

SPRING 2020



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Conferences and seminars, which bring together scholars from all over the world to share the latest ideas in finance and accounting.

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To obtain copies of the original research papers summarized here or to recommend your company for a future research project, please contact Amber Lutes, Wells Fargo Advisors Center for Finance and Accounting Research program manager at alutes@wustl.edu or 314-935-4179.

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A Message from the Director



I am pleased to continue our magazine, SEE FAR. Apart from the obvious attempt to “capitalize” on the WFA-CFAR name, the name also captures the essence of our research: looking to the future rather than concentrating exclusively on current events and thinking, and focusing on big-picture issues that have far-reaching consequences.

All the articles in *SEE FAR* are based on finance and accounting research that has been previously published in an academic journal or as a monograph, or is currently a working paper that will be published in the future. The original papers have been rewritten as executive summaries for *SEE FAR* so that they are accessible to a broad audience, rather than solely to those in academia. This is no small task. Taking a paper originally written for a highly technical academic audience and converting it into something more accessible takes a great deal of skill and hard work, as we discovered while putting together this issue and our past issues. But perhaps that is why the task is so worthwhile. I firmly believe that this will not only help us build a bridge between the research of Olin Business School faculty and those in the world of practice, but also will add to the knowledge people use on a daily basis. The intellectual capital generated by our faculty members’ research is quite impressive—Olin consistently ranks among the top 10 schools in terms of our research output. For this reason, it is important that WFA-CFAR research is made available to as many of our stakeholders as possible.

CFAR is in the process of articulating a new statement of the higher purpose of the center. This statement is focused on the prosocial nature of the center’s activities, including the research it promotes. The center helped organize a high-impact conference on organizational and personal higher purpose in November 2019, and will be engaged in activities that build on the insights generated during the conference. An article summarizing the discussions at the conference appears in this issue of *SEE FAR*.

I hope that you enjoy reading the summaries in this issue. I would like to thank my faculty colleagues who participated in helping us create this issue by providing their papers and working with us to convert them into what you will read on the following pages. I look forward to any feedback you have to help us improve this magazine. Please contact WFA-CFAR Program Manager Amber Lutes at alutes@wustl.edu with your insights.

Sincerely yours,

Anjan Thakor

John E. Simon Professor of Finance, Director of Doctoral Programs, Director of the WFA Center for Finance and Accounting Research, Olin School of Business, Washington University in St. Louis



Mobility Constraints and Labor Market Outcomes: Evidence from Credit Lotteries

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In this paper, we examine the effect of individual mobility on labor market outcomes. We exploit exogenous time-series variation in individual mobility through credit lotteries that randomly allocate credit designated for motorcycle purchase to participants of a financial product in Brazil. We find that upon access to a motorcycle, individuals exhibit higher employment rates and earnings, and are more likely to start a new business. Consistent with an underlying mobility channel, we observe that individuals move to jobs further apart from their home and harder to reach by public transportation. These effects are strongest for individuals residing in areas with less developed public transportation and sparse local labor markets.

Suppose you see an ad for a job that you would describe as your “dream job.” You would love to be able to get it and you apply. But then during the job interview you find out that it would involve driving a few miles from your house to another town to get there. If you had your own car, it would not be difficult. But you don’t. So you must take public transport. That means taking two trains, and then finally a bus to get to work, a trip that will take two hours each way. Since similar jobs are not available close to where you live, you decide against it and stick to your present lower-paying, less-satisfying job. This is a special case of what economists call “labor market fluidity.” It describes the ease with which workers can switch jobs. It is well understood that the degree of labor market fluidity affects economic outcomes like wages, product innovation and so on. But beyond these broad insights, many questions remain unanswered. For example, in the spirit of the

hypothetical example to the left, difficulties in travelling to distant places from one’s place of residence may hamper one’s ability to take the job one wants. How does this affect the optimal matching of workers to jobs in an economy? Do these kinds of frictions have any causal effects on important labor market outcomes?

In this article we provide causal evidence that sheds light on possible answers to these questions. We assess the labor market implications of mobility constraints on individuals’ labor market outcomes. Labor market frictions like a spatial mismatch between firms and workers are shown to have important causal effects. We show that if workers are unable to move or commute to areas with employment opportunities, they may experience inferior labor market outcomes, and optimal employer-employee matches may be prevented from being established. An obvious

Paper: “State Minimum Wage Changes and Employment: Evidence from One Million Hourly Wage Workers”

Authors: Bernardus Van Doornik, Armando Gomes, David Schoenherr and Janis Skrastins

Date: July 2018

policy implication is that if these frictions can be somehow reduced, labor market outcomes like worker-job matching can be improved.

Research Design

Identifying a causal effect of mobility constraints on labor market outcomes is challenging. Individuals' mobility results from endogenous decisions – that is things individuals decide themselves – and depends on characteristics that may be correlated with other economic variables. For example, individuals with higher earnings have more funds to invest in mobility, and credit to finance mobility is more readily available to individuals with better labor market prospects.

To address these empirical challenges, we exploit random time-series variation in individuals' access to motorcycles through a financial product in Brazil: *Consortios*. This product works as follows: *Consortios* participants pool funds to obtain credit for purchase of a durable good, in our case a motorcycle. From the monthly contributions that all participants are contractually obliged to, the group allocates credit designated for motorcycle purchase to a subset of participants every month. Following the acquisition of the motorcycle, the individuals who obtained credit from the group are required to continue their monthly payments. This is ensured by designating the motorcycle as collateral that can be seized in case of missing payments. By the end of a *Consortio* group, all participants are awarded funds for motorcycle purchases.

Participation in *Consortios* is widespread in Brazil. Over the seven-year period from 2009 to 2016, more than 10 million people, or 6.6% of the working age population, participate in a motorcycle *Consortio*, 4.8 million of which obtain a motorcycle during this time period. Thus, our evidence is relevant for a broad group of individuals representing a significant fraction of the population.

Consortio groups allocate credit through two mechanism: random lotteries and auctions. Whereas in some groups the allocation of all credit is based on random lotteries, the majority of groups feature a combination of lotteries and auctions. Time-series variation in the allocation of credit through lotteries is random and therefore orthogonal to individual

characteristics. Allocating credit through auctions, however, is potentially endogenous and could generate a correlation between vehicle ownership and labor market outcomes. For example, if individuals with better labor market opportunities bid higher in auctions.

We overcome endogeneity concerns related to auctions through an instrumental variable strategy. An instrument is a measure that is correlated with the “treatment” (i.e., whether or not a person receives credit), and is related to the outcome, for instance income, only via the treatment. In other words, the instrument has no direct influence on the outcome except through the treatment that influences the outcome. Since the instrument does not affect the outcome in any way other than through the treatment, this overcomes all endogeneity concerns, including that individuals with better labor market opportunities bid higher in auctions.

Our instrument is derived from a random lottery. All *Consortio* groups in our sample use an algorithm that translates lucky numbers from a weekly Federal Lottery (like *Powerball*) into the lucky tickets that should receive credit for a motorcycle purchase. Thus, we can determine the sequence of hypothetical credit recipients as if all credit is allocated through lotteries. We then use these hypothetical winners as an instrument to predict the actual recipients of credit. Since the instrument is the outcome of a random lottery, it is uncorrelated with an individual's characteristics. However, this instrument affects an individual's outcomes through—and only through—access to credit.

Using this instrument variable strategy, we compare labor market outcomes of individuals that obtain credit for motorcycle purchases compared to other participants in the same *Consortio* group who have not yet obtained credit for motorcycle purchase. Comparing participants of the same *Consortio* group removes concerns about endogenous selection of individuals since all participants of a group are selected based on the same criteria.

Results

We find that motorcycle ownership increases formal employment by about three percentage points (left panel in Figure 1). Following access to a motorcycle, individuals' salaries increase by about 5% in the first year and continue to

Figure 1: Both Employment and Wages Increase

This left panel depicts the probability that an individual is formally employed, the right panel plots the log salary of an individual both relative to the year before obtaining credit for motorcycle purchase. The bars represent 95 % confidence interval. The x-axis shows the distance in years to the time when individuals obtain a motorcycle.

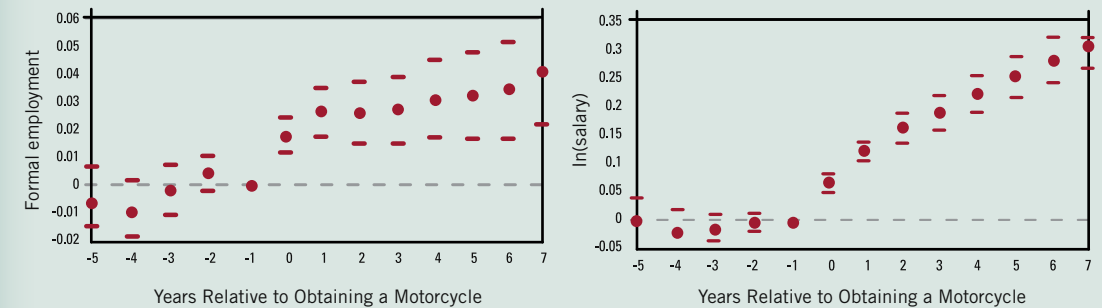
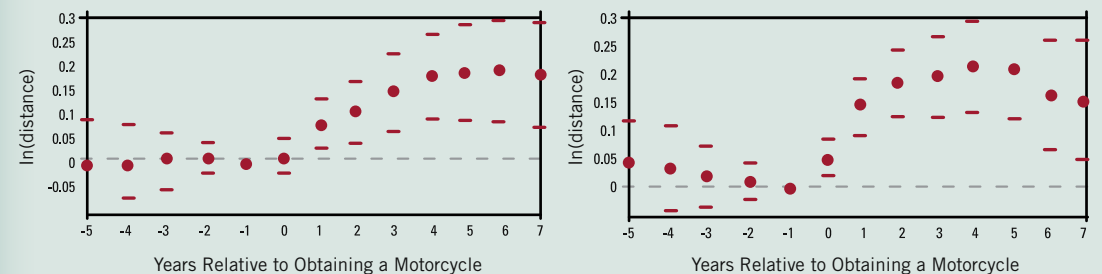


Figure 2: Workers Travel Further and to More Remote Employers

This left panel depicts the log distance between an individual's home and her employer, the right panel plots the log distance between an individual's employer and the nearest bus stop from that employer. The bars represent 95 % confidence interval. The x-axis shows the distance in years to the time when individuals obtain a motorcycle.



steadily increase up to 37% seven years after gaining access to the motorcycle (right panel in Figure 1). Additionally, we observe a two percentage point increase in business ownership after individuals gain access to a motorcycle.

On examining changes in commuting patterns, we find that the distance between individuals' home and their workplace and the distance between their workplace and the nearest bus stop both increase by about 20% (left panel

in Figure 2). We also find that a 10% increase in commuting distance after obtaining a motorcycle is associated with a 1.2% increase in wages (right panel in Figure 2).

When assessing heterogeneous treatment effects of individual transport on labor market outcomes, we find that individuals residing in areas with less developed public transportation and with scarcer local labor markets experience higher employment and wage growth after

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obtaining a motorcycle. This suggests that individual mobility can be a substitute to public transportation and is particularly valuable when local labor market opportunities are scarce.

Finally, we find suggestive evidence that expanding the set of potential employment opportunities through individual mobility leads to better employer-employee matches. When individuals start a new job after obtaining credit for a motorcycle, they are about seven to ten percentage points more likely to be employed by the same firm after twelve to twenty-four months, compared to when they start a new job before credit for motorcycle purchase. Moreover, individuals are seven percentage points more likely to be hired on a permanent contract after gaining access to a motorcycle and are eight percentage points more likely move to a new occupation when starting a job after obtaining credit for motorcycle purchase.

