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SEE FAR

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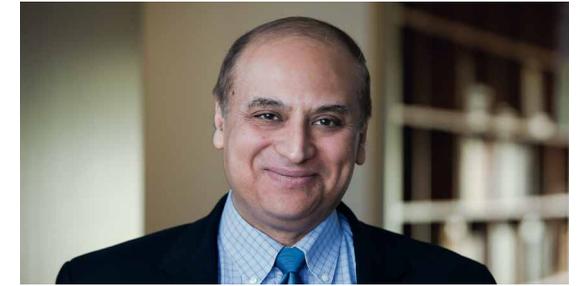
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A Message from the Director

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.

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,

A handwritten signature in black ink, appearing to read "Anjan Thakor". The signature is fluid and cursive.

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



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

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How do statutory minimum wages affect employment? This is a heavily-debated policy question that evokes strong emotional responses from both sides of the political divide. It is kept front and center by the numerous increases to the minimum wage implemented by states and cities. Just in the past two years, many cities, including Los Angeles, New York, San Francisco, Seattle and Washington D.C. increased the statutory minimum wage to \$15 either immediately or over a period of time. In our very own backyard, the city of St. Louis increased the minimum wage to \$10 in 2014, but was forced to roll back by a law passed by the state of Missouri in 2017. Each of these changes was preceded by a vigorous debate both for and against the change. The debates were usually dominated by views formed by an individual's political leanings rather than by hard evidence. While those on the left of the political spectrum argue that a higher minimum wage is an effective anti-poverty tool and will provide people a living wage, limit the number of hours they need to work to make ends meet, and help fight the growing inequality, those on the right of the political spectrum argue that a higher minimum wage will deter job creation and turn away businesses.

Our paper is an attempt to infuse some hard evidence into this debate.

Although there is a large volume of academic literature on this question, consensus remains elusive. Alongside studies that document a decrease in employment following an increase in the minimum wage are others that show the opposite. The evidence remains conflicted because the prior literature suffers from severe data limitations. This has made their conclusions

less robust and hence insufficient to sway the opinion of a diehard proponent or opponent.¹

Most studies on this question lack data on exact employee wage rates and hence they are unable to focus their analysis on minimum wage employees who are directly affected by the policy. A subset of studies have granular data

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

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Date: July 2018

¹See Belman and Wolfson [2014] for an exhaustive summary of the evidence.

on employee wages and hence can focus on minimum wage employees. These studies obtain better data only by confining their analysis to a few employers, a single industry, or a certain geography. Hence their conclusions may not be valid outside the industry or geography they study.

In our paper, we use precise administrative wage data on one million hourly wage employees from over 300 firms spread across 23 two-digit North American Industry Classification System (NAICS) industries to estimate the effect of six large, isolated state minimum wage changes on employment. Our data allows us to precisely estimate the employment dynamics of workers directly affected by minimum wage increases.

Our empirical analysis leverages a unique partnership between Olin Business School (Olin) and Equifax Inc (Equifax). This partnership allows Olin's researchers access to Equifax's credit and employment data. The data contains anonymized information on the wages, salaries, hours, and job tenures of millions of employees from over 2,000 businesses in the United States. Furthermore, the data distinguishes between hourly and salary employees, voluntary and involuntary turnover, and specifies exact hourly wage rates.

In our analysis we focus on six states that implemented large (and isolated) increases to the minimum wage of at least 75 cents between the years 2010 and 2015: California, Massachusetts, Michigan, Nebraska, South Dakota, and West Virginia. These constitute our treated states, and all treatments occurred

during the years 2014 and 2015. We focus on these states for two main reasons. First, the increases in these states were large and isolated. This enables us to document how employment dynamics change following the minimum wage increase. Second, these states had contiguous states that did not change their minimum wage during the 24-month period around the minimum wage increase. These contiguous states form our control sample and help establish a benchmark to compare the employment dynamics of the treated states to.

We find that treated states and control states are very similar in terms of their GDP per-capita, unemployment rate, racial make-up, House Price Index (HPI) growth rates, age demographics, pre-treatment levels of the minimum wage, democratic vote share, unionization rates, and industry compositions. In addition, the macroeconomic characteristics of the treated and control states evolve in a statistically indistinguishable manner prior to the year of treatment. This ensures that the employment dynamics of the control states will provide a satisfactory "counterfactual" to that of the treated states sans a minimum wage increase.

Within this sample of treated and control states, we estimate the employment effects of the minimum wage at both the firm-state and the individual level. The firms in our sample are spread across multiple states; think Walmart with its many super-centers. We refer to a firm-state combination as an establishment. While our establishment-level analysis estimates the effect of the minimum wage on the total stock of low wage employees in the establishment, our

individual-level analysis pins down how the employment dynamics of pre-treatment low wage employees.

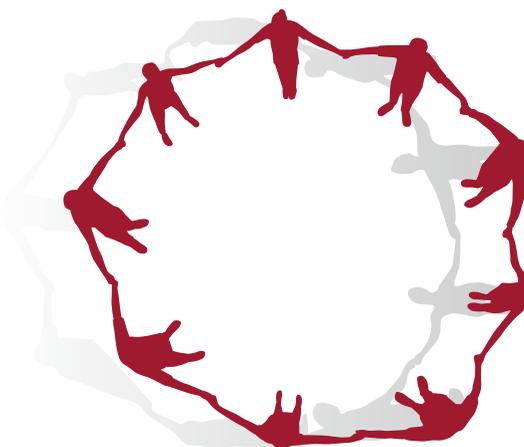
This dual analysis allows us to understand the total effect of the minimum wage on employment and the channels through which the effect manifests (e.g. hiring, firings, reductions in hours, etc.).

In our empirical tests, we compare the employment dynamics in the treated and control states before and after the minimum wage change. We do this comparison keeping the firm the employee works in the same. That is, for a given firm, say Walmart, our establishment level analysis will compare the change in the fraction of low wage employees in the treated state to that in the control state(s) around the minimum wage change while our employee level analysis will compare the employment probability of a worker from the treated state to one from the control state after the minimum wage change.

We begin by estimating the employment effect at the individual level. In this analysis, we refer to employees whose wages are initially less than the new minimum wage—i.e. those directly affected by a minimum wage increase—as *Bound employees*, and we refer to employees making exactly the old minimum wage as *Minimum wage employees*. As a necessary first-step, we document how the hourly wages of Minimum wage employees and Bound employees evolve in the twelve month period following a minimum wage change. We find that an increase in the minimum wage generates a level increase in hourly wages for both sets of employees. Moreover, the size of the wage increase is equal to the exact increase in the minimum wage in our sample. Not only do these findings establish the quality of our wage data, but they also help ensure that our setting is powerful enough to pick up the effect of minimum wage changes on employment.

We find that an increase in the minimum wage has a slightly positive, but statistically insignificant, effect on the employment of existing Minimum wage and Bound employees. That is, existing Minimum wage and Bound employees in the treated states are no less likely to remain employed following the minimum wage increase as compared to similar employees

Creating Organizations of Higher Purpose Conference



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Robert Quinn and
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how to create a
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from the control states. We also find no difference in the rates of voluntary turnover, the rates of involuntary turnover, and the average number of hours worked for employees across the treated and control states. For each outcome variable, our results also indicate the employers are not pre-reacting to the minimum wage increase by adjusting their workforce. We also find little-to-no difference in the employment effect across employees with different levels of tenure, across firms of different size, etc. **Overall, we find no significant evidence that increases in the minimum wage adversely affect existing low wage employees.**

Despite its importance, the individual-level analysis can only document the effect of the minimum wage on existing low wage workers. Indeed, firms may adjust employment along other dimensions—such as through hiring or substituting low wage employees with high skilled workers—which would not be captured by the individual-level analysis.

Our establishment-level analysis allows us to evaluate the merits of such claims and understand the total effect of the minimum wage on employment. In our establishment-level analysis, we define low wage employees as those whose wages are less than \$10/hour. We find that the fraction of low wage employees in establishments in the treated states declines by 1.0 percentage point in the twelve months following an increase in the minimum wage. In comparison, the average pre-treatment fraction of low-wage employees is 44 percentage points. Thus our estimates indicate a negative 4% (2.5%) response of low wage employment (total employment) to a 10% increase in the minimum wage.

