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Abstract

We investigate bank relationships in a rarely considered context – consumer and small business credit cards. Using over one million accounts, we find during normal times, consumer relationship customers enjoy relatively favorable credit terms, consistent with the bright side of relationships, while the dark side dominates for small businesses. During the COVID-19 crisis, both groups benefit, reflecting intertemporal smoothing, with more benefits flowing to safer relationship customers. Conventional banking relationships benefit consumers more than credit card relationships, with mixed findings for small businesses. Important identification issues are addressed. The Coronavirus Aid, Relief, and Economic Security (CARES) Act consumer-delinquency reporting impediments reduce the informational value of consumer credit scores, penalizing safer borrowers.

Keywords: Credit cards, household finance, consumers, small businesses, relationship lending, banks, credit terms, cross-sectional smoothing, financial crises, COVID-19, intertemporal smoothing

JEL Classification: D12, G01, G20, G28

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"We are convinced that new ways of assessing credit eligibility, like reviewing personal cash-flow data, offer a truer reflection of risk..."
– Steve Smith, Finicity CEO, *Wall Street Journal*, October 18, 2020[1]

1. Introduction

Loan applicants often lack sufficient high-quality public information for banks to assess their creditworthiness, requiring banks to pierce through the applicants' informational opacity. Banks do so by employing various lending technologies to produce private information to make informed credit decisions. Each such technology is associated with a primary information source. Transactions lending technologies are largely based on hard quantitative information (such as credit scores and financial ratios) produced at or after the time of loan application (e.g., Berger and Black, 2011). Relationship lending is primarily focused on private information produced over the course of a relationship with the borrower from the provision of past loans, deposits, and/or other services, and may include soft, qualitative information (such as the moral character of the borrower) as well as hard information (such as cash flows from deposit accounts) (e.g., Sharpe, 1990; Rajan, 1992; Boot, 2000; Boot and Thakor, 2000; Stein, 2002; Mester, Nakamura, and Renault, 2007; Norden and Weber, 2010).

Research tends to treat transactions and relationship lending separately, so that relationship information does not play much of a role when transactions lending technologies are employed. In this paper, we seek to create a bridge between the two types of lending technology. We investigate the use of relationship information in determining credit terms in a rarely considered context – credit card lending to U.S. consumers and small businesses. That is, we ask: Do relationships affect credit card terms? We address this question separately for normal times and the COVID-19 crisis.

The extant literature generally views credit card lending as one of the purest forms of transactions lending ("credit as commodity"), with banks primarily using hard information in the form of third-party generated credit scores (e.g., Durkin and Elliehausen, 2010). This literature largely omits relationship information, even though such information may add value, given that both consumer and small business credit card borrowers can be highly opaque. We view credit card lending as transactions-based, consistent with the literature, but we also allow for the possibility that banks may incorporate relationship information in setting credit card terms – i.e., that the two technologies may complement one another, and find that they **do**, which has heretofore not been investigated. As discussed next, the banks appear to use relationship information from the provision of conventional banking services (such as deposits) as well as past credit cards.

Examining the effects of relationship information on credit terms for credit card customers is important for at least two reasons. First, this information is proven to be an important determinant of credit

[1] See https://www.wsj.com/articles/coronavirus-tanked-the-economy-then-credit-scores-went-up-11603013402.

terms in commercial lending, but its role in credit card lending is largely unknown. Relationships may have a bright side, in that relationship borrowers benefit from more favorable contract terms, or a dark side, in that banks exercise market power over relationship information and "hold up" their relationship borrowers with less favorable terms. Most studies of relationship lending in commercial credit support the bright side (e.g., Petersen and Rajan, 1994; Berger and Udell, 1995), although some find empirical dominance of the dark side (e.g., Petersen and Rajan, 1995). The meta-analysis of Kysucky and Norden (2016) provides an extensive review of this literature.

A second reason why extending relationship lending research to credit card markets is important is that these markets are very large, vital to the economy, and key to bank profitability and risk (e.g., Agarwal, An, Cordell, and Roman, 2020). For example, in the U.S., the vast majority of both consumers and small businesses have credit cards.[3] Consumer spending accounts for more than 70% of U.S. GDP, while small businesses account for about half of U.S. employment and economic growth. Banks earn high profits from credit card fees and interest revenues, but they also suffer high charge-off rates on these unsecured credits (e.g., Agarwal, Chomsisengphet, and Liu, 2010; Massoud, Saunders, and Scholnick, 2011; Santikian, 2014; Stango and Zinman, 2016; Harris, Kahn, and Nissim, 2018).[4] It is argued that the growth of credit card markets has contributed significantly to the democratization of credit in the U.S., but this has also increased consumer defaults and bankruptcy risk (Gross and Souleles, 2002; Livshits, Mac Gee, and Tertilt, 2016). Agarwal and Zhang (2016) provide a review of the credit card literature.

Understanding the effects of the COVID-19 crisis on relationship customers is of both policy concern and research interest. COVID-19 caused very severe recessions around the world, and it is crucial to understand the extent to which banks help or hurt economic recovery efforts. The COVID-19 crisis also provides an ideal laboratory for studying the benefits and costs of relationship information to borrowers in need because COVID-19 is primarily a real crisis, rather than a banking crisis. The health issues and government restrictions associated with COVID-19 affect the real economy more directly than the banks. Prior crises, such as the Global Financial Crisis (GFC), directly impaired the banks, making it difficult to disentangle banking problems from relationship issues. Most studies of the effects of commercial lending relationships, as opposed to credit card relationships during these earlier crises, find favorable effects for relationship borrowers during these times (e.g., Jimenez, Ongena, Peydro, and Saurina, 2012; Sette and Gobbi, 2015; Bolton, Freixas, Gambacorta, and Mistrulli, 2016; Beck, Degryse, De Haas, and van Horen, 2018), while a COVID-19 study of this issue finds unfavorable relationship effects (Berger, Bouwman,

[3] Over 80% of U.S. consumers and about two-thirds of U.S. small businesses have credit cards. See for example https://www.federalreserve.gov/publications/files/2018-report-economic-well-being-us-households-201905.pdf and https://www.creditcards.com/credit-card-news/business-credit-card-statistics/.

[4] Related credit card research examines consumer behavior and behavioral biases that lenders may exploit to maximize profits (e.g., Gross and Souleles, 2002; Liberman, 2016; Keys and Wang, 2019; Ru and Schoar, 2020).

Norden, Roman, Udell, and Wang, 2021). It is important to test whether and how these findings extend to credit card customers.

We formulate hypotheses regarding the effects of relationships on credit terms for credit card customers during normal times, how the effects change during crises, and how they differ between consumer and small business customers. We test these hypotheses using a large supervisory dataset with over one million newly originated credit card accounts.[5] Specifically, we exploit monthly individual loan-level data from the Federal Reserve's (FR) supervisory Y-14M dataset (and other sources) from June 2013 through June 2020 to examine the effects of relationships on key credit card terms (annual percentage rate (APR) spreads and credit limits). The FR Y-14M contains detailed information on credit terms for consumer and business credit cards extended by large banking organizations with significant U.S. credit card portfolios, and includes relationship information as well as a rich set of customer and loan characteristics that we use as controls. Because of the size of the dataset – over 500 million observations each month – we employ random loan-level samples (0.5% for consumers and 5% for small businesses due to the much larger number of consumer credit cards), similar to prior literature (e.g., Keys and Wang, 2019).

To test our hypotheses, we run regressions for two distinct sample periods. For normal times, we regress credit terms for newly originated consumer and small business credit cards on a relationship measure, control variables, and fixed effects using data from June 2013 through February 2020. To assess changes during the COVID-19 crisis, we employ a difference-in-difference (DID) regression model using an interaction term between the relationship and alternative COVID-19 proxies. This model employs a separate roughly balanced pre+during COVID-19 crisis sample spanning November 2019 through June 2020, which includes four months before and four months after the approximate start of the COVID-19 crisis at the beginning of March 2020.

Our main finding is that relationships do affect credit card terms. During normal times, consumer credit card customers with relationships enjoy more favorable terms than non-relationship consumers, consistent with bright side "shared benefits" of relationships. In contrast, small business credit card customers with relationships suffer less favorable terms than non-relationship small businesses during normal times. As discussed below in Section 2, there are many legal and economic differences between the two types of credit card customers. While we are the first to compare consumers and small businesses in this fashion, the available data do not allow us to investigate precisely which of these differences may explain this finding. However, during the COVID-19 crisis, both groups benefit relative to normal times

[5] We focus on the credit terms on new originations that provide blank slates in which relationship information can compete against other sources of new information, rather than the terms of existing accounts that may be subject to inertia and based on potentially stale information. We conduct robustness checks on existing accounts in Appendix A.

from lower APR spreads, consistent with "intertemporal smoothing," and small businesses with relationships in addition benefit from relatively higher credit card limits. The evidence also suggests cross-sectional smoothing favoring consumer relationship customers over small business relationship customers during normal times, but not during the COVID-19 crisis.

We address four important identification issues: omitted variables, measurement error, reverse causality, and sample selection. To address omitted variable biases, we saturate the main regressions with a comprehensive set of controls for demand and supply factors and fixed effects, and provide robustness checks with additional controls and fixed effects. We confront possible bias from the imprecise measurement of relationships by checking the sensitivity of our results to several alternative relationship proxies. Reverse causality may arise if customers choose relationships based on expectations regarding the future terms of credit. We tackle this issue using an instrumental variable analysis, in which we use the physical proximity between customers and their nearest bank branches as an instrument that satisfies the relevance and exogeneity requirements. Sample selection biases may arise because relationships may be determined in part by variables that also affect the credit terms as dependent variables. We deal with this issue using propensity score matching (PSM), a Heckman (1979) procedure, and falsification tests. Our main findings are robust to addressing all of these identification issues, as well as a battery of additional robustness checks.

We also perform a number of additional analyses. One analysis suggests that, in most cases, conventional bank relationships based on past provision of deposits, non-credit card lending, and other financial services are generally more beneficial than past credit card relationships, possibly reflecting more bank monitoring associated with the provision of these other services and/or that private information generated by conventional relationships is more valuable as detailed in Section 7.1. Another analysis focusing on customer risk suggests that banks shift their orientation more toward managing risks than seeking continuing profitability from risky relationship customers during the crisis, consistent with procyclical bank lending behavior (e.g., Berger and Udell, 2004; Thakor, 2015, 2016). We also find that CARES Act impediments to reporting consumer delinquencies to credit bureaus may have reduced the informational value of consumer credit scores and penalized relatively safe consumers during the crisis. The Appendix shows further analyses, including tests on existing credit card accounts, as opposed to the new originations studied in the main body of the paper, to further check on the robustness of our main findings. Existing accounts are not our main focus because they may suffer from a potential stale-information problem in credit terms and may reflect outdated information due to inertia in changing these terms. Not surprisingly, the results for the effects of relationships on credit terms for existing accounts are weaker than those for new originations in our main analysis.

We contribute to several strands of literature. First, we add to the findings on bank relationship

lending, which is extensive for conventional commercial lending, but scarce for credit card lending. The only prior study on relationships and U.S. credit cards of which we are aware focuses on customer defaults (Agarwal, Chomsisengphet, Liu, Song, and Souleles, 2018), rather than on credit terms, the focus of our study. There are some studies on consumer lending in other countries that consider bank relationships. These focus on default prediction (e.g., Norden and Weber, 2010; Puri, Rocholl, and Steffen, 2017; Hibbeln, Norden, Usselmann, and Gürtler, 2020), credit supply or loan officer behavior (Chakravarty and Scott, 1999; Puri and Rocholl, 2008; Berg, Puri, and Rocholl, 2020). None of these papers investigate credit cards or differential effects during normal times versus crises as we do.

Second, we break new research ground in comparing the effects of relationships on consumer versus small business credit card customers. The consumer and small business card markets are both financially and economically important, and have many legal and economic differences and similarities that are not well understood by researchers. The only paper of which we are aware that uses data on both credit card customer types analyzes how the Credit Card Accountability, Responsibility, and Disclosure (Credit CARD) Act of 2009 affects consumer costs and uses small business credit cards as a control group (Agarwal, Chomsisengphet, Mahoney, and Stroebel, 2015). The 2009 CARD Act limits lenders' abilities to increase interest rates and fees on consumer credit card accounts, but not on small business accounts, and this is just one of the legal differences. Other consumer protections and laws that are enforced by the Federal Trade Commission (FTC) and/or the Consumer Financial Protection Bureau (CFBP) also do not apply to small business accounts. Economic differences between the card types include differences in credit amounts, risks, switching costs, cross-selling, profitability, guarantees, and potential agency issues.[6] Similarities between consumer and small business credit card accounts include high profitability, short maturities, and monthly revolving credits. These legal and economic differences and similarities may help explain some of our key findings, although data limitations do not allow us to point to specific reasons for each of our results.

Third, we add to the research by comparing multiple types of relationships. While some prior studies do so for commercial or consumer credit (e.g., Berger and Udell, 1995; Mester, Nakamura, and Renault, 2007; Norden and Weber, 2010; Puri, Rocholl, and Steffen, 2017; Berger, Bouwman, Norden, Roman, Udell, and Wang, 2021), only one does so for U.S. credit cards (Agarwal, Chomsisengphet, Liu, Song, and Souleles, 2018). We complement this research by comparing credit card relationships and conventional bank relationships based on deposits; investments; mortgage, auto, student, or other loans; or multiple products; both together and separately.

Fourth, we add to the research about the impact of the COVID-19 crisis on credit markets.

[6] Related government policy changes during the COVID-19 crisis are briefly discussed in Section 2.

Research on credit cards during the COVID-19 crisis does not consider effects of relationship lending (e.g., Andersen, Hansen, Johannesen, and Sheridan, 2020; Coibion, Gorodnichenko, and Weber, 2020; Horvath, Kay, and Wix, 2020; Surico, Känzig, and Hacioglu, 2020). Only one paper studies the changes in the effects of banking relationships between normal times and the COVID-19 crisis, but it focuses on conventional commercial loans rather than credit cards (Berger, Bouwman, Norden, Roman, Udell, and Wang, 2021). A few studies investigate bank-firm relationships and COVID-19's Paycheck Protection Program (PPP) (e.g., Amiram and Rabetti, 2020; Bartik, Cullen, Glaeser, Luca, Stanton, and Sunderam; 2020; Li and Strahan, 2020).

Finally, we contribute to research on the determinants of consumer and small business credit. Consumer credit studies focus on consumer, lender, regulatory, and market factors other than relationships except as noted previously (e.g., Mian and Sufi, 2009; Rajan, Seru, and Vig, 2015; Agarwal, Chomsisengphet, Mahoney, and Stroebel, 2015, 2018; Brown, Grigsby, van der Klaauw, Wen, and Zafar, 2016; Ramcharan, Verani, and Van den Heuvel, 2016; Stango and Zinman, 2016; Akey, Heimer, and Lewellen, 2021). Small business lending studies, including the relationship studies discussed previously, focus on many determinants of credit supply, but they usually do not include credit cards (e.g., Petersen and Rajan, 2002; Cortés, Demyanyk, Li, Loutskina, and Strahan, 2020; Levine, Lin, Peng, and Xie, 2020).

In addition to contributing to these literatures, our new approach and empirical results provide implications for consumers, small businesses, banks, shadow bank competitors, researchers, and policymakers detailed in the conclusions.

In the remainder of the paper, Section 2 develops our hypotheses, Section 3 describes the data, and Section 4 lays out our methodology. We present our main empirical results in Section 5 and robustness checks in Section 6. Section 7 provides additional analyses. Section 8 concludes and discusses implications for the different parties. Appendix A provides additional results.

2. Hypothesis Development

We develop three sets of hypotheses with opposing predictions for the effects of relationships and the information drawn from them on the credit terms for credit card customers during normal times and how they change during crises. The first is about the effects of relationships on credit terms for credit card customers **during normal times**:

> **H1a: "Shared Benefits."** Relationship credit card customers enjoy favorable credit terms relative to other cardholders during normal times, as banks share the benefits of private information acquired over the course of the relationships to help retain these relationship customers (e.g., Boot and Thakor, 1994; Petersen and Rajan, 1994; Berger and Udell, 1995; Cole, 1998; Bharath, Dahiya, Saunders, and Srinivasan, 2007, 2011).
>
> **H1b: "Hold-up Problems."** Relationship credit card customers suffer less favorable credit

terms relative to other cardholders during normal times, as banks exploit market power over private information acquired through relationships and hold up their relationship customers, (e.g., Sharpe, 1990; Rajan, 1992; Petersen and Rajan, 1995; Degryse and Van Cayseele, 2000; Ioannidou and Ongena, 2010; Schenone, 2010; Hong, Hunt, and Serfes, 2018).

We next present hypotheses for the effects of relationships on credit terms for credit card customers **during crises**:

H2a: "Intertemporal Smoothing." Banks provide their relationship credit card customers with implicit insurance benefits during crises to help retain these customers. This takes the form of improved credit terms to relationship borrowers relative to other borrowers during crises (e.g., Berger and Udell, 1992; Berlin and Mester, 1999; Bolton, Freixas, Gambacorta, and Mistrulli, 2016).