Concluding Thoughts

The insights of our analysis speak to the question whether spatial mismatch between workers and firms is an important labor market friction and whether expanding individual mobility is a useful remedy to overcoming adverse effects of spatial mismatch. There is broad evidence that individuals have a strong distaste for commuting long distances but there is no clear consensus on whether commuting constraints are important for labor market outcomes. For example, while it has been argued that spatial mismatch contributed to deteriorating labor market outcomes for blacks, various authors argue that spatial mismatch explains only 5.3% of total unemployment in the U.S., because jobseekers live close enough to potential vacancies.

Our findings suggest that being able to engage in a geographically broader job search has positive effects on formal employment rates and earnings. This is consistent with spatial mismatch restricting individuals' labor market opportunities and suggests that individual mobility can mitigate the adverse effects of spatial mismatch. Our cross-sectional analysis suggests that individual mobility is particularly important in areas with a lower number of local employment opportunities and when other forms of transportation (e.g., public transportation) are scarce.

Ours is not the first paper to assess the effect of individual mobility on labor market outcomes. However, the advantage of our setting is that the time-series variation of motorcycle ownership through lotteries is uncorrelated with individual characteristics, allowing us to measure the effect of mobility through vehicle ownership on labor market outcomes free from the confounding factors that plague existing studies. Additionally, detailed employer-employee matched data allows us to examine the dynamics and long-run effects of individual mobility on labor market outcomes.

Individual mobility is not the only way to mitigate mobility constraints. Evidence on the effects of subsidies for public transportation suggests that facilitating access to public transportation has positive effects on employment and earnings. Our results show that individual mobility can act as a substitute in areas with less developed public transport, and that individual mobility benefits individuals even in the presence of public transportation by allowing them to reach employment opportunities that are not accessible through public transportation.

Finally, the results in the paper also contribute to the literature on labor market implications of households' financial constraints. Credit constraints pose a fundamental obstacle to economic development. When financial institutions fail to provide efficient intermediation, deadweight loss is borne by society in the form of resource misallocation and foregone growth opportunities. However, empirical evidence is surprisingly scant in this literature. Our results suggest that for individuals that seek credit for investment in mobility, delayed access to mobility due to credit constraints leads to lower employment, earnings, and business ownership. Additionally, given the persistence of the labor market effects, our results suggest that temporary financial distress or limited access to capital can have long-term effects on individuals' labor market outcomes and household income.

We find that motorcycle ownership increases formal employment by about three percentage points. Following access to a motorcycle, individuals' salaries increase by about 5% in the first year and continue to steadily increase up to 30% seven years after gaining access to the motorcycle.

HIGHER PURPOSE AND PEOPLE



Organizational Higher Purpose

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01 Introduction

On November 8th, 2019, there was a conference titled, “*Organizational Higher Purpose*,” on the campus of Washington University in St. Louis. It was an inspiring event in which academic researchers, consultants and leaders of various types of organizations shared their insights on issues related to personal and organizational higher purpose. The purpose of this paper is to summarize the key insights that emerged during the conference. The discussion is organized in three parts. In Section Two, we summarize the key ideas on the issues of personal higher purpose. Section Three takes up organizational higher purpose. Section Four discusses how personal and organizational higher purpose interact. Section Five concludes. The conference program is included.

It is useful to begin with a definition of higher purpose, and especially what it is and what it is

not. In their book *The Economics of Higher Purpose*, Quinn and Thakor (2019) define higher purpose as a prosocial contribution goal that transcends the usual business goals but intersects them. That is, when an organization has an authentic higher purpose, it operates at the intersections of its higher purpose goals and its business goals (profits, market share, shareholder value, etc.). Put a little differently, the authentic higher purpose of the organization must become the arbiter of all its business decisions.

02 Personal Higher Purpose

Leider¹ (2015) defines personal higher purpose as:

“Purpose is the deepest dimension within us—our central core or essence—where we have a profound sense of who we are, where we came from and where we’re going. Purpose is the quality we choose to shape our lives around. Purpose is a source of energy and direction.”

In the first session of the morning, Bob Quinn presented, “Becoming a Purpose-Driven Leader: The Question that Changes Everything.” This presentation illustrated what Leider’s (2015) definition of higher purpose means in practice. Bob’s presentation focused on personal and organizational higher purpose. Higher purpose leads individuals and collectives to engage in positive deviance. They depart from the norms in an honorable way. The peaking of social systems can be referred to as social excellence. It can be stimulated by crisis or by leaders introducing an authentic, higher purpose. Higher purpose transforms the basis of motivation and culture. It brings conscience to culture and the organization becomes a moral system. When leaders learn to learn from social excellence, they can ask a new question: “If crisis can create social excellence without leadership, can leadership create social excellence without crisis?”

In another session, Vic Strecher also talked about personal higher purpose. He began by pointing out how stress level and general dissatisfaction are rising even as economic conditions improve, and his point was that this is because people lack authentic purpose to anchor them. For example, “Suicidal ideation” – the consideration of suicide in the past 12 months – has doubled on U.S. college campuses in the past 10 years and now stands at 13%. Similarly, he pointed out that if a person does not “repurpose their life” at retirement, they are 2.4 times more likely to have Alzheimer’s than someone who adopts an authentic (revised) higher purpose. This is consistent with a large body of research called *Nun Studies* that have documented the impact of authentic higher purpose on the incidence of Alzheimer’s and longevity for nuns.²

Vic focused on the positive effects of individual higher purpose for the physical and mental well-being of individuals. He noted that people with a higher purpose recover faster from stress. They have more antibodies and lower pro-inflammatory enzyme production.

Other speakers spoke of personal higher purpose all through the conference, many of them connecting it to organizational higher purpose. For example, Stacey Tank from



Home Depot, talked about being given the challenge of leading a troubled organization and her frustration in being unable to meet the challenger. She eventually turned to her personal higher purpose – something she had developed while working at Heineken – and it provided the approach she needed for effective organizational higher purpose.

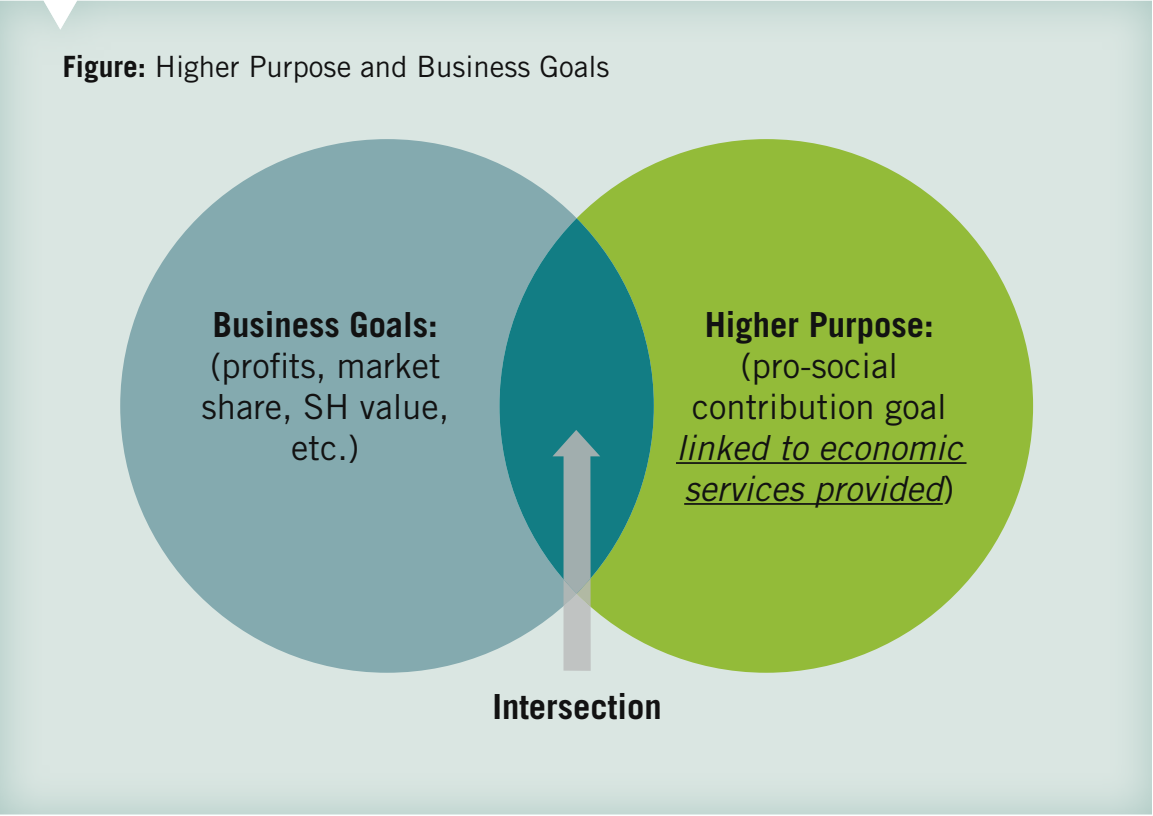
03 Organizational Higher Purpose
In the first session, Anjan Thakor set the stage by discussing social trends that indicate millennials are increasingly leaning toward socialism over capitalism and that this reflects a growing dissatisfaction with the role of companies in society. He proposed that an embrace of authentic higher purpose by companies could increase the appreciation that people have of the free-market system and the good deeds that businesses can do for society. The definition of higher purpose that Anjan used was from his book, *The Economics of Higher Purpose*, with Bob Quinn:³

“Purpose is a reflection of higher intent. It’s the most meaningful thing—beyond economic transactions and outcomes—that an organization has to give.”

Anjan emphasized that authentic higher purpose is not charity. Nor is it even “corporate social responsibility” (CSR). Charity and CSR and wonderful things, but they can be pursued independently of the firm’s day-to-day business decisions. An authentic higher purpose must act as an arbiter of all business decision, so by definition it is a filter through which all decisions are viewed. That is, an organization must operate at the intersection of its business goals and its higher purpose goals as show in the picture below.

Bob Chapman, CEO of Barry-Wehmiller, forcefully reiterated the importance of higher purpose in business. His perspective is that it is the role of business to connect business higher purpose to individual purpose by developing a culture of caring for your employees.

Figure: Higher Purpose and Business Goals



² See, for example, Danner, Snowden and Friesen (2001).
³ See Quinn and Thakor (2019).

He mentioned some interesting statistics:

- There is a 20% increase in Monday morning heart attacks.
- The person an employee reports to at work is more important to the employee's health than the family doctor.
- 65% of people would give up a salary increase if they could fire their boss.
- A majority of people would trust a stranger more than their boss.

These statistics point to the fact that a lot of people are unhappy in their jobs and feel that the companies they work for don't care for them. Bob's point was that leaders in companies need to embrace the higher purpose of caring for their employees as if they were family members.

A similar point was made by Jim Weddle. Jim described how higher purpose evolved at Edward Jones as the result of a senior executive retreat with Peter Drucker. He indicated how the statement of purpose went, as a result, from "making a profit" to "how best to help clients achieve their lifetime financial goals." As part of this purpose clarification, Edward Jones ended up adopting an attitude towards its employees that was similar to that of Bob Chapman and Barry-Wehmiller, namely caring for the employees like family.