We find that the decline in low wage employment occurs within the first quarter after a minimum wage increase. **Thus, we conclude that at the low end of the wage spectrum, an increase in the minimum wage adversely affects employment.**

We reconcile our establishment-level and individual-level results by documenting the channel through which establishments reduce employment. Consistent with the individual-level results, we find no evidence of a change in the rate of establishment-level turnover among either low wage or non-low wage employees. We also find no evidence that establishments close

locations following an increase in the minimum wage. In contrast, we document large declines in establishment-level hiring. We find that establishments reduce their monthly fraction of low wage hires (relative to total employment) by 0.2 percentage points—a 6.7% reduction from the unconditional mean of 3.0 percentage points. We estimate an approximately -5% (-3%) response of low wage hiring (total hiring) to a 10% increase in the minimum wage. **Thus, total new low-wage employment declines in response to a minimum wage increase.**

Next we compare the response of firms from tradable and non-tradable goods industries to the minimum wage increase. We expect low wage employment in the non-tradable goods industries to be less responsive to increases in the minimum wage. This is because non-tradable goods firms do not compete with firms outside their region and hence may find it easier to pass along the increase in the wage as a higher price for their product or service. Non-tradeable goods industries include restaurants, hair salons, etc. On the other hand, to the extent tradeable goods firms, say manufacturing firms, compete with other firms that do not experience a minimum wage hike, they will find it difficult to increase prices. Such firms may in turn adjust the level of employment in response. We find evidence in support of this hypothesis in our data. While



firms in the non-tradable goods industries neither reduce head-counts nor hours worked, firms in the tradable goods industries reduce employment across the board. We also find some evidence that tradable goods firms substitute lower wage employees with marginally higher-skilled labor.

To summarize, we have three pieces of evidence. Increases to the minimum wage:

- Does not affect the employment of existing low-wage employees.
- Reduces future hiring of low-wage employees, and
- The reduction in hiring is concentrated in firms in the tradeable goods sector.

While we do not conduct a full-fledged welfare analysis, our results can serve as a guide for cities and states contemplating a minimum wage hike. Our results indicate that a higher minimum wage will adversely affect employment especially in areas with a large pool of new low wage employees entering the work force or if the employment is predominantly in the tradeable goods sector. On the other hand, the net benefits of a higher minimum wage will be especially higher in areas where employment is dominated by non-tradeable sector.

Our results should be interpreted with the following caveats in mind. We estimate the employment effect during 2013-15 when the labor market was relatively benign, the average size of the minimum wage increase in our sample is 10%, and our sample predominantly consists of large firms. Changes in these parameters may affect our conclusions.

- An increase in the state minimum wage does not affect the employment of existing low-wage workers.
- A 10% increase in the minimum wage reduces future hiring of low-wage employees by 5%.
- The reduction in hiring following a minimum wage hike is concentrated in firms in the tradeable goods sector.



Credit Enforcement and Price Hedging: Warehouses as a Financial Innovation

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

This paper documents a financial innovation, mitigating credit and hedging frictions through warehouse ownership. A large agribusiness lender in Brazil constructs grain warehouses to permit a new credit contract, repayable in grain. This contract provides price insurance and possesses stronger credit enforcement rights. For identification, I use runner-up locations of warehouses as a control group. The improved contracting increases debt capacity and lowers borrowing costs. The effects are stronger when price insurance is important, for municipalities with weaker courts, and for financially-constrained borrowers. The evidence is consistent with both insurance and enforcement channels and highlights a company's intervention in solving market frictions.

Introduction

Credit markets play a critical role in fostering economic growth through allocation of capital in the economy. These markets, however, are characterized by imperfections, such as information asymmetry between lenders and borrowers, that create inefficiencies in the allocation process. In practice this creates various challenges, since the pledgeability of cash flows is limited. That is, only a limited portion of project cash flows can be seized by the lender for repayment, therefore, limiting borrowing capacity. The contribution of this paper is to document that markets develop alternative mechanisms to mitigate limited pledgeability of cash flows and increase debt capacity.

I study the market of agricultural lending in Brazil where farmers take out loans for their production inputs, repayable in cash through the sale of grain produce. In this setting, a lender is exposed to two frictions. The first one relates to farmers' exposure to grain price risk, since farmers could default if grain prices drop. The second challenge relates to contract enforcement. Although the loans are frequently secured on the grain output, it is relatively easy for the farmer to divert the sales proceeds from the repayment of the loan. In the event of default, the lender may have to resort to the seizure of the property and their rights depend heavily on the quality of court enforcement, which varies considerably across different judicial districts in Brazil.

The focus of the paper is on grain silos, a storage technology for the borrower's grain output, and a new debt contract, which relies on that technology. Both the technology and the new contract increase creditor rights through improved collateralization of the loan and faster legal process. Access to storage increases collateral liquidation value, since collateral can be quickly seized, stored in lenders' designated warehouses and rapidly liquidated. Furthermore, the new debt contract reduces farmers' exposure to grain price risk, since the repayment in this contract, called barter credit, is denied in quantity of grain rather than monetary value. I find that the new technology and the barter contract increase the borrower's debt capacity, as well as simultaneously reducing the interest rate charged on the loan.

Cash Credit versus Barter Credit

A farmer can purchase production inputs such as fertilizer or pesticides from the lender in two ways: either by paying cash, or by borrowing on credit. When a client borrows to purchase the production inputs, there are two types of contracts with distinct modes of repayment. First, the borrower can repay the debt in cash

on a predetermined date, making it a standard debt contract. Second, instead of repaying in cash, the borrower can agree to deliver grain at a price that is fixed upon the issuing of the contract. Essentially, such a loan agreement is a standard credit contract, combined with a forward contract with physical delivery on an agriculture commodity. For simplicity, I call this combined contract a barter credit because the lender and a farmer exchange production inputs for grain at two distinct points in time. A farmer chooses the form of repayment at the date of debt origination.

There are a few important differences. The first one relates to the legal strength of each contract. The barter contract is part of a standardized loan contract for farmers: *Rural Product Notes* (CPR or *Cédula de Produto Rural* in Portuguese). The CPR is a debt contract that allows farmers to finance their production with a credit agreement, before their crops are ready for sale. The CPR represents a promise of rural product delivery.¹ These contracts are collateralized with future harvest and the lien on this harvest is registered with the local real estate registry (*Cartorio de Registro de Imoveis*). Due to the lien and de



¹ In Brazil, roughly 60 percent of external financing in farming is raised through CPR contracts, while the remaining 40 percent is raised through bank debt (Agrarian Markets Development Institute, 2011). For detailed legal documentation, the reader can refer to laws 8,929/94, 10,200/01, and 11,076/04, which govern these contracts. A detailed description of the financial instrument is provided by National Association of Financial Market Institutions (2009).

facto grain ownership by the lender, the grain is difficult to sell to a third party without first repaying the debt and removing the lien. In case of a default of a farmer, the lender is permitted to repossess the grain both from the farmer's premises or anyone who might have acquired this grain. These contracts are standardized and can be enforced fairly quickly, as a court order can be acquired within days. After the grain is repossessed, the lender still needs to go through a formal court process that recognizes the default of the farmer and transfers the ownership of the grain to the lender.

The cash contracts do not fall under the special CPR category. While the repossession of the collateral is equally fast as with the CPR contracts, the court process is longer and the liquidation of the collateral is more cumbersome. Since these contracts are less standardized than the CPR contracts, both judges and lawyers scrutinize the interpretation of each contract more thoroughly, increasing the duration of legal proceedings. Furthermore, once the court rules in favor of the lender, the collateral needs to be liquidated since the settlement is in cash. This entails additional risks. The borrower has the right to challenge the liquidation process, since whatever remains after the liquidation is transferred to the borrower. The lender is also exposed to the price risk of the collateralized grain. This is difficult to hedge *ex ante*, since it is hard to predict the time period when the collateral is actually to be liquidated. In contrast, barter contracts have no ambiguity on valuation of the collateral, i.e. grain. Since the settlement is denied in grain rather than monetary value, the judge simply transfers the formal ownership of the grain to the lender, avoiding lengthy liquidation process. Overall, due to lack of standardization and more uncertainty around the liquidation of the collateral, cash contracts take on average thirteen months longer to enforce relative to about three years for barter contracts. Thus, while a grain silo provides better control over the collateral, affecting both types of contracts equally, barter contracts have additional benefits associated with less cumbersome legal process.

The second important characteristic is the embedded price hedge in the barter contract. Since price fluctuation is a major risk in farming, the hedge is an important mechanism to mitigate price risk and reduce the probability of

a default due to unfavorable price developments. To the extent that there are frictions in obtaining fairly priced hedging instruments, the bundled credit product should reduce the likelihood of a default.

In sum, one would expect that access to warehouses facilitates lending due to mitigated both enforcement and grain price risks.

