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Debt Prioritization in Equipment Financing at Small and Medium-Size Businesses

Part II: Effects of Lender Characteristics

This second of two articles uses Equifax data on 35,000 small and midsize businesses to study how firms decide which creditors to pay when they cannot make all their payments. The results may assist lenders and lessors in forecasting losses on existing credits and choosing terms for new credits.

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Debt prioritization occurs when a borrower can make some but not all of its scheduled debt payments and must choose among them. The first article of this study explored how the debt prioritization decision at small and medium-size businesses engaged in equipment finance depends on three factors: the characteristics of the contract (e.g., the original term), the type of contract (e.g., true lease vs. conditional sale), and the type of collateral (e.g., hard vs. soft). The effect of these factors was investigated using data provided by Equifax on a sample of 35,000 firms.

This article uses the same data to explore how the debt prioritization

decision depends on the type of lender (e.g., independent, captive, or bank-related), the strength of the relationship between the firm and lender (e.g., close or arm's-length), and the degree of specialization of the lender in the collateral backing the obligation.¹ Understanding how these factors affect firms' debt prioritization decisions should be useful to lenders in choosing the terms of the obligation and provisions for losses, since a lender that ranks low in the pecking order of debt payments may experience higher losses and earn lower returns.

In deciding which debt payments to prioritize, a firm must consider how different types of lenders are likely to respond to a missed payment. In the case of equipment finance, a

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Editor's note: With research endorsed by the Foundation, this article is the second of two on the topic of debt prioritization. Part I, which appeared in the Fall 2021 issue, is available [here](#).

A key concern in deciding whether to miss a payment is whether the lender will repossess the collateral, possibly disrupting the firm's business. Some lender types may be better positioned to repossess than others.

particular concern is that the lender could repossess the collateral, disrupting the firm's business. It is often argued that captive finance companies are quicker to repossess because their superior knowledge of the equipment allows them to sell or redeploy the equipment more easily. On the other hand, the interest of a captive in generating future sales for the parent could make it more tolerant of temporary delays in payments. Finally, in the case of bank-related lenders, tighter regulation could make the lender quicker to repossess or initiate legal action against the firm in response to a delinquency than an independent or captive would.

The nature of the relationship between lender and firm can also influence a firm's decision about which debt payments to prioritize. Some types of lenders such as banks may develop closer relationships with borrowers through the provision of other financial services. But even within lender types, some lenders may be more relationship oriented than others, and it will usually be the case that some lenders have done business with the firm longer than other lenders.

If the relationship with the lender has been long and close, the firm may be reluctant to miss a payment for fear of jeopardizing the relationship and losing future access to credit at favorable terms. Alternatively, a close relationship could cause the lender to tolerate a delinquency so as to preserve

the relationship, causing the firm to give higher priority to paying its other lenders. A relationship lender could also be better positioned to determine if the delinquency was due to a temporary downturn in the firm's business rather than bad management, and in the former case, to work with the firm to cure the delinquency over time.²

Still another factor that firms may consider in deciding which payments to make is whether the lender specializes in the equipment backing the obligation. Such specialization can enhance the lender's ability to redeploy the equipment and for that reason increase the likelihood of repossession if the firm becomes delinquent.

As explained below, the data analyzed in this study sheds light on many of these questions. The data was provided by Equifax from its commercial business unit, where data is continuously gathered and updated with business information from lenders that contribute to the Equifax commercial database. This database is considered one of the most comprehensive commercial credit databases for financial obligations in the industry. The data used is from a random sample of 35,000 small and medium-size firms that obtained credit from lenders that contributed to the Equifax commercial database during the period from 2005:Q1 to 2019:Q3.

As noted in Part I, debt prioritization can take two forms that are often not distinguished. In the

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This study examines not only prioritization of new delinquencies but also prioritization of delinquency cures, which may be of special interest to lenders as businesses rebound from the COVID-19 pandemic.

first case, prioritization of *new delinquencies*, the firm has multiple open obligations that are not delinquent and chooses to become delinquent on some of those obligations but not others. In the second case, prioritization of *delinquency cures*, the firm has multiple open obligations that are already delinquent and chooses to cure the delinquency for some of these obligations but not others. We focus mainly on prioritization of new delinquencies but also examine prioritization of delinquency cures. Such prioritization is likely to be special interest to lenders as businesses rebound from the COVID-19 pandemic and work off their delinquencies.

Key Takeaways

The key findings of this article may be summarized as follows. First, when choosing among lender types, firms tended to prioritize payments to independent finance companies over those to captive finance companies and commercial banks engaged directly in equipment financing, with bank-related finance companies generally in between.

Second, in choosing among individual lenders, firms were least likely to make payments to lenders with which they had long or extensive relationships. This negative effect of a close relationship on the likelihood of making the payment was evident for all lender types, though weaker for captives. Third, among lenders other than captives, which are inherently

specialized, firms were less likely to make payments to lenders that specialized in the collateral backing the obligation than to lenders that did not specialize.