H2b: "Intertemporal Tightening." Banks exploit their market power over private relationship information more during crises, as this information becomes more valuable due to increased informational opacity in crises. This results in worsened credit terms for relationship borrowers relative to others during crises (e.g., Berger, Bouwman, Norden, Roman, Udell, and Wang, 2021).

It is important to clarify the structure of the first two sets of hypotheses. In both cases, the "**a**" versions are about banks providing favorable credit terms to retain relationship borrowers, while the "**b**" versions are about banks exploiting their market power over these borrowers. However, the hypotheses differ substantially in their theoretical underpinnings and empirical implications. The **H1** hypotheses are based on standard relationship lending theory, which focuses on the distribution of benefits from information gathered **over the course of relationships** without any reference to or dependence on current market conditions. Banks may share some of the value of this information to retain the relationship borrowers and continue to reap some of these benefits for the banks under **H1a**, or exploit their market power over this information to increase current profits on their relationship loans under **H1b**. In contrast, the **H2** hypotheses are based on different theories about the effects of **changing market conditions**. Banks may provide implicit insurance benefits against crisis conditions to help retain relationship borrowers under **H2a**, or exploit their market power over the increased value of relationship information during crises under **H2b**. Thus, **H1** has implications about credit terms for relationship customers relative to others during normal times, and **H2** has implications on how these credit terms change during crises.

Our third set of hypotheses concern differences between the effects of relationships for **consumer versus small business credit card customers** during normal times and/or crises:

H3a: "Cross-sectional Smoothing Favoring Consumer Relationship Customers."

Among relationship credit card customers, banks provide consumers with more benefits than small businesses during normal times and/or crises.

H3b: "Cross-sectional Smoothing Favoring Small Businesses Relationship Customers." Among relationship credit card customers, banks provide small businesses with more benefits than consumers during normal times and/or crises.

Consumers may benefit relative to small businesses (**H3a**) due to the legal and economic differences between consumer and small business customer accounts discussed previously. The 2009 CARD Act and other legal protections that only apply to consumers may protect them from exploitation of market power in terms of interest rate increases charged by their relationship banks, while small businesses are not subject to the same protections. Consumers may also benefit from economic differences. Consumers tend to borrow relatively more on their credit cards than small businesses since small businesses more often use credit cards as a last resort. Consumers also may offer relatively more cross-selling opportunities and may have lower bank switching costs that reduce bank market power over them, so banks may offer more favorable terms to their relationship consumers to help retain the profits from this lending. The risks from lending on consumer credit cards may also be less cyclical, more predictable, and more easily diversified for banks than small business credit card loans, which may more often be dispersed to riskier small businesses with difficulty obtaining conventional commercial credit. Small businesses also may more often experience the dark side of their relationships because of higher switching costs associated with more financial constraints, fewer financing alternatives often driven by more opaque prospects, and bundling together various financial services from their banks. Thus, banks may be incentivized to provide better terms to relationship consumers than their small businesses relationship customers (e.g., Kamakura, Ramaswami, and Srivastava, 1991; Calem and Mester, 1995; Akçura and Srinivasan, 2005; Li, Sun, and Wilcox, 2005; Calem, Gordy, and Mester, 2006; Li, Sun, and Montgomery, 2011; Brush, Dangol, and O'Brien, 2012; Santikian, 2014; Agarwal, Chomsisengphet, Liu, Song, and Souleles, 2018).

In contrast, small businesses with relationships may benefit relative to consumers (**H3b**). The legal protections that apply to consumers only reduce the relative profitability of consumer relationships for banks, discouraging banks from providing them with favorable terms to retain them. Economic differences may also favor small businesses, such as that small business credit cards have repayment protections from owner guarantees in addition to small business revenues. Small businesses may also have more upside potential than consumers for future profitable conventional credit and other non-credit products (e.g., debt and equity underwriting services) if they become successful (e.g., Kanatas and Qi, 2003; Petersen and Rajan, 1994; Bharath, Dahiya, Saunders, and Srinivasan, 2007).

Finally, as noted above, government policies during the COVID-19 crisis differed between consumers and small businesses. Stimulus payments and extended unemployment benefits for consumers versus Paycheck Protection Program (PPP) forgivable loans for small businesses may have tilted the balance of profitability of credit card lending for banks between the two groups of customers. However, it is not possible to determine *ex ante* which group may expect better credit card terms as a result of these differences.

3. Data

We discuss data sources and how we use them in Section 3.1 and briefly summarize some of the variables and summary statistics in Section 3.2.

3.1 Data Sources and Uses

Our main data source is the Federal Reserve's supervisory Y-14M monthly loan-level data, which contain detailed information on all consumer and small business credit cards extended by large bank holding companies (BHCs) subject to DFAST/CCAR stress tests and having material credit card portfolios in the U.S. We refer to these institutions henceforth as "banks" for expositional ease.[7] The dataset is available from June 2013 and includes a rich set of customer and loan characteristics, and customer geographical location down to the ZIP code. Customer identity is anonymized, but most accounts include a customer identifier that can be tracked within the same bank over time to assemble our relationship variables.

This credit card dataset is very large, with each individual month having more than 500 million observations. To deal with this challenge, we employ stratified random loan-level samples of 0.5% and 5% for consumers and small businesses, respectively, for new accounts that are nationally representative across U.S. states as well as across banks' portfolios. The banks in the FR Y-14M are dominant players in the credit cards market, holding a combined market share of over 70% as of December 2019,[8] so the accounts are likely representative of the market as a whole. Although the FR Y-14M is reported on a monthly basis, most of our data are as of the day the new account was granted. We apply the following filters to the raw FR Y-14M dataset. We keep only observations in which: 1) a customer ID is available; 2) an account holder's address is in a U.S. state or territory; 3) a credit card type is general purpose or private label for consumers, or business card for businesses; 4) a product type is not health-care-related; 5) the balance does not have to be repaid in full each billing cycle, i.e., true credit cards only; 6) the

[7] Banks with over $50 billion in assets were initially required to report, but the Economic Growth, Regulatory Relief, and Consumer Protection Act (EGRRCPA) in 2019 increased the reporting size threshold to $100 billion starting in 2019:Q4. Since most of our normal times sample is before 2019:Q4, we use all banks in this first analysis, but for our crisis analysis, we focus only on banks with assets over $100 billion that exist in both the pre- and post-periods. Our results are robust to using banks over $100 billion in all analyses.

[8] This is based on market share assessments of these banks' balances in the FR Y-14M compared to the credit card balances in the Federal Reserve Bank of New York Quarterly Report on Household Debt and Credit as of 2019:Q4 available at https://www.newyorkfed.org/medialibrary/interactives/householdcredit/data/pdf/hhdc_2019q4.pdf and https://www.newyorkfed.org/microeconomics/hhdc.html, having information on the total credit card market.

account is revolving; 7) the loan is not subject to SOP 03-03 accounting (i.e., it is not a purchased credit-impaired loan or a purchased loan with evidence of deteriorating credit quality since origination); 8) the account is not acquired via an M&A; 9) the loan is owned by a bank;[9] 10) the credit score is between 300 and 900 to remove reporting errors; 11) the APR and credit limit are available; and 12) the account is active.[10]

We merge the FR Y-14M data with bank characteristics from the most recent quarterly Y-9C reports and monthly county-level macroeconomic variables from Haver Analytics/U.S. Bureau of Labor Statistics and CoreLogic Solutions. We use Johns Hopkins University Coronavirus Center, the Economic Tracker of Chetty, Friedman, Hendren, and Stepner (2020), the University of Washington government activity restrictions from Adolph, Amano, Bang-Jensen, Fullman, and Wilkerson (2021) for additional measures of the COVID-19 crisis. Finally, we also employ FDIC Summary of Deposits, FFIEC Census Demographic Data, and CFPB customer complaints data for additional analyses.

For our normal-times analysis, we include FR Y-14M data from June 2013 through February 2020. The data screens result in consumer and small business regression samples of 806,278 and 282,371 bank observations, respectively, for between 19 and 20 unique BHCs over 81 year-months with complete information on customer, loan, bank, and county characteristics.

For evaluating the changes brought on by the COVID-19 crisis, we consider that the crisis started on March 1, 2020, the day after the Governor of Washington first declared a state of emergency in the U.S. For a roughly balanced pre+during-COVID-19 crisis sample, we use four months before and four months after COVID-19 started, spanning November 2019 through June 2020. The data screens leave us with consumer and small business pre+during COVID crisis regression samples of 61,688 and 34,221 observations, respectively, for between 15 and 16 unique BHCs over 8 year-months.

3.2 Variables and Summary Statistics

Table 1 Panels A and B provide detailed definitions and summary statistics, respectively, for the variables in our main regression samples. The statistics are reported separately for consumers and small businesses during normal times and the pre+during COVID-19 crisis samples.[11] For brevity, we discuss here only the means of the most important variables.

Our main dependent variables are two key credit card terms, *APR Spread* over U.S. Treasuries with similar maturities and *Ln(1+Limit)*, the natural log of the account's credit limit. Our key independent variable is *BANK_REL_3Y,* a dummy for whether the borrower has a relationship with the bank over

[9] We drop loans by credit unions and non-bank subsidiaries because those entities may have different business models.
[10] Replacement cards for broken, stolen, lost, or for fraud represent a very small percentage (<1% of the observations) of the sample, and our main results remain robust when we drop these observations. Results are discussed in Appendix A.
[11] We check key statistics such as credit score and annual income for consumers and small businesses in the pre- and during COVID-19 periods separately and find them to be roughly similar.

previous three years.

The average consumer has an *APR Spread* of 13.833% and 14.831% in the normal times and pre+during COVID-19 samples, respectively, while having a *Ln(1+ Limit)* of 8.317 ($7,124.04 unlogged) and 8.372 ($7,462.29 unlogged) in the two sample periods, respectively. Our main relationship measure, *BANK_REL_3Y,* indicates that on average 35.1% and 33.1% of the loans are issued to relationship consumers in the normal times and pre+during COVID-19 samples, respectively. As for consumer key characteristics, the average consumer has safe credit scores of 730.680 and 735.062, annual incomes of $102,327.70 and $130,381.10, and utilization ratios of 10.6% and 9.0% during normal times and pre+during COVID-19 samples, respectively.[12]

Relative to consumers, small businesses have lower mean *APR Spread* of 10.998% and 12.214% in the normal times and pre+during COVID-19 samples, respectively, and higher *Ln(1+ Limit)* of 9.239 ($13,891.09 unlogged) and 9.218 ($14,019.82 unlogged), respectively, in these sample periods. More businesses than consumers have bank relationships in both periods, with means of *BANK_REL_3Y* of 56.5% and 54.4% in the normal times and the pre+during COVID-19 samples, respectively. The average small business appears safer than the average consumer with a somewhat higher average credit score of 761.297 and 766.355, a higher annual income of $192,393.10 and $308,066.50 (reflecting business rather than individual income), and utilization ratios of 4.8% and 5.3% in the normal times and pre+during COVID-19 samples, respectively.

4. Methodology

This section explains our methodology for testing the hypotheses. Section 4.1 describes the regression models used to test our hypotheses regarding the effects of bank relationships on credit terms for consumer and small business credit cards during normal times (June 2013 through February 2020). Section 4.2 similarly explains our DID regression model for evaluating our hypotheses regarding changes between normal times and the COVID-19 crisis. The empirical tests employ the pre+during COVID-19 crisis sample spanning November 2019 through June 2020.

4.1 Regression Equations for Normal Times (H1a and H1b)

We examine the effects of bank relationships on credit terms for new credit card originations for consumer and small business accounts **during normal times** by estimating equations of the following form using data from June 2013 through February 2020:

[12] Around 88% of the credit card accounts in our consumer and small business Y-14M samples have FICO scores, while the rest have other types of credit scores. In unreported results, we reestimate including only accounts with FICO scores, and our results remain consistent with our main findings.

$$
\begin{aligned}
Y_{c,b,m,t} = \; & \beta_0 + \beta_1 Relationship_{c,b,pre} + \\
& \beta_2 Customer\ Characteristics_{c,t} + \beta_3 Loan\ Characteristics_{c,b,m,t} + \\
& \beta_4 Bank\ Characteristics_{b,t=mr} + \beta_5 Local\ Market\ Characteristics_{m,t=mr} + \\
& \beta_6 Local\ Market\ FE_m + \beta_7 Bank\ FE_b + \beta_8 Year-Month\ FE_t + \varepsilon_{c,b,m,t}.
\end{aligned} \tag{1}
$$

$Y_{c,b,m,t}$ is a credit term (alternatively *APR Spread* or *Ln(1+Limit))*, provided to customer *c* by bank *b* in local market *m* at time *t*. $Relationship_{c,b,pre}$ indicates a preexisting relationship between customer *c* and bank *b*. In our main regressions, we use *BANK_REL_3Y*, a dummy that equals 1 if the customer has another credit card with the bank in the prior three years[13] and/or a conventional relationship with the bank based on past provision of deposits; investments; mortgage, auto, student, or other loans; or multiple products. The exact prior dates for these past conventional services are not specified in the dataset.

To alleviate potential omitted variable issues, the model is saturated with controls for demand and supply factors, including *Customer*, *Loan*, *Bank,* and *Local Market Characteristics,* and local market (county) fixed effects, bank fixed effects, and time (year-month) fixed effects. *Customer Characteristics* are measured as of the origination date or the FR Y-14M report month end and include credit score and annual income categories, and the card's utilization ratio. *Loan Characteristics* are measured at origination time *t* and are composed of indicators for joint account, number of authorized users, variable interest rate flag, credit card type, and card source channels. For *Bank Characteristics*, we include the most recent (t=mr) bank size and ratios for bank capital, liquidity, nonperforming loans, earnings, and loans to assets. *Local Market Characteristics* contains the most recent (t=mr) unemployment rate, the house price index (HPI), and the one-month growth in the HPI.

Equation (1) is estimated separately for two credit terms, *APR Spread* and *Ln(1+Limit)*, and is also estimated separately for consumer and small business credit card customers, reflecting that these credit terms and customer types are very different. The separate estimations also allow us to test whether different hypotheses dominate for the different credit terms or customer categories.

Although it is not shown in the equations for brevity, in all cases in which *APR Spread* is the dependent variable, we include *Ln(1+Limit)* on the right-hand side. This follows the common research practice of treating interest rates as the last credit term determined.

We test whether **H1a** versus **H1b** – shared benefits versus hold-up problems – empirically dominate using estimates of the coefficient on *Relationship* in equation (1). Significantly negative estimates of β_1 in the *APR Spread* equations and significantly positive β_1 estimates in the *Ln(1+Limit)* equations would be consistent with the empirical dominance of **H1a**. Relationship customers would enjoy

[13] In Section 6.2, we also measure customer-bank relationships based on data from prior four years, five years, or any year prior to new credit card issuance and obtain similar results.

lower spreads and higher credit limits, as banks share benefits of relationships with these customers. The reversed signs would be consistent with hold-up problems and the empirical dominance of **H1b**.

4.2 Regression Equations for Evaluating Changes during the COVID-19 Crisis (H2a and H2b)

We next test hypotheses about changes during the **COVID-19 crisis** by estimating equations of the following form for the pre+during COVID-19 crisis sample spanning November 2019 through June 2020:

$$\begin{aligned} Y_{c,b,m,t} = \; & \delta_0 + \delta_1 Relationship_{c,b,pre} + \\ & \delta_2 Relationship_{c,b,pre} \times COVID-19\ Crisis_t + \\ & \delta_3 Customer\ Characteristics_{c,t} + \delta_4 Loan\ Characteristics_{c,b,m,t} + \\ & \delta_5\ Bank\ Characteristics_{b,t=mr} + \ \delta_6 Local\ Market\ Characteristics_{m,t=mr} + \\ & \delta_7 Local\ Market\ FE_m + \ \delta_8 Bank\ FE_b + \delta_9 Year-Month\ FE_t + \zeta_{c,b,m,t}. \end{aligned} \tag{2}$$

Equation (2) is also estimated separately for *APR spread* and *Ln(1+Limit)* and run separately for consumers and small businesses. We focus our discussion on differences between equations (2) and (1) and how the hypothesis tests change. The only specification change is the addition of the *Relationship* × *COVID-19 Crisis* DID term, where *COVID-19 Crisis* is a dummy equal to 1 from March through June 2020. *COVID-19 Crisis* is not included in the model by itself because of collinearity with the year-month fixed effects. The estimation also changes due to the different sample period. The tests here focus on the estimates of δ_2, the coefficient on the DID term. We test whether **H2a** versus **H2b** – intertemporal smoothing versus intertemporal tightening – empirically dominate based on the sign and significance of δ_2. Significantly negative estimates in the *APR spread* equations and significantly positive estimates in the *Ln(1+Limit)* equations would suggest intertemporal smoothing and the empirical dominance of **H2a**, and reversed signs would be consistent with intertemporal smoothing and empirical dominance of **H2b**.