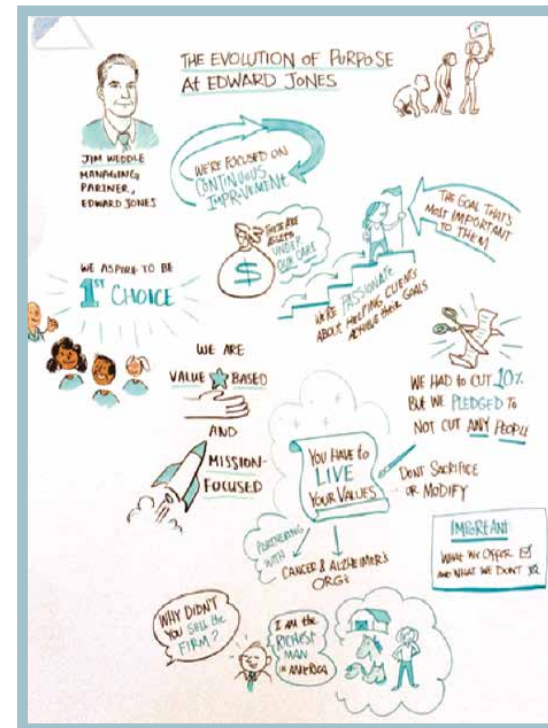
Jim mentioned that this commitment to purpose was put to the test in 2008 when they had to cut 10% from their costs in order to cope with the financial crisis. Since over 50% of Edward Jones' cost is salaries and benefits, the easiest way to cut costs would have been to lay off people. But the company thought that would conflict with its higher purpose. So it promised its employees that there would be no layoffs but that it needed everyone to come up with a way to achieve the desired cost reduction target in some other way. He indicated that this emancipated the creative energy of their employees ("associates") and they collectively came up with an effective cost-reduction plan.

In the first session after lunch, Nick Craig and Stacey Tank talked about how Heineken discovered its higher purpose through its employees. Nick Craig defined higher purpose as "...the unique gift we give to the world."



In other words, what would be most missed if your organization were to disappear tomorrow? Stacey Tank talked about how Heineken discovered its higher purpose ("Brew a Better World") and the lessons the Heineken experience offers about how to run a purpose-driven business. She described the enormous enthusiasm and sense of pride that the embrace of authentic higher purpose generated at Heineken. A 2017 Global Climate Survey showed the company's Employee Engagement Indicator (EEI) as 79%, placing it in the top percentile of high-performing companies for employee engagement.

John Kemper, CEO of Commerce Bank, spoke about the recent initiative to adopt higher purpose at Commerce Bank. The higher purpose adopted by the bank is "helping others to focus on what matters most to them." An example is helping a borrower to make it through tough economic times without having to sell his small company. John described the extensive process the bank went through and shared with the group the purpose video the bank made. It was clear that the higher purpose journey had energized the employees. John's presentation of purpose was the second by the leader of a major financial services company, with Jim Weddle's presentation being the first. It illustrated that



an authentic higher purpose can be effectively adopted by organizations in a sector that has come under much criticism since the financial crisis in 2008.⁴



In the same session, John Kramer Jr. and Marc Braun from Cambridge Engineering, described the higher purpose journey at Cambridge and the effect it has had on the people it employs. As with Barry-Wehmiller, caring for employees and other stakeholders is a key part of the purpose. As Marc Braun describes it on the Cambridge website:

"I love the fact that Cambridge exists for a higher purpose and invites me and others to join in serving that purpose. I love that we take care of each other and take care of our clients as though we are caring for those we love. I love that we are allowed to courageously use the word LOVE without losing the joy and fruit that comes with running a profitable growing business. I love that Cambridge allows me to be one person inside and outside the company, without having to compartmentalize my life. This frees me up to live one life fully—as a father, a husband, a son, a board member, and in my role as president of Cambridge. So few people get to experience that gift. Tangibly, I love the experience of the morning meeting, where people grow and encourage one another and we start every day with gratitude. Cambridge enriches the quality of my life in many ways and I am very thankful!"

⁴ See Thakor (2019) for a discussion of how banks can adopt an authentic higher purpose and what it would mean for society at large and the trade-off between banking stability and economic growth in particular.



employees are encouraged to develop their public speaking skills.

Another CEO who spoke passionately about purpose was Gerry Anderson of DTE Energy. He described how the company was struggling for survival in 2008, but nonetheless, he promised his employees that a layoff is the last lever he would pull to preserve the integrity of the company. However, he asked them to give something in exchange—all of their discretionary energy to help save the company because that is the only way they could continue to serve the community. He went on to describe the amazing transformation that occurred as a result and how the company not only survived but was prospering by 2010.

With survival no longer a motivation, Gerry “repurposed” the company in 2010, by defining its higher purpose as helping the communities around them prosper. As Gerry stressed: “The first jobs of any leader is to connect people to the organization’s higher purpose.” The impact on the organization of redefining the higher purpose in 2010 was dramatic. The stock price soared, outperforming industry peers as well as the overall market. Its safety record was in the top

2% across all industries. It won the Gallup Best Place to Work Award eight years in a row.

Why does authentic organizational higher purpose have such a powerful impact on organizations? Jim Haudan and Michael Beer provided insights on this issues. Jim talked about the power of truth-telling and how an authentic higher purpose unleashes that power. Indeed, not identifying an authentic higher purpose and connecting people to it leads to leadership blind spots, making a truth-telling culture more difficult to achieve. Jim focused on the power of telling stories about what the company does and why through pictures. These pictures simplify things for people to see, make organizational realities (and unspoken truths) come alive, and build engagement and trust.

Jim (Weddle) described how higher purpose evolved at *Edward Jones* ... he indicated how the statement of purpose went, as a result, from “making a profit” to “how best to help clients achieve their lifetime financial goals.” As part of this purpose clarification, *Edward Jones* ended up adopting an attitude towards its employees that was similar to that of Bob Chapman and *Barry-Wehmiller*, namely caring for the employees like family.

In similar vein, Mike Beer focused on the process of organizational change and identified six core barriers/killers of organizational effectiveness:

- Unclear strategy, values and conflicting priorities.
- Ineffective senior team.
- Leadership behavior: top down or laissez faire (hands off).
- Poor coordination across businesses, functions or geographic regions.
- Inadequate leadership/management skills and development in organization.
- Low capacity for honest, collective and public conversations about external and internal realities.

The adoption of an authentic higher purpose helps leaders overcome the barriers effectively. But Mike's presentation made it clear that it is not just enough to adopt an authentic higher purpose—you have to implement the right process to ensure that these barriers do not impede your ability to unleash the power of that purpose.

04 The Interaction Between Personal and Organizational Higher Purpose

This interaction was evident in what many of the speakers discussed with great authenticity and passion, such as Bob Chapman's exhortation to organizations to help their employees feel like family members and connect their experience at work to their life outside of work.

It was evident in Stacey Tank's discussion of how her personal higher purpose impacted her organizational effectiveness, and in Marc Braun's and John Kramer Jr.'s presentations of the key source of positive energy at Cambridge. It was clearly implied in Jim Haudan's discussion of how to "shrink-wrap reality." So it was a pervasive strand of thought in all the presentations.

Stuart Bunderson's presentation made this linkage come alive through his in-depth research on zookeepers.⁵ Despite the fact that zookeepers make very little money (lowest salary quartile among U.S. occupations) and perform work that many see as demeaning (cleaning cages),



zookeepers are highly committed to their work. Why? Stuart's research with hundreds of zookeepers provides a clear answer—most view their work at the zoo as more than just a job. It is their calling, their higher purpose. Through their work at the zoo, zookeepers feel that they are utilizing their personal gifts and talents to help solve a real problem in the world—preserving endangered species and educating the public about the natural world. Viewing their work at the zoo in this light transforms everything they do. As one zookeeper put it, "And that's the thing about this job is anything I do is ultimately for the animals, even if it's scrubbing down the back hallways." Stuart's work makes a powerful, research-based case for how personal higher purpose facilitates organizational higher purpose.

Stuart's research also provided an important reminder about the pursuit of purpose at work: **those things that lead to greater happiness at work may not always lead to greater meaning.** Zoo keeping is not lucrative, high status, or comfortable work. But zookeepers are not looking for an easy job; they are looking for a meaningful job. The sacrifices they make for their work actually make that work more meaningful.



05 Conclusion

The Conference concluded with Brian Wellinghoff and Bob Quinn asking everyone in the room to write down one sentence to answer the questions: what did I learn today? We then walked around and shared with the others what he had written down. The conference ended on a very high note and a sense of appreciation for what we had learned and a genuine desire to build on it.

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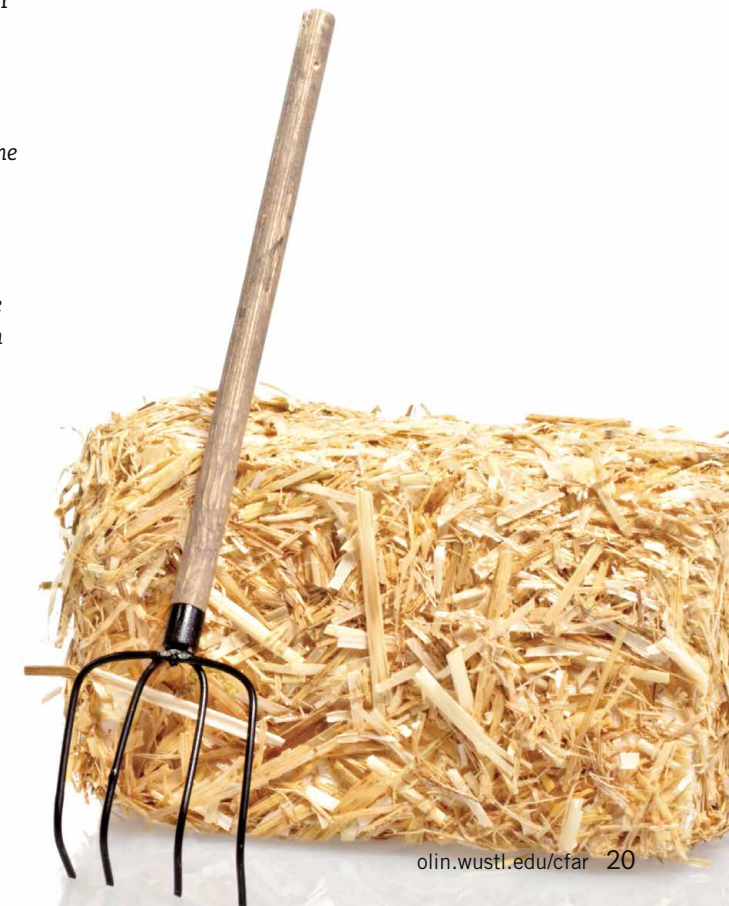
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Conference program on the next page.

⁵ See Bunderson and Thompson (2009). *The call of the wild: Zookeepers, callings, and the double-edged sword of deeply meaningful work*, Administrative Science Quarterly.