Construction of Grain Silos

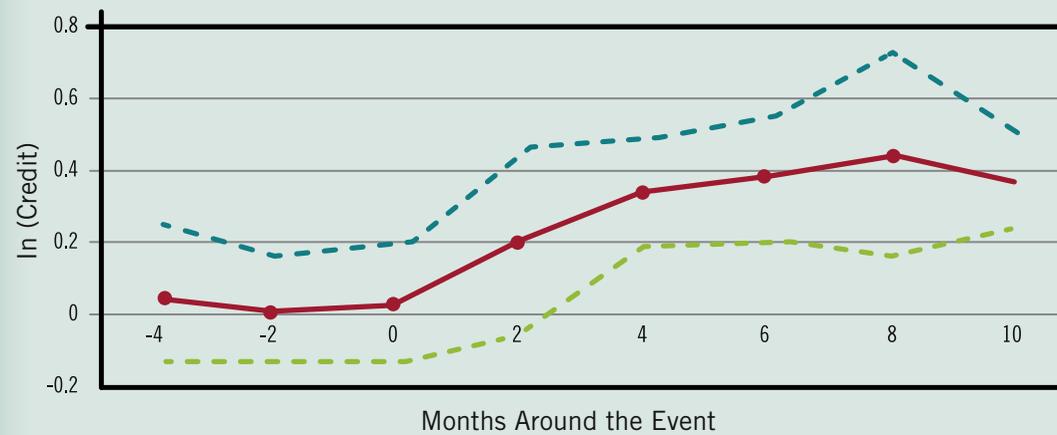
The data provider for this study is a large agribusiness lender in Brazil, with an annual turnover of over 1 billion USD and a customer base of over 19,000 farmers as of December 2013. The farm operates in three lines of business: 1) sales of farm production inputs such as fertilizer and pesticides to farmers, 2) sales of these production inputs on credit, and 3) trading of agriculture commodities—buying and storing grain from farmers and selling to large purchasers both domestically and internationally. The farm provides these services to small and medium-sized farmers (the average farm size is 150 hectares with a harvest level revenue of 179,000 USD). This study focuses on the lending side of the business, where the farm operates as a creditor to farmers.

It is essential to differentiate between causation and correlation. Comparing branches with a silo to those that do not have a silo would give a correlation that could lead to wrong conclusions. For instance, branches with a silo might be located in areas with better borrowers who are larger and less likely to default. Thus, increased borrowing in these branches would be driven by the better borrower type rather than a grain silo relaxing credit constraints.

To establish causation, I exploit the staggered construction of grain silos and the alternative locations of the constructed silos. An ideal experiment would require the construction of silos to be random. This clearly is not the case. To come close to this setting, I rely on alternative locations that the lender considered “near equivalent” when the decision on where to locate the new silos was made. When the owners decide where to open a silo, they typically begin by considering several possible locations. Then they narrow the list to roughly four finalists. Thus, by knowing the finalists, I can identify the branch where a silo was constructed (i.e. the treated branch), as well as the runner-up

Figure 1: Farmers' Borrowing Increases by 30 Percent After Opening a Silo

The graph below plots the evolution of the treatment effect (construction of a silo) relative to the control group on the total credit outstanding at a borrower level. The horizontal axis measures time, in months, since the construction of a silo (0 represents the opening of a silo). The vertical axis measures the log total value of credit.



branches (i.e. the control branches). Since these finalists are similar on observable characteristics and anticipated future business potential, the runner-up branches provide a counterfactual for what would have happened to the borrowers in a branch in the absence of the construction of a silo. Thus, it allows me to better identify the effect of constructing a silo, limiting concerns with other confounding factors in the data. It is worth noting that in each case the actual construction choice is usually driven by various practical considerations such as the speed of both acquiring the required land and obtaining permits. Eventually, silos are constructed for most of the finalists.

The identification approach can be understood via the following example: Suppose there are two branches, branch A and branch B, that the farm considers as “equal” among many when considering where to build a silo within Case 1. However, they can build only one silo and they build it next to branch A in 2010, leaving branch B as a runner-up branch. I wish to estimate the effect of constructing a silo on total credit. For a borrower in branch A, I would compare the total credit after 2010 with the total credit before 2010. However, in 2010 other things, such as the economic

environment, may have affected the size of total credit. Borrowers in branch B, as a control group, would help to control for changing economic conditions. The difference between those two differences would then serve as my estimate of the effect of a contracting technology. Essentially, borrowers in branch B act as a control group for borrowers in branch A in all months within Case 1. Similar reasoning applies for all other cases.

Results

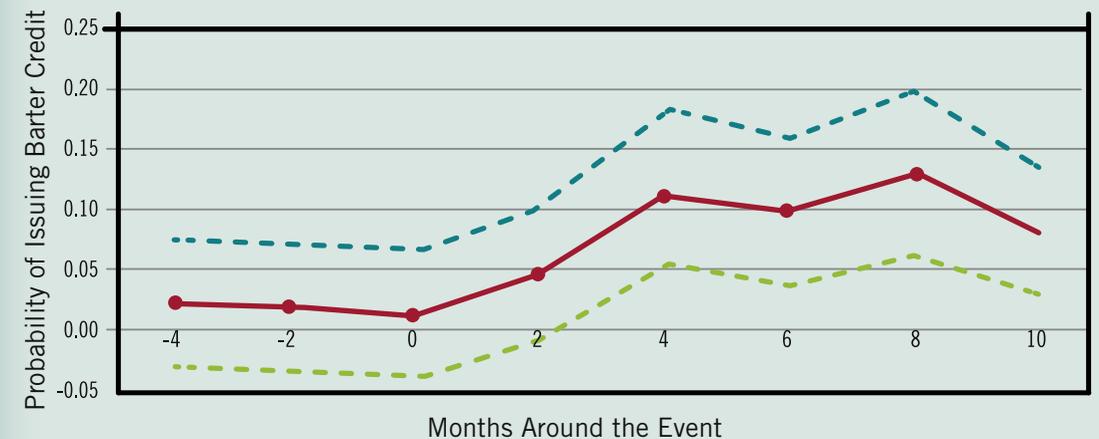
Overall, I find that the construction of a silo increases the lender's supply of credit. The total lending to a farmer increases by 32 percent (Figure 2) and prices decline by 3.5 percent. Furthermore, farmers seem to default less in the period after opening of a silo. Highlight the benefits of barter contracts relative to cash credit contracts, farmers significantly increase borrowing through barter credit (Figure 1). In what follows, I provide evidence that directly highlights the frictions that grain silos help solving.

Price Insurance

Since barter contracts hedge the commodity price risk, the effect of the construction of a silo is stronger when price risk is more important. I use two approaches to document this. To begin,

Figure 2: Farmers' Significantly Increase Usage of the New Credit Contract: Barter Credit

The graph below plots the evolution of the treatment effect (construction of a silo) relative to the control group on the probability of issuing a barter credit at the borrower level. The horizontal axis measures time, in months, since the construction of a silo (0 represents the opening of a silo). The vertical axis measures the probability of issuing a barter contract.



I exploit a federal government program, the Minimum Price Guarantee Program (*Política de Garantia de Preços Mínimos*) that insures downside of the price risk. I compare the minimum price at which the government buys against the futures price of the same commodity. The ratio between the federally-set minimum price and the futures price reflects the portion of the expected price of the commodity that is insured. The higher this value, the weaker the incentive for a farmer to buy an instrument that fully hedges the price. Consistent with the hedging channel, I find reduced usage of barter contracts when government provided price insurance is generous relative to the futures price. In the second approach, I examine how the ability to offer barter contracts interacts with the commodity price volatility. I find that farmers use barter contracts more extensively when grain price volatility is higher.

Court Efficiency

Grain silos provide the lender a technology that should improve enforcement of their credit contracts. This technology should be particularly important in areas where the traditional way through the legal system is less efficient. Consistent with this, I find that the effect on total credit and barter contracts is stronger in judicial districts where court

enforcement quality is weaker. Following Ponticelli and Alencar (2016), I measure the court enforcement quality as the speed in closing bankruptcy cases, calculated using the number of pending cases per judge in each judicial district. The larger the proxy, the longer it takes to solve a case. A concern might be that this measure of court efficiency correlates with other characteristics, for instance, availability of bank credit. To alleviate this concern, I exploit pre-determined rules, such as the size of the population, that affect the quality of local courts through potential extra-jurisdiction. In brief, a municipality that is the seat of a judicial district deals with cases from territorially adjacent municipalities that do not meet the criteria to have their own courts, thereby increasing the workload for courts in the seat of the judicial district.

Financially-Constrained Borrowers

Financially-constrained farmers experience the highest increase in credit supply. An extensive theoretical literature argues that relaxation of financial constraints should be particularly valuable for farmers with limited pledgeable assets, since farmers with a lot of pledgeable collateral are more likely to obtain financing from other sources. To show that the effects of the construction of a silo are particularly

strong for constrained borrowers, I examine the variation between farmers who own their farmland and those who rent it. Since landowners have more pledgeable assets than renters, the effect on renters is larger, indicating that this market intervention is particularly valuable for more constrained borrowers.

Real Effects

The evidence thus far suggests that the lender increases the supply of credit after constructing grain warehouses. A question remains whether this has any aggregate effects on the local economy. To shed light on this, I analyze the significance of opening a silo at the municipality level. I find that the total production of soybean, corn and wheat in bushels and in Brazilian reais increases by 16.3 and 15.5 percent, respectively, in municipalities where a silo is constructed relative to the municipalities with runner-up branches. These real effects are mainly driven by municipalities with weak courts, highlighting the benefits associated with improving contract enforcement.