4.3 Regression Equations for Consumers versus Small Businesses (H3a and H3b)

To evaluate whether **H3a** versus **H3b** empirically dominates, we run regressions separately for consumers and small businesses. We do this both during normal times and crises. The normal times regressions use equation (1) and focus on the signs and magnitudes of the β_1 estimates. Similarly, the COVID-19 crisis regressions use equation (2) and focus on the β_2 estimates. To the extent that consumer relationship credit card customers are found to obtain relatively better terms than small business relationship customers, cross-sectional smoothing would favor consumers, consistent with empirical domination of **H3a** during normal times. Reversed signs or magnitudes would suggest the empirical dominance of **H3b** and cross-sectional smoothing favoring small businesses during normal times.

5. Main Results for the Effects of Bank Relationships on Credit Card Terms

We present our main results for new credit card originations. We show the effects of bank relationships on *APR Spread* and *Ln(1+Limit)* for consumer and small business credit card customers. Section 5.1

shows results for normal times, and Section 5.2 focuses on the COVID-19 crisis.

5.1 Relationship Effects on New Credit Card Customers during Normal Times

Table 2 shows the main results for equation (1) using ordinary least squares (OLS) regressions of credit card terms for relationship customers during normal times. Results are reported separately for consumers and small businesses using three different specifications: minimal controls (only fixed effects) in columns (1)-(4); adding customer and loan controls in columns (5)-(8); and full specifications that also include bank and county controls in columns (9)-(12).

We focus on the coefficient on the relationship term, *BANK_REL_3Y*, which shows how credit card terms differ between relationship and non-relationship customers. This coefficient is statistically significant at the 1% level across all models and suggests that relationships matter during normal times for terms for both consumers and small businesses but highlight very different effects for these two groups of customers. For consumers, relationships are associated with more favorable terms (lower APR spreads and higher credit limits), consistent with the bright side of relationships and the empirical dominance of **H1a: "Shared Benefits."** In contrast, relationships are associated with less favorable terms for small businesses (higher spreads and lower limits), suggesting the dark side of relationships, consistent with **H1b: "Hold-up Problems."** Taken together, these results are consistent with the empirical dominance of **H3a: "Cross-sectional Smoothing Favoring Consumer Relationship Customers"** in normal times, as banks provide benefits to consumers with relationships but penalize small business relationship customers.

Results are also economically significant. Starting with consumers and using the full specifications in columns (9)-(10), banks provide 0.524 percentage point lower spreads and 9.2% higher credit limits to consumer relationships, *ceteris paribus*. For small businesses in columns (11)-(12), banks charge 1.071 percentage point higher spreads and provide 10.6% lower limits to relationship customers.

Thus, during normal times, banks appear to share benefits to retain their consumer credit card relationship customers but exercise market power over their small business relationship customers. This may occur because banks are more eager to retain relationship consumers since they provide more cross-selling opportunities, they are relatively simple to evaluate, and their risks are more easily diversified. This is opposed to small businesses because they have more difficulty switching banks, may more easily divert funds into riskier projects, and may be subject to more agency issues and have more opaque prospects.

We briefly review results for only a few select control variables in the interest of brevity. Consistent with intuition, we find that lower-risk consumer and small business credit card customers (as evidenced by higher credit scores and lower utilization ratios) obtain lower spreads and higher credit limits. Higher customer income, unsecured accounts, promotional accounts, and those with applications initiated by the bank rather than the customer are generally associated with higher credit limits as well, but spread

effects are more mixed on these. Among bank controls, healthier banks (higher capital, higher liquidity) and those with higher loan portfolio risk (higher nonperforming loans, higher loans to assets) tend to charge higher spreads, likely to manage risk or compensate for other risks in their portfolios. Finally, county controls suggest that areas with high HPI, which tend to be riskier, are associated with lower credit card limits, consistent with intuition.

5.2 Changes in Relationship Effects during the COVID-19 Crisis

Table 3 shows our main results for equation (2) with the same pattern of columns. The coefficients of interest are on the DID interactions *BANK_REL_3Y* × *COVID-19 Crisis*, which show the difference in effects of relationships on credit card terms during the COVID-19 crisis relative to normal times. The findings suggest that both consumer and small business credit card customers benefit from relationships during COVID-19 relative to normal times. Consumers obtain lower spreads but no change in limits, while small businesses get less unfavorable terms for both spreads and limits. These findings are consistent with banks engaging in "intertemporal smoothing" for both customer types and empirical dominance of **H2a: "Intertemporal Smoothing."** Thus, banks may provide implicit insurance benefits during the COVID-19 crisis to retain both sets of relationship customers. Neither **H3a** nor **H3b** empirically dominate during the COVID-19 crisis, as both customer types benefit.

The results are also economically significant. Starting with consumers in the full specifications, the coefficients on the interaction terms *BANK_REL_3Y* × *COVID-19 Crisis* suggest economically significant additional benefits for consumers with relationships during the COVID-19 crisis. Relationship consumers receive 0.819 percentage point lower spreads but no effects on limits. For small businesses, banks provide significant 0.335 percentage point lower spreads and 11.3% higher limits.

5.3 Graphical Representation of the Main Effects of Relationships for Credit Card Customers

Figure 1 plots regression coefficients on *BANK_REL_3Y* and *BANK_REL_3Y* × *COVID-19 Crisis* from Table 3 columns (9)-(12) with their 95th confidence intervals, representing normal times effects of relationships for consumers / small businesses and changes in these effects during the COVID-19 crisis.[14] Panel A presents results for *APR Spread*, while Panel B gives findings for *Ln(1+Limit).* The two bars on the left side show normal times (*BANK_REL_3Y* coefficients), and the two on the right show changes during the COVID-19 crisis (*BANK_REL_3Y*×*COVID-19 Crisis* coefficients). Consumer relationship effects are shown with light blue bars, while the small business relationship effects are shown with dark red bars.

Panel A shows that, during normal times, banks provide lower APR spreads to consumer

[14] We show both normal times and crisis findings from Table 3 for the pre+during COVID-19 sample here in order to display mutually consistent findings for the two time periods, but our main findings for normal times in the text earlier are for the normal times sample.

relationship customers, but higher APR spreads to small business relationship customers. Both consumer and small business relationship customers benefit from relationships during the COVID-19 crisis relative to normal times in terms of lower APR spreads.

Panel B shows that, during normal times, banks provide higher credit card limits to consumer relationship customers but lower credit limits to small business relationship customers. During the COVID-19 crisis, we find relationship benefits for small business customers in terms of higher credit card limits relative to normal times.

6. Identification Challenges

This section addresses key identification challenges in our setting: omitted variable bias (Section 6.1), measurement error (Section 6.2), reverse causality (Section 6.3), and sample selection bias (Section 6.4).

6.1 Omitted Variable Bias

In our setting, omitting important credit demand and supply factors that might be correlated with relationships may significantly bias the relationship coefficients. We address this issue in the main analysis by saturating the model with demand and supply controls, including customer, loan, bank, and local market characteristics, as well as fixed effects for banks, local markets, and year-month. Realizing that this may be insufficient, we next provide analyses, in which we alternatively include additional controls and more granular fixed effects.

Table 4 Panels A and B use additional controls that may affect credit terms: a customer behavioral score from the FR Y-14M as an additional control for customer risk (Panel A),[16] and the number of credit card complaints against the bank from the Consumer Financial Protection Bureau (CFPB) (Panel B). The results in both panels are similar to the main results.

Table 4 Panels C–G replace the fixed effects used in the main specification (bank, county, and year-month), with alternative granular fixed effects. We use *County* × *Year-Month FE* to better control for credit demand factors in local markets over time (Panel C); *Bank* × *Year-Month FE* to better control for credit supply factors over time (Panel D); *Bank* × *County* × *Year-Month* to better compare credit card terms among customers from the same bank in the same county for credit cards originated in the same month (Panel E); *ZIP FE* while also clustering the standard errors by *ZIP* (Panel F); and *Credit Score Dummies* × *Year-Month FE,* in addition to bank and county fixed effects to help compare credit card terms for customers of similar credit risk in the same origination month (Panel G). Our main findings are confirmed in all of these robustness checks.

[16] We do not include this variable in the main analysis for two reasons. First, bank reporting of this variable is not mandatory, and hence, it is imperfectly populated. Second, banks may use different scales. To address these concerns, we include a flag for missing values and rescale the variable between 0 and 1.

6.2 Measurement Error

The relationship variables are not precisely measured, but rather they are approximations based on information in the FR Y-14M dataset. Measurement error could result in biased estimates. We confront this potential problem by replacing our main relationship proxy, *BANK_REL_3Y*, with different relationship measures.

Table 4 Panel H alternatively uses *BANK_REL_4Y*, *BANK_REL_5Y*, and *BANK_REL_PRE*, indicators for whether the customer has had a previous credit card or other relationship with the bank in the past four years, five years, or any prior year. Our main findings are robust to the use of these alternative relationship proxies.

6.3 Reverse Causality

Turning to reverse causality, relationship coefficients may be biased if customers choose relationship banks based on contract terms they expect on future credit cards (e.g., Bharath, Dahiya, Saunders, and Srinivasan, 2011; Prilmeier, 2017; Beck, Degryse, De Haas, and van Horen, 2018). We address this concern using instrumental variable analysis. We use *Ln(1+Closest Bank Distance)*, the natural log of one plus the geographical distance in miles between the customer residence ZIP code and the closest bank branch as an instrument for relationship existence, *BANK_REL_3Y*.[17]

The instrument must be relevant: bank-customer distance should be correlated with relationship existence. There are economic reasons to believe that the shorter this distance, the more likely it will be that the customer has established a relationship with the bank. As a reminder, our main relationship variable is broadly defined and includes conventional as well as past credit card relationships. One reason may be convenience. The convenience factor is fairly straightforward for deposits and other conventional relationships, but convenience may also play a role for some customers who prefer opening credit card accounts in person. Another reason may be that physical proximity facilitates the bank's collection of soft information on customers (e.g., Kwast, Starr-McCluer, and Wolken, 1997; Amel and Starr-McCluer, 2002; Amel and Brevoort, 2005; Berger, Miller, Petersen, Rajan, and Stein, 2005; Brevoort and Wolken, 2008; Bharath, Dahiya, Saunders, and Srinivasan, 2011; Dass and Massa, 2011; Prilmeier, 2017). The test results we report below confirm the relevance of the instrument.

The instrument must also satisfy the exogeneity requirement: Geographical distance should not directly have a causal effect on credit card terms. There are strong reasons to believe that this holds. Customers do not have control over terms that nearby banks provide them. While customers have choices of where to reside, it seems unlikely that they would relocate to be closer to a relationship bank.

Our instrumental variable regression setup follows Wooldridge's (2002) three-step dummy

[17] Distance between points is calculated using the latitude and longitude of the centroid of each zip code for the customer and the bank branches using VINCENTY in Stata (e.g., Nichols, 2007).

endogenous model, used in prior studies of relationship lending (e.g., Bharath, Dahiya, Saunders, and Srinivasan, 2011; Prilmeier, 2017). In the first step, we use a probit model to predict the probability of forming a relationship using the instrument discussed previously, *Ln(1+Closest Bank Distance),* and then the fitted value is used as the actual instrument in the first stage of a 2SLS estimation for the normal times estimation. Similarly, we use the fitted value and the fitted value interacted with the COVID-19 crisis as the actual instruments for the COVID-19 crisis estimates.[18]

Table 4 Panel I, columns (1) and (4) contain the first-stage probit results for consumers and small businesses, respectively, during normal times; columns (7) and (10) contain the information for the COVID-19 crisis. The first-stage results confirm that *Ln(1+Closest Bank Distance)* is positively and significantly (at the 1% level) related to bank relationships during normal times and the COVID-19 crisis. To assess the suitability of the instrument, we perform two statistical tests. A Kleibergen-Paap rk *LM* underidentification test indicates that the models are well identified (null rejected at the 1% level in all cases). A Kleibergen-Paap *F*-test of the excluded exogenous variable in the first-stage regression confirms that our instrument is relevant (null rejected at the 1% level in all cases).

Table 4 Panel I, columns (2)-(3) and (5)-(6) contain the last-stage IV regressions for consumers and small businesses, respectively, during normal times. The results indicate that effects of bank relationships on spreads and limits are significant and show "shared benefits" for consumers and "hold-up problems" for small businesses, consistent with our main normal times findings. The IV estimates are much larger in absolute value than the OLS estimates, which is not unusual (e.g., Bharath, Dahiya, Saunders, and Srinivasan, 2011). Jiang (2017) suggests that this may be due to strong local average treatment effects (LATE). In our case, customers with credit cards from a physically close bank may have most relationship effects. We find that consumers with relationships obtain 4.5 percentage points lower spreads and 36.5% higher limits during normal times. Small businesses with relationships receive 4.0 percentage points higher spreads and 46.7% lower limits during such times.

Reverse causality may also plague the relationship coefficient in the COVID-19 crisis. However, the variable of interest during the crisis is not the relationship variable per se, but rather it is the interaction between relationship and the COVID-19 shock (equation (2)). This interaction term may not be subject to

[18] Wooldridge (2002) describes this procedure in Section 18.4.1, noting that this procedure is useful when the potentially endogenous variable X is binary, since the estimation is typically inefficient when 2SLS is used directly for this case. Improved efficiency may be obtained by first regressing X on the included and excluded instruments via probit or logit, predicting the probability $\hat{X}$, and using $\hat{X}$ as the single instrument in the 2SLS estimation. It highlights that it yields consistent coefficients and correct standard errors. We follow this approach and use a probit for predicting the probability of a customer forming a relationship. We instrument *BANK_REL_3Y* by the relationship variable dummy fitted value, while we instrument *BANK_REL_3Y×COVID-19 Crisis* by the product of the relationship variable dummy fitted value and the COVID-19 crisis dummy. As indicated in Wooldridge (2002, pp. 236-237), this method is not the same as the forbidden regression, as we use the obtained variables as instruments and not as regressors. To avoid the incidental parameter problems associated with nonlinear models such as probit with many fixed effects, we exclude county and bank fixed effects in the first-stage probit model (e.g., Neyman and Scott, 1948; Greene, 2004).

reverse causality because relationships could not have been made in anticipation of the COVID-19 shock, since these were essentially unpredictable (e.g., Berger, Bouwman, Norden, Roman, Udell, and Wang, 2021). There is one possible exception: relationships that started in 2020 are potentially endogenous. An untabulated analysis purges such observations and finds results similar to the main results. Nonetheless, while reverse causality should not be a concern during the COVID-19 crisis, we do perform our IV regressions.

Table 4 Panel I columns (8)-(9) and (11)-(12) show last-stage IV regressions to examine changes in the effects of relationships on credit card terms during the COVID-19 crisis. They indicate benefits from bank relationships for both consumer and small business credit card customers during the COVID-19 crisis, consistent with our earlier OLS evidence. The IV estimates are again much larger in absolute value terms than the OLS estimates. Banks charge 1.0 percentage point lower spreads to consumers with relationships and give 1.8 percentage point lower spreads and 20.8% higher limits to small businesses with relationships during the COVID-19 crisis.

6.4 Sample Selection Bias

The fourth identification challenge is sample selection bias: relationships are not randomly assigned, and relationship determinants may affect credit terms. Thus, our main results may spuriously reflect differences in characteristics of relationship and non-relationship customers. To address this, we use propensity score matching, Heckman's (1979) two-stage self-selection model, and falsification tests.

6.4.1 Propensity Score Matching (PSM)

We first address potential self-selection bias using PSM following Rosenbaum and Rubin (1983) and Lawrence, Minutti-Meza, and Zhang (2011). We employ one-to-one matching without replacement using 1% caliper. We match relationship customers (treated group) to the nearest non-relationship customers (untreated control group) based on all controls used in our main specification (except fixed effects) plus the distance instrument *Ln(1+Closest Bank Distance)* used in the IV analysis. We then apply OLS regressions to the propensity-score matched samples for consumers and small businesses to control for observable confounders.

Table 4 Panel J reports PSM results for normal times and changes during the COVID-19 crisis. We continue to find better credit card terms for relationship consumers during normal times, consistent with the bright side of relationships, and worse credit card terms for relationship small businesses, consistent with the dark side. These results confirm cross-sectional smoothing favoring consumer relationship customers during normal times. We also continue to find increased benefits from relationships during the crisis for both consumers and businesses, consistent with intertemporal smoothing. This evidence helps dispel the competing explanation that our main results spuriously reflect differences in characteristics of relationship and non-relationship customers.

6.4.2 Heckman's (1979) Two-Stage Self-Selection Model

We next employ a Heckman (1979) two-step procedure, which controls for selection bias by incorporating the relationship formation decision into the econometric estimation. The first stage replicates the first stage of the IV analysis to predict relationships (not shown). Table 4 Panel K shows the final-stage, which adds the self-selection parameter (inverse Mills ratio) to the main regression model. All results controlling for potential selection bias in this fashion support our main results.

