IESE Business School, University of Navarra

Luigi Zingales, Robert C. McCormack Professor of Entrepreneurship and Finance, University of Chicago, Booth School of Business

Editorial Assistant — Úna Daly, Working Paper Series Manager

www.ecgi.global/content/working-papers

european corporate governance institute

Electronic Access to the Working Paper Series

The full set of ECGI working papers can be accessed through the Institute's Web-site (www.ecgi.global/content/working-papers) or SSRN:

Finance Paper Series	http://www.ssrn.com/link/ECGI-Fin.html
Law Paper Series	http://www.ssrn.com/link/ECGI-Law.html

www.ecgi.global/content/working-papers