CONFERENCE PROGRAM (November 8, 2019)

7:30am – 8:00am	Coffee and Continental Breakfast Available
8:00am – 8:05am	Welcome remarks -Anjan Thakor and Dean Mark Taylor
8:05am – 8:20am	Ice Breaker: What Inspires You? Speaker: Bryan Wellinghoff, Director of Strategy, Barry-Wehmiller
	<i>Higher Purpose & Organizations in the Socioeconomic Context</i>
8:20am – 8:35am	Becoming a Purpose Driven Leader: The Question that Changes Everything Speaker: Robert E. Quinn, Professor Emeritus, University of Michigan
8:35am – 8:50am	Current Society and an Invitation to Higher Purpose Speaker: Anjan Thakor, Professor, Washington University
8:50am – 9:05am	Higher Purpose: The Challenge of Our Times Speaker: Bob Chapman, Chairman and CEO, Barry-Wehmiller
9:05am – 9:20am	Table Discussions
9:20am – 9:40am	Summary and Questions
9:40am –10:00am	Break
	<i>Higher Purpose and People</i>
10:00am – 10:15am	The Pursuit of Purpose and Meaning in Life and at Work Speaker: Stuart Bunderson, Professor, Washington University
10:15am – 10:30am	Living a Purpose Driven Life, the Impact on Health and on Performance Speaker: Victor Strecher, Professor, University of Michigan
10:30am – 10:45am	The Evolution of Purpose at Edward Jones Speaker: Jim Weddle, Managing Partner, Edward Jones (retired)
10:45am – 11:00am	Table Discussions
11:00am – 11:20am	Summary and Questions
11:20am – 12:30pm	Lunch with Guest Speaker Chancellor Andrew Martin, Washington University in St. Louis
	<i>Creating a Purpose-Driven Organization: Getting Started</i>
12:30pm – 12:50pm	Connecting Individual to Organizational Purpose at Heineken Speakers: Stacey Tank, Vice President, Home Depot Nick Craig, Founder & President, Core Leadership Institute
12:50pm – 1:05pm	Purpose: Getting Started Speaker: John Kemper, President & CEO, Commerce Bancshares Inc.
1:05pm – 1:25pm	Rolling Out the Higher Purpose Speakers: John Kramer Jr., Chairman & CEO, Cambridge Engineering Marc Braun, President, Cambridge Engineering
1:25pm – 1:40pm	Table Discussions
1:40pm – 2:00pm	Summary and Questions

	<i>Lessons from Organizing to Purpose: Looking Back</i>
2:00pm – 2:15pm	Break
2:15pm – 2:45pm	Learning from the Purpose Journey at DTE Energy Speaker: Gerry Anderson, Executive Chairman, DTE Energy
2:45pm – 3:00pm	What We’ve Learned about Leaders of High Ambition Speaker: Mike Beer, Professor Emeritus, Harvard Business School; Chairman, Center for Higher Ambition Leadership
3:00pm – 3:15pm	Thirty Years of Shrink Wrapping Reality: Finding the Arbiter of All Decision Speaker: Jim Haudan, Chairman & Co-Founder, Root Inc.
3:15pm – 3:30pm	Table Discussions
3:30pm – 3:50pm	Summary and Questions
3:50pm – 4:00pm	Break
	<i>Central Theme and Ongoing Collaboration</i>
4:00pm – 5:00pm	Dialogue: Capturing the Essence of the Day and Departing with Purpose Facilitated by: Bob Quinn and Brian Wellinghoff
5:00pm – 7:00pm	Cocktail Reception



Photo by Shawna Jones.



Design of Compensation Packages for Bank Executives

BENJAMIN BENNETT, Olin School of Business, Washington University in St. Louis
GOPALAN RADHAKRISHNAN, Olin School of Business, Washington University in St. Louis

ANJAN V. THAKOR, Olin School of Business, Washington University in St. Louis

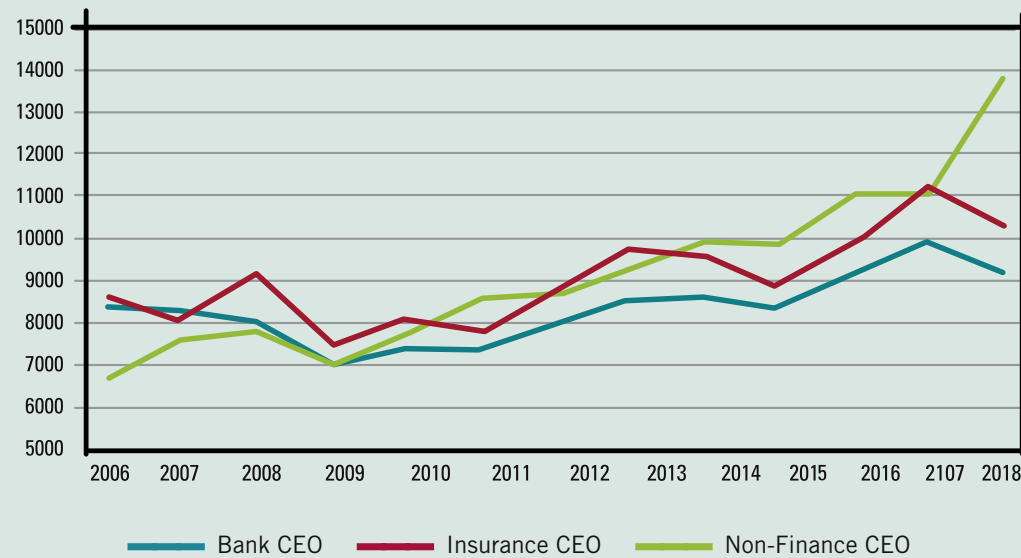
The issue of how banks behave and what this implies for bank fragility and systematic risk has taken center stage since the 2007– 2009 financial crisis. There is also recognition that bank behavior is influenced by the manner in which bank executives are compensated. Indeed, the Dodd-Frank Act created oversight of executive compensation in banking based on the belief that regulating compensation is a key to regulating risk-taking behavior and hence bank stability. Despite this, our knowledge of the structure of executive compensation in banks and other financial firms is rather limited. Executive compensation research typically does not distinguish between banks and non-banks and often excludes banks altogether from the sample.

Our goal is to fill this gap. The main questions we analyze empirically are: how are bankers paid, how is this pay linked to firm performance, and how does this compensation design compare with executive compensation design in non-financial firms? We use multiple datasets that include all aspects of executive compensation to paint a rich picture of compensation design in financial firms.

Our main findings are as follows. Bank executives are paid less than their counterparts in non-financial firms, whereas insurance company executives (by way of comparison) are paid more. This is true for the bank executives in banks of average size. However, executives

at large banks are paid more than their non-financial counterparts. In 2018, large bank CEOs earned more than \$25M while other bank CEOs earned approximately one-third as much. Bankers have a higher portion of their pay tied to Earnings per Share (EPS) and Return on Equity (ROE) goals and a lower portion of their pay tied to stock price than executives at other types of firms. We also find a strong relation between tail risk at big banks and compensation linked to either short-term or stock price performance. Lastly, big bank executives are significantly more likely to repurchase shares (thereby altering their capital structures) if they have compensation linked to metrics affected by EPS and ROE.

Figure 1: CEO Pay



Data

We draw our data from multiple sources. We utilize compensation data from *IncentiveLab* (hereafter IL). Similar to S&P (provider of ExecuComp), IL collects grant data from firms' proxy statements. In addition to the level and components of pay, IL has information on the performance metrics used to design stock, option and cash grants for all named executives of the 750 largest firms by revenue for the years 2006-2018. Additionally, IL backward and forward fills their sample with any firms ever included in the top 750 firms by revenue. This leads to a significantly larger sample size: our sample includes over 1,600 unique firms and over 18,000 unique executives. Related to finance executives, our data include 8,414 bank executive-year and 4,446 insurance executive-year observations. Banks and insurance firms make up 11% and 6% of the total sample, respectively.

We supplement the IL data with firm-level characteristics from Compustat, stock price data from CRSP, shareholder voting data from ISS, and governance data from RiskMetrics. Additionally, in some of our tests we differentiate between big and small banks. We classify banks and insurance firms as big if they are one of the ten largest banks or insurance firms in a given year based on total assets, and as small otherwise.

In separate analyses, we merge IL compensation data with bank holding company data (BHC) from the Federal Reserve and investigate bank executive pay in a sample of only bank firms. This setting allows us to utilize bank-relevant characteristics.

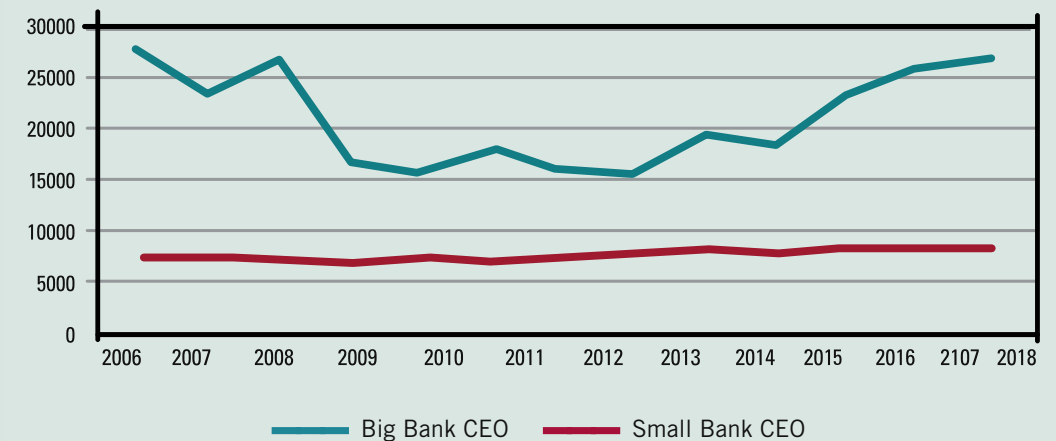
Discussion of Specific Results

Time Series Pay Behavior: First, we document the time series changes in executive pay for financial firm executives during the sample period 2006-2018. We find a decrease during the financial crisis (after 2007) with pay levels not reaching their pre-crisis highs until 2012. Following 2012, we find a slow, steady rise in compensation. If we instead focus on CEOs at large financial firms, the picture is very different. From 2008 to 2009, pay for CEOs at the largest firms dropped by approximately 40% for bankers and 60% for leaders of insurance firms. For these CEOs, pay has not reached pre-crisis levels as of 2018. See Figures 1 and 2 for these time trends in compensation.

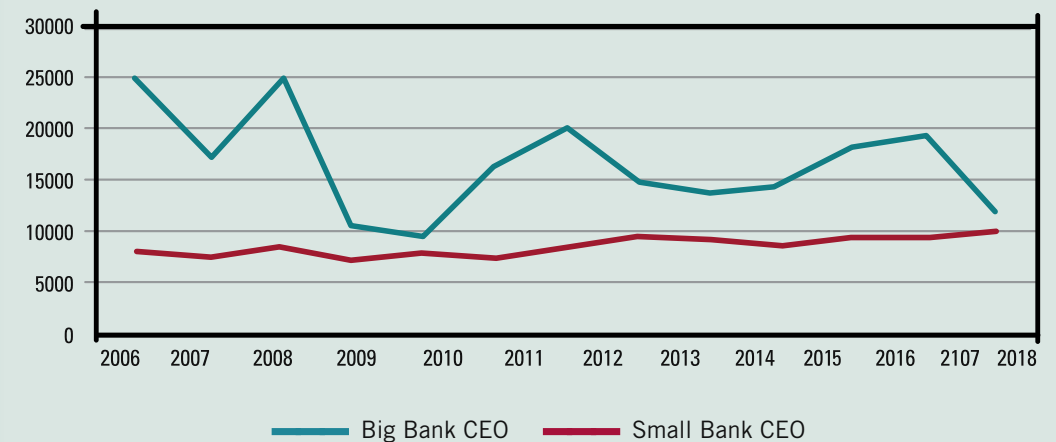
Pay Level: Second, top bank executives receive lower pay and insurance company executives receive higher pay than other (non-financial) CEOs. The difference is economically significant. In terms of total compensation, bank CEOs are

Figure 2: Big vs. Small Financial Firms

Panel A: Bank CEO Pay



Panel B: Insurance CEO Pay



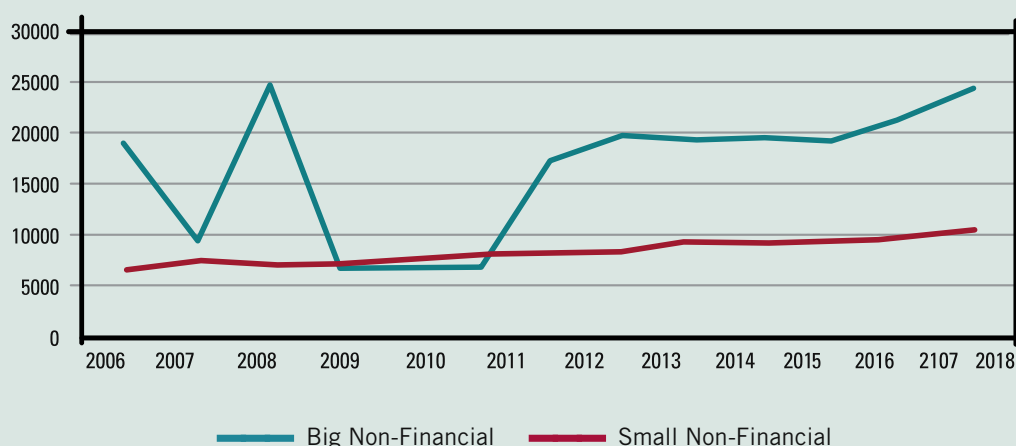
paid 49% less and insurance company CEOs are paid 42% more than CEOs at non-financial firms. The effect for bank CEOs is driven by CEOs at small banks; we find that large bank CEOs receive 62% higher compensation than non-financial firm CEOs. In insurance companies, CEOs in charge of both small and large firms receive higher compensation than non-financial firm CEOs. See Table 1 (page 29) for these data.