6.4.3 Falsification Tests

The third approach to dealing with selection bias employs falsification tests. We obtain empirical distributions of the bank relationship variable separately for consumers and small businesses, and then randomly assign customers into relationship treatment following these distributions. Table 4 Panel L shows the results from these falsifications tests. The coefficient estimates of *BANK_REL_3Y_FALSE* and *BANK_REL_3Y_FALSE* × *COVID-19 Crisis* are insignificant in all cases, alleviating concerns that alternative explanations other than true bank relationships drive the results.

7. Additional Analyses

We next show the results of two additional empirical analyses. Section 7.1 investigates which types of relationships drive our main results. Section 7.2 examines how our main results differ by customer risk.

7.1 Different Types of Relationships

We now allow for the possibility that banks differentiate between different types of relationships when setting contract terms. For example, banks may provide their credit card customers with more benefits when their relationships are based on past credit cards than on conventional bank products (such as deposits, investments, or loans). This may occur because the private information generated by past credit card relationships is more valuable for evaluating credit card customers or because prior credit card approval is an informative signal of future profitable experience. Alternatively, banks may provide their credit card customers with more benefits when the relationship is based on conventional bank products, because the private information generated by conventional relationships is more valuable. For example, prior research suggests that checking account information is much more valuable than credit card relationship information to predict borrower default (e.g., Nakamura, 1993; Mester, Nakamura, and Renault, 2007; Norden and Weber, 2010; Hibbeln, Norden, Usselmann, and Gürtler, 2020). It may also be the case that some non-credit card products allow bank officers and representatives to produce soft information. This could be quite distinct from the underwriting and monitoring of credit cards that may be associated with less bank contact and less soft information production – though still associated with the production of hard private information.

To address this, we reestimate equations (1) and (2) with the relationship variable decomposed into past credit card and conventional banking relationship dimensions. We first decompose our main

relationship variable, *BANK_REL_3Y*, into *CARD_BANK_REL_3Y* and *CONVENTIONAL_BANK_REL*, indicating whether the customer had a credit card relationship with the bank in the past three years or a conventional bank relationship covering non-credit card products (timing not known). A customer may have either, both, or neither relationships. We then further decompose *CONVENTIONAL_BANK_REL* into seven individual types: *DEPOSIT_REL, INVESTMENT_REL, MORTGAGE_REL, AUTO_REL, STUDENT_REL, OTHERLOAN_REL*, and *MULTI_PRODUCT_REL*, denoting past deposits, investment accounts, mortgages, auto loans, student loans, other loans, or multiple product accounts, respectively.

Table 5 Panel A shows results for normal times, while Panel B gives findings for changes during the COVID-19 crisis. Panel A shows that during normal times, conventional bank relationships provide most of the benefits – lower spreads and higher limits – to both consumers and small businesses, and these findings are primarily driven by relationships based on deposit accounts, investment accounts, and/or multiple products. Credit card relationships are more often associated with disadvantages – higher spreads for both customer groups and lower limits for small businesses. Panel B suggests a continuation of benefits from conventional bank relationships for consumers during the COVID-19 crisis. However, for small businesses, both conventional bank relationships (particularly deposits and multiple products) and credit card relationships provide benefits, but credit card relationship benefits are greater.

The difference in results between consumers and small businesses may be due to changes in the value of credit card information for the two groups during the COVID-19 crisis. Consumer credit card information may have become less valuable due to CARES Act credit bureau reporting restrictions (tested in Section 9) and a drop in mean utilization from 9.59% to 7.84% (derived from subdividing the pre+during sample, not tabulated). At the same time, small business credit card data may have become more valuable as CARES Act restrictions did not apply to small businesses, and mean utilization ratios increased from 5.02% to 5.88% (again based on the pre+during sample).

7.2 Results by Customer Risk

We next examine how our main results differ by customer risk using three risk measures: *Customer Credit Score*, *Customer Income*, and *Utilization Ratio*. We run regressions separately for *Customer Credit Score* ranges of < 580, [580,660), [660,720), and ≥720; *Customer Income* ranges of <25K, [25K, 50K), [50K,100K), [100K, 150K), and ≥150K; and *Utilization Ratios* of ≥90%, [50%, 90%), and <50%, so that customer risk is decreasing in each subsequent range for the three indicator variables.

Table 6 Panels A and B show the findings for normal times and changes during the crisis, respectively. To conserve space, we show multiple regressions in each panel that vary by customer group and credit term, with the consumer regressions shown before the small business regressions, and within each customer category, *APR Spread* is followed by *Ln(1+Limit)*. As above, we present only coefficients for the key independent variables, suppressing reporting the controls.

Starting with normal times results in Table 6 Panel A, we find that banks generally charge lower spreads to riskier relationship customers, although there are a few exceptions. To be clear, these are lower spreads relative to non-relationship customers, as opposed to lower spreads overall. While we cannot say definitively why banks might reward relatively risky relationship credit card customers with lower rates during normal times, banks may want to retain these customers because of high profitability. Some extant research indeed suggests that riskier customers tend to be more profitable for lenders (e.g., Bond, Musto, and Yilmaz, 2009; Agarwal, Chomsisengphet, Mahoney, and Stroebel, 2015; DiMaggio and Yao, forthcoming). In contrast, the results also often suggest that banks tend to give these riskier relationship customers lower limits. A possible explanation is that the banks may try to manage their risk exposures from retaining these riskier relationship customers at lower spreads by capping their losses with lower credit limits.

Turning to Panel B, we first note that for small businesses, we show "N/A" in column (1) for credit scores below 580. This is because there are too few small business loan originations with the lowest credit scores during the COVID-19 crisis in our 5% random sample to estimate coefficients on *BANK_REL_3Y* × *COVID-19 Crisis*. We therefore combine the bottom two credit score categories in columns (2) for credit scores < 660 for our small business estimations in this Panel. The results in Panel B often suggest more favorable credit terms (spreads and limits) for safer relationship customers (consumers and small businesses), although fewer of the coefficients are statistically significant. These findings may reflect that banks shift their orientation more toward managing risks than seeking continuing profitability from risky relationship customers during the crisis. Such a shift would be consistent with extant research on procyclical bank lending behavior (e.g., Berger and Udell, 2004; Thakor, 2015, 2016; Benmelech, Meisenzahl, and Ramcharan, 2017).

8. Additional Analyses for the COVID-19 Crisis Only

We conduct four additional analyses that apply to the COVID-19 crisis only. Table 7 Panel A examines whether our main results for the COVID-19 crisis are sensitive to using three alternative samples. In our main analysis, to obtain a balanced pre+during COVID-19 crisis sample, we consider a four-month pre-COVID period to match the length of our four-month COVID-19 period. Here, we reestimate the results while subtracting two months from our pre-period, effectively starting in January 2020 as other researchers use the beginning of 2020 as a baseline for effects during the COVID-19 crisis (e.g., Chetty, Friedman, Hendren, and Stepner, 2020). Alternatively, we add two months to our pre-period, effectively starting in September 2020. Finally, we consider the pre-period to have the exact same length as the COVID-crisis period but move it one year earlier; that is, we use March 1 through June 30 2019, to attenuate concerns about seasonality. These three alternative samples continue to show intertemporal smoothing benefits for both consumer and small business relationships during the COVID-19 crisis

relative to normal times.

Table 7 Panels B1-B2 provide results when replacing the main COVID-19 dummy (equal to one from March 1, 2020, onward) with five alternative measures of COVID-19 intensity reflecting government-activity restrictions or public health crisis severity that vary over time and across individual U.S. states or counties as in Berger, Bouwman, Norden, Roman, Udell, and Wang (2021). The first two measures focus on the intensity of the government activity restrictions: *US Restrictions Index*, a national restrictions index, and *State Restrictions Index*, a state restrictions index, based on the state of the customer. We create the latter using raw data on states' start and end (or expiry) dates on 10 possible mandated statewide COVID-19 restrictions: (1) Emergency Declaration; (2) Stay at Home; (3) Non-essential Business Close; (4) Other Business Close; (5) Restaurant Restrictions; (6) Bar Restrictions; (7) School Close; (8) Gathering Restrictions; (9) Travel Restrictions; and (10) Quarantine/Case Isolation orders. For each state, we add 1 for each government-activity restriction present in a state. Thus, index values range from 0 to 10, with 10 being the most restrictive. The number of restrictions is 0 before the start of the COVID-19 crisis (March 1, 2020). The national index is a state-population weighted average of the ten individual state restrictions. The third measure is *GPS State Immobility*, which shows Google GPS time spent inside (rather than outside) of residential locations in a state relative to the beginning of 2020. The last two measures focus on the severity of the health crisis. *County New Cases/100K Pop* and *County New Deaths/100K Pop* are the number of newly confirmed COVID-19 cases or deaths, respectively per 100K population in the county of the customer.[19] Results using these five alternative COVID-19 crisis measures continue to show consistent results with our main findings.

Table 7 Panel C examines the dynamic effects of the COVID-19 crisis on relationship customers over the months of the crisis. We replace the *COVID-19 Crisis* variable with dummies for each of the months of the crisis from March through June 2020 and also interact these indicators with *BANK_REL_3Y*. We find that our main conclusions remain intact – relationship consumer and small business customers fare better than others during the crisis relative to normal times, again consistent with intertemporal smoothing. For the spread, we find reversed or no effects in March, the first month of the crisis, but effects become very strong and significant in April and May, suggesting strong declines in spreads for relationship consumers and small businesses, and they only decline slightly in June. For limits, there are no significant effects for consumers in any of the crisis months, while for small businesses, effects are positive and significant, suggesting higher limits starting in April, and continue to intensify over May and June, suggesting benefits for small business relationships during the COVID-19 crisis relative to normal times.

[19] Results are robust to using measures with total COVID-19 cases and deaths instead of new cases and deaths.

Table 7 Panels D1-D2 assess the impact of the Paycheck Protection Program (PPP) on our results and whether relationship customers fare differently during the COVID-19 crisis when the bank extending the loan is more or less heavily involved in the PPP program. This program could affect the demands for and supplies of credit for consumers and small businesses, given that most of the funds are designed for payroll and therefore affect the consumers who work in these small businesses. We obtain PPP loan amounts from the FR-Y9C in 2020:Q2. We conduct two sets of tests. We first simply reestimate our main regressions for changes during the COVID-19 crisis while controlling for the ratio of PPP loans to bank total assets, *PPP Loans/Total Assets*. These results are reported in Panel D1 and indicate that our main findings are unaffected. Next, to understand whether relationship customers fare differently during the COVID-19 crisis when the issuing bank is more or less heavily involved in the PPP program, in Panel D2, we interact an indicator *High PPP* (for banks with above 75th percentile PPP loans relative to total assets) with *BANK_REL_3Y*, *COVID-19 Crisis*, and *BANK_REL_3Y*×*COVID-19 Crisis*. The coefficients on the triple interaction terms, *BANK_REL_3Y* × *COVID-19 Crisis* × *High PPP*, show that while our main results are not affected, relationship customers borrowing from high PPP banks face less favorable terms (higher APR spread and lower credit card limits) than those borrowing from other banks during the COVID-19 crisis. This suggests that high PPP involvement may disincentivize banks from providing favorable treatment to their relationship customers.

9. Potentially Unintended Consequences of the Consumer Delinquency Reporting Provision of the 2020 CARES Act

As discussed previously, the 2020 CARES Act does not allow banks to report consumer delinquencies to the credit bureaus when making forbearance accommodations (e.g., payment deferrals) to consumers related to the COVID-19 crisis, which is intended to protect consumers (e.g., Cherry, Jiang, Matvos, Piskorski, and Seru, 2021).[20] A potential unintended consequence is that consumer credit scores may have become less informative during the COVID-19 crisis, penalizing safer consumers with better credit scores.

To address this, we estimate the following regression model using the pre+during COVID-19 crisis sample from November 2019 through June 2020:

[20] CARES Act Section 4021 amends the Fair Credit Reporting Act (FCRA) to protect a consumer's credit score. When a lender makes an accommodation for a consumer account related to COVID-19 (e.g., defers one or more payments, allows partial payments, forbears any delinquent amounts, modifies a loan or contract, or any other assistance or relief to a consumer affected by COVID-19 beginning on January 31, 2020, and ending 120 days after the national emergency ends), the lender must report the account as current to the credit bureaus unless the account was delinquent before the accommodation was made. See p. 209 of https://www.congress.gov/116/bills/hr748/BILLS-116hr748enr.pdf.

$$
\begin{aligned}
Y_{c,b,m,t} = \; & \psi_0 + \psi_1 Relationship_{c,b,pre} \times COVID-19\,Crisis_t + \psi_2 Relationship_{c,b,pre} + \\
& \psi_{3,1} Credit\ Score\left[580,660\right)_{c,t} \times COVID-19\,Crisis_t + \\
& \psi_{3,2} Credit\ Score\left[660,720\right)_{c,t} \times COVID-19\,Crisis_t + \\
& \psi_{3,3} Credit\ Score \geq 720_{c,t} \times COVID-19\,Crisis_t + \\
& \psi_{4,1} Credit\ Score\left[580,660\right)_{c,t} + \psi_{4,2} Credit\ Score\left[660,720\right)_{c,t} + \psi_{4,3} Credit\ Score \geq 720_{c,t} + \\
& \psi_5 Other\ Customer\ Characteristics_{c,t} + \psi_6 Loan\ Characteristics_{c,b,m,t} + \\
& \psi_7 Bank\ Characteristics_{b,t=mr} + \psi_8 Local\ Market\ Characteristics_{m,t=mr} + \\
& \psi_9 Local\ Market\ FE_m + \psi_{10} Bank\ FE_b + \psi_{11} Year-Month\ FE_t + \tau_{c,b,m,t}.
\end{aligned}
\tag{3}
$$

Equation (3) is estimated for consumers only, since the CARES Act provision only applies to this group.[21] As before, *Y* is alternatively *APR spread* and *Ln(1+Limit)*. The variables of interest are *Customer Credit Score* range dummies interacted with the *COVID-19 Crisis* dummy. The credit score dummies capture scores in the ranges of <580 (left out category), [580,660), [660,720), and ≥720. A finding that consumer credit card customers with higher credit scores obtain worse credit terms during the crisis would suggest an atrophy of the value of consumer credit scores due to the Act.

Table 8 shows the results. During normal times, higher credit scores are associated with lower spreads and higher limits. However, we find results in the opposite direction during the COVID-19 crisis: the interaction terms between the credit scores and the COVID-19 crisis are positive and significant for spreads and negative and significant for limits. This suggests that the value of consumer credit scores has deteriorated during the crisis and harms the safest consumers with the best scores. In terms of economic magnitudes, the top two credit score categories (i.e., those with credit scores in the ranges [660,720) and ≥720) pay over 1 percentage point more and experience a decrease in credit limit of 14%-24% more than the subprime category (<580 credit scores), all else equal. Alternatively, results may also be regarded as cross-subsidization of the lower score consumers. We are the first, to our knowledge, to document this important potentially unintended consequence of the 2020 Cares Act.[22]

10. Conclusions and Implications

Relationship lending provides a wealth of private information about borrowers that has consistently shown its value in the commercial lending research literature. We employ a unique account-level dataset to document that this value also applies in a rarely considered context – credit card lending to consumers

[21] The implications for small business customers who are sometimes evaluated based on consumer scores of their owners are less clear cut because the extent to which banks rely on these scores versus business information is not known.

[22] In unreported tests, we also find that the expected relation – higher credit scores are associated with lower delinquency rates – becomes weaker after the CARES Act, again consistent with a decrease in informational value of the scores after the Act. An additional analysis of the CARES Act on forbearance accommodations for existing customers is included in Appendix A3.2. That analysis is not included here because the main analysis focuses on new originations only, for which forbearance is not applicable.

and small businesses. We propose and test hypotheses about the use of relationship information in determining credit terms on these cards during both normal times and the COVID-19 crisis.

We find that relationships matter for credit card customers, despite the transactions-based nature of this lending. During normal times, consumer credit card customers with relationships obtain bright side "shared benefits," while dark side "hold-up problems" dominate for small business relationship credit card customers. These results are also consistent with cross-sectional smoothing, favoring consumer relationship customers over small business relationship customers during such times. However, during the COVID-19 crisis, both groups benefit relative to normal times, consistent with intertemporal smoothing. These results are statistically and economically significant and are robust to identification challenges and other checks. We also find that, in most cases, relationship benefits derive from conventional banking relationships, rather than from prior credit cards and that the suppression of consumer delinquency information under the CARES Act may have harmed safer consumers.