Generalizability

As with any study, one needs to think of the broader implications for other countries and settings. From an agricultural perspective, such financing models, including barter credit contracts, are widely used not only in emerging but also in developed markets, including the US (for instance, by agribusiness farms such

as Cargill, Bunge, ADM, and OLAM). Bunge and OLAM reported 1.2 and 2.3 billion USD in prepaid expenses used for procurement of physical commodities in 2013. These contracts are used not only in farming but also in other commodity related industries, such as metal mining and oil. In 2013, Glencore, the world's largest producer and trader of metals, reported 4.1 billion USD in prepaid expenses. These prepayments were largely repaid by future production of the counterparty. *The Economist* (2015) also stresses that it is very common for traders to lend money to their commodity suppliers. Thus, the mechanism documented in this paper for the farming industry could be generalized to the cross-section of commodity sectors.

Closing Thoughts

Overall, the findings suggest that gaining access to a warehouse can significantly mitigate credit market frictions. In particular, grain silos improve collateralization of the lender's credit "barter credit," allows borrowers to hedge price risk as well as provides additional benefits in improving the speed of legal process. Thus, this study highlights the power of markets in solving contracting frictions associated with weak legal institutions and exposure to output price risk.

While there has been much theoretical work on the Coasian topic of organizations and their boundaries, there has been far less empirical work on this subject. My analysis contributes

to the debate by documenting that the lender expands its boundaries to access a warehouse. However, an important question remains: is ownership of a silo necessary or can the same results be achieved through a long-term lease contract? In a rational world, if replicating a transaction outside a farm is no different from performing it inside, a farm should be indifferent between the two options. Since the agribusiness lender never utilizes a third-party silo, I implicitly assume that performing this outside the farm is sufficiently costly to make it economically unattractive. This is a conjecture that would greatly benefit from further empirical investigation.

From the policy perspective, it is important to understand whether banks could benefit from access to such a contracting technology and whether they should own warehouses.² Since the funding costs of banks are generally lower than those of trade creditors, they could provide cheaper credit. However, trade creditors are likely to have more expertise and information about their borrowers, making the screening costs very low. While anecdotal evidence suggests that this type of lending exists in modern banking (e.g., custodian banks as warehouses), I leave the task of understanding the particular costs and benefits for future research.

References

Agrarian Markets Development Institute, 2011, *New Instruments of Financing under Future Crops: the Brazilian Experience of a CPR System: Opportunities and Issues*, Technical Report December, Food and Agriculture Organization of the United Nations, Kyiv.

National Association of Financial Market Institutions, 2009, CPR Rural Product Note, Technical report.

Ponticelli, Jacopo, and Leonardo S. Alencar, 2016, Court Enforcement, Bank Loans, and Firm Investment: Evidence from a Bankruptcy Reform in Brazil, *The Quarterly Journal of Economics* 131, 1365-1413.

The Economist, 2015, Rubber Barons: Commodity Trade Finance, *The Economist* 416, 73.



² For instance, it has been reported that both Goldman Sachs and JP Morgan Chase own aluminum warehouses around the world: <http://www.bloomberg.com/news/articles/2015-03-04/goldman-sachs-jpmorgan-dropped-from-aluminum-antitrust-lawsuit>.

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Bank Loan Supply Responses to Federal Reserve Emergency Liquidity Facilities

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Ten years after the failure of Lehman Brothers, the debate around the government's response to the financial crisis lives on. A common critique is that the government provided too much assistance to Wall Street and not enough to Main Street. Recently published research, awarded the *Journal of Financial Intermediation's* annual Best Paper prize, by Professor Jennifer Dlugosz and co-authors Allen Berger, Lamont Black, and Christa Bouwman, provides new evidence on how Federal Reserve programs that provided liquidity to banks bolstered the flow of credit to firms and households during the recent financial crisis.

In the classic American Christmas movie, "It's a Wonderful Life," a memorable scene depicts a bank run. As depositors mob the lobby of Bailey Brothers' Building and Loan, George Bailey, played by Jimmy Stewart, pleads with them not to pull their funds. "The money's not here. Well, your money's in Joe's house, that's right next to yours. And in the Kennedy house, and Mrs. Macklin's house, and, and a hundred others... Now what are you going to do? Foreclose on them?" This scene illustrates vividly the nature of a bank liquidity crunch. Banks fund long-term assets (e.g., loans to firms and households) with short-term liabilities (e.g., demand deposits). If depositors or investors decide to pull their funds from a bank, and the bank cannot meet the requests with cash and liquid assets on hand, it could be forced to sell other assets quickly (potentially at a large discount to fundamental value) or to raise funding at a suboptimal time. Either of these

actions could potentially lead to the failure of an otherwise healthy bank.

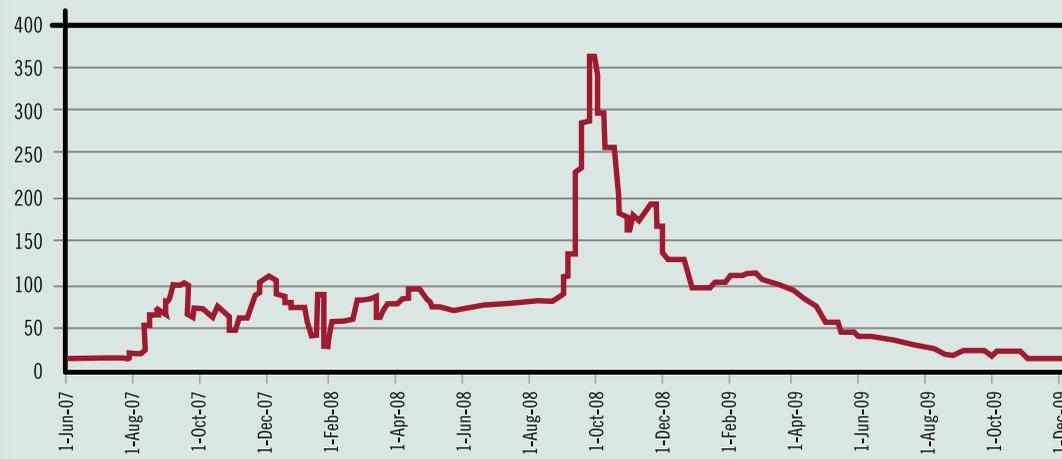
Several government programs exist to limit bank runs. Nationwide deposit insurance, in place since the 1930s, limits the incentive for retail depositors to run on a bank. During the financial crisis of 2007-2009, it was largely providers of wholesale funding (like commercial paper and repurchase agreements) that ran. Chart 1 (next page) plots the 3-month LIBOR-OIS spread, a proxy for bank funding pressures, for the period from June 1, 2007 to December 31, 2009. LIBOR is a benchmark rate for interbank lending (in this case, a 3-month loan) that is set by a group of large banks every morning. The overnight indexed swap rate is an estimate of the expected federal funds rate over the same period. The LIBOR-OIS spread, therefore, measures how much more expensive it is for banks to get term

Paper: "Bank Loan Supply Responses to Federal Reserve Emergency Liquidity Facilities"

Authors: Allen N. Berger, University of South Carolina; Lamont K. Black, DePaul University; Christa H.S. Bouwman, Texas A&M University; Jennifer Dlugosz, Washington University in St. Louis

Date: October 2017, *Journal of Financial Intermediation*

Chart 1: Three month LIBOR-OIS spread



funding than to repeatedly roll over daily loans. In June 2007, before the start of the crisis, the 3-month LIBOR-OIS spread was 0.08%. By fall, it was averaging around 0.65%, topping out at more than 1% some days.

In the face of rising funding pressures, banks turned to the Federal Reserve in its role as a “lender of last resort.” Since its inception, the Federal Reserve has offered loans to solvent yet illiquid banks through its Discount Window (DW). For much of the past century, the discount window played a relatively quiet role of meeting the idiosyncratic liquidity needs of a small number of banks. As the financial crisis of 2007-2009 intensified, the Federal Reserve took unprecedented steps to increase banks’ access to liquidity. First, on August 17, 2007, the Federal Reserve instituted the Term Discount Window, a temporary program that offered discount window funds with maturities of up to 30 (later 90) days. Second, to address a concern that using the discount window may carry a stigma, the Fed created the Term Auction Facility (TAF) on December 12, 2007. TAF was a series of auctions for term funding available to banks in generally sound financial condition. Usage of these liquidity facilities during the crisis was extraordinary. From August 2007 to December 2009, banks borrowed \$221 billion per day, on average, from the DW and TAF.¹ Around 20% of small U.S. banks—defined as those with \$1 billion or less in assets—and 62% of large U.S.

banks used these facilities at some point during the crisis. Chart 2 plots borrowing by small and large commercial banks.² Large banks relied overwhelmingly on the TAF, while small banks tended to draw from both the DW and the TAF.