Bank Holding Company

Data (BHC) Panel: Third, we investigate bank executive compensation using bank

holding company data (BHC) from the Federal Reserve. This allows us to utilize and incorporate bank-relevant controls such as Tier-1 capital, the fraction of risk income, etc. We find that bank executive compensation is positively associated with total assets, the fraction of risky income, derivative hedging, and loan HHI and a negatively associated with bad loans and Tier-1 capital. It seems bankers are incentivized to take risks (fraction of risk income, derivative hedging), but "punished" when bad loan outcomes are realized. We use additional control variables and

Panel C: Insurance CEO Pay



find that bank executive pay is higher when the board has a higher percentage of financial experts on it. Additionally, we find that bank non-CEO executive compensation was higher following the Troubled Asset Relief Program (TARP) if the firm received TARP funds and/or if CEO co-option is higher.

Pay Components: Fourth, we find that bank executives receive lower salary, bonus, and stock-based compensation. They do, however, receive higher pension benefits than their non-financial executive counterparts. Insurance executives, on the other hand, receive larger salaries, more stock-based compensation, larger cash incentive compensation and higher perquisite pay.

Fifth, in Terms of Performance-Based Compensation, compared to executives in non-financial firms, bankers have a higher portion of their compensation tied to EPS and ROE and a smaller portion tied to stock-price performance. Insurance executives have a smaller portion tied to EPS but have more of their compensation tied to performance metrics.

Sixth, Bank Executives Have Higher Pay-For-Performance Sensitivities (PPS) than do non-financial firm executives. Both their cash and equity pay are more sensitive to performance. Insurance executives, on the other hand, have lower PPS than non-financial

firm executives. The lower PPS for insurance executives is driven by cash compensation, indicating that it is driven by the sensitivity of compensation to operating performance targets.

Corporate Governance and Say-On-Pay: The greater dependence of bankers' pay on accounting performance metrics may encourage bankers to increase tail risk in a way that generates benefits with a very low likelihood of the risk being realized.

There are two possible reasons why bankers are given pay contracts that generate risk-taking incentives. One is that bank shareholders want this kind of behavior; it may be because to maximizes the put option value of the bank's safety net (including deposit insurance), or some other reason we do not yet know. The other is that it is because of weak corporate governance that allows executives to earn rents. To see which factor explains what is going on, we distinguish between firms with high and low "co-option," the idea being that low co-option is associated with better governance. Co-option is the fraction of the board comprised of directors appointed after the CEO assumed office. As co-option increases, fewer directors owe their appointment on the board to the CEO, and thus they presumably practice better governance.

This Leads to Our Seventh Result: Banks with low co-option (better governance) have a

higher fraction of their executive's pay linked to ROE-based metrics. This suggests that the heavier dependence of CEO compensation on ROE in banking is something that bank shareholders want.

We Next Consider "CEO Pay Slice (CPS)" – the fraction of the aggregate compensation of the top-five executive team captured by the Chief Executive Officer – which reflects the relative importance of the CEO as well as the extent to which the CEO is able to extract rents. Related to our previous governance-related result, we consider CPS to investigate bank executives' ability to extract rents. In line with our previous findings, we find that CEOs at big banks have a smaller CPS than their non-financial counterparts.

Our next tests consider shareholder approval of executive compensation. Specifically, we consider two aspects of "say-on-pay (SoP)": shareholder approval of compensation plans and the frequency at which they want approval authority (every one year, every two years or every three years). We find that in the case of the average bank, shareholders approve bankers' pay at a higher frequency than shareholders at non-financial firms. However, for large banks, shareholders do not want more frequent approval rights over executive compensation.

Pay Structure and Tail Risk: Risk-taking at banks has been given significant attention by the media in recent history. In our next set of tests, we determine if there is a relationship between tail risk and specific types of performance-based compensation at big and small banks. At large banks, we find that compensation linked to short-term metrics and stock price is associated with significantly higher tail risk, while compensation linked to long-term metrics reduces tail risk. At small banks, we find no such relation.

Repurchases and EPS/ROE Pay: CEOs and firms can alter their capital structures in an effort to achieve performance targets in their compensation plans. One way to do this is to repurchase shares and reduce the portion of equity in the capital structure. This mechanically increases EPS and ROE. We conduct an empirical test to see if bank executives receiving EPS and ROE-based compensation are more likely to repurchase shares.

The greater dependence of bankers' pay on accounting performance metrics may encourage bankers to increase tail risk in a way that generates benefits with a very low likelihood of the risk being realized.

Table 1: Summary Statistics

Panel A: Banks

Bank Non-CEOs	Mean	Median	N	Bank CEOs	Mean	Median	N
Total	3,553,525	2,291,868	6840	Total	8,237,665	6,298,500	1574
Salary	566,549	511,539	6773	Salary	991,624	975,000	1568
Bonus	426,044	0	4926	Bonus	637,835	0	1075
Noneq Incentive	631,518	388,250	6840	Noneq Incentive	1,406,452	1,097,702	1574
Stock	1,352,833	651,927	6840	Stock	3,578,866	2,199,985	1574
Option	340,806	0	6840	Option	959,730	0	1574
Pension	200,832	8,993	5476	Pension	694,030	37,804	1312
Perquisite	202,172	56,376	6727	Perquisite	292,381	133,809	1562
% Equity	0.406	0.403	6831	% Equity	0.468	0.489	1574
% Performance	0.358	0.366	6831	% Performance	0.418	0.441	1574
% Stock Price	0.049	0	6831	% Stock Price	0.064	0	1574
% Accounting	0.317	0.308	6831	% Accounting	0.369	0.375	1574
% EPS	0.076	0	6831	% EPS	0.091	0	1574
% ROE	0.060	0	6831	% ROE	0.071	0	1574

Panel B: Insurance Firms

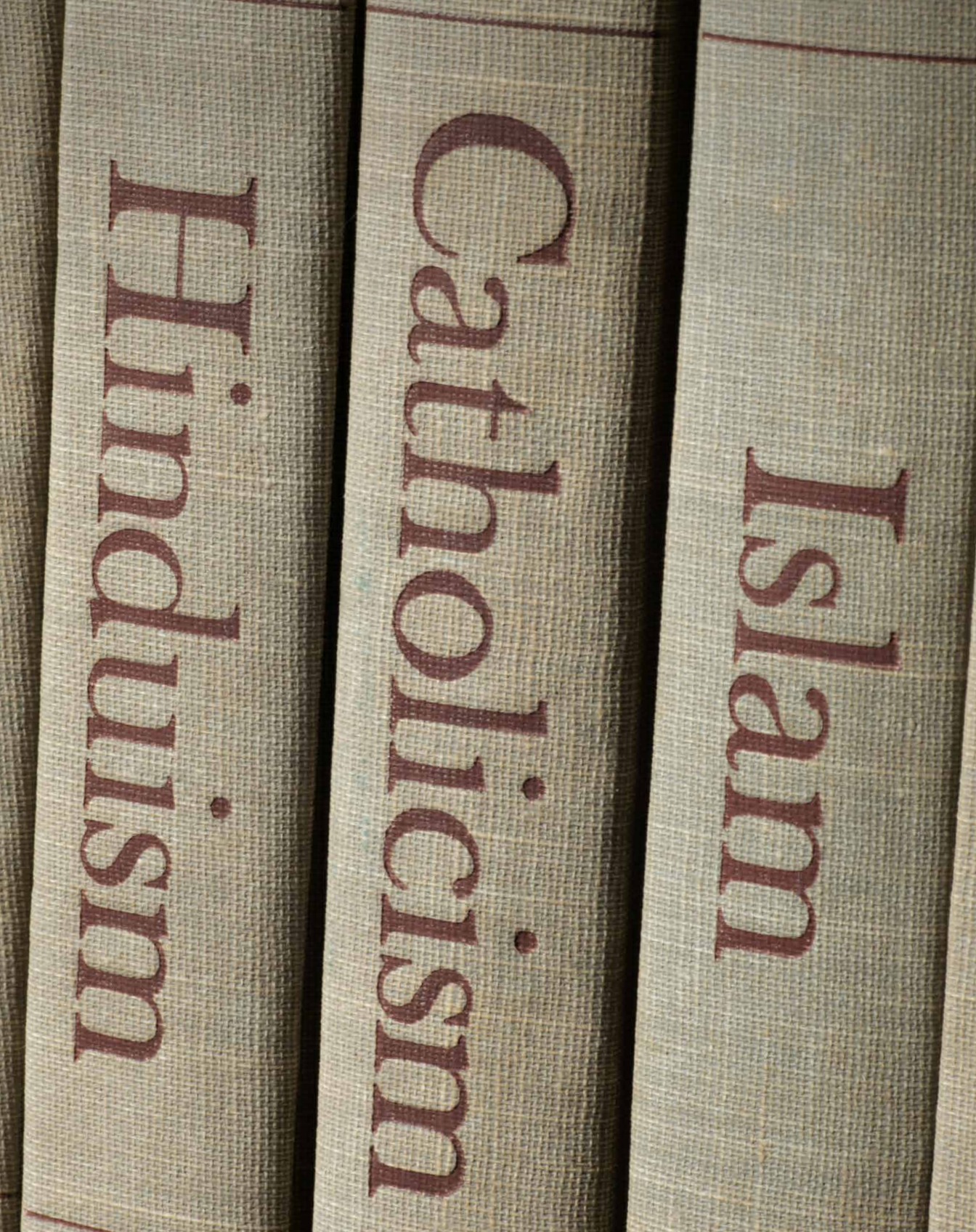
Insurance Non-CEOs	Mean	Median	N	Insurance CEOs	Mean	Median	N
Total	3,535,405	2,669,878	3612	Total	8,902,853	7,369,122	834
Salary	576,605	548,634	3572	Salary	998,570	1,000,000	833
Bonus	286,331	0	2607	Bonus	653,658	0	565
Noneq Incentive	698,798	500,000	3612	Noneq Incentive	1,500,807	1,318,125	834
Stock	1,315,816	774,984	3612	Stock	3,922,388	2,737,696	834
Option	346,002	0	3612	Option	1,097,702	0	834
Pension	223,666	10,824	2703	Pension	741,066	35,701	648
Perquisite	232,398	68,050	3557	Perquisite	367,462	170,011	829
% Equity	0.414	0.412	3608	% Equity	0.481	0.507	834
% Performance	0.377	0.388	3608	% Performance	0.435	0.465	834
% Stock Price	0.049	0	3608	% Stock Price	0.065	0	834
% Accounting	0.332	0.328	3608	% Accounting	0.380	0.379	834
% EPS	0.064	0	3608	% EPS	0.075	0	834
% ROE	0.060	0	3608	% ROE	0.071	0	834

We find a significant relation between EPS and ROE-based pay and large banks repurchasing their outstanding equity. As with most of our other findings, at small banks we do not find any relation between the presence of these pay metrics and stock repurchase behavior.