Our findings that credit card relationship customers benefited during the COVID-19 crisis may appear to conflict with other research that conventional business loan relationship borrowers fared worse during this crisis (Berger, Bouwman, Norden, Roman, Udell, and Wang, 2021). A complete investigation of these differences is beyond the scope of this paper, but we offer two reasoned speculations why this might be the case. First, extant research suggests that credit card customers are highly profitable and that their idiosyncratic risks are easily diversified in large portfolios. As a result, banks may be willing to provide insurance and engage in intertemporal smoothing during the COVID-19 crisis to retain these credit card customers and profit in the long run with relatively few risk implications. Conventional commercial credit customers, in contrast, may provide fewer profits and entail more risks that are difficult to diversify, providing fewer incentives to provide insurance to retain these credits. Second, the difference in results may be due in part to differences in the nature of the loan contracts. Credit card contracts have much shorter maturities than conventional credits and may be relatively easily canceled or altered on a monthly basis, whereas conventional commercial credits more often rely on formal covenants to control risks.[23]

We close with implications of our results for various parties. Our findings that consumer credit card customers obtain relatively favorable credit terms during normal times and benefit even more during the COVID-19 crisis suggest that relationship consumers consider staying with their banks. Our findings also imply that non-relationship consumers may consider the benefits of establishing such relationships, particularly relationships based on deposits and/or other non-credit card services that provide most of the benefits. However, safer consumers may be wary of crisis protections, such as CARES Act restrictions on

[23] Some prior research suggests that short maturities may be particularly effective risk controls (e.g., Flannery, 1986; Diamond, 1991; Berger, Espinosa-Vega, Frame, and Miller, 2005).

reporting consumer delinquencies, that reduce the informational value of their credit scores and raise the relative costs of credit to them.

For small business credit card customers, our findings of relatively unfavorable effects on their credit card terms during normal times that are mitigated during the COVID-19 crisis may suggest that these customers should consider alternative sources to their relationship banks for obtaining credit cards.

Turning to banks, our perhaps surprising result that the value of relationship information extends in a significant way to transactions loans like credit cards suggests that this information might be profitably deployed in other transaction lending contexts, such as small business credit scoring, financial statement lending, and fixed-asset collateral lending. The extent to which banks are already doing so is not known. In addition, banks may want to be aware of some of the potential consequences of their credit card customer behaviors. Their hold-ups of small business relationship customers during normal times may result in losing some of these customers to competitors in the long run.

Shadow banks, including fintech lending platforms that lend to consumers and small businesses, may wish to consider the value of private information generated by relationship lending when designing their marketing and lending decision strategies. Most of these non-bank lenders are thought to employ very little in the way of relationship information, which may put them at a competitive disadvantage.

Our findings may suggest some future directions for researchers. As indicated, our results raise the possibility that relationship information may play key roles and complement the use of other transaction lending technologies that researchers might investigate. In addition, we have only scratched the surface of other issues that could be further explored, including differences between consumer and small business credit card markets, competition and market power issues in these markets, and more general issues concerning bank behavior in normal times and crises.

Finally, our results may also inform policymakers regarding the potential unintended consequences of policies such as the CARES Act provisions that interfere with risk reporting to credit bureaus. As indicated, this policy appears to have exacerbated customer opacity and made consumer credit scores less valuable. It also appears to have penalized relatively safe borrowers, yielding less favorable credit terms for them. Policymakers may also wish to be aware that some small business credit card customers with relationships may have been “held up” during normal times and suffered relatively harsh credit terms because of the exploitation of bank market power over relationship information. This might have negative real economic consequences in terms of foregone hiring and investments.

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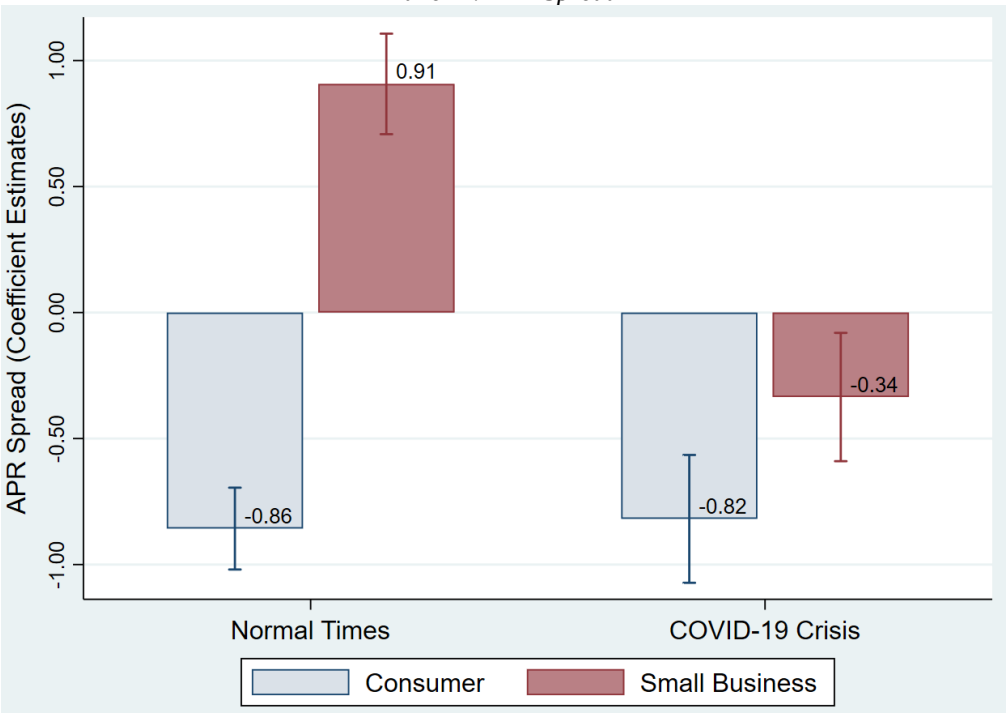
Figure 1: Effects on Credit Supply to Credit Card Customers

This figure plots regression coefficient estimates for the relationship variable, *BANK_REL_3Y*, and relationships interacted with the *COVID-19 Crisis* dummy, *BANK_REL_3Y × COVID-19 Crisis*, from Table 3 together with their 95th confidence intervals for *APR Spread* and credit card limit *Ln(1+Limit)* for new originations during normal times and changes during the COVID-19 crisis. *APR Spread* is the interest rate spread over the constant rate Treasury bonds with a similar maturity, while *Ln(1+Limit)* is the natural log of 1 plus the origination credit limit on the account. *BANK_REL_3Y* is a dummy that equals 1 if the customer has another credit card with the bank in the prior three years and/or a conventional relationship with the bank (based on past provision of deposits; investments; mortgage, auto, student, or other loans; or multiple products), and *COVID-19 Crisis* is a dummy that equals 1 from March 1, 2020, onward.

Panel A: APR Spread



Panel B: Ln(1+Limit)

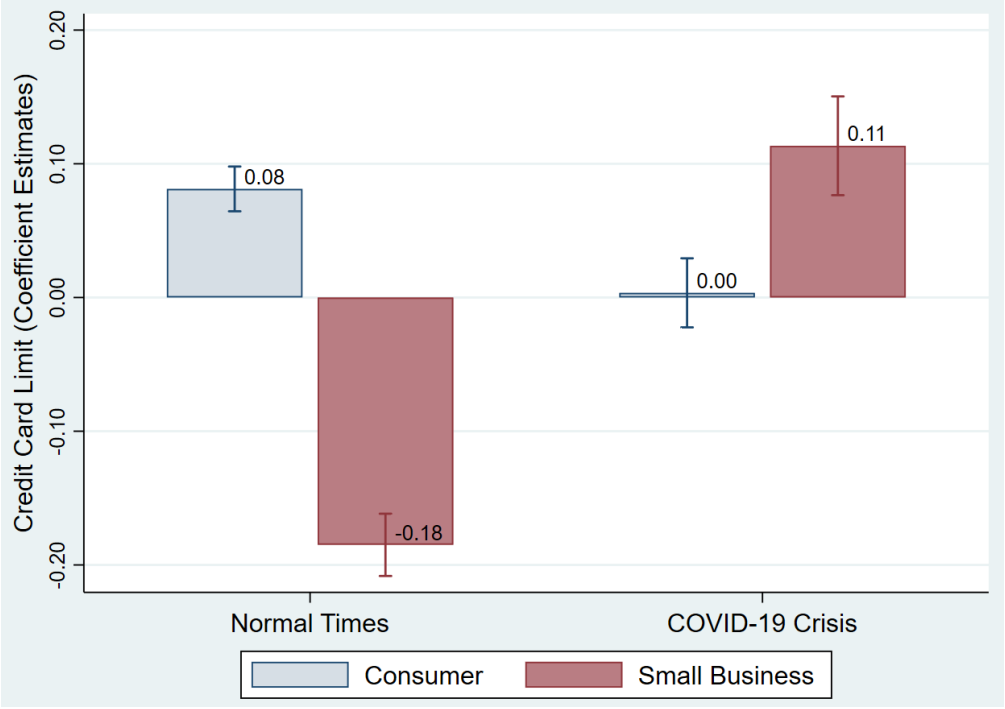


Table 1: Variable Definitions and Summary Statistics

Panel A: Variable Definitions

Variable	Definition	Source/ Authors' Calculation Based on:
Main Customer and Loan Characteristics		
APR Spread	The interest rate spread over the constant rate Treasury bonds with a similar maturity.	FR Y-14M; St. Louis FRED
Ln(1+Limit)	The natural log of 1 plus the origination credit limit on the account.	FR Y-14M
BANK_REL_3Y	=1 if the customer has another credit card with the bank in the prior 3 years and/or a conventional relationship with the bank based on past provision of deposits; investments; mortgage, auto, student, or other loans; or multiple products. The exact prior dates for past conventional services are not specified in the dataset.	FR Y-14M
COVID-19 Crisis	=1 from March 1, 2020, onward based on origination date.	Johns Hopkins University / FR Y-14M
Customer Credit Score	Customer credit score at origination.	FR Y-14M
Customer Credit Score < 580 *(left-out category)*	=1 if customer credit score below 580.	
Customer Credit Score [580, 660)	=1 if customer credit score between 580 and 660.	FR Y-14M
Customer Credit Score [660_720)	=1 if customer credit score between 660 and 720.	FR Y-14M
Customer Credit Score ≥720	=1 if customer credit score above 720.	FR Y-14M
Customer Income < 25K *(left-out category)*	=1 if customer income below $25k.	
Customer Income [25K, 50K)	=1 if customer income between $25k and $50k.	FR Y-14M
Customer Income [50K, 100K)	=1 if customer income between $100k and $150k.	FR Y-14M
Customer Income [100K, 150K)	=1 if customer income between $50k and $100k.	FR Y-14M
Customer Income ≥150K	=1 if customer income above $150k.	FR Y-14M
Customer Utilization Ratio	Outstanding balance divided by credit limit.	FR Y-14M
Joint Account	=1 if joint account.	FR Y-14M
Many Authorized Users	=1 if the account has 3 or more authorized users.	FR Y-14M
Variable Rate	=1 if the account has a variable interest rate.	FR Y-14M
Secured	=1 if the account is secured.	FR Y-14M
Promotional	=1 if the account has a promotional APR.	FR Y-14M
General Purpose	=1 if card type is general purpose.	FR Y-14M
Cobrand	=1 if card type is cobrand.	FR Y-14M
Affinity	=1 if card type is affinity.	FR Y-14M
Other Card *(left-out category)*	=1 if card type is student card and other private label card.	
Customer Init: Branch Application	=1 if the customer initiated the application by filling out an application at the branch.	FR Y-14M
Customer Init: Other Application	=1 if the customer initiated the application through a channel other than filling out an application at the branch.	FR Y-14M
Bank Init: Pre-Approved Offer	=1 if the bank initiated a pre-approved offer.	FR Y-14M
Bank Init: Invitation to Apply	=1 if the bank invited the customer to apply.	FR Y-14M
Other Init *(left-out category)*	=1 if the card application was initiated through another channel than the four listed above or if the channel is unknown.	
Bank Characteristics		
Bank Size	The natural log of bank total assets.	FR Y9C
Bank Age	The bank age in years.	FR Y9C
Bank Total Assets ($bill.)	Bank total assets.	FR Y9C
Capital Ratio	Bank's capital ratio, calculated as bank equity capital/total assets.	FR Y9C
Liquidity Ratio	Bank's liquid asset ratio, calculated as (cash + marketable securities)/total assets.	FR Y9C
NPL Ratio	Nonperforming loans to total loans.	FR Y9C
Earnings	Bank's ROE (net income over total equity).	FR Y9C
Loans Ratio	Ratio of total loans to total assets.	FR Y9C
Local market indicators		
Cnty Unemployment	Unemployment rate at county level monthly; supplement with state when not available for county.	Haver Analytics/BLS
Cnty HPI	County House Price Index.	CoreLogic Solutions
Cnty Change in HPI	Change in the House Price Index (HPI) at county level monthly; supplement with state when not available for county.	CoreLogic Solutions

Additional Variables Used in Other Analyses	Definition	Source/ Authors' Calculation Based on:
Other Customer, Loan, or Bank Characteristics		
Ln(1+Closest Bank Distance)	Natural log of one plus the distance in miles between the customer ZIP and the closed bank branch.	FR Y-14M, Summary of Deposits
BANK_REL_4Y	=1 if the customer has a previous relationship with the bank in the past 4 years (credit card and/or conventional relationship).	FR Y-14M
BANK_REL_5Y	=1 if the customer has a previous relationship with the bank in the past 5 years (credit card and/or conventional relationship).	FR Y-14M
BANK_REL_PRE	=1 if the customer has a previous relationship in any of the prior years (credit card and/or conventional relationship).	FR Y-14M
CARD_BANK_REL_3Y	=1 if the customer has a previous credit card relationship with the bank in the past 3 years.	FR Y-14M
CONVENTIONAL_BANK_REL	=1 if the customer has a previous conventional bank relationship based on past provision of deposits; investments; mortgage, auto, student, or other loans; or multiple products.	FR Y-14M
DEPOSIT_REL	=1 if the customer has a previous conventional bank relationship based on past provision of deposits.	FR Y-14M
INVESTMENT_REL	=1 if the customer has a previous conventional bank relationship based on past provision of investments.	FR Y-14M
MORTGAGE_REL	=1 if the customer has a previous conventional bank relationship based on past provision of mortgage products.	FR Y-14M
AUTO_REL	=1 if the customer has a previous conventional bank relationship based on past provision of auto loans.	FR Y-14M
STUDENT_REL	=1 if the customer has a previous conventional bank relationship based on past provision of student loans.	FR Y-14M
OTHERLOAN_REL	=1 if the customer has a previous conventional bank relationship based on past provision of other loans.	FR Y-14M
MULTI_PRODUCT_REL	=1 if the customer has a previous conventional bank relationship based on past provision of multiple banking products.	FR Y-14M
PPP Loans/Total Assets	Ratio of bank PPP Loans in 2020:Q2 divided by bank total assets.	FR Y9C
Behavioral Score	The behavioral score on the account if available scaled between 0 and 1.	FR Y-14M
Behavioral Score_Missing	Indicator for accounts with missing behavioral score.	FR Y-14M
Ln(1+ Num CC Complaints)	Natural log of one plus number of credit card complaints received by the bank in a month.	CFPB Complaints Database
Other Crisis Indicators		
US Restrictions Index	National restrictions index, the state-population weighted average of the individual U.S. state restrictions for COVID-19 over time.	University of Washington
State Restrictions Index	An index capturing 10 different mandated statewide state restrictions with potential impact on economic activity: (1) Emergency Declaration; (2) Stay at Home; (3) Non-essential Business Close; (4) Other Business Close; (5) Restaurant Restrictions; (6) School Close; (7) Gathering Restrictions; (8) Travel Restrictions; (9) Quarantine/Case Isolation Orders, and (10) Bar Restrictions. We add a 1 for each restriction that is present in a state. Thus, index values range from 0 to 10, with 10 being the most restrictive.	University of Washington
GPS State Immobility	GPS immobility indexed to Jan 3-Feb 6, 2020, showing time spend inside (rather than outside) of residential locations.	Chetty, Friedman, Hendren, Stepner (2020)
County New Cases/100K Pop	New cases/(population/100,000), The rate of the state population that is newly infected per 100K population.	Johns Hopkins University
County New Deaths/100K Pop	Total deaths/(population/100,000), The rate of the state population that died per 100K population.	Johns Hopkins University

Panel B: Summary Statistics

This table provides summary statistics for the variables used in the analysis for our consumer and small business samples during normal times in Panel B.1 and changes during the COVID-19 crisis in Panel B.2. The loan origination data come from the FR Y-14M credit card dataset and cover the period June 2013 through February 2020 for normal times, and the period November 2019 through June 2020 (pre+during COVID-19) for changes during the COVID-19 crisis. We use a 0.5% random sample for consumer accounts and a 5% random sample for small business accounts. Variables are defined in Panel A.