The broad use of the Federal Reserve’s liquidity facilities by banks raises important issues. The Federal Reserve is charged with providing funds to illiquid but solvent banks. However, during a crisis, it may be difficult to determine which banks meet this requirement. Which banks borrowed? More importantly, did banks use the funding from these emergency liquidity facilities to increase lending? The Federal Reserve hoped that providing liquidity support to banks would help ease pressures in financial markets and promote the ability of firms and households to obtain credit. It is not clear, however, whether a central bank can increase the flow of credit during a financial crisis or whether it is merely ‘pushing on a string.’

Historically, the identities of banks receiving liquidity support from the Federal Reserve have been confidential due to concerns that this information could cause a liquidity flight. Professor Dlugosz and her co-authors were able to study these issues, for the first time, using detailed loan-level data that was produced by Freedom of Information Act requests filed by news organizations as well as later disclosures mandated under the Dodd-Frank Act.

Chart 2, Panel A: Large Commercial Banks

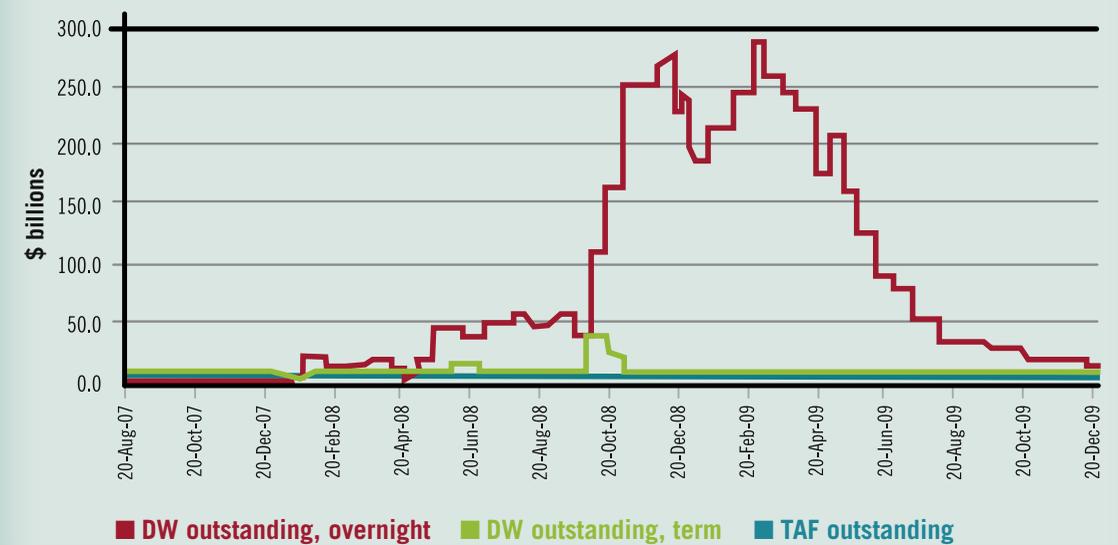
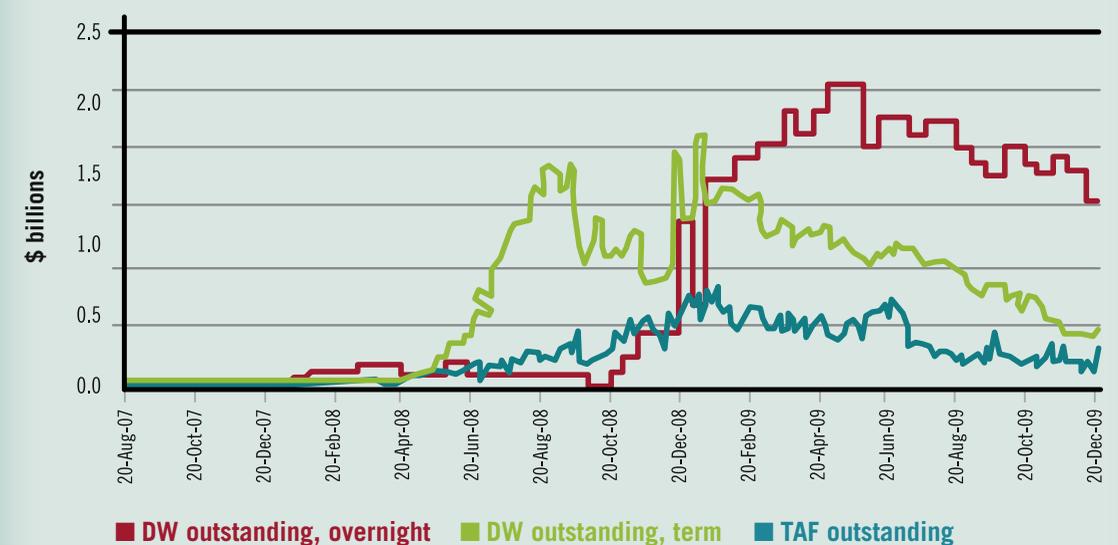


Chart 3, Panel B: Small Commercial Banks



Background: The Discount Window and the Term Auction Facility

The Discount Window provides no-questions-asked liquidity support to banks in generally sound financial condition at a penalty rate.³

Discount window loans are typically overnight, although longer-term loans were offered temporarily during the crisis. The Fed also provides liquidity support at a higher rate to banks that do not qualify for the main DW

¹For comparison, DW usage averaged only \$170 million per day from 2003-2006.

²Borrowing by non-commercial banks (banks without Call Reports) is not shown.

program due to their financial condition.⁴ All DW loans are fully collateralized and the Fed is willing to consider any sound asset that can legally be held by a depository institution as collateral.

The Term Auction Facility (TAF) offered term funding—typically for 28 or 84 days—to banks in generally sound financial condition through a series of auctions. While the cost of a TAF loan was determined at auction, the eligibility and collateral requirements were the same as for DW loans. Most of the time, banks paid less to borrow from the TAF than the DW. During the height of the crisis, however, banks paid more to borrow from the TAF than the DW which has been interpreted as evidence of Discount Window stigma (Ashcraft, McAndrews, and Skeie, 2011; Armantier, Ghysels, Sarkar, and Shrader, 2015).

Which Banks Borrowed?

The first question that Professor Dlugosz and her co-authors explored was which banks received DWTAFF during the crisis (August 20, 2007–December 31, 2009). Their results suggest that the funds were distributed widely, rather than focused on the weakest banks, consistent with the view that during crises it may be difficult to discern which banks are solvent but illiquid. Small banks that used DWTAFF were weaker in that they generally had lower book capital ratios, more commercial real estate loans, more mortgage-backed securities (MBS), lower Basel III liquidity ratios, and were less likely to have access to public equity or debt markets. However, they were stronger in that they were larger, had higher market capital ratios, and were less illiquid. Similarly, large banks that used the DWTAFF looked weaker than their counterparts on some dimensions (lower market capital ratios, more commercial real estate lending, more MBS) and stronger on others (larger, less volatile earnings, lower market price of credit).

Next, Professor Dlugosz and her co-authors examined how other funding sources tended to move with use of DWTAFF. They found that, for both small and large banks, DWTAFF neither substantially substituted nor complemented other sources of funding, suggesting that the programs generally enhanced the funding of the recipient banks.

Did Banks Use the Funds to Increase Lending?

An important question is whether banks used the funds to increase lending. Professor Dlugosz and her co-authors began by examining how bank lending changed from quarter to quarter in response to changes in a bank's DWTAFF usage. They found that greater usage of DWTAFF was associated with a significant increase in lending by the institutions receiving the funds. For small banks, an additional dollar of daily funds over the quarter was associated with an increase in lending of 31.1 cents; for large banks, 60.9 cents. The difference in magnitude is mainly due to the fact that large banks issue more credit lines to businesses which were drawn down and had to be funded. After adjusting for pre-existing commitments, the estimates are around 30-35 cents for both types of banks.⁵

The prior results establish that DWTAFF usage was associated with increased lending but did DWTAFF usage actually cause an increase in loan supply? To better account for other factors that might jointly affect both DWTAFF and lending, the paper used a matched sample approach. Since the treatment in this case is not binary but continuous (i.e. “dosages” of DWTAFF) the authors adapted an approach from the statistical literature known as non-bipartite matching. The procedure involves first matching banks based on financial condition and proxies for loan demand, and then estimating the relationship between lending and DWTAFF on data that is differenced among matched pairs. The matched sample analysis confirmed the initial results.

What Types of Lending Were Affected?