Panel C: Non-Financial Firms

Non-Insurance Non-CEOs	Mean	Median	N	Non-Finance CEOs	Mean	Median	N
Total	3,262,801	2,158,288	57375	Total	9,070,848	6,620,460	13124
Salary	488,037	444,231	56671	Salary	909,515	893,207	13052
Bonus	187,175	0	39027	Bonus	416,948	0	8778
Noneq Incentive	537,225	318,000	57375	Noneq Incentive	1,450,035	993,893	13124
Stock	1,310,780	653,950	57375	Stock	3,921,062	2,420,156	13124
Option	472,319	87,685	57375	Option	1,769,538	359,359	13124
Pension	211,923	0	40625	Pension	642,050	458	9507
Perquisite	185,206	40,953	55917	Perquisite	277,253	85,625	12911
% Equity	0.473	0.487	57292	% Equity	0.551	0.595	13121
% Performance	0.334	0.335	57292	% Performance	0.393	0.406	13121
% Stock Price	0.080	0	57292	% Stock Price	0.107	0	13121
% Accounting	0.268	0.234	57292	% Accounting	0.308	0.277	13121
% EPS	0.051	0	57292	% EPS	0.062	0	13121
% ROE	0.006	0	57292	% ROE	0.007	0	13121



Impact of Riot Experience on Loan Quantity

JANIS SKRASTINS, Olin School of Business, Washington University in St. Louis

We provide microeconomic evidence on the link between ethnic frictions and market efficiency, using dyadic data on managers and borrowers from a large Indian bank. We conjecture that, if exposure to religion-based communal violence intensifies inter-group animosity, riot exposure will lead to lending decisions that are more sensitive to a borrower’s religion. In our sample of Hindu branch managers, we find that those with substantial riot exposure prior to joining the bank lend relatively less to Muslim borrowers. Riot-exposed officers’ loans to Muslims are less likely to default, suggesting that the lower lending rate for Muslims is driven by taste-based discrimination. This bias persists across a bank officer’s tenure, suggesting that the economic costs of ethnic conflict are long-lasting, potentially spanning across generations.

Macroeconomics tells us that conflicts or frictions among groups are associated with poor economic outcomes. Easterly and Levine (1997) in particular estimate that ethnic divisions, created by arbitrarily drawn colonial borders, account for a third of Africa’s economic under-performance. The empirical literature on the microeconomic foundations that underlie this macro relationship between ethnic divisions and various social and economic outcomes is less well- developed. What determines the depths of a country’s ethnic fissures? Beyond outright ethnic violence, how might these fissures impact economic

progress? And to what extent are ethnic tensions malleable across—or indeed even within—a single generation? While our research on these issues is based largely on the findings from emerging market economies, they have obvious implications for developed economies like the US, where ethnic and racial diversity are on the rise.

In this paper, we provide microeconomic evidence on the link between ethnic frictions and market efficiency, in a setting that allows us to examine the extent to which these frictions can worsen in the course of a single generation. Specifically, we

We conjecture that, if exposure to religion-based communal violence intensifies inter-group animosity, riot exposure will lead to lending decisions that are more sensitive to a borrower's religion.

analyze the lending decisions of approximately 1800 branch managers at a large India bank, during 1999-2006. Using a database of Hindu-Muslim riots in India during the years 1950-1995, combined with data on each branch manager's year and city of birth, we can infer whether a branch manager's hometown experienced ethnic riots during his youth. We conjecture that, if exposure to religion-based communal violence intensifies inter-group animosity, riot exposure will lead to lending decisions that are more sensitive to a borrower's religion. In our sample of Hindu branch managers, we find that those with substantial riot exposure prior to joining the bank lend relatively less to Muslim borrowers. Riot-exposed officers' loans to Muslims are less likely to default, suggesting that the lower lending rate for Muslims is driven by taste-based discrimination. This bias persists across a bank officer's tenure, suggesting that the economic costs of ethnic conflict are long-lasting, potentially spanning across generations.

Bank and Conflict Data

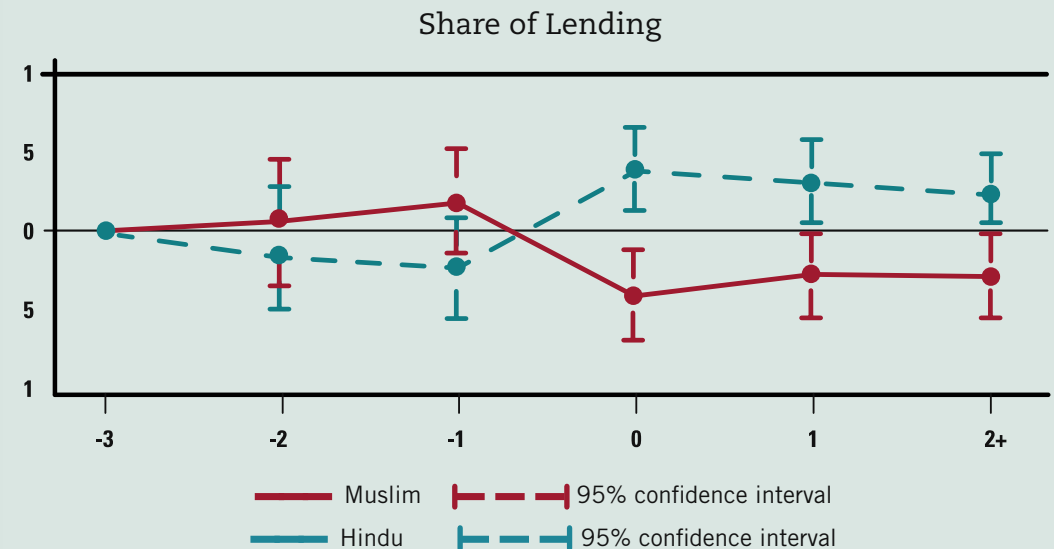
We use two primary data sources—individual loan portfolio and personnel records of a large public sector bank, and data on Hindu-Muslim violence from Varshney (2006). Our bank data begin with the second quarter of 1999 and end with the first quarter of 2006, while the Hindu-Muslim riot data includes all riots involving the two religions for the years 1950-1995.

The bank loan data provide information at the branch-borrower dyad level, which may in turn be matched to data on the branch manager at the time the loan is issued. Critically, both manager and borrower data include information on religion. In addition, the personnel records contain information on the hometown, year of birth and the year the branch manager joined the bank, which we use to link each individual with a measure of riot exposure.

The conflict data have been used extensively by researchers studying the causes or consequences of conflicts in India. The dataset is based on news reports from *The Times of India*, one of India's leading newspapers, which is used to collect reports of instances of communal violence in India during 1950-1995. Our measure of riot exposure is constructed at the city-level: for each branch manager, riot exposure is based on the number of riot deaths in his city of birth, during the period spanning his birthdate

Figure 1: Share of Lending to Muslim Borrowers Declines While it Increases for Hindu Borrowers Around Officer Transitions

The figure shows the coefficients from a regression to capture shifts in the share of lending received by Muslims and Hindus around transitions to riot-exposed branch managers. The “whiskers” show 95 % confidence intervals.



to the date he joined the bank. Throughout, our definition of “riot-exposed” is an indicator variable denoting whether a branch manager was exposed to 10 or more riot deaths while resident in his hometown.¹ With this definition, 9.6% of branch managers are classified as “riot-exposed.”

Officer Rotation

Our empirical strategy exploits the frequent exogenous rotation of officers—some with riot exposure and others not—to distinguish the effect of riot exposure from branch location attributes and/or time trends. We compare outcomes across branches within a district. We emphasize that after joining the bank, branch managers experience frequent rotation among branches. The mean (median) spell in a branch is 8.03 (8) quarters, with standard deviation of 4.2. This churn generates a large number of transitions in our data—we observe an average of 38 branch manager reallocations per quarter, and the median branch has one officer change during our sample period. By looking at shifts in lending around branch manager turnover, we will be able

to identify the effect of managers' riot exposure on loan decisions, as distinct from other trends in borrowing that might vary across branches.

Results

Because we analyze how bank manager turnover induces changes in lending practices, our main outcome variables focus on lending flows, in particular new debt issued, number of new loans, and the repayment rates of these new loans.

Impact of Riot Experience on Loan Quantity

We find that with the arrival of a riot-exposed manager, the share of new lending to Muslim borrowers declines by 4.3 percentage points. In the same time, the share of lending to Hindu borrowers increases by 4 percentage points. The negative coefficient on Muslim lending, combined with the positive coefficient on Hindu lending of near- identical magnitude, imply that the presence of a riot-experienced branch manager is associated with an offsetting reallocation of lending from Muslim to Hindu borrowers. The magnitude of this reallocation is

¹ Our results are robust to alternative definitions of riot-exposure.

very large when compared with the base rate of new lending to Muslims, which is 6.2% for our sample of bank-quarter observations in which a non-riot officer is the branch head. The patterns are qualitatively very similar for the number of new loan contracts (rather than new loan amounts).

Consistent with riot exposure having a causal effect on lending patterns, we find that the increase in Hindu borrowers' share of lending increases discretely with the riot- exposed manager's arrival (Figure 1); we observe an offsetting decline in the Muslim share. Overall, these patterns are difficult to reconcile with the endogenous placement of branch managers to specific branches (within a district) on the basis of a growth or decline in Muslim credit demand: such explanations would not predict a well-defined change in credit provision precisely coincident with the arrival (or departure) of a riot- exposed manager.

Impact of Riot Experience on Loan Quality

The decline in lending to Muslims by riot-experienced managers could be due to taste-based discrimination (in-group favoritism) or statistical discrimination if riot-exposed managers are less capable of assessing the creditworthiness of out-group loan applicants. The former explanation would imply a lower quality of loans made to same-group borrowers, while the latter explanation implies that in-group favoritism should diminish for borrowers whose creditworthiness is already known. We find that the presence of a riot-exposed branch manager is associated with a 2.5 percentage point increase in defaults by Hindu relative to Muslim borrowers, consistent with Muslim borrowers facing a higher credit standard from riot-experienced officers. Thus, the evidence suggests in-group favoritism as the dominant explanation for the branch-level shift in loan composition across religions. We also find that riot-experienced managers lend less to first time as well as to repeat Muslim borrowers who have an established relationship with the branch, which suggests little impact from riot exposure on statistical discrimination.

An alternative interpretation is that riot-exposed managers are harsher in their enforcement of loan repayment by Muslim borrowers. To explore this possibility, we look at repayment of loans

issued prior to a manager's arrival at a branch that are still outstanding, and ask whether they go into default in that quarter. This captures the enforcement margin without clouding the interpretation by the inclusion of loans that the officer himself has issued. We find that riot exposure has no effect on loan repayment of inherited loans, suggesting that favoritism in loan provision (rather than enforcement) is driving our main results.