Panel B.1: Normal Times Samples

	Consumer Sample		**Small Business Sample**	
Sample	(0.5% Random Sample: 806,278 obs)		(5% Random Sample: 282,317 obs)	
Variable	**mean**	**sd**	**mean**	**sd**
APR Spread	13.833	9.771	10.998	8.777
Ln(1+Limit)	8.317	1.183	9.239	0.841
Limit ($)	7,124.041	7,113.391	13,891.090	10,900.800
BANK_REL_3Y	0.351	0.477	0.565	0.496
Customer Credit Score *(not used in regr.)*	730.680	71.569	761.297	60.066
Customer Credit Score < 580 *(left-out category)*	0.022	0.146	0.007	0.084
Customer Credit Score [580, 660)	0.141	0.348	0.042	0.200
Customer Credit Score [660_720)	0.278	0.448	0.194	0.395
Customer Credit Score ≥720	0.559	0.497	0.757	0.429
Ln(1+Customer Income) *(not used in regr.)*	10.943	1.112	11.318	1.730
Customer Income < 25K *(left-out category)*	0.119	0.324	0.109	0.312
Customer Income [25K, 50K)	0.276	0.447	0.100	0.300
Customer Income [50K, 100K)	0.375	0.484	0.289	0.453
Customer Income [100K, 150K)	0.118	0.323	0.151	0.358
Customer Income ≥150K	0.112	0.315	0.351	0.477
Customer Utilization Ratio	0.106	0.237	0.048	0.178
Joint Account	0.018	0.134	0.681	0.466
Many Authorized Users	0.004	0.062	0.122	0.327
Variable Rate	0.944	0.230	0.993	0.083
Secured	0.021	0.143	0.011	0.105
Promotional	0.235	0.424	0.187	0.390
General Purpose	0.699	0.459	0.839	0.367
Cobrand	0.250	0.433	0.161	0.367
Affinity	0.034	0.180	0.000	0.005
Other Card *(left-out category)*	0.018	0.132	0.000	0.000
Customer Init: Branch Application	0.532	0.499	0.344	0.475
Customer Init: Other Application	0.145	0.352	0.247	0.431
Bank Init: Pre-Approved Offer	0.148	0.355	0.081	0.273
Bank Init: Invitation to Apply	0.103	0.305	0.251	0.433
Other Init: *(left-out category)*	0.072	0.258	0.077	0.267
Bank Size	20.678	1.210	21.039	1.011
Bank Age	56.930	39.547	65.601	40.025
Capital Ratio	0.113	0.016	0.108	0.013
Liquidity Ratio	0.253	0.055	0.255	0.043
NPL Ratio	0.019	0.011	0.017	0.010
Earnings	0.122	0.071	0.125	0.075
Loans Ratio	0.518	0.165	0.471	0.142
Cnty Unemployment	4.840	1.765	4.473	1.625
Cnty HPI	182.169	50.907	199.318	56.505
Cnty Change in HPI	0.003	0.010	0.003	0.009
Additional:				
Bank Total Assets ($bill.) *(not used in regr.)*	1,581.591	1,090.577	1,912.558	1,013.886
Borrower Income ($) *(not used in regr.)*	102,327.7	2,155,861.0	192,393.1	1,175,572.0
Ln(1+Closest Bank Distance)	2.823	2.781	1.847	2.599
Closest Bank Distance (miles)	286.884	575.561	203.328	510.026
CARD_BANK_REL_3Y	0.159	0.365	0.296	0.457
CONVENTIONAL BANK_REL	0.251	0.434	0.346	0.476
DEPOSIT_REL	0.148	0.355	0.173	0.378
INVESTMENT_REL	0.003	0.055	0.002	0.041
MORTGAGE_REL	0.009	0.095	0.005	0.069
AUTO_REL	0.008	0.087	0.004	0.062
STUDENT_REL	0.001	0.034	0.000	0.011
OTHERLOAN_REL	0.001	0.034	0.002	0.039
MULTI_PRODUCT_REL	0.081	0.273	0.161	0.367

Panel B.2: Pre+During COVID-19 Samples

Sample	Consumer Sample (0.5% Random Sample)						Small Business Sample (5% Random Sample)					
	Pre+During COVID-19 (61,688 obs)		*Pre-COVID-19 (40,763 obs)*		*During COVID-19 (20,246 obs)*		*Pre+During COVID-19 (34,221 obs)*		*Pre-COVID-19 (22,999 obs)*		*During COVID-19 (10,722 obs)*	
Variable	**mean**	**sd**	**mean**	**sd**	**mean**	**sd**	**mean**	**sd**	**mean**	**sd**	**mean**	**sd**
APR Spread	14.831	10.093	14.994	9.935	14.491	10.378	12.214	9.131	11.812	9.395	12.996	8.472
Ln(1+Limit)	8.372	1.213	8.386	1.238	8.351	1.156	9.218	0.858	9.267	0.849	9.115	0.867
Limit ($)	7,462.3	6,956.4	7735.9	7273.431	6960.0	6280.101	14,019.8	11,694.5	14624.3	11979. 0	12749.8	10931.3
BANK_REL_3Y	0.331	0.471	0.331	0.471	0.336	0.472	0.544	0.498	0.558	0.497	0.527	0.499
COVID-19 Crisis	0.335	0.472	0.000	0.000	1.000	0.000	0.322	0.467	0.000	0.000	1.000	0.000
Customer Credit Score *(not used in regr.)*	735.062	72.926	734.720	73.437	735.907	71.823	766.355	56.128	765.985	57.041	767.349	54.188
Customer Credit Score < 580 *(left-out category)*	0.026	0.158	0.025	0.156	0.027	0.161	0.002	0.043	0.001	0.037	0.003	0.055
Customer Credit Score [580, 660)	0.127	0.333	0.135	0.342	0.112	0.315	0.033	0.178	0.036	0.187	0.026	0.158
Customer Credit Score [660_720)	0.252	0.434	0.249	0.433	0.258	0.438	0.177	0.382	0.182	0.386	0.167	0.373
Customer Credit Score ≥720	0.595	0.491	0.591	0.492	0.603	0.489	0.788	0.409	0.781	0.414	0.805	0.397
Ln(1+Customer Income) *(not used in regr.)*	11.113	0.814	11.127	0.805	11.091	0.835	11.792	1.182	11.798	1.169	11.793	1.204
Customer Income < 25K *(left-out category)*	0.081	0.273	0.078	0.269	0.086	0.280	0.038	0.192	0.038	0.191	0.039	0.195
Customer Income [25K, 50K)	0.251	0.433	0.247	0.431	0.257	0.437	0.079	0.270	0.079	0.269	0.079	0.269
Customer Income [50K, 100K)	0.395	0.489	0.397	0.489	0.391	0.488	0.265	0.441	0.263	0.440	0.264	0.441
Customer Income [100K, 150K)	0.135	0.341	0.136	0.343	0.133	0.339	0.170	0.376	0.167	0.373	0.175	0.380
Customer Income ≥150K	0.139	0.346	0.142	0.349	0.134	0.341	0.447	0.497	0.453	0.498	0.442	0.497
Customer Utilization Ratio	0.090	0.222	0.096	0.228	0.078	0.209	0.053	0.229	0.050	0.217	0.058	0.254
Joint Account	0.010	0.097	0.008	0.087	0.013	0.115	0.573	0.495	0.615	0.487	0.494	0.500
Many Authorized Users	0.005	0.067	0.004	0.066	0.005	0.070	0.105	0.307	0.112	0.315	0.092	0.288
Variable Rate	0.591	0.492	0.889	0.314	0.000	0.000	0.653	0.476	0.964	0.186	0.000	0.000
Secured	0.023	0.150	0.016	0.127	0.036	0.187	0.006	0.075	0.004	0.066	0.009	0.093
Promotional	0.216	0.411	0.205	0.404	0.235	0.424	0.188	0.391	0.185	0.388	0.191	0.393
General Purpose	0.652	0.476	0.632	0.482	0.691	0.462	0.767	0.423	0.772	0.420	0.761	0.426
Cobrand	0.326	0.469	0.347	0.476	0.284	0.451	0.233	0.423	0.228	0.420	0.239	0.426
Affinity	0.004	0.064	0.004	0.064	0.004	0.066	0.000	0.000	0.000	0.000	0.000	0.000
Other Card *(left-out category)*	0.018	0.133	0.017	0.130	0.020	0.140	0.000	0.000	0.000	0.000	0.000	0.000
Customer Init: Branch Application	0.631	0.482	0.614	0.487	0.666	0.472	0.422	0.494	0.421	0.494	0.421	0.494
Customer Init: Other Application	0.100	0.301	0.107	0.310	0.088	0.283	0.161	0.367	0.163	0.369	0.156	0.363
Bank Init: Pre-Approved Offer	0.111	0.315	0.106	0.308	0.121	0.326	0.097	0.296	0.094	0.292	0.103	0.304
Bank Init: Invitation to Apply	0.124	0.330	0.137	0.344	0.098	0.298	0.076	0.264	0.090	0.286	0.044	0.205
Other Init: *(left-out category)*	0.033	0.177	0.035	0.185	0.027	0.162	0.244	0.430	0.232	0.422	0.276	0.447
Bank Size	20.676	1.216	20.625	1.207	20.783	1.227	20.724	1.207	20.820	1.172	20.546	1.251
Bank Age	58.486	40.703	57.736	41.818	60.041	38.359	85.068	53.817	80.264	51.906	94.420	56.052
Capital Ratio	0.107	0.019	0.111	0.018	0.099	0.017	0.107	0.013	0.108	0.013	0.105	0.012
Liquidity Ratio	0.243	0.048	0.236	0.049	0.257	0.042	0.235	0.039	0.228	0.040	0.251	0.032
NPL Ratio	0.010	0.003	0.010	0.003	0.010	0.003	0.009	0.002	0.009	0.002	0.009	0.002
Earnings	0.109	0.077	0.139	0.069	0.049	0.054	0.139	0.083	0.163	0.080	0.088	0.062
Loans Ratio	0.523	0.171	0.529	0.173	0.508	0.167	0.514	0.163	0.506	0.167	0.528	0.150
Cnty Unemployment	5.118	4.164	3.462	1.141	8.412	5.759	4.814	3.996	3.320	1.029	7.959	5.747
Cnty HPI	208.630	54.485	207.928	54.259	211.015	55.135	222.571	58.101	222.177	58.182	225.212	57.991
Cnty Change in HPI	0.003	0.009	0.003	0.009	0.004	0.009	0.003	0.009	0.003	0.009	0.004	0.009
Additional:												

Bank Total Assets ($bill.) *(not used in regr.)*	1,608.1	1,157.3	1538.7	1135.4	1753.8	1186.8	1,678.9	1,172.29	1,764.6	1,140.3	1521.9	1215.5
Borrower Income ($) *(not used in regr.)*	130381.1	3657901.0	137992.1	4365739.0	116566.5	1545941.0	308066.5	1763220.0	311585.0	1936201.0	305540.4	1366020.0
Ln(1+Closest Bank Distance)	3.065	2.807	3.148	2.839	2.848	2.741	2.911	3.114	2.725	3.051	3.198	3.214
Closest Bank Distance (miles)	322.459	605.155	339.616	612.798	287.441	591.680	428.311	698.064	387.504	673.977	503.772	739.719
CARD_BANK_REL_3Y	0.226	0.418	0.214	0.410	0.253	0.435	0.301	0.459	0.297	0.457	0.320	0.467
CONVENTIONAL_BANK_REL	0.163	0.370	0.175	0.380	0.142	0.349	0.315	0.465	0.337	0.473	0.273	0.446
DEPOSIT_REL	0.138	0.345	0.132	0.338	0.154	0.361	0.250	0.433	0.247	0.431	0.265	0.441
INVESTMENT_REL	0.002	0.048	0.002	0.043	0.003	0.057	0.001	0.033	0.001	0.032	0.001	0.037
MORTGAGE_REL	0.008	0.091	0.007	0.084	0.011	0.104	0.003	0.058	0.004	0.060	0.003	0.055
AUTO_REL	0.009	0.095	0.008	0.089	0.011	0.105	0.003	0.057	0.004	0.063	0.002	0.041
STUDENT_REL	0.001	0.037	0.001	0.035	0.002	0.040	0.000	0.011	0.000	0.013	0.000	0.000
OTHERLOAN_REL	0.002	0.041	0.001	0.038	0.002	0.044	0.005	0.072	0.005	0.068	0.006	0.079
MULTI_PRODUCT_REL	0.065	0.246	0.063	0.243	0.070	0.255	0.038	0.192	0.037	0.188	0.043	0.204

Table 2: Effects of Relationships on Credit Card Customers during Normal Times

This table analyzes the effects of relationships on credit card terms for new originations. The loan origination data are from the FR Y-14M credit card dataset and cover the period June 2013 through February 2020. We use a 0.5% random sample for consumer accounts and a 5% random sample for small business accounts. The dependent variables are: *APR Spread*, interest rate spread over the constant rate Treasury bonds with a similar maturity and *Ln(1+Limit)*, the natural log of 1 plus the origination credit limit. The key explanatory variable is *BANK_REL_3Y*, a dummy that equals 1 if the customer has another credit card with the bank in the prior three years and/or a conventional relationship with the bank (based on past provision of deposits; investments; mortgage, auto, student, or other loans; or multiple products). We include a broad set of customer and loan controls measured at the origination time or the FR Y-14M report month-end: Customer *Credit Score* dummies, *Customer Income* dummies, *Customer Utilization Rate*, joint account, many authorized users, variable interest rate account, secured card, promotional card, dummies for credit card purpose, and dummies for the channel through which the card was opened. We also include a number of bank characteristics, all lagged one quarter: bank size, bank age, capital ratio, liquidity ratio, the ratio of non-performing loans, earnings, the ratio of loan to assets. Three local market controls are included, measured at the county level: *Cnty Unemployment*, *Cnty HPI*, and *Cnty Change in HPI*. All regressions include Bank, County, and Month-Year fixed effects. All variables are defined in Table 1. Heteroskedasticity-robust *t*-statistics clustered at county level are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Minimal Controls				Customer and Loan Controls				All Controls			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:												
BANK_REL_3Y	-1.569***	0.050***	1.284***	-0.109***	-0.520***	0.093***	1.011***	-0.101***	-0.524***	0.092***	1.071***	-0.106***
	(-17.545)	(8.559)	(32.423)	(-24.196)	(-9.000)	(36.795)	(27.556)	(-26.263)	(-8.953)	(37.098)	(30.302)	(-27.994)
Customer & Loan Controls												
Ln(1+Limit)	-0.561***		-0.859***		-0.577***		-0.594***		-0.596***		-0.641***	
	(-14.121)		(-22.123)		(-12.828)		(-18.327)		(-12.875)		(-19.154)	
Customer Credit Score [580, 660)					-0.463***	0.308***	-0.669***	0.238***	-0.418***	0.305***	-0.745***	0.235***
					(-6.405)	(40.012)	(-4.248)	(7.594)	(-5.825)	(39.833)	(-4.756)	(7.664)
Customer Credit Score [660_720)					-1.376***	0.981***	-1.025***	0.643***	-1.319***	0.976***	-1.128***	0.635***
					(-17.051)	(127.282)	(-6.707)	(17.942)	(-16.451)	(127.465)	(-7.313)	(18.142)
Customer Credit Score ≥720					-2.477***	1.698***	-2.472***	1.116***	-2.402***	1.692***	-2.564***	1.106***
					(-28.975)	(219.307)	(-15.831)	(30.942)	(-27.972)	(219.232)	(-16.237)	(31.287)
Customer Income [25K, 50K)					0.393***	0.347***	-0.339***	0.120***	0.423***	0.352***	-0.151***	0.132***
					(11.343)	(92.434)	(-6.366)	(11.728)	(11.697)	(100.739)	(-2.833)	(13.054)
Customer Income [50K, 100K)					0.852***	0.752***	0.066	0.323***	0.900***	0.759***	0.277***	0.335***
					(20.291)	(129.961)	(1.246)	(31.636)	(20.343)	(139.413)	(5.453)	(33.296)
Customer Income [100K, 150K)					1.004***	1.023***	0.328***	0.434***	1.056***	1.029***	0.531***	0.447***
					(19.893)	(141.325)	(4.883)	(40.827)	(19.981)	(146.986)	(8.160)	(42.683)
Customer Income ≥150K					1.306***	1.263***	0.718***	0.670***	1.375***	1.269***	0.914***	0.682***
					(23.459)	(124.138)	(10.756)	(63.409)	(22.920)	(128.040)	(14.263)	(65.192)
Customer Utilization Ratio					3.926***	-0.461***	3.117***	-0.422***	3.880***	-0.460***	3.129***	-0.435***
					(46.553)	(-77.528)	(6.202)	(-6.206)	(45.602)	(-76.238)	(6.081)	(-6.169)
Joint Account					1.994***	0.046***	-0.062	-0.300***	1.834***	0.031***	-0.084	-0.300***
					(23.303)	(5.780)	(-0.884)	(-20.639)	(21.684)	(3.797)	(-1.365)	(-20.692)
Many Authorized Users					0.530***	0.277***	0.708***	0.112***	0.555***	0.275***	0.735***	0.106***
					(4.489)	(20.398)	(13.490)	(17.439)	(4.663)	(20.356)	(13.936)	(16.637)
Variable Rate					-9.103***	-0.259***	-1.156***	-0.064**	-10.026***	-0.290***	-1.574***	-0.105***
					(-49.847)	(-33.270)	(-4.707)	(-2.032)	(-57.878)	(-34.867)	(-5.646)	(-3.243)
Secured					4.041***	-1.128***	6.182***	-1.256***	4.083***	-1.132***	5.713***	-1.264***
					(38.878)	(-148.127)	(38.696)	(-65.060)	(38.883)	(-147.834)	(36.238)	(-64.834)
Promotional					-6.779***	0.201***	-6.096***	0.041***	-6.715***	0.193***	-6.297***	0.045***
					(-94.829)	(24.257)	(-58.336)	(5.197)	(-94.152)	(23.440)	(-57.635)	(5.543)
General Purpose					4.177***	0.674***	4.582**	0.193	4.125***	0.676***	4.592**	0.136
					(44.829)	(93.856)	(2.569)	(0.779)	(43.688)	(94.422)	(2.545)	(0.534)
Cobrand					9.383***	0.795***	9.971***	0.241	9.486***	0.795***	9.871***	0.179
					(59.135)	(69.315)	(5.649)	(0.968)	(59.571)	(69.775)	(5.527)	(0.702)
Affinity					-1.295***	0.569***			-1.421***	0.572***		
					(-9.832)	(53.781)			(-10.654)	(54.563)		
Customer Init: Branch Application					-1.440***	-0.075***	1.003***	-0.132***	-1.309***	-0.060***	1.182***	-0.094***