Finally, most of the results on lender type also hold for prioritization of delinquency cures, but the results on firm-lender relationships are more nuanced. In particular, we find that delinquencies with relationship lenders were less likely to be cured than delinquencies with other lenders when the delinquency was modest (in terms of days past due) but more likely to be cured when the delinquency was serious. These results all have high statistical significance but are broad tendencies only and mask considerable heterogeneity across firms in debt prioritization.

This article advances research on debt prioritization by business borrowers and the impact of borrower-lender relationships. Previous studies in this area have focused on bank lenders. The unique features of the Equifax data enable us to go beyond these studies in two ways. First, we examine firms that borrow from multiple types of lenders—both bank-related and non-bank related—and show that firms are more willing to skip payments to some types than to others. Second, we measure the strength of borrower-lender relationship for all lender types and document that relationships matter not just for banks but for other lender types as well.

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Earlier studies suggest that tighter regulation of bank-related lenders may cause them to target less risky borrowers. It could also cause them to respond more forcefully to missed payments.

The remainder of this article is organized as follows.

- Section I reviews the related academic literature.
- Section II describes the data from Equifax, with emphasis on the lender-related variables of interest for this part of the study.
- Section III reviews how delinquency is defined and shows how average delinquency rates varied across lender types.
- Section IV contains the regression analysis for the prioritization of new delinquencies.
- Section V performs a similar analysis for prioritization of delinquency cures.
- Section VI offers our conclusions.

I. RELATED ACADEMIC LITERATURE

Three strands of academic research closely relate to the topic of this article. The first strand focuses on the types of businesses that obtain credit from finance companies.³ These studies find that firms with higher observable risk, as measured by high leverage or a low profit margin, are more likely to borrow from an independent or captive finance company than from a bank-related lender.

This finding suggests that the tighter regulation faced by bank-related lenders may discourage them from extending credit to risky borrowers. It does not necessarily mean that a firm that borrows from both a bank-related lender and an independent

or captive is more likely to become delinquent on the loan from the independent or captive. However, tighter regulation of bank-related lenders may cause them to not only target less risky borrowers but also respond more forcefully to missed payments. If so, a firm that borrows from both a bank-related lender and an independent or captive could prioritize payments to the bank-related lender.

A second strand of literature focuses specifically on captive finance companies. These studies argue that captives set lower credit standards than other lenders because the parent can offset the resulting loan losses with profits from higher sales, a hypothesis supported by relative default rates on auto loans by banks and captives.⁴ As before, it does not necessarily follow that a firm will prioritize payments to independent finance companies and bank-related lenders over those to captive finance companies. However, for the same reason that captives are more willing to lend to risky borrowers, they may also be more willing to tolerate delayed payments, leading firms to prioritize payments to their other lenders.

The third strand of relevant research is on relationship lending by banks. This voluminous literature leads to opposing conclusions about the effect of a close relationship between borrower and lender on the borrower's likelihood of defaulting on the loan. Some studies argue that a relationship bank

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Previous research shows that captives and other specialized lenders are better positioned to repossess collateral, but whether that makes them less tolerant or more tolerant of missed payments is unclear.

lender will penalize a borrower that fails to repay a loan on time by offering less favorable terms on future loans. This prospect could cause a borrower to prioritize payments to the lender over payments to other lenders with which it does not have a close relationship.⁵

However, other studies argue that a close relationship between borrower and lender allows the lender to exercise greater discretion and flexibility in enforcement of contract terms. Knowledge that the lender will work with the borrower could make the latter more willing to miss a payment than on a lease or loan from a less flexible, non-relationship lender.⁶ A key goal of this article is to see whether relationship lending has either of these two possible effects on debt prioritization, and if so, whether it applies to finance companies as well as bank lenders.

The final strand of research is on lender specialization in collateral. These studies document that leasing companies such as those specializing in aircraft develop expertise in the equipment so as to enhance their ability to redeploy after repossession. They also note that captive finance companies enjoy the same advantages in repossession because they are inherently specialized in the collateral.⁷

Such findings suggest that a firm dealing with a specialized lender could prioritize payments to the

lender because it faces greater risk of a repossession that could disrupt its business. On the other hand, specialized lenders could be more tolerant of temporary delinquencies because they know they can redeploy the equipment if repossession eventually becomes necessary. If so, the firm could prioritize payment to its other lenders.⁸

II. OVERVIEW OF DATA

The data for this study was provided by Equifax and draws from the Equifax commercial database. As explained in Part I, 35,000 small and medium-size businesses were chosen randomly by Equifax from the population of all firms of that size in their commercial database, subject to the firm having both a current obligation and a seriously delinquent obligation at some point in the sample period.

The earlier article examined how firms' debt prioritization decision depended on three sets of variables: contract features (e.g., term of contract), type of contract used (e.g., true lease vs. loan), and type of collateral (e.g., hard vs. soft equipment). Although we use these same variables as controls in the regression analysis, our focus in this article is on three other factors, all of which involve the lender extending the credit—the type of lender, the strength of its relationship with the firm, and the degree to which it specializes in the collateral backing the obligation.