What types of lending did DWTAFF usage fund? It is possible that only short-term lending increased since DWTAFF only provided short-term funds. On the other hand, if there was sufficient assurance of continued access to future funding, long-term lending may also have increased. In fact, the study found that both short- and long-term lending increased at both small and large banks. The authors then went on to examine the effect on different types of loans, i.e., commercial and industrial (C&I), commercial real estate, residential real estate, consumer lending, etc. They found that small banks increased all types of lending except consumer loans and large banks increased all types of lending except commercial real estate.

The study also examined how DWTAFF usage affected underwriting standards and loan terms using data from the Federal Reserve's Survey of Terms of Bank Lending. Evidence shows that other government programs in the U.S. and Europe led to increased risk-taking by banks. In contrast, the study found no significant change in underwriting standards for small or large

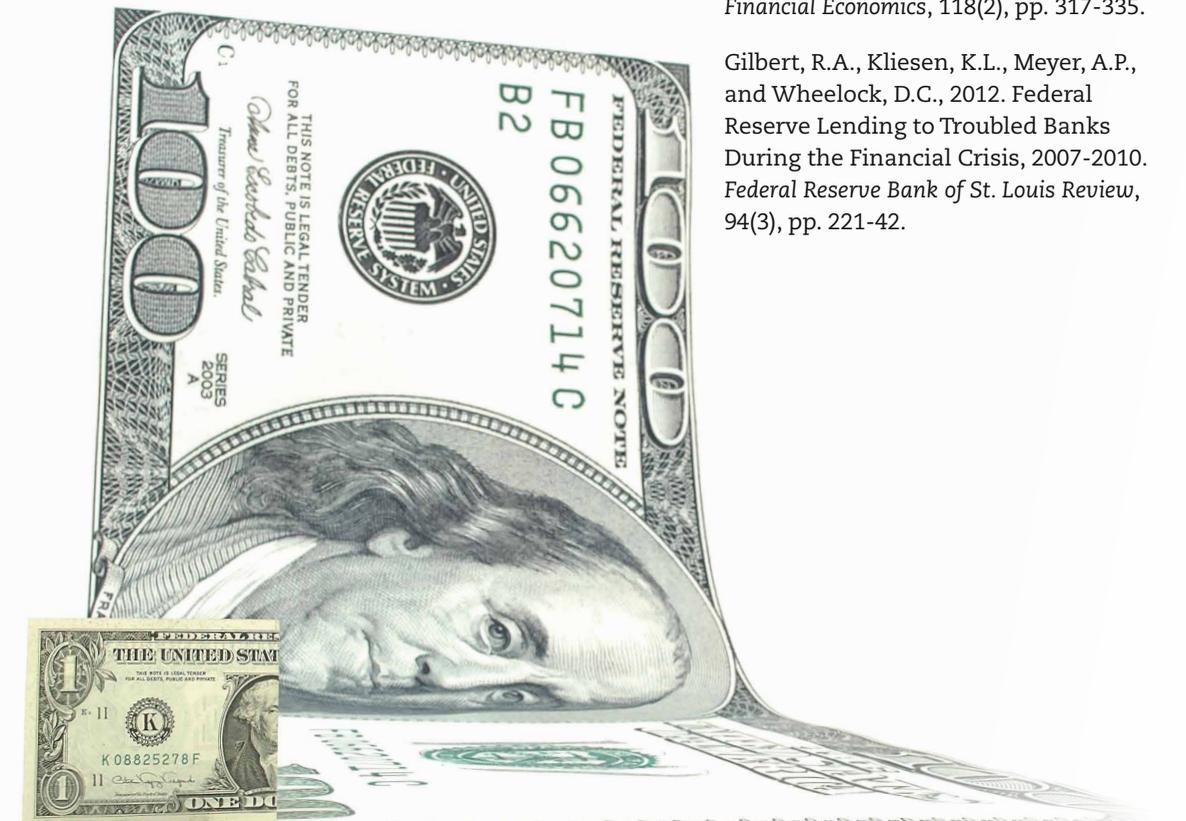
banks that used DWTAFF funds. Loan rates and collateral usage were also unchanged.

Looking Ahead

During the recent crisis, the Federal Reserve provided unprecedented liquidity to banks through its Discount Window and Term Auction Facility. While bank lending contracted during the crisis—as one would expect when economic prospects deteriorate—the results of the study suggest that the contraction could have been much worse in the absence of the Federal Reserve's liquidity support for banks. As we look ahead to the inevitable next crisis, “last resort” lending is one tool in the Fed's toolbox that appears to have performed well for banks and for their borrowers.

References

- Ashcraft, A., McAndrews, J. and Skeie, D., 2011. Precautionary reserves and the interbank market. *Journal of Money, Credit and Banking*, 43, pp. 311-348.
- Armantier, O., Ghysels, E., Sarkar, A. and Shrader, J., 2015. Discount window stigma during the 2007–2008 financial crisis. *Journal of Financial Economics*, 118(2), pp. 317-335.
- Gilbert, R.A., Kliesen, K.L., Meyer, A.P., and Wheelock, D.C., 2012. Federal Reserve Lending to Troubled Banks During the Financial Crisis, 2007-2010. *Federal Reserve Bank of St. Louis Review*, 94(3), pp. 221-42.



⁵ This measures how much new lending is generated by DWTAFF, but of course fulfilling pre-existing commitments is also lending.

³ The size of the penalty (added to the federal funds rate) varies over time, and is determined by the boards of directors of the twelve regional Federal Reserve Banks. Before the crisis began, the penalty was 1%. As the crisis progressed, the Fed lowered the penalty to 0.50% and later 0.25%. Before 2003, DW loans were administered differently. Banks could borrow at a below-market rate but only if they could show that they had exhausted all reasonably available alternative sources of funds.

⁴ The Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA) limits the number of days that the Federal Reserve may lend to undercapitalized or critically undercapitalized depository institutions and the Fed's lending during the recent crisis adhered to these limits (Gilbert, et. al., 2012).



People and Purpose: Imbuing an Organization with Higher Purpose

ROBERT E. QUINN, Ross School of Business, University of Michigan

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

In a recent article in *The Harvard Business Review*, co-authored by Robert Quinn, titled “Creating a Purpose Driven Organization,” we pointed out that managers undermine their own effectiveness because they fail to see the important role that an authentic organizational higher purpose can play in shaping their organizations. Our fundamental objective in that article, and in a forthcoming book, *The Economics of Higher Purpose*, is to help managers challenge conventional assumptions, and become leaders with the ability to co-create positive, purpose-driven organizations.

Most leaders of organizations believe, in accordance with the standard Economics paradigm of organizational behavior, called the principal-agent model, that their employees are effort-averse, i.e. they prefer less work to more everything else held constant. This image of work-resistant logic drives managers to create systems of control. Employees tend to respond by resisting the control. This resistant behavior reconfirms the initial assumptions of the manager and demands more control. Consequently, the employees become increasingly less engaged and the manager becomes increasingly more frustrated.

The surprising truth is that when managers accept the empirically-sound assumptions of Economics and related disciplines, these

assumptions become self-fulfilling prophecies and workforce tends to under perform. A lose-lose vicious cycle emerges.

In our *Harvard Business Review* article, and in our forthcoming book with Barrett-Kohler Publishers, we propose that there is an alternative view of organizational behavior, a view in which the organization gains an authentic, prosocial, higher purpose that transcends the usual business goals and affects decisions, big and small. When this happens, employees shed self interest in the interest of the collective good and become less work resistant. In that article, we describe an eight-step process to identify an organizational higher purpose and imbue the organization with it.

Paper: “Creating a Purpose-Driven Organization”

Authors: Robert E. Quinn, University of Michigan and Anjan V. Thakor, Washington University in St. Louis

Date: August 2018, *Harvard Business Review*

Resolving the Organizational Paradox

The eight-step process that we will describe shortly is a way to break out of the self-fulfilling prophecy in which managers make well-justified, negative assumptions about employees and then design systems that end up bringing forth the assumed, negative behaviors. This process transforms a vicious cycle of self-reinforcing and self-defeating assumptions into a virtuous of self-reinforcing positive behavior. This process requires that we clarify a passionate, higher purpose that orbits around contribution.

When managers become purpose-driven, they begin to transform into leaders. They come to understand that when an authentic higher purpose permeates business strategy and decision-making—the personal good and the collective good become one and the vicious cycle is broken. Both employers and employees fully engage.

This only works, however, if employees believe that the higher purpose is authentic. If higher purpose is pursued solely for economic gain, it will be viewed as a tool of manipulation, and employees will recognize it immediately. They will see it as one more attempt to control, and it may fail to produce long-term economic gains. Unless the higher purpose becomes the arbitrator of every strategy and

leadership decision, the organization has no purpose. Herein lies the paradox—an authentic organizational higher purpose will change the fundamental implicit contract between employers and employees and change behavior, thereby producing long-term economic gain, but only if it is not pursued with the intent of producing economic gain. And the thing to remember is that your employees are smart—they will see through a charade if there is one. So authenticity of purpose cannot be “sold” to employees through slogans and posters on walls that espouse the values of the organization when the employees recognize that none of it affects the real business decisions of the company. **This is an unfortunate reality in many organizations. Whether knowingly or unwittingly, they believe that putting up posters on walls that list the “values” of the organization is a substitute for higher purpose. This often produces more harm than good. So we cannot overemphasize the importance of authenticity.**

To make these ideas concrete, we have developed an eight-step organizational transformation process that is briefly summarized to the right; we refer the reader to our *Harvard Business Review* article and forthcoming book for more details.