					(-12.532)	(-9.344)	(5.524)	(-14.023)	(-11.333)	(-8.135)	(6.344)	(-10.340)
Customer Init: Other Application					-5.505***	-0.038***	-1.542***	-0.040***	-5.264***	-0.024**	-1.400***	-0.009
					(-36.129)	(-3.464)	(-6.481)	(-4.214)	(-35.186)	(-2.226)	(-5.899)	(-1.010)
Bank Init: Pre-Approved Offer					-8.000***	-0.011	-0.143	0.031***	-7.837***	0.009	-0.116	0.058***
					(-59.279)	(-1.385)	(-0.726)	(2.845)	(-59.420)	(1.158)	(-0.581)	(5.118)
Bank Init: Invitation to Apply					-6.245***	0.088***	0.422**	0.031***	-6.167***	0.111***	0.798***	0.082***
					(-47.495)	(9.444)	(2.493)	(3.076)	(-48.039)	(12.323)	(4.568)	(8.408)
Bank Controls (Lagged one quarter)												
Bank Size									-5.608***	-0.351***	6.776***	0.129
									(-10.353)	(-8.704)	(7.778)	(1.031)
Bank Age									0.365***	0.048***	-0.423***	0.042**
									(5.728)	(5.925)	(-3.297)	(2.427)
Capital Ratio									88.695***	-3.727***	19.794***	2.426***
									(31.357)	(-15.429)	(3.150)	(3.065)
Liquidity Ratio									5.799***	1.349***	53.923***	3.044***
									(6.863)	(14.850)	(45.986)	(19.109)
NPL Ratio									116.791***	-4.366***	55.015***	-1.530*
									(26.593)	(-15.942)	(8.938)	(-1.741)
Earnings									-3.287***	0.739***	16.118***	0.442***
									(-13.266)	(21.489)	(21.287)	(4.704)
Loans Ratio									2.771**	3.190***	65.323***	1.219***
									(2.071)	(25.999)	(24.146)	(4.275)
Local Market Controls (Lagged one month)												
Cnty Unemployment									-0.109***	-0.000	0.012	-0.003
									(-4.249)	(-0.322)	(0.495)	(-0.791)
Cnty HPI									0.011***	0.000***	0.002	0.001**
									(4.556)	(5.223)	(0.916)	(2.309)
Cnty Change in HPI									-0.767	-0.096	0.858	-0.100
									(-0.868)	(-1.052)	(0.677)	(-0.726)
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	808,873	808,873	282,752	282,752	807,823	807,823	282,356	282,356	806,278	806,278	282,317	282,317
Adjusted R-squared	0.246	0.173	0.423	0.090	0.522	0.610	0.581	0.316	0.528	0.613	0.589	0.319

Table 3: Changes in Effects of Relationships on Credit Card Customers during the COVID-19 crisis

This table analyzes the changes in effects of relationships on credit card terms during the COVID-19 crisis. The loan origination data come from the FR Y-14M credit card dataset and cover the period November 2019 through June 2020. We use a 0.5% random sample for consumer accounts and a 5% random sample for business accounts. The dependent variables are: *APR Spread*, interest rate spread over the constant rate Treasury bonds with a similar maturity and *Ln(1+Limit)*, the natural log of 1 plus the origination credit limit on the account. The key explanatory variable is *BANK_REL_3Y* × *COVID-19 Crisis,* where *BANK_REL_3Y* is a dummy that equals 1 if the customer has another credit card with the bank in the prior three years and/or a conventional relationship with the bank (based on past provision of deposits, investments, mortgage, auto, student, or other loans, or multiple products), and *COVID-19 Crisis* is a dummy that equals 1 from March 1, 2020, onward. We include a broad set of customer and loan controls measured at the origination time or the FR Y-14M report month-end: *Customer Credit Score* dummies, *Customer Income* dummies, *Customer Utilization Rate*, joint account, many authorized users, variable interest rate account, secured card, promotional card, dummies for credit card purpose, and dummies for the channel through which the card was opened. We also include a number of bank characteristics, all lagged one quarter: bank size, bank age, capital ratio, and liquidity ratio, the ratio of non-performing loans, earnings, the ratio of loans to assets. Three local market controls are included, measured at the county level: *Cnty Unemployment*, *Cnty HPI*, and *Cnty Change in HPI*. All regressions include Bank, County, and Month-Year fixed effects. All variables are defined in Table 1. Heteroskedasticity-robust *t*-statistics clustered at county level are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Minimal Controls				Customer and Loan Controls				All Controls			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:												
BANK_REL_3Y × COVID-19 Crisis	-0.325**	0.012	-0.564***	0.141***	-0.833***	0.019	-0.426***	0.134***	-0.819***	0.003	-0.335***	0.113***
	(-2.082)	(0.648)	(-3.777)	(7.289)	(-6.428)	(1.468)	(-3.426)	(7.342)	(-6.332)	(0.265)	(-2.584)	(6.025)
BANK_REL_3Y	-1.562***	0.061***	0.956***	-0.179***	-0.867***	0.076***	0.933***	-0.191***	-0.857***	0.081***	0.907***	-0.185***
	(-14.062)	(5.324)	(7.989)	(-13.751)	(-10.287)	(9.075)	(9.301)	(-16.264)	(-10.349)	(9.524)	(8.920)	(-15.589)
Consumer & Loan Controls												
Ln(1+Limit)	-1.796***		-0.866***		-0.947***		-0.648***		-0.991***		-0.640***	
	(-31.033)		(-17.587)		(-17.295)		(-13.196)		(-18.170)		(-12.890)	
Customer Credit Score [580, 660)					-1.667***	0.342***	-4.120***	0.401***	-1.644***	0.342***	-3.981***	0.391***
					(-9.360)	(16.059)	(-4.966)	(2.860)	(-9.302)	(16.156)	(-4.993)	(2.835)
Customer Credit Score [660_720)					-4.038***	1.062***	-4.422***	0.781***	-4.049***	1.061***	-4.283***	0.772***
					(-20.183)	(45.911)	(-5.297)	(5.611)	(-20.249)	(45.931)	(-5.338)	(5.618)
Customer Credit Score ≥720					-5.714***	1.724***	-5.909***	1.265***	-5.702***	1.721***	-5.778***	1.255***
					(-27.057)	(73.279)	(-7.131)	(9.133)	(-27.026)	(73.381)	(-7.269)	(9.196)
Customer Income [25K, 50K)					0.770***	0.395***	0.027	0.060**	0.762***	0.393***	-0.042	0.066***
					(5.899)	(30.304)	(0.155)	(2.516)	(5.854)	(30.192)	(-0.241)	(2.766)
Customer Income [50K, 100K)					1.215***	0.837***	0.545***	0.222***	1.195***	0.835***	0.478***	0.227***
					(9.465)	(66.412)	(3.622)	(10.464)	(9.375)	(65.831)	(3.148)	(10.698)
Customer Income [100K, 150K)					1.302***	1.138***	0.897***	0.340***	1.259***	1.133***	0.832***	0.344***
					(8.827)	(74.478)	(5.636)	(14.983)	(8.564)	(73.978)	(5.182)	(15.137)
Customer Income ≥150K					1.489***	1.349***	1.194***	0.598***	1.455***	1.344***	1.119***	0.603***
					(9.841)	(80.604)	(7.915)	(27.440)	(9.640)	(79.938)	(7.313)	(27.718)
Customer Utilization Ratio					4.971***	-0.455***	1.911***	-0.306***	5.026***	-0.454***	1.912***	-0.308***
					(30.683)	(-27.870)	(3.796)	(-4.948)	(30.879)	(-27.594)	(3.806)	(-4.915)
Joint Account					6.396***	0.122***	-0.749***	-0.348***	6.091***	0.103***	-0.743***	-0.346***
					(18.867)	(3.272)	(-4.541)	(-6.147)	(18.681)	(2.839)	(-4.712)	(-6.080)
Many Authorized Users					1.011**	0.154***	0.381***	0.165***	0.937**	0.162***	0.384***	0.164***
					(2.344)	(3.769)	(3.126)	(9.275)	(2.205)	(4.019)	(3.158)	(9.283)
Variable Rate					-6.483***	0.000	0.489***	-0.004	-7.585***	-0.053***	0.471***	0.002
					(-32.341)	(0.024)	(2.953)	(-0.126)	(-35.915)	(-3.747)	(2.813)	(0.071)
Secured					3.004***	-1.058***	7.213***	-1.346***	2.773***	-1.056***	7.234***	-1.350***
					(15.902)	(-42.680)	(16.386)	(-15.401)	(14.582)	(-42.039)	(16.335)	(-15.367)
Promotional					-6.716***	0.178***	-4.223***	0.027*	-6.688***	0.183***	-4.234***	0.027*
					(-53.906)	(14.404)	(-29.444)	(1.787)	(-53.794)	(14.702)	(-29.570)	(1.778)
General Purpose					5.052***	0.598***	-5.542***	-0.114***	5.078***	0.595***	-5.536***	-0.115***
					(16.849)	(23.442)	(-36.715)	(-7.337)	(17.092)	(23.161)	(-36.809)	(-7.335)
Cobrand					9.712***	0.620***			9.805***	0.618***		
					(33.472)	(23.354)			(34.048)	(23.159)		
Affinity					5.471***	0.622***			5.529***	0.625***		
					(11.060)	(12.001)			(11.226)	(12.060)		

Customer Init: Branch Application					-1.657***	-0.038**	0.410	-0.181***	-1.579***	-0.040**	0.425	-0.182***
					(-7.676)	(-1.988)	(1.267)	(-4.156)	(-7.079)	(-2.108)	(1.323)	(-4.177)
Customer Init: Other Application					-4.522***	-0.030	-2.089***	0.007	-4.427***	-0.030	-2.087***	0.007
					(-17.820)	(-1.493)	(-5.868)	(0.153)	(-16.753)	(-1.526)	(-5.913)	(0.150)
Bank Init: Pre-Approved Offer					-7.958***	0.028	0.571*	-0.058	-7.851***	0.027	0.554*	-0.062
					(-33.350)	(1.428)	(1.820)	(-1.243)	(-31.655)	(1.393)	(1.772)	(-1.327)
Bank Init: Invitation to Apply					-3.986***	0.023	-2.456***	0.074	-3.830***	0.026	-2.460***	0.079
					(-17.532)	(1.090)	(-5.841)	(1.500)	(-16.214)	(1.254)	(-5.872)	(1.609)
Bank Controls (Lagged one quarter)												
Bank Size									-9.463***	-0.401***	3.151	0.392
									(-8.447)	(-4.110)	(0.788)	(0.674)
Bank Age									3.614***	0.174***	1.821***	0.130**
									(10.697)	(4.959)	(5.499)	(2.065)
Capital Ratio									160.873***	3.914**	108.445***	6.254
									(10.575)	(2.364)	(3.125)	(1.133)
Liquidity Ratio									1.569	-6.098***	-22.551**	0.731
									(0.216)	(-8.931)	(-2.176)	(0.396)
NPL Ratio									254.369***	-70.039***	141.929	-25.222
									(3.120)	(-8.565)	(1.109)	(-1.559)
Earnings									-8.997***	-0.636***	-11.975***	0.808**
									(-7.656)	(-5.074)	(-4.112)	(2.246)
Loans Ratio									57.382***	0.304	24.250**	-1.178
									(10.417)	(0.520)	(2.047)	(-0.698)
Local Market Controls (Lagged one month)												
Cnty Unemployment									0.061**	0.004***	0.033**	0.006**
									(2.548)	(2.675)	(2.532)	(2.389)
Cnty HPI									-0.017	-0.002	-0.025	0.005**
									(-0.794)	(-1.033)	(-1.479)	(2.251)
Cnty Change in HPI									-3.749	0.358	6.732*	-0.391
									(-0.869)	(1.046)	(1.694)	(-0.711)
Bank, County, Month-Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	61,699	61,699	34,225	34,225	61,692	61,692	34,224	34,224	61,688	61,688	34,221	34,221
Adjusted R-squared	0.306	0.269	0.508	0.070	0.522	0.646	0.634	0.247	0.529	0.648	0.635	0.248

Table 4: Effects on Credit Card Customers during Normal Times and Changes during the COVID-19 Crisis – Robustness Tests of Main Results

This table analyzes the effects of relationships on credit card terms during normal times and changes during the COVID-19 crisis using several robustness tests. Panel A controls for *Behavioral Score*, while Panel B controls for *Ln(1+ Num CC Complaints)*, the natural log of the number of credit card complaints against the bank using the CFPB complaints dataset. Panels C – G present results from alternative specifications with: *County × Year-Month FE* (Panel C); *Bank × Year-Month FE* (Panel D), *Bank × County × Year-Month FE* (Panel E); *ZIP FE* and error clustering at the ZIP level (Panel F); *Credit Score Dummies × Year-Month FE* and bank and county fixed effects (Panel G). Panel H shows results with alternative relationship variables: *BANK_REL_4Y*, *BANK_REL_5Y*, and *BANK_REL_PRE*, dummies that equal 1 if the customer has another credit card with the bank in the prior four years, five years, or any prior period and/or a conventional relationship with the bank. Panel I presents results from instrumental variable (IV) analyses using *Ln(1+Closest Bank Branch)* as an instrument for relationships. These follow the 3-stage dummy endogenous model in Wooldridge (2002) Section 18.4.1, pp. 236-237. The column denoted Probit 1st Stage shows the results of a probit model, where the dependent variable is our main relationship dummy variable, *BANK_REL_3Y*. Predicted probabilities for relationship formation from this model and/or in conjunction with the predicted probability times the COVID-19 crisis dummy are used as instruments in the first stage of the 2SLS estimation for estimating effects of relationships during normal times and changes during the COVID-9 crisis. The columns denoted IV Last (3rd) Stage show the last stage of the 2SLS results for the credit card terms, *APR Spread* and *Ln(1+Limit)*. The instrument for relationship existence used is *Ln(1+Closest Bank Distance)*, the natural log of one plus the geographical distance in miles between the customer residence ZIP code and the closest bank branch. Kleibergen-Paap rk Wald *F* statistic and Kleibergen-Paap rk *LM* statistic test for instrument weakness and under-identification to ascertain instrument validity. Panel J presents the results from the propensity score matched (PSM) analyses using 1:1 matching without replacement and 1% caliper. Panel K presents the Heckman (1979) selection model results from the outcome equations which also incorporate the lambda (inverse mills ratio). Panel L presents results from falsification tests in which we randomly assign the relationship status to customers while maintaining the original distribution. The loan origination data are from the FR Y-14M credit card dataset and cover the period June 2013 through February 2020 for normal times, and the period November 2019 through June 2020 for changes during the COVID-19 crisis. We use a 0.5% random sample for consumer accounts and a 5% random sample for small business accounts. The dependent variables are: *APR Spread*, interest rate spread over the constant rate Treasury bonds with a similar maturity and *Ln(1+Limit)*, the natural log of 1 plus the origination credit limit on the account. The key explanatory variable are *BANK_REL_3Y* and *BANK_REL_3Y × COVID-19 Crisis*, where *BANK_REL_3Y* is a dummy that equals 1 if the customer has another credit card with the bank in the prior three years and/or a conventional relationship with the bank (based on past provision of deposits; investments; mortgage, auto, student, or other loans; or multiple products), and *COVID-19 Crisis* is a dummy that equals 1 from March 1, 2020, onward. We include a broad set of customer and loan controls measured at the origination time or the FR Y-14M report month end: *Customer Credit Score* dummies, *Customer Income* dummies, *Customer Utilization Rate*, joint account, many authorized users, variable interest rate account, secured card, promotional card, dummies for credit card purpose, and dummies for the channel through which the card was opened. We also include a number of bank characteristics, all lagged one quarter: bank size, bank age, capital ratio, and liquidity ratio, the ratio of non-performing loans, earnings, the ratio of loans to assets. Three local market controls are included, measured at the county level: *Cnty Unemployment*, *Cnty HPI*, and *Cnty Change in HPI*. All regressions include Bank, County, and Month-Year fixed effects. All variables are defined in Table 1. Heteroskedasticity-robust *t*-statistics clustered at county level are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Panel A: Control for the Behavioral Score