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Table 1.**Summary Statistics for Lender Types, 2005:Q2 to 2019:Q3**

For obligations open in previous quarter

Type	No. of obligations	Total original receivables (\$K)	Average original receivable (\$K)	Median original receivable (\$K)	No. of obligation-quarters
Independent	48,776	2,836,025	58.1	19.5	458,880
Bank	4,910	1,618,768	329.7	90.0	44,135
Bank subsidiary	204,320	14,876,640	72.8	19.9	2,037,229
Bank licensed	139,315	5,159,961	37.0	13.1	1,375,480
Captive	142,140	7,535,601	53.0	15.1	1,315,255
Credit card	2,029	88,118	43.4	6.5	19,203
Alternative	1,134	103,599	91.4	68.6	2,823
All	542,624	32,218,713	59.4	16.6	5,253,005

Note: An obligation-quarter is a quarter in which a particular obligation appears in the sample. Thus, an obligation that appeared in 3 quarters during the sample period would account for 3 obligation-quarters.

Five lender types account for the vast majority of loans and leases in the data—independents, captives, and three types of bank-related lenders.

Each lender in the data set was assigned by Equifax to one of seven lender types. These types are shown in Table 1 along with the number of obligations and obligation-quarters, the total dollar amount of original receivables, and the average and median original receivable of each type.⁹ Independent and captive lenders are self-explanatory. A bank is a commercial bank that is directly engaged in commercial financing. A bank subsidiary is a finance company that is a subsidiary of a bank or a bank holding company. A bank-licensed lender is a lender that typically started out as an independent finance company and then converted to an industrial bank or industrial loan company. These lenders generally carry out their banking operations online and accept deposits in addition to

making loans or granting leases. For convenience, we will sometimes refer to banks, bank subsidiaries, and bank-licensed lenders as “bank-related lenders.”¹⁰ Credit card lenders are those for which a primary business is issuing credit cards, and alternative lenders are online lenders other than banks and traditional finance companies (sometimes referred to as “fintech” lenders).

In terms of both number of obligations and dollar volume of credit, the top lender type is bank subsidiary followed by captive, bank licensed, and independent. Banks are a distant fifth in number of obligations but are closer in dollar volume of credit because their contracts tend to be for large amounts.

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This study defines an obligation as delinquent if it is more than 30 days past due, but alternative definitions of delinquency were also tried to make sure the results are robust.

III. OVERVIEW OF DELINQUENCY BEHAVIOR BY LENDER TYPE

In this section, we review how delinquency is defined in the study and describe how the average delinquency rate varies across lender types. As in Part I, we define an obligation to be delinquent on a particular date if it is in bad status, if it is closed in bad status or with a material loss before the next date, or if it is more than 30 days past due.¹¹ For purposes of this study, an obligation is considered to be in bad status if the firm is in bankruptcy, if the obligation has been written off, or if the obligation has been subject to repossession, other legal action, or extension.

Part I of the study showed that the delinquency rate for all obligations increased sharply from the beginning of the sample period in 2005 through the end of 2009,

fell through 2014 as the economy recovered from the 2007–2009 financial crisis, and then gradually increased until the end of the sample period in mid-2019.

Table 2 breaks down the delinquency rate by lender type. The delinquency rate was generally highest for banks and captives. Among the other three lender types, the delinquency rate rose during the financial crisis but then fell sharply for bank subsidiaries and bank-licensed lenders while remaining high for independents. As a result, for the period as a whole, delinquency rates were lower for both bank subsidiaries and bank-licensed lenders than for independents.

While striking, the differences in average delinquency rates across lender types in Table 2 do not necessarily reflect differences in delinquency rates among lender

Table 2.

31+ Day Delinquency Rate by Lender Type (%)

For obligations also open in previous quarter
2005:Q2 to 2019:Q3

Lender type	2005:Q2	2010:Q1	2019:Q3	Entire period
Independent	3.18	12.92	12.61	9.15
Bank	NA	14.64	16.09	13.95
Bank subsidiary	5.40	14.57	7.19	7.91
Bank licensed	9.18	10.95	6.65	7.69
Captive	7.74	19.96	13.52	13.21
All	7.14	14.74	9.20	9.37

Note: Delinquency rates are for the first day of the quarter.

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The regression analysis focuses on those firms and quarters in which at least one obligation became delinquent and at least one remained nondelinquent, yielding a sample of roughly 1 million observations.

types within firms, which is the focus of this study. In fact, we will see that some of the differences in Table 2 disappear or are even reversed when we compare delinquency rates across lender types within each firm and at each date.

IV. REGRESSION ANALYSIS FOR PRIORITIZATION OF NEW DELINQUENCIES

Debt prioritization can arise through prioritization of *new delinquencies* or prioritization of *delinquency cures*. In this section, we focus on the first type of debt prioritization and examine the effect of lender type, firm-lender relationship, and lender collateral specialization.

As in Part I, we construct the regression sample by first identifying all the firm-quarter combinations in which prioritization of new delinquencies occurred.¹² These are the firms and quarters in which at least one of the firm's obligations became newly delinquent (was delinquent in that quarter but not the previous one) and at least one remained nondelinquent (was not delinquent in either quarter). We then include both groups of obligations in the sample—those that remained nondelinquent and those that became newly delinquent. This yields a sample of roughly 1 million obligation-quarters.