³ Solomon, Micah, “Wow Customer Service Stories form 5-Star Hotels: Examples Any Business Can Learn From,” *Forbes*, July 29, 2017.

01 Believe That You Can Have an Inspired, Purpose-Driven Workforce

According to economists, every employer faces the “principal-agent problem,” which is the standard economic model for describing an organization’s relationships with its workers. Here’s the basic idea: **The principal (the employer) and the agent (the employee) form a work contract. The agent dislikes hard work unless he can make more money by working harder. For a certain amount of money and promotion prospects, he or she will deliver a certain amount of labor, and no more. Since effort is personally costly, the agent underperforms in providing it unless the principal puts contractual incentives and control systems in place to counter that tendency.**

This model precludes the notion of a fully-engaged workforce. According to its logic, inspiring employees with a higher purpose is not possible; it would be foolish to aspire to such an outcome.

One way to change that perception is to expose leaders to positive exceptions to the rule. Consider the following example taken from Solomon (2017), who quotes Jay Coldren in this story below about The Inn at Little Washington in Washington, Virginia. This is something Coldren observed on his first day on the job at the hotel:

“I watched a couple arrived at The Inn from Pittsburgh, several hours away, to celebrate their anniversary with a three-night stay. As the staff unloaded the luggage, our female guest said to her husband, ‘Don’t forget my hanging bag.’ Her husband looked into the trunk and came up with a horrified expression on his face. Apparently, she had left her bag beside the car in their garage assuming he would pack it, but he never saw it.

At this point, she pretty much fell apart: This poor woman was checking into one of the most expensive places on the planet with nothing but the clothes on her back! As the doormen and I tried to figure out what to do to make this couple happy, one of the staff who had been there a lot longer than me drove up to the front of the inn in the company car. I looked at him oddly and he just smiled and said, ‘Get me their keys and the address; I’ll be back before dinner.’

I was floored. No one asked him to do this, and there wasn’t a moment’s hesitation on his part. He was so much a part of the service culture that he just knew the exact right thing to do. He was halfway to Pittsburgh before the lady actually believed that we were really going to get her luggage at her house. He drove eight hours straight and made it back before their dinner reservations at nine.”

The employee in this example above is a purpose-driven employee. Instead of economizing on effort like a typical “agent,” he takes ownership and provides more effort than “required.” The fact that people like him exist is crucial. When we coach executives on how to do purpose work in their organizations, we often tell them to do something that they are not used to—ignore typical behavior and look for exceptions. This means look for positive deviants, examine the purpose that drives the excellence, and then imagine it in your entire workforce.

02 Find Your Purpose A common mistake executives make when they embark on purpose work is that they “invent” a purpose for the organization. That is, senior executives have a retreat, invite a consultant, come up with a purpose statement and then “tell” the rest of the organization what it is. However, authentic purpose is not invented. It is discovered.

Inventing a new purpose does not capture employees’ hearts. To do this, you can discover purpose through empathy—by feeling and understanding the deepest common needs of your workforce. That involves asking provocative questions, listening, and reflecting.

03 Make Sure the Purpose is Authentic

Purpose has become a hot topic. Even leaders who don’t believe in it face pressure from board members, investors, employees, and other stakeholders to articulate a higher purpose. This sometimes leads to vacuous statements of virtues that presumably “guide” the organization. When a company announces its purpose and values, people are (often justifiably) cynical, and the words ring hollow. The process does more harm than good.

Some CEOs intuitively understand this danger. They avoid purpose work because they feel it will be viewed cynically. But we have seen many examples of authenticity—genuine sacrifices made by leaders in the interest of serving the

organization's higher purpose, and this has transformed the organization.

One such example is what the Tata organization did for its employees who died in the terrorist attacks on the Taj hotel and other locations in Mumbai, India. They paid salaries and benefits of dead employees for years to their families. And the behavior of the hotel employees who took bullets and sacrificed themselves in order to save customers is a great illustration of how an authentic organizational higher purpose transforms the behavior of employees.

04 Make Sure You Never Stop Communicating the Authentic Message When we speak with the CEOs of companies about how to build a purpose-driven organization, they often ask, "When will we be done?"

Our answer is: "never." When CEOs think they are finished is when their people are just beginning to hear the message. The messages about higher purpose have to be constant and never-ending. Purpose work must become the very fabric of the organization, not a project to be started and finished.

05 Let Individual Learning Flourish Learning and development provide powerful incentives for employee behavior. This is often missed in conventional economic theories that emphasize the power of external (mostly monetary) incentives. Employees *want* to think, learn and grow.

An example of this is provided by the St. Louis-based not-for-profit *The Mission Continues*, whose purpose is to rehabilitate and reintegrate into society wounded and disabled war veterans. New hires are assigned huge workloads. The underlying philosophy is that doing this shows faith in that person's potential. The job becomes an incubator for learning and development, and the employee who engages in learning becomes more committed to the organization and its higher purpose.

06 Do Not Limit Leadership to the Top: Turn All Your Managers into Purpose-Driven Leaders Building an inspired, committed workforce requires turning middle managers into purpose-driven leaders—those who not only know the organization's purpose but also deeply connect with it. Most

organizations do not ask this of lower-level managers. To do this, senior leaders have share their own personal stories of how the organization's higher purpose has influenced their decision-making and help *all* managers to become purpose-driven leaders.

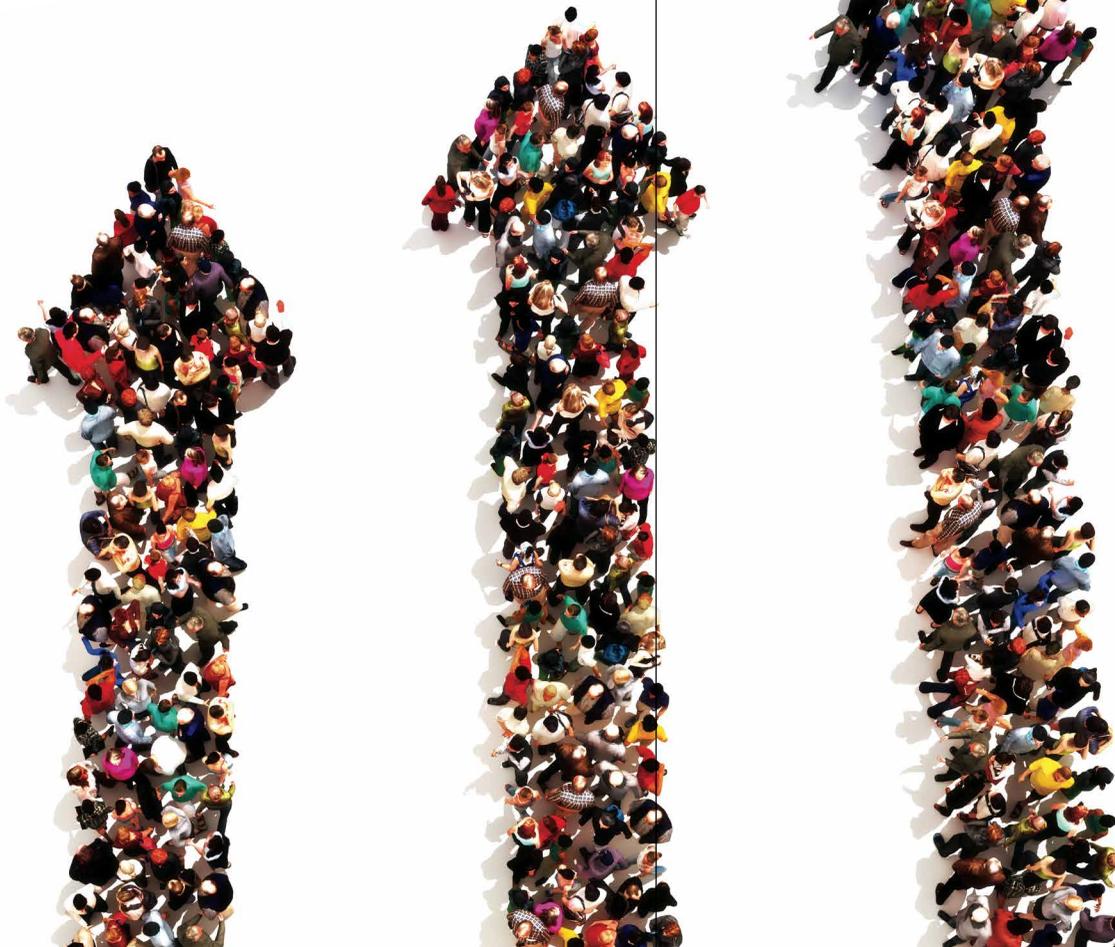
07 Make Sure All Employees Understand How Their Work is Connected to the Purpose Once leaders at the top and in the middle have internalized the organization's purpose, they must help frontline employees see how it matters by connecting the purpose with their day-to-day tasks. How does this affect your job? What does it mean to you personally? What decisions will you make that you would not make in the absence of the higher purpose? This can be done through dialog between senior leaders and frontline employees, but it cannot just be a top-down mandate. Employees need to help drive this process, because then the purpose is more likely to infuse the culture, influencing behavior long after the managers leave.