Age of Exposure and Local Competition

We next explore the impact of riot exposure on lending decisions as a function of when the manager was first exposed to Hindu-Muslim violence, grouping managers based on whether exposure first occurred before the age of 10, between 10 and 18, or older than 18. Consistent with research in developmental psychology (Raabe and Beelmann, 2011), which finds that prejudice develops relatively early in childhood, we find that exposure prior to age 10 is the most important determinant of later lending decisions. We also explore whether the effect of riot exposure depends on characteristics of a branch manager's posting, in particular whether the branch has a local monopoly. We find a similar effect of riot exposure for monopoly and competitive branches, which mitigates the concern that we are overestimating the overall impact of riot exposure on Muslims due to switching by borrowers facing discrimination.

The Impact of Bank Managers' Exposure to the 2002 Gujarat Riots

In our final analysis we turn to a contemporaneous shock to branch managers' preferences resulting from the 2002 Gujarat riots that resulted in over 2000 fatalities. We find that, following these riots, lending to Muslims declined by 8 percentage points with the arrival of a branch manager who was stationed in Gujarat at the time of the riots. For bank officers stationed outside of Gujarat during the riots, we find that subsequent lending to Muslims is correlated with state-level media coverage, as captured by newspaper circulation and television viewership (although these results are not statistically significant across all specifications). The first set of findings provides some validation for riots as a credible source of variation in Hindu-Muslim animosity, and extends our results to show that such shocks – if sufficiently severe – can impact preferences even if they occur during adulthood. The findings on



the role of newspaper and television penetration on subsequent lending emphasize the role of the media in aggravating intergroup frictions.

Closing Thoughts

In this paper, we provide evidence which indicates that personal exposure to ethnic tensions can have long-lasting consequences for inter-group animosity. Our findings can help to better make sense both how ethnic tensions can be self-reinforcing: as each subsequent generation is exposed to ethnic animosity, he or she may adopt stronger in-group preferences that, in turn, perpetuates existing cleavages within a society. Our results further indicate that these ethnic frictions have consequences for the allocation of resources (in our case via credit), which sheds light on how ethnic divisions can adversely impact economic growth. In a sense, this highlights the dangers in not managing diversity well. Since we study lending decisions in a state bank, where branch managers have relatively weak pay incentives, it is natural to ask the extent to which the discrimination we observe is lower in private banks where officers face higher-powered performance incentives.

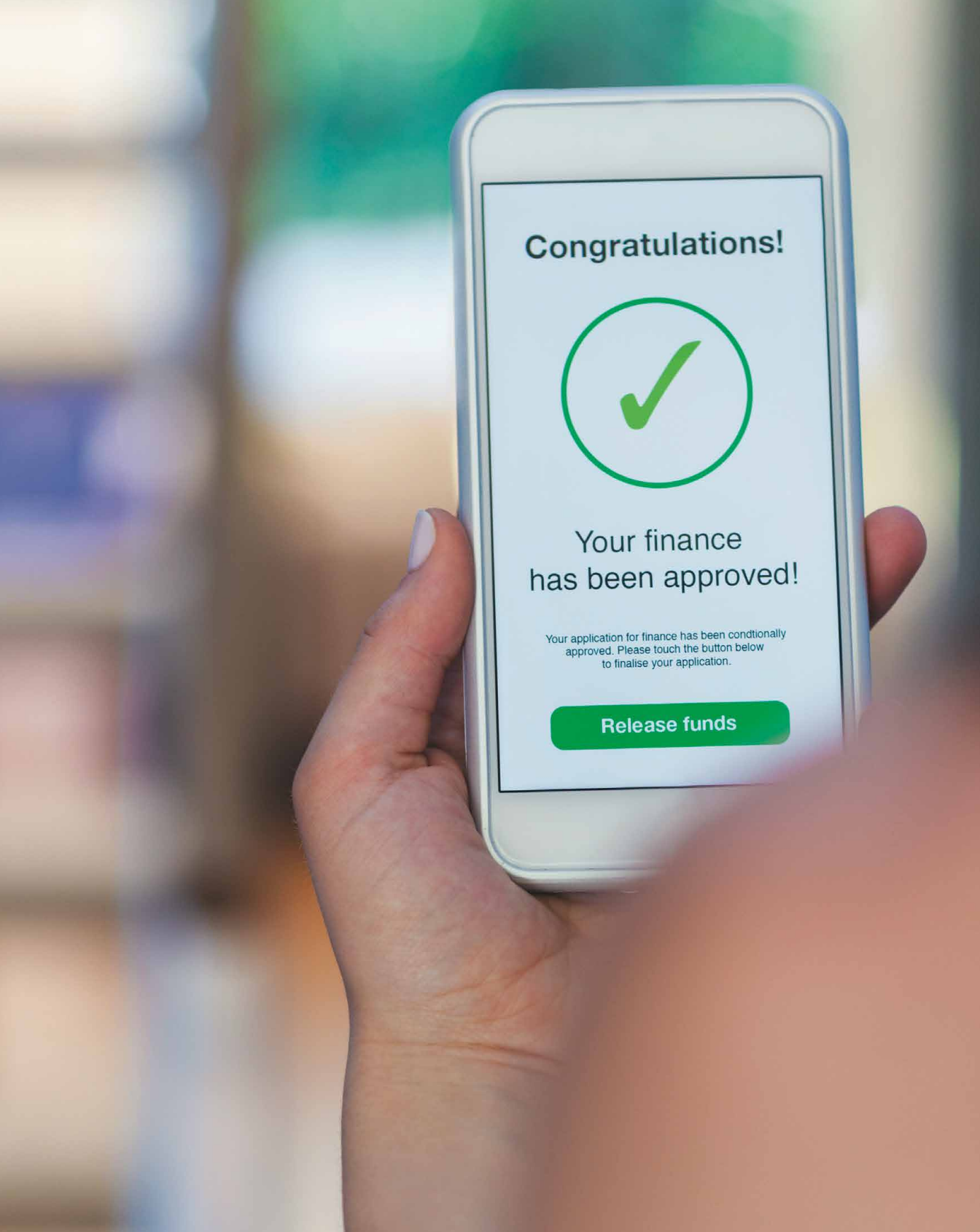
Our findings also emphasize the relative rapidity with which group-based animus can shift as a result of salient events. On the one hand, this can lead to rapid aggravation of inter-group frictions (perhaps highlighting the value of efforts to mitigate such cleavages from occurring in the first place). Yet our findings have a more hopeful message when combined with those of Blouin and Mukand (2018), which studies reconciliation as a result of government

messaging in Rwanda. Their work finds that government efforts at healing inter-group animosity led to an improvement inside of a generation, even in the wake of ethnic cleansing of tragic proportions. Thus, inter-group frictions appear malleable in both directions – they can worsen as a result of clashes, or improve via deliberate efforts.

As more work emerges on individual responses to shocks to community relations – both positive and negative – we can hope to gain a fuller sense of the consequences of ethnic frictions, and the potential of such frictions to worsen or lessen over time.

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Awareness of Credit Information Sharing: Two Natural Field Experiments*

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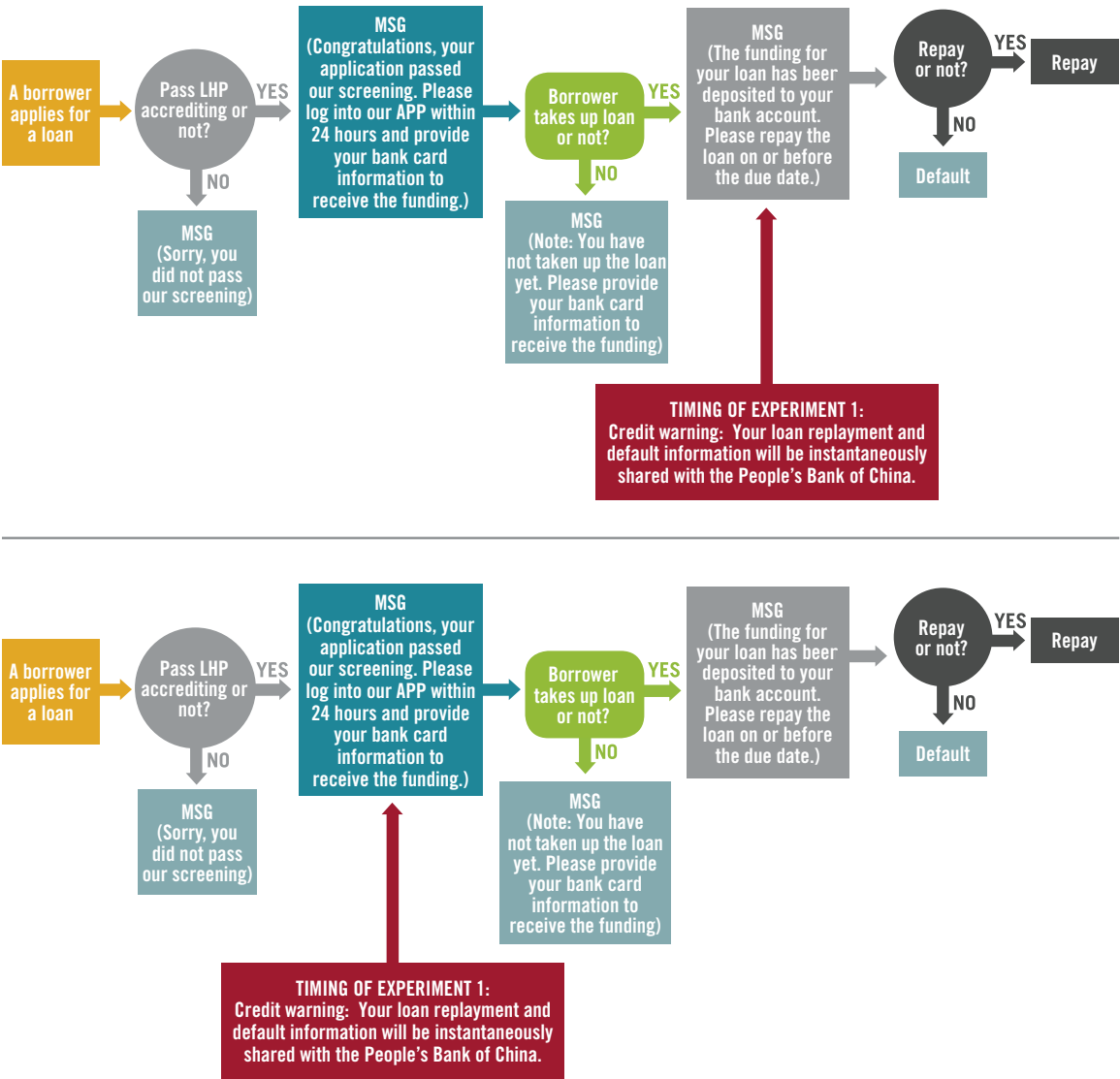
A well-functioning consumer credit market is important for household consumption and economic growth. Various informational problems and moral hazard impede efficient credit allocation. For example, Jappelli and Pagano (2002) show that bank lending to the private sector relative to GDP is about half as large in countries without credit information sharing (30% vs. 60%). Lender information sharing has been proposed as a way to reduce information asymmetry between borrowers and lenders (Pagano and Jappelli, 1993) and thereby improve borrower repayment effort (Paddilla and Pagano, 1997; Padilla and Pagano, 2000). The rationale is threefold. First, knowledge of borrowers' credit information allows lenders to conduct effective screening. Thus, lenders are more willing to lend. Second, knowing that other lenders also have the borrower's credit information makes the credit market more competitive for the borrower in the sense that current lenders are likely to offer a lower interest rate on the borrower's future loans. In other words, information sharing increases competition among lenders and reduces the borrower's financing cost, and thus improves its

(cont.)