To determine how lender type affects the prioritization of new delinquencies, we estimate an ordinary least squares regression on

the sample. The dependent variable in this regression is a dummy variable for whether the obligation becomes newly delinquent in the quarter (equal to one if newly delinquent and zero otherwise). The explanatory variables include dummy variables (fixed effects) for all firm-quarter combinations, dummy variables for lender types, a dummy variable for whether the obligation was 1–30 days past due in the previous quarter, and controls for contract features, contract types, and broad collateral types (the variables that were the focus of Part I).¹³

The estimated coefficients for lender types and summary statistics for the regression are reported in Table 3. When estimating a regression in which a set of dummy variables add up to one for each observation, it is necessary to omit one of the variables. We omitted the dummy variable for independents, so the reported coefficient for each lender type represents the effect of that type on the probability of new delinquency *relative* to independents.¹⁴ The coefficients for credit card and alternative lenders are not reported because the small number of observations on those types makes the results unreliable.

The regression results indicate that the probability of new delinquency was higher for all the lender types shown than for independents, the omitted type. The difference from independents was smallest for bank subsidiaries, for which the

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The overall conclusion from the regression analysis is that firms tended to prioritize payments to independents over those to banks and captives, with the other bank-related lenders in between.

Table 3.

Regression for Prioritization of New 31+ Day Delinquencies
For obligations open and not delinquent in previous quarter
2005:Q2 to 2019:Q3

Estimated coefficients for lender types

Lender type (Independent omitted)	Coefficient
Bank	0.061 (5.9)
Bank subsidiary	0.039 (22.8)
Bank licensed	0.055 (31.3)
Captive	0.059 (29.4)

Regression statistics

Adjusted R²	No. of observations (obligation- qtrs.)	No. of firm- qtrs.	No. of firms	Mean of dependent variable (avg. sample delinquency rate)
0.062	1,031,874	88,120	28,995	0.172

Note: Each coefficient is the estimated change in the probability of delinquency when lender type changes from independent to the type indicated. Number in parentheses is the t-statistic corrected for heteroskedasticity. All coefficients are significantly different from zero at the 1% level. Regression is estimated by ordinary least squares, with fixed effects (dummy variables) included for all firm-quarter combinations in the sample. Also included in the regression are a dummy variable for whether the obligation was 1–30 days past due in the previous quarter and controls for contract features, nine contract types, and five broad collateral types. Coefficients on these variables are reported in Part I of the study. Coefficients are not shown for credit card lenders and alternative lenders due to the small number of observations for those types.

probability of new delinquency was 0.039 higher. The other three types—banks, bank-licensed lenders, and captives—were roughly alike, with a probability of new delinquency about 0.06 higher than for independents. These differences from independents are all economically significant compared to the average probability

of delinquency in the sample of 0.172.

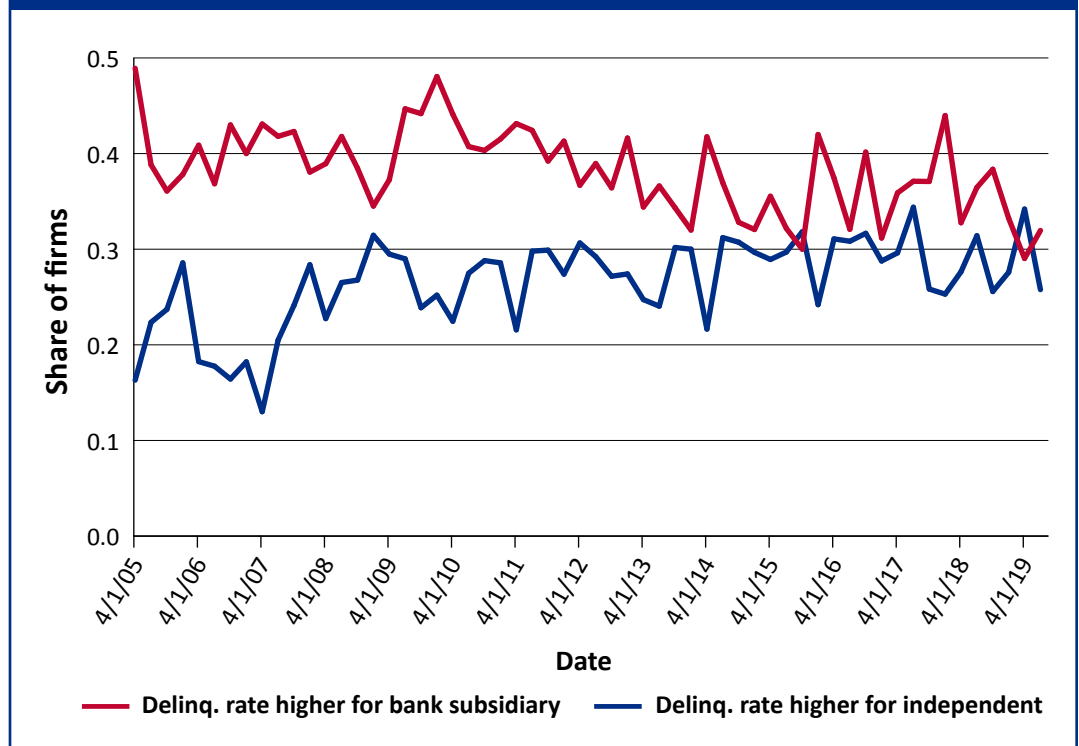
In unreported regressions using 61+ day and 91+ day delinquency measures, the difference from independents was even greater for captives and banks but smaller for bank subsidiaries and bank-licensed lenders. Thus, the overall conclusion

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For firms with obligations to both bank subsidiaries and independents, the fraction that prioritized payments to independents was persistently higher, consistent with the regression results in Table 3.