08 Locate the Positive Energizers and Let Them Loose Every organization has change agents whose awesome potential often goes untapped. We refer to these people as the "network of positive energizers."

These are passionate people with infectious energy. Like the staff member at The Inn at Little Washington. They naturally inspire others. They're open and willing to take initiative. They do not exhibit excessive risk aversion. They do not appear to be effort averse either. They bubble with positive energy. These people are easy to identify, and others trust them. The organization should seek them out to help infuse higher purpose throughout.

We have helped to launch such networks in many organizations. The results have often been spectacular.

Although a higher purpose does not guarantee economic benefits, we have seen impressive results in many organizations. Research has shown that an authentic higher purpose, when communicated with clarity, improves both operating performance and forward-looking measures of performance like stock prices and returns. But it always begins with a *belief* that it will work and a commitment to authenticity.



Research has shown that an authentic higher purpose, when communicated with clarity, improves both operating performance and forward-looking measures of performance.



The Influence of Loan Officers on Debt Contract Design and Performance

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Syndicated loans represent a primary source of corporate external financing, and the quality of the lending practices in syndicated lending varies across banks. What determines this quality and why does it differ across banks? This is the question we study empirically. Many believe that the quality of a bank's lending practices depends on both its organizational and human capital. One important component of a bank's human capital is embodied in the loan officers who directly interface with borrowers, and who collect, process and transmit information to support lending decisions and ex-post monitoring borrowers. In particular, loan officers might differ across many dimensions that can generate effects that are independent of bank and borrower characteristics. Such individual differences include talent, values, honesty, background and experience, social networks and susceptibility to behavioral biases. Then the question is whether loan officers imprint their styles, biases or other personal characteristics on loan deals they underwrite. Our study provides large-sample evidence on the relative influence of loan officers and bank organizations over the design of syndicated loan contracts, and we also explore specific contractual channels through which loan officers' influence operates to impact loan performance.

* Corresponding Author. We have benefited from comments and suggestions received from participants at the Chicago Financial Institutions Conference, Drexel Corporate Finance Conference, FARS 2017 Midyear Meeting, and Washington University in St. Louis. We also thank Anjan Thakor, Rustom Irani (discussant), Jose Liberti (discussant), Greg Udell, Xiaoyun Yu, and Robert Mahoney for their valuable input. This manuscript was previously entitled, "Do Corporate Loan Officers Impact Lending Decisions? Evidence from the Syndicated Loan Market."

Conceptually, hierarchical structures, information technology, and loan approval processes of large banks involved in syndicated lending, coupled with a large, transparent borrower base may allow banks to rely more heavily on hard information than soft information collected by loan officers, suggesting a more limited influence of loan officers. To distinguish the influence of bank organizations from that of loan officers on syndicated loan contract design, we employ fixed effect models. To illustrate what introducing a fixed effect does, think of a hypothetical loan officer, John Smith, who worked for BofA, JP Morgan Chase, and Citi Group in his career. He originated three, five, and four loans, while he was employed in the three banks, respectively. Another loan officer, Amy Frank, also worked for BofA, JP Morgan Chase, and Citi Group in her career. She originated two, six and five loans, while she was employed in the three banks, respectively. This allows us to “fix” John Smith as a loan officer and essentially follow him across banks to identify his unique effect on the bank’s lending policy, and we are able to control for the systematic effect of the bank’s lending policy guidelines by examining Amy’s lending policy in the same bank. Our fixed effect models are able to identify John Smith’s influence on loan contract terms and loan performance as distinct from that of Amy Frank, and from that of individual banks. Specifically, we look at loan officers’ impact across three dimensions: (1) initial lending terms, including interest spread, loan size, and loan maturity; (2) covenant package design, including the number of covenants and the strictness of covenants; and (3) ex post loan performance.

Our regression framework involves three steps. First, we regress individual lending

terms and loan outcomes on a broad set of borrower characteristics which account for hard observable information, which represents our baseline model. Second, we introduce loan officer fixed effects and bank-industry fixed effects, separately, into the baseline model, to gauge the influence of human and organizational capital in the lending process. Finally, we examine the extent to which loan officers have incremental influence on loan performance by evaluating the incremental explanatory power from adding loan officer fixed effects to a model that includes the baseline model and bank-industry fixed effects.

Overall, our analysis paints a textured portrait of the influence of corporate loan officers in the syndicated lending process. We provide evidence consistent with loan officers exerting, at best, a modest influence over interest spread, maturity and loan amount, but exerting substantial influence over loan covenant design, including both the number of covenants and covenant strictness. We also provide evidence consistent with significant loan officer influence on loan performance, and with the covenant package design serving as a channel through which loan officers’ influence manifests in loan performance.

For interest spreads, borrowers’ observable information explains around 58% of the variation in loan spreads. Adding bank-industry fixed effects to the model increases explanatory power to 68%, while further adding loan officer fixed effects gives a small bump to 71%. This implies an incremental increase in explanatory power from loan officers of only 3%. Such modest loan officer influence over interest spreads is consistent with interest spreads being largely determined by market forces as well as institutional policies and credit culture, and being subject to strict oversight by internal credit committees. The syndication process is a sealed-bid auction with a ceiling spread, where the spread is increased if necessary to until fully fund a loan. For loan maturity and amount, we find similar limited influence of loan officers.

While having little influence on spreads, maturity or loan size, loan officers have a significant incremental impact on covenant packages and loan performance. For example, borrowers’ hard information only explains 34% of the variation in the number of covenants. Adding bank-industry fixed effects increases the

explanatory power to 54%. Further adding loan officer fixed effects boosts the explanatory power to 74%, an incremental bump of 20%. These large incremental effects suggest that the design of textured covenant packages allow significant scope for loan officers’ influence over monitoring borrowers, and balancing differing objectives of syndicate participating lenders and the needs of borrowers. For example, covenant packages respond to information asymmetry within loan syndicates, to the desire of borrowers for flexibility in future operating decisions, to the desire of lenders for monitoring intensity, and to signal credit quality.

Building on these results, we consider next whether loan officers’ influence over the design and enforcement of loan covenants represents a channel through which loan officers influence loan performance. We find that loan officer fixed effects explains the variation in borrower default likelihood by 14% for loans with the large number of covenants (strictness), and only 8% for loans with the small number of covenants. Overall, our findings highlight the important role that loan officers play in designing loans covenants and thereby influencing loan performance. We also show the role loan officers play in relationship lending, a topic on which there is a great deal of research.

Finally, we explore cross-sectional variation in the influence of loan officers. We show that loan officers’ incremental influence over covenants and borrower default is substantially greater when loan officers serve as the lead arranger, originate loans with high credit risk, and lend to borrowers with low debt-contracting value of accounting information.

Our study sheds light on the human touch in corporate debt contract design and loan performance. In particular, loan officers appear to have a distinct role in designing loan covenants and influencing loan performance that is independent of and incremental to the characteristics of the banking organization in which they work and of borrowers they lend to. Our study suggests that irrespective of fast fintech development in the financial industry, loan officers still remain important, likely due to their unique role in collecting and utilizing borrower soft information in the lending process. This implies a continued important role for banks as trusted relationship lenders.

MODEL	INTEREST SPREAD	MATURITY	LOAN SIZE	NUMBER OF COVENANTS	LOAN DEFAULT
Borrower hard information	57.55%	33.17%	69.70%	34.44%	33.50%
Hard information + Loan officers	68.06%	41.23%	69.91%	59.60%	56.34%
Baseline + Bank-Industry FE	67.53%	42.70%	71.83%	53.50%	54.29%
Baseline + Bank-Industry FE + Loan officers	71.24%	44.67%	69.30%	73.86%	71.99%

This table reports the explanatory power for five models representing borrower hard information, borrower hard information and loan officer effects, borrower hard information and bank effects, and borrower hard information, loan officer effects together with bank effects, respectively.



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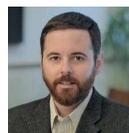
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