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repayment likelihood. Third, knowing that their repayment information will be shared with other lenders, borrowers are likely to try harder to avoid default. Using a pair of randomized field experiments, we study how the awareness of lender information sharing affects borrowers' loan take-up decision and default decision.

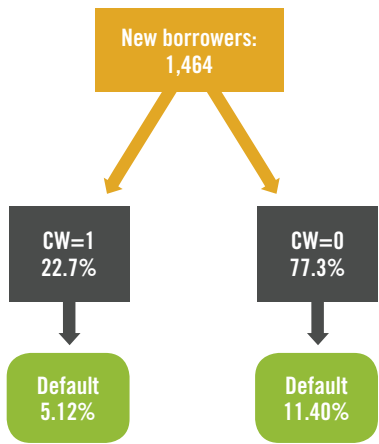
Figure 1: The Normal Course of LHP Lending Practice and the Two Experiments



Our first experiment considers a scenario where borrowers are made aware of information sharing after taking out a loan (ex post) to test the effect of awareness of information sharing on borrower repayment effort. Our second experiment considers a scenario in which borrowers learn about information sharing before taking out a loan (ex ante) to examine the effect of information sharing on borrower take-up and default decisions. The normal course of lending practice on the platform and the two experiments are depicted in Figure 1.

In the first experiment, we randomly selected 1,464 borrowers funded by the reporting lender. After loan take-up, we sent a text message to all borrowers confirming fund transfer, with an additional credit warning in the same text message to 332 randomly selected borrowers (treated) stating that their loan repayment or default would be reported to the public credit registry and affect their credit reports (credit warning). Notably, all borrowers in this experiment received the same loan approval message without a credit warning before take-up. We then tested the difference between the loan performances of the treated and control groups. The univariate results are depicted in Figure 2 and reported in column (1) of Table 1, and the multivariate results, taking into consideration of other factors that might affect borrower default decisions, in column (2) of Table 1. Figure 2 shows that the default rate is 5.12% for credit warning recipients, and 11.4% for non- recipients, 5.66 percentage points lower. Given the 10% unconditional default rate, the credit warning effect on default rates is economically large. These results are consistent with the argument that credit information sharing reduces the lender's propensity to expropriate wealth from the borrower through a higher interest rate. In other words, when borrowers become aware that the current lender will share their repayment information with future lenders, they expect an increase in lender competition for their future loans and thus lower interest rates. As such, these borrowers are more likely to repay their loans, resulting in lower default rates. Our results are also consistent with lender information sharing descripting borrowers. That is, when borrowers become aware of information sharing, they are more likely to repay their loans because default will result in future credit denial by other lenders. In short, awareness of lender information sharing significantly improves borrower repayment likelihood.

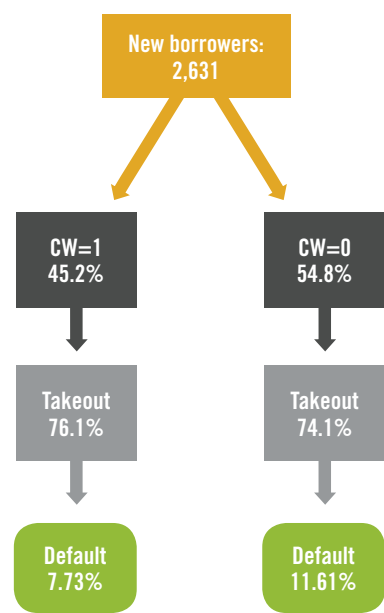
Figure 2: Univariate Results of Experiment 1



We conduct the randomized field experiments on a Chinese online lending platform that assigns institutional lenders to retail borrowers. Half of the institutional lenders on the lending platform are reporting lenders, who are mandated to report borrower repayments and defaults to the credit registry (“the public credit registry”) under the central bank—the People’s Bank of China), and the other half are non-reporting lenders. Our experiments use loans funded by a reporting lender exclusively and consider only first-time (new) borrowers.

In the second experiment, we sent a loan-approval message to 2,631 randomly selected approved borrowers (no overlap with those in the first experiment), with an additional credit warning to 1,189 randomly selected borrowers (treated), which stated that their loan repayment or default would be reported to the public credit registry and affect their credit reports. We then test the difference of loan take-up rates between the treated and control group. The univariate results are depicted in Figure 3, and the multivariate results in column (1) of Tables 2 for analyzing loan take-up decisions, and column (2) of Table 3 for analyzing default decisions. We show in Figure 3 that the loan take-up rate is 76.1% for credit warning recipients, and 74.1% for non-recipients, two percentage points higher for the treated than the control group, suggesting that information sharing benefits thin-file borrowers. By thin-file

Figure 3: Univariate Results of Experiment 2



borrowers, we refer to those with short credit histories and thus limited credit information available to lenders. Furthermore, credit-warning recipients are more likely to take out a loan when they have either high or low informal credit scores, but not when they have mid-range credit scores. Thus, the benefits due to information sharing mainly accrues to borrowers with high repayment ability who are unlikely to default, and to borrowers with low informal credit scores who do not have much to lose upon default. These results are consistent with the argument that credit information sharing reduces the ability of lenders to (non-competitively) expropriate borrower wealth, because relative to those with thick files, thin-file borrowers are especially susceptible to being charged high interest rates.

In the final set of analyses, we compare default rates of borrowers who take out a loan between credit warning recipients and non-recipients. Figure 3 shows 7.73% default rates for credit warning recipients, 3.88 percentage points lower than the corresponding figure, 11.61%, for non-recipients. We further compare the credit warning effect on default rates between the two experiments. We find a similar credit warning effect between the two experiments, suggesting that the effect of credit information sharing on borrower take-up rates does not have measurable impact on the borrower risk pool.

Table 1: The effect of awareness of information sharing ex post on default decisions

This table examines borrowers’ default decisions in Experiment 1. The dependent variable is an indicator that takes the value of one if a loan defaults and zero otherwise. CW is an indicator that takes the value of one if the borrower received a credit warning message and zero otherwise. Column (1) reports the univariate probit regression results. The corresponding default rate when CW = 0 is also reported. Column (2) reports multivariate probit regression results. We report marginal effects and t-statistics based on heteroscedasticity robust standard errors in the parentheses below the corresponding marginal effects. Variable definitions are included in the Appendix. ***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively.

Probit regression: Dependent variable = default	(1)	(2)
CW	-0.063*** (-4.089)	-0.057*** (-3.969)
Sesame score		-0.001*** (-3.818)
Interest rate		2.607** (2.009)
Female		-0.030* (-1.841)
Age		0.001 (1.101)
Education dummies* (base group: borrowers with education missing)		
Junior college or above		-0.024 (-1.005)
Junior college		0.001 (0.059)
The default rate when CW=0	0.114***	—
Observations	1,464	1,464
Pseudo R ²	0.0135	0.0587

Overall, our study provides evidence that awareness of lender information sharing significantly increases loan take-up and reduces default likelihood. The evidence suggests that lender information sharing 1) provides a means for borrowers to establish a credit history; 2) improves the borrower’s repayment likelihood; and 3) does not worsen borrower adverse selection.

Our study sheds lights on the benefits and costs of lender information sharing, adding to the debate on whether to establish a public credit registry (e.g., the U.S. regulator is currently considering establishing a public registry and mandating credit reporting for all online lending marketplaces). While our study, along with prior research (e.g., Pagano, 1997, 2000; Doblas-Madrid and Minetti, 2013), provides theoretical

¹ The informal credit score refers to the Sesame credit score, issued by Sesame Credit. Sesame Credit has direct access to an individual’s credit history in both formal and informal credit markets. It gathers data for more than 500 million consumers who use Alibaba’s Taobao and Tmall marketplaces on a monthly basis, as well as the payment histories of more than 400 million registered users on its mobile payment app Alipay.

Table 2: The effect of awareness of information sharing on take-up decisions

This table examines borrowers' take-up decisions in Experiment 2 and reports probit regression results. The dependent variable is an indicator that takes the value of one if a borrower takes up an approved loan and zero otherwise. CW is an indicator that takes the value of one if the borrower received a credit warning message and zero otherwise. Column (1) includes all new borrowers, and columns (2)-(4) report separately for low, medium, and high Sesame score. We report marginal effects and t-statistics based on heteroscedasticity robust standard errors in the parentheses below the corresponding marginal effects. Variable definitions are included in the Appendix. ***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively.

	All score	Low Sesame score	Medium Sesame score	High Sesame score
	(1)	(2)	(3)	(4)
CW	0.033* (1.930)	0.057** (2.303)	-0.042 (-1.435)	0.081** (2.336)
Sesame score	-0.002*** (-8.853)	-0.004*** (-3.891)	-0.002 (-1.150)	-0.002*** (-2.987)
Interest rate	-4.345*** (-3.662)	-0.907 (-0.282)	-6.001*** (-2.720)	-4.678** (-2.575)
Female	0.009 (0.437)	0.006 (0.184)	0.008 (0.226)	0.022 (0.581)
Age	0.000 (0.337)	-0.001 (-0.463)	-0.000 (-0.166)	0.004 (1.180)
Education dummies* (base group: borrowers with education missing)				
Junior college or above	0.018 (0.729)	0.042 (1.198)	-0.023 (-0.527)	0.048 (0.884)
Below junior college	0.073*** (2.906)	0.083** (2.386)	0.028 (0.671)	0.105* (1.866)
Observations	2,631	1,002	847	782
Pseudo R ²	0.0368	0.0266	0.0146	0.0272

Table 3: The effect of awareness of information sharing ex ante on default decisions

This table examines new borrowers' default decisions in Experiment 2. The dependent variable is an indicator that takes the value of one if a loan defaults and zero otherwise. CW is an indicator that takes the value of one if the borrower received a credit warning message and zero otherwise. Column (1) reports the univariate probit regression results. The corresponding default rate when CW = 0 is also calculated. Column (2) reports probit regression results. We report marginal effects and t-statistics based on heteroscedasticity robust standard errors in the parentheses below the corresponding marginal effects. Variable definitions are included in the Appendix. ***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively.

Probit regression: <i>Dependent variable = default</i>	(1)	(2)
CW	-0.039*** (-2.930)	-0.035*** (-2.747)
Sesame score		-0.001*** (-4.227)
Interest rate		0.447 (0.441)
Female		0.013 (-0.833)
Age		0.001 (1.071)
Education dummies* (base group: borrowers with education missing)		
Junior college or above		-0.043** (-2.331)
Below junior college		-0.014 (-0.746)
The default rate when CW=0	0.116***	—
Observations	1,973	1,973
Pseudo R ²	0.0067	0.0392

and empirical evidence on the benefits of reducing borrowers' moral hazard, recent research suggests sharing information might also be costly. Therefore, the net effect of lender information sharing remains an open question. Research also has yet to identify the winners and losers from improved information sharing. Our results suggest that, at the very least, individuals with thin credit files benefit from lender information sharing in establishing a credit history. Lenders benefit as well, since the borrower take-up rate increases without a commensurate increase in defaults.

* There are two dummy variables for education to identify three possible education information (junior college or above, below junior college, and no education information).

The first dummy takes values of one if a borrower has a junior college or above degree, and zero otherwise; the second dummy takes values of one if a borrower has a degree below junior college level and zero otherwise.

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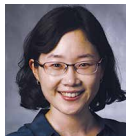
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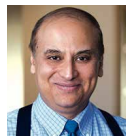
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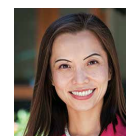
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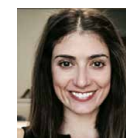
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