Figure 1. 31+ Day Delinquency Pecking Order Bank subsidiary vs. independent



from the regression analysis is that firms prioritize payments to independents over those to banks and captives, with the other bank-related lenders in between.

Figure 1 illustrates the tendency for firms to prioritize payments of their obligations to independents over those to bank subsidiaries. To construct the chart, commonly referred to as a pecking-order chart, we first select for each date those firms that have obligations to both lender types that were not delinquent on the previous date but at least one of which is delinquent on the current date. We then plot two numbers—the fraction of firms for which the delinquency rate was more than 25 percentage points higher on their obligations to bank subsidiaries than on their obligations

to independents (red line) and the fraction of firms for which the opposite was true (blue line).

Both fractions varied over the sample period, but in almost every quarter more firms prioritized obligations to independents (i.e., had lower delinquency rates on them) than prioritized obligations to bank subsidiaries, consistent with the regression results in Table 3. Though not shown, the pecking order chart for each other major lender type versus independents looks similar.

A possible explanation for these results is that some lender types are more tolerant of delinquencies than others. This could be because they have a stronger interest in maintaining a long-term relationship

Bank subsidiaries and bank-licensed lenders may target lower-risk firms than independents due to greater regulatory pressure but be more tolerant of missed payments due to closer relationships with customers.

with the firm, greater familiarity with the firm's business, or greater ability to redeploy the collateral if it is repossessed.

Whereas independents are likely to provide equipment financing only, bank-related lenders may provide a wide array of other profitable financial services to their customers, either directly or through affiliates within the same holding company. Fear of losing the relationship could cause these lenders to show greater leniency to delinquent borrowers. In addition, the provision of other financial services could give these lenders greater knowledge of the customer's business, making it easier for them to distinguish between temporary and permanent delinquencies. The results in Table 3 suggest that bank-related lenders' greater tolerance of delinquencies due to these factors outweighs any tendency for their customers to avoid delinquencies out of their own fear of losing the benefits from the relationship.

Captives are like independents in that they do not provide a wide array of other services to their customers. However, captives may have a stronger interest in keeping a delinquent firm as a customer, so that the firm can make future equipment purchases from the lender's parent or affiliate if the firm rebounds. Specialization in the equipment used as collateral may also make captives less fearful of a default than independents because they can more easily redeploy the

equipment if repossession becomes necessary.

Some of the regression results in Table 3 are opposite from those on overall delinquency rates in Table 2, highlighting the importance of looking at differences in delinquency rates within firms on a particular date. Captives and banks had the highest delinquency rates in Table 2, consistent with the results in Table 3. However, the two other bank-related types—bank subsidiaries and bank-licensed lenders—both had *lower* delinquency rates than independents in Table 2, contrary to the regression results in Table 3.

One possible explanation for this difference is that bank subsidiaries and bank-licensed lenders tend to target lower-risk firms than independents due to pressure from bank regulators, but at the same time are more tolerant of delinquencies because of their closer relationships with customers.

Results for Firm-Lender Relationship

The second set of regressions, which are shown in Table 4, add three measures of the firm-lender relationship to the baseline regression in Table 3. The first of these measures is the log of the age of the relationship between the firm and the lender. We measure age as the number of months since the earliest start date of all the firm's obligations with the lender.¹⁵ Second is the fraction of the lender's customers that are in

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Controlling for lender type, the results show that firms tended to prioritize payments to lenders with which they lacked a strong relationship, no matter which of the three relationship measures is used.

Table 4.

Regressions for Prioritization of New 31+ Day Delinquencies: Firm-Lender Relationship

For obligations open and not delinquent in previous quarter
2005:Q2 to 2019:Q3

Variable	(1)	(2)	(3)	(4)	(5)
Log of age of relationship	0.014 (21.7)			0.012 (17.0)	
Industry share of lender customers		0.063 (8.1)		0.050 (6.5)	
Lender's share of firm obligations			0.038 (15.0)	0.018 (6.4)	
Log of relationship age × Independent					0.030 (23.5)
Log of relationship age × Bank					0.052 (7.2)
Log of relationship age Bank subsidiary					0.012 (15.0)
Log of relationship age × Bank licensed					0.016 (13.7)
Log of relationship age × Captive					0.005 (3.7)
Adjusted R ²	0.063	0.063	0.062	0.063	0.063

Note: Each coefficient is the estimated change in the probability of delinquency when the variable increases by one unit. Number in parentheses is the t-statistic corrected for heteroskedasticity. All coefficients are significantly different from zero at the 1% level. The regressions are estimated the same way as in Table 3, and the variables included in the regressions other than relationship measures are also the same.

the same three-digit NAICS industry as the firm. Third is the fraction of all the firm's obligations that have been with the lender going back to the earliest start date of all its obligations.

The first two measures can be viewed as reflecting the lender's knowledge of the firm and

familiarity with its business and (in the case of the second measure) with the industry in which it operates. The third measure could represent not only lender knowledge of the firm, which should increase with the amount of interaction with the firm, but also the firm's dependence on the lender for credit.

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Relationship age may increase tolerance for delinquencies more at independents than at the two main types of bank-related lenders because the provision of other financial services provides the latter an alternative way to strengthen relationships.

Columns (1)–(3) of Table 4 show the results of including each of the three relationship measures individually, while column (4) shows the results of including all of them together. All the coefficients in these columns are not only positive but also statistically and economically significant.

These results indicate that firms tended to prioritize payments to lenders with which they lacked a strong relationship, whether relationship is measured by age, familiarity of the lender with the firm's industry, or dependence of the firm on the lender for credit. This supports the view that close relationships make lenders more tolerant of temporary delinquencies, outweighing any tendency for firms to avoid delinquency out of fear of jeopardizing the relationship.¹⁶

To determine whether firm-lender relationships matter more for some lender types than others, column (5) shows the coefficients on relationship age interacted with the dummy variables for lender type. The effect of relationship age on the probability of new delinquency is positive for all lender types but varies in magnitude, with banks and independents showing the greatest effect and captives the weakest.

Relationship age may matter more for independent lenders than bank subsidiaries and bank-licensed lenders because independents do not provide other financial services to the customer that strengthen the relationship and yield insight into the customer's business. Conversely,

relationship age may matter least of all for captives because their expertise in the collateral backing the obligation makes it less important for them to estimate the borrower's likelihood of recovery based on previous experience.

We cannot explain why relationship age has a greater effect on the probability of delinquency at banks than at bank subsidiaries and bank-licensed lenders. However, we have less confidence in this result because of the much smaller number of observations in the sample on obligations to banks.

Results for Lender Specialization in Collateral

In the final set of regressions on new delinquencies, shown in Table 5, we add to the baseline regression a measure of lender specialization in the type of collateral backing the obligation. For this exercise, we use a larger set of narrow collateral types rather than the five broad collateral types included as controls in the previous regressions.¹⁷

The specific measure of specialization used is the share of the collateral type in the lender's total number of open obligations. We include this measure only for the different types of equipment collateral (e.g., not collateral in the form of receivables or inventories), because those are the ones for which lender specialization is likely to matter. Also, we include the measure only for lender types other than captives because the latter are by definition fully specialized

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Rather than discourage delinquencies by increasing the lender's ability to repossess and redeploy collateral, the results suggest that lender specialization may have the opposite effect by increasing the lender's willingness to work with the borrower.

Table 5.

Regressions for Prioritization of New 31+ Day Delinquencies: Lender Specialization in Collateral Type

For obligations open and not delinquent in previous quarter
2005:Q2 to 2019:Q3

Variable	(1)	(2)
Share of collateral type in lender contracts (equipment only)	0.032 (14.3)	
Share of collateral type × Independent		0.071 (14.7)
Share of collateral type × Bank		-0.182 (-4.7)
Share of collateral type × Bank subsidiary		0.021 (7.4)
Share of collateral type × Bank licensed		0.029 (10.6)
Adjusted R ²	0.065	0.065

Note: Each coefficient is the estimated change in the probability of delinquency when the variable increases by one unit. Number in parentheses is the t-statistic corrected for heteroskedasticity. All coefficients are significantly different from zero at the 1% level. The regressions are estimated the same way as in Table 3, and the variables included in the regressions other than the lender specialization measures are also the same.

(all their obligations are backed by the type of equipment sold by the parent or an affiliate).

Column (1) in Table 5 shows that an increase in the share of the collateral type in the lender's total obligations has a positive effect on the probability of delinquency and that this effect is both statistically and economically significant. This finding suggests that rather than discouraging delinquencies by increasing the lender's ability to repossess and redeploy collateral, lender specialization may have the opposite effect by increasing the

lender's willingness to work with the borrower.

Column (2) shows the result of interacting the lender specialization measure with each lender type. The coefficient is positive and significant for all lender types except banks and is most positive by far for independents. A possible explanation for the latter result is that independents do not have the same opportunity as bank-related lenders to learn about the customer's business through the provision of other financial services. Experience with the specific type

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As expected, the lender types whose obligations are more likely to be allowed by firms to become delinquent are generally the same types whose delinquent obligations are less likely to be cured.

of collateral backing the obligation may make up for lack of knowledge of the firm's business, inclining the lender to work with a borrower that has fallen on hard times.

V. REGRESSION ANALYSIS FOR PRIORITIZATION OF DELINQUENCY CURES

Our strategy for studying the effects of lender characteristics on prioritization of delinquency cures is similar to that for prioritization of new delinquencies. We first select those firm-quarters that satisfy two conditions. One condition is that the firm has at least two open obligations that were delinquent but not in bad status in the previous quarter. The other condition is that some of the previously delinquent obligations have cured since the previous quarter (i.e., are no longer 31+ days delinquent) while others have not. We then include both groups of obligations in the sample—those obligations that cured and those that remained delinquent.

This process yields a regression sample of about 96,000 obligation-quarters. The dependent variable in each regression is a dummy variable for whether the obligation has cured since the previous date. As before, the regressions are estimated using ordinary least squares, with dummy variables for each firm-quarter combination, dummy variables for lender type, and mostly the same controls as in the other regressions.¹⁸

Results for Lender Type

The regression results for the effect of lender type on prioritization of delinquency cures, shown in Table 6, are generally consistent with those for prioritization of new delinquencies in Table 3. Lender types whose obligations are more likely to be allowed by firms to become delinquent are generally the same lender types whose delinquent obligations are less likely to be cured by firms.

In Table 6, the coefficients on the four listed lender types are all negative, indicating that their obligations are less likely to be cured than those of independent lenders, the omitted type. In addition, the two lender types with the lowest probability of delinquency cure are banks and captives, which are the same two types that had the highest probability of new delinquency in Table 3.

Results for Firm-Lender Relationship

In the previous section, the regression results indicated that a stronger relationship tended to increase the probability that an obligation would become delinquent. It is natural to ask whether stronger firm-lender relationships have an analogous effect on the prioritization of delinquency cures by making lenders more tolerant of prolonged delinquencies in addition to new delinquencies. Alternatively, a strong relationship could enable the lender to work with the borrower to

In principle, a strong relationship could decrease the chance of a cure by making the lender more tolerant of a prolonged delinquency. Alternatively, it could increase the chance of a cure by making the lender more willing to work with the borrower to turn things around.

Table 6.

Regression for Prioritization of 31+ Day Delinquency Cures
For obligations delinquent but not in bad status in previous quarter 2005:Q2 to 2019:Q3

Estimated coefficients for lender types				
Lender type (Independent omitted)	Coefficient			
Bank	-0.191 (-3.5)			
Bank subsidiary	-0.033 (-2.7)			
Bank licensed	-0.030 ^a (-2.2)			
Captive	-0.114 (-8.5)			

Regression statistics				
Adjusted R ²	No. of observations (obligation-qtrs.)	No. of firm-qtrs.	No. of firms	Mean of dependent variable (avg. sample cure rate)
0.046	96,388	16,264	7,727	0.479

Note: Each coefficient is the estimated change in the probability of delinquency cure when lender type changes from independent to the type indicated. Number in parentheses is t-statistic corrected for heteroskedasticity. All coefficients are significantly different from zero at the 1% level except the one indicated by ^a, which is significant at only the 5% level. Regression is estimated by ordinary least squares, with fixed effects (dummy variables) included for all firm-quarter combinations in the sample. Also included in the regression are dummy variables for whether the obligation is 61–90 days past due or more than 90 days past due in the previous quarter and controls for contract features, contract type, and collateral type. Coefficients on these variables are reported in Part I of the study.

turn things around, increasing the probability of a cure. Our last set of regression results provide evidence of both effects.

Column (1) of Table 7 shows the results of adding relationship age to the regression in Table 6, while column (2) shows the result of interacting this variable with two dummy variables for the seriousness of the delinquency. The first

regression implies that an increase in relationship age reduces the probability of a cure (coefficient is negative and statistically significant). However, the second regression shows that the effect depends on how delinquent the obligation was in the previous quarter.

Specifically, column (2) indicates that relationship age has a negative effect on the probability of

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The results suggest that that a long relationship with the lender makes a firm less likely to cure a modest delinquency but more likely to cure a serious delinquency.

Table 7.

Regressions for Prioritization of 31+ Day Delinquency Cures: Firm-Lender Relationship

For obligations delinquent but not in bad status in previous quarter
2005:Q2 to 2019:Q3

Variable	(1)	(2)
Log of age of relationship	-0.020 (-4.3)	
Log of relationship age × 31–60 days past due		-0.040 (-8.05)
Log of relationship age × 61–90 days past due		0.008 ^b (1.2)
Log of relationship age × Over 90 days past due		0.041 (5.8)
Adjusted R ²	0.046	0.048

Note: Each coefficient is the estimated change in the probability of delinquency cure when the variable increases by one unit. Number in parentheses is the t-statistic corrected for heteroskedasticity. All coefficients are significantly different from zero at the 1% level except the one indicated by ^b, which is not significant at either the 1% or 5% level. The regressions are estimated the same way as in Table 6, and the variables included in the regressions other than relationship measures are also the same.

delinquency cure for obligations that were only modestly delinquent on the previous date (those only 31–60 days past due), a negligible effect on the probability of cure for obligations that were moderately delinquent (61–90 days past due), and a positive effect on the probability of cure for those that were seriously delinquent (over 90 days past due).

This result suggests that a long relationship with the firm makes the lender tolerant of modest delinquencies, reducing the likelihood of a cure. However, once the delinquency becomes severe, a long relationship with the firm works in the opposite direction,

improving the chances of a cure. This could be because serious delinquency increases the firm's concern about jeopardizing the relationship or because serious delinquency increases the lender's resolve to help the firm turn things around.

VI. CONCLUSIONS

This two-part study has documented that prioritization of debts by small and medium-size businesses engaged in equipment finance is an empirically important phenomenon. Focusing on the effects of lender characteristics on debt prioritization, this part of the study has uncovered three consistent patterns.

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This article has shown that debt prioritization depends not only on the nature of the contract and collateral, as shown in Part I, but also on lender type, firm-lender relationships, and lender specialization in collateral.

First, over the period 2005–2019, firms tended to choose payments to independents over payments to captives and to commercial banks engaged directly in equipment financing, with payment priority falling somewhere in between for the other two types of bank-related lenders—finance companies that were bank subsidiaries and finance companies that converted to industrial banks. Second, firms were more likely to make payments to lenders with which they lacked a close relationship than to lenders with which they had such a relationship. Third, firms were less likely to prioritize payments to lenders that specialized in the collateral used to back the obligation.

For the most part, these patterns were found to apply to both the prioritization of new delinquencies and the prioritization of delinquency cures. These findings may be useful to lenders in assessing and managing risks, as their returns can depend not only on the contractual seniority of claims but on implicit subordination arising from debt prioritization by borrowers.

In this article, we have suggested possible explanations for the above results. For example, firms may prioritize payments to independents over captives because the interest of captives in generating future sales for the parent and their ability to redeploy capital in the event of repossession makes them more tolerant of temporary delays in payments. And firms may prioritize

payments to non-relationship lenders over those to relationship lenders because the latter are more inclined to work with borrowers to preserve the benefits of the relationship. As with the findings of Part I, however, these explanations are hypotheses only and merit further study.

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Endnotes

1. For convenience we use the term “lenders” in this article to refer to all creditors, whether they extend loans or grant leases.
2. The loss reserves or overall financial condition of the lender could also affect its willingness to tolerate missed payments, a possibility our data does not allow us to explore.
3. See Carey et al. (1998) and Chernenko et al. (2021).
4. See Banner (1958) and Barron et al. (2008). In contrast, studies of mortgages on new homes have found *lower* delinquencies and foreclosures on loans made by captives (Agarwal et al. 2014, Stroebel 2016). This may be because captives have a greater information advantage over other lenders in the case of new homes than autos due to greater uncertainty about the value of the collateral (e.g., construction quality).

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5. See Brown and Zehnder (2007), Morales-Acevedo (2016), and Li et al. (2019).

6. See Boot et al. (1993), Von Thadden (1995), Qi (2021), Schäfer (2019), and Vishen (2021).

7. See Habib and Johnson (1999) and Gavazza (2010 and 2011).

8. In an early study using PayNet commercial data, Ben-David and Schallheim (2007) found that captives were more likely than other lenders to repossess, which might deter a firm from being delinquent. However, captives were also less likely to pursue legal action, suggesting they may give delinquent borrowers some leeway before repossessing. (PayNet has since been acquired by Equifax, in 2019, and the PayNet commercial data is now part of the Equifax commercial data.)

9. These statistics are for all obligations that were open for at least one full quarter, which is why the effective sample period begins in 2005:Q2 rather than 2005:Q1.

10. See Wendel (2014) on the increasing role of bank-related lenders in equipment finance and the differing approaches they have taken in recent years.

11. Although not reported in this article, we also performed the regression analysis using 61+ day and 91+ day delinquency measures to confirm that the main results did not depend on the seriousness of the delinquency.

12. Similar to the definition of an obligation-quarter in Table 1, a firm-quarter is a quarter in which a particular firm appears in the sample. Thus, a firm that appears in 3 quarters would account for 3 firm-quarters.

13. This type of model is known as a fixed-effects linear probability model (LPM). As noted in Part I, it is favored by many applied econometricians. To make sure our results were robust,

we also used an alternative regression model called a fixed-effects conditional logit. Though not reported below, all the main results also hold for this model.

14. This regression is the same one reported in Table 4 of Part I. The only difference is that the coefficients on lender type were omitted from that table, while those on lagged delinquency status, contract features, contract type, and collateral type are omitted from Table 3.

15. This earliest start date can be before the sample period, because the data include the start date, original receivable, and anonymized firm and lender IDs even for obligations closed prior to the sample period.

16. Results for the other delinquency measures mentioned in n. 11 confirm these findings for the first two relationship measures but complicate the picture for the third measure representing the dependence of the firm on the lender for credit. Specifically, with the 91+ day delinquency measure, the coefficient on the third measure changes sign from positive to negative. This result suggests that high dependence on the lender for credit does not discourage a firm from becoming modestly delinquent on an obligation but may discourage it from becoming seriously delinquent.

17. The original data contained 37 collateral types, 23 of which were for equipment. For these regressions, we consolidated the non-equipment collateral types into 9 types, leaving a total of 32 types to use as controls.

18. The only difference is that lagged delinquency status is now represented by two dummy variables, one for whether the obligation was 61-90 days past due in the previous quarter and another for whether it was over 90 days past due.

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