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y	-0.522***	0.091***	1.089***	-0.106***	-0.787***	0.078***	0.926***	-0.187***
	(-9.020)	(36.613)	(31.006)	(-28.031)	(-9.422)	(9.191)	(9.011)	(-15.740)
BANK_REL_3Y × COVID-19 Crisis					-0.889***	0.007	-0.357***	0.116***
					(-6.906)	(0.511)	(-2.779)	(6.323)
Behavioral Score	-1.147***	0.283***	-1.273***	-0.025**	-0.799***	0.147***	-1.758***	0.247***
	(-12.603)	(32.666)	(-12.770)	(-2.097)	(-4.063)	(5.105)	(-5.319)	(3.981)
Behavioral Score_Missing	-2.503***	0.275***	-1.901***	0.187***	-3.113***	0.152***	-2.039***	0.393***
	(-33.354)	(37.301)	(-32.246)	(20.530)	(-21.156)	(7.247)	(-17.201)	(22.969)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	806,278	806,278	282,317	282,317	61,688	61,688	34,221	34,221
Adjusted R-squared	0.530	0.614	0.590	0.321	0.532	0.649	0.637	0.256

Panel B: Control for the Credit Card Complaints against the Banks (public data from the CFPB)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y	-0.522***	0.092***	1.072***	-0.106***	-0.858***	0.081***	0.907***	-0.185***
	(-8.932)	(37.072)	(30.292)	(-27.978)	(-10.365)	(9.525)	(8.932)	(-15.573)
BANK_REL_3Y × COVID-19 Crisis					-0.816***	0.004	-0.335***	0.114***
					(-6.320)	(0.272)	(-2.587)	(6.018)
Ln(1+ Num CC Complaints)	-0.339***	0.009	0.563***	0.041***	0.471*	0.013	-0.237	-0.053
	(-6.876)	(1.573)	(5.297)	(3.972)	(1.768)	(0.480)	(-0.826)	(-1.072)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	806,278	806,278	282,317	282,317	61,688	61,688	34,221	34,221
Adjusted R-squared	0.528	0.613	0.589	0.319	0.529	0.648	0.635	0.248

Panel C: Alternative Specification: County × Year-Month FE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y	-0.463***	0.092***	1.066***	-0.103***	-0.845***	0.082***	0.846***	-0.182***
	(-7.362)	(34.671)	(27.358)	(-24.574)	(-10.179)	(9.381)	(7.874)	(-14.589)
BANK_REL_3Y × COVID-19 Crisis					-0.706***	0.006	-0.252*	0.115***
					(-5.199)	(0.452)	(-1.812)	(5.685)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank FE	YES	YES	YES	YES	YES	YES	YES	YES
County × Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	758,465	758,465	255,909	255,909	57,641	57,641	31,761	31,761
Adjusted R-squared	0.530	0.614	0.589	0.322	0.529	0.649	0.630	0.245

Panel D: Alternative Specification: Bank × Year-Month FE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y	-0.387***	0.094***	1.245***	-0.113***	-0.291***	0.086***	0.912***	-0.179***
	(-7.102)	(37.849)	(36.218)	(-30.254)	(-3.770)	(10.136)	(8.714)	(-14.914)
BANK_REL_3Y × COVID-19 Crisis					-1.445***	0.006	-0.357**	0.093***
					(-10.142)	(0.441)	(-2.534)	(4.903)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank × Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
County FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	806,256	806,256	282,303	282,303	61,688	61,688	34,218	34,218
Adjusted R-squared	0.563	0.619	0.605	0.327	0.576	0.650	0.637	0.250

Panel E: Alternative Specification: Bank × County × Year-Month FE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y	-0.102***	0.093***	1.311***	-0.103***	-0.320***	0.085***	0.946***	-0.172***
	(-4.001)	(35.444)	(35.277)	(-25.888)	(-3.355)	(8.208)	(8.939)	(-13.140)
BANK_REL_3Y × COVID-19 Crisis					-1.090***	0.020	-0.512***	0.124***
					(-5.488)	(1.071)	(-2.858)	(5.206)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank × County × Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	614,373	614,373	217,155	217,155	45,323	45,323	27,022	27,022
Adjusted R-squared	0.587	0.627	0.600	0.329	0.596	0.652	0.624	0.252

Panel F: Alternative Specification: ZIP FE and Cluster by ZIP

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y	-0.526***	0.090***	1.023***	-0.102***	-0.848***	0.083***	0.839***	-0.183***
	(-24.508)	(42.078)	(35.055)	(-29.426)	(-9.143)	(8.688)	(8.384)	(-14.429)
BANK_REL_3Y × COVID-19 Crisis					-0.819***	-0.003	-0.258*	0.112***
					(-5.085)	(-0.215)	(-1.720)	(5.218)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, ZIP, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	801,422	801,422	277,326	277,326	57,373	57,373	30,695	30,695
Adjusted R-squared	0.529	0.616	0.591	0.327	0.524	0.649	0.634	0.255

Panel G: Alternative Specification: Credit Score Dummies × Year-Month FE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y	-0.387***	0.094***	1.245***	-0.113***	-0.291***	0.086***	0.912***	-0.179***
	(-7.102)	(37.849)	(36.218)	(-30.254)	(-3.770)	(10.136)	(8.714)	(-14.914)
BANK_REL_3Y × COVID-19 Crisis					-1.445***	0.006	-0.357**	0.093***
					(-10.142)	(0.441)	(-2.534)	(4.903)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Credit Score dummies × Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	806,256	806,256	282,303	282,303	61,688	61,688	34,218	34,218
Adjusted R-squared	0.563	0.619	0.605	0.327	0.576	0.650	0.637	0.250

Panel H: Alternative Relationship Proxies

Panel H.1: Normal Times

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
				Consumer Accounts						**Small Business Accounts**		
Dependent Variable:	APR Spread	APR Spread	APR Spread	Ln(1+Limit)	Ln(1+Limit)	Ln(1+Limit)	APR Spread	APR Spread	APR Spread	Ln(1+Limit)	Ln(1+Limit)	Ln(1+Limit)
Independent Variables:												
BANK_REL_4Y	-0.501***			0.097***			1.028***			-0.095***		
	(-8.979)			(38.773)			(29.875)			(-24.257)		
BANK_REL_5Y		-0.486***			0.100***			0.993***			-0.086***	
		(-9.051)			(39.293)			(28.684)			(-21.827)	
BANK_REL_PRE			-0.642***			0.100***			0.571***			-0.018***
			(-12.990)			(34.404)			(16.835)			(-4.646)
Ln(1+Limit)	YES	YES	YES	NO	NO	NO	YES	YES	YES	YES	YES	YES
Customer/Loan/ Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	806,278	806,278	806,278	806,278	806,278	806,278	282,317	282,317	282,317	282,317	282,317	282,317
Adjusted R-squared	0.528	0.528	0.528	0.613	0.613	0.613	0.589	0.588	0.587	0.319	0.318	0.316

Panel H.2: Changes during the COVID-19 Crisis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
				Consumer Accounts						**Small Business Accounts**		
Dependent Variable:	APR Spread	APR Spread	APR Spread	Ln(1+Limit)	Ln(1+Limit)	Ln(1+Limit)	APR Spread	APR Spread	APR Spread	Ln(1+Limit)	Ln(1+Limit)	Ln(1+Limit)
Independent Variables:												
BANK_REL_4Y × COVID-19 Crisis	-0.857***			-0.009			-0.359***			0.103***		
	(-6.678)			(-0.649)			(-2.907)			(5.559)		
BANK_REL_5Y × COVID-19 Crisis		-0.849***			-0.013			-0.390***			0.097***	
		(-6.627)			(-1.031)			(-3.217)			(5.220)	
BANK_REL_PRE × COVID-19 Crisis			-0.833***			-0.018			-0.462***			0.113***
			(-6.513)			(-1.478)			(-3.682)			(5.711)
BANK_REL_4Y	-0.863***			0.093***			1.021***			-0.165***		
	(-10.574)			(10.949)			(11.412)			(-13.503)		
BANK_REL_5Y		-0.848***			0.099***			1.032***			-0.147***	
		(-10.515)			(12.044)			(11.244)			(-12.235)	
BANK_REL_PRE			-0.974***			0.110***			0.756***			-0.055***
			(-12.261)			(12.375)			(7.808)			(-4.374)
Ln(1+Limit)	YES	YES	YES	NO	NO	NO	YES	YES	YES	NO	NO	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	61,688	61,688	61,688	61,688	61,688	61,688	34,221	34,221	34,221	34,221	34,221	34,221
Adjusted R-squared	0.529	0.529	0.530	0.648	0.648	0.649	0.636	0.636	0.635	0.246	0.245	0.242

Panel I: Instrumental Variable (IV) Analysis (as in Wooldridge (2002) Section 18.4.1, pp. 236-237)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Normal Times						COVID-19 Crisis					
	1st Stage Probit	IV Last (3rd) Stage		1st Stage Probit	IV Last (3rd) Stage		1st Stage Probit	IV Last (3rd) Stage		1st Stage Probit	IV Last (3rd) Stage	
	Consumer Accounts			**Small Business Accounts**			**Consumer Accounts**			**Small Business Accounts**		
Dependent Variable:	BANK_REL_3Y	APR Spread	Ln(1+ Limit)	BANK_REL_3Y	APR Spread	Ln(1+ Limit)	BANK_REL_3Y	APR Spread	Ln(1+ Limit)	BANK_REL_3Y	APR Spread	Ln(1+ Limit)
Independent Variables:												
Ln(1+Closest Bank Distance)	-0.175***			-0.123***			-0.158***			-0.109***		
	(-43.234)			(-27.827)			(-27.593)			(-15.489)		
BANK_REL_3Y		-4.455***	0.365***		3.965***	-0.467***		-5.247***	0.265***		6.679***	0.279
		(-16.863)	(11.674)		(3.546)	(-4.589)		(-8.302)	(4.847)		(2.875)	(0.962)
BANK_REL_3Y × COVID-19 Crisis								-1.042***	-0.014		-1.810***	0.208***
								(-2.674)	(-0.337)		(-3.925)	-3.396
Ln(1+Limit)	NO	YES	NO	NO	YES	NO	NO	YES	NO	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
County, Bank FE	NO	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES
Month-Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	806,325	806,278	806,278	282,619	282,317	282,317	62,144	61,688	61,688	34,821	34,221	34,221
Pseudo / Adjusted R-squared	0.202	0.346	0.512	0.175	0.268	0.205	0.164	0.311	0.512	0.124	0.131	0.124
Weak ID Kleibergen-Paap rk Wald *F* statistic		1846.0***	1886.0***		407.8***	400.4***		255.5***	256.8***		26.7***	24.79***
Underident Kleibergen-Paap rk *LM* statistic		296.7***	294.5***		194.9***	189.7***		242.7***	241.2***		51.88***	49.4***

Panel J: Propensity Score Matching (PSM) without Replacement and 1% Caliper

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y	-0.401***	0.087***	1.198***	-0.102***	-0.389***	0.078***	0.879***	-0.189***
	(-5.905)	(28.610)	(33.223)	(-26.951)	(-3.903)	(7.463)	(8.172)	(-15.358)
BANK_REL_3Y × COVID-19 Crisis					-1.227***	0.003	-0.357**	0.112***
					(-7.270)	(0.198)	(-2.436)	-5.232
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	481,194	481,194	245,102	245,102	36,154	36,154	29,692	29,692
Adjusted R-squared	0.474	0.622	0.553	0.279	0.459	0.664	0.623	0.241

Panel K: Heckman (1979) Selection Model – Outcome Equation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y	-2.692***	0.336***	3.643***	-0.251***	-4.002***	0.286***	4.850***	-0.156
	(-12.014)	(15.247)	(7.703)	(-7.142)	(-10.135)	(7.363)	(5.092)	(-1.286)
BANK_REL_3Y × COVID-19 Crisis					-0.772***	0.000	-0.308**	0.114***
					(-5.993)	(0.031)	(-2.361)	(6.043)
Inv Mills Ratio	1.321***	-0.149***	-1.566***	0.089***	1.905***	-0.124***	-2.407***	-0.018
	(10.824)	(-11.291)	(-5.511)	(4.276)	(7.848)	(-5.574)	(-4.089)	(-0.246)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	806,278	806,278	282,309	282,309	61,688	61,688	34,221	34,221
Adjusted R-squared	0.528	0.613	0.590	0.321	0.530	0.648	0.636	0.248

Panel L: Falsification Tests: Randomly Assign Relationship Status to the Customers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y	0.008	-0.000	-0.006	0.001	-0.020	-0.004	0.039	-0.016
	(0.502)	(-0.270)	(-0.258)	(0.233)	(-0.284)	(-0.524)	(0.509)	(-1.616)
BANK_REL_3Y × COVID-19 Crisis					-0.088	-0.003	-0.124	0.007
					(-0.702)	(-0.249)	(-0.974)	(0.430)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	804,197	804,197	281,485	281,485	61,688	61,688	34,221	34,221
Adjusted R-squared	0.530	0.612	0.586	0.317	0.527	0.647	0.634	0.241

Table 5: Results for Decompositions of Relationships during Normal Times and Changes during the COVID-19 Crisis

This table analyzes the effects of relationships on credit card terms during normal times (Panel A) and changes during the COVID-19 crisis (Panel B) when decomposing relationships into prior credit card relationships and conventional bank relationships. The loan origination data for normal times are from the Y-14M credit card dataset and cover the period June 2013 through February 2020. The loan origination data for COVID-19 crisis are from the FR Y-14M credit card dataset and cover the period November 2019 through June 2020. We use a 0.5% random sample for consumer accounts and a 5% random sample for business accounts. The dependent variables are: *APR Spread*, interest rate spread over the constant rate Treasury bonds with a similar maturity and *Ln(1+Limit)*, natural log of 1 plus the origination credit limit on the account. The key explanatory variables are *CARD_BANK_REL_3Y*, *CONVENTIONAL_BANK_REL*, *CARD_BANK_REL_3Y × COVID-19 Crisis*, and *CONVENTIONAL_BANK_REL × COVID-19 Crisis*, where *CARD_BANK_REL_3Y* is a dummy that equals 1 if the customer has another credit card with the bank in the prior three years, *CONVENTIONAL_BANK_REL* is a dummy that equals 1 if the customer has a conventional relationship with the bank (based on past provision of deposits, investments, mortgage, auto, student, or other loans, or multiple products), and *COVID-19 Crisis* is a dummy that equals 1 from March 1, 2020, onward. *DEPOSIT_REL, INVESTMENT_REL, MORTGAGE_REL, AUTO_REL, STUDENT_REL, OTHERLOAN* and *MULTI_PRODUCT_REL*, denote conventional bank relationships based on deposit accounts, investment accounts, mortgages, auto loans, student loans, other loans, or multiple product accounts, respectively. We include a broad set of customer and loan controls measured at the origination time or the FR Y-14M report month end: *Customer Credit Score* dummies, *Consumer Income* dummies, *Consumer Utilization Rate*, joint account, many authorized users, variable interest rate account, secured card, promotional card, dummies for credit card purpose, and dummies for the channel through which the card was opened. We also include a number of bank characteristics, all lagged one quarter: bank size, bank age, capital ratio, liquidity ratio, the ratio of non-performing loans, earnings, the ratio of loans to assets. Three local market controls are included, measured at the county level: *Cnty Unemployment*, *Cnty HPI*, and *Cnty Change in HPI*. All regressions include Bank, County, and Month-Year fixed effects. All variables are defined in Table 1. Heteroskedasticity-robust *t*-statistics clustered at county level are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Panel A: Effects during Normal Times

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Decompositions of Bank Relationships							
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
CARD_BANK_REL_3Y	0.653***	0.033***	1.800***	-0.182***	0.662***	0.034***	1.795***	-0.181***
	(19.871)	(12.990)	(40.809)	(-37.347)	(20.529)	(13.941)	(40.721)	(-37.411)
CONVENTIONAL_BANK_REL	-1.049***	0.097***	-0.072	0.013***				
	(-12.949)	(26.458)	(-1.489)	(3.097)				
DEPOSIT_REL					-0.992***	0.052***	0.108**	-0.009*
					(-10.198)	(12.309)	(2.050)	(-1.759)
INVESTMENT_REL					-1.195***	0.210***	0.100	0.106***
					(-6.946)	(14.948)	(0.352)	(2.772)
MORTGAGE_REL					0.250**	0.044***	0.542***	0.075***
					(2.049)	(5.449)	(3.148)	(4.148)
AUTO_REL					0.158	0.009	0.956***	-0.002
					(1.477)	(0.996)	(4.688)	(-0.087)
STUDENT_REL					-0.035	0.048**	-0.761	-0.134
					(-0.150)	(2.059)	(-0.844)	(-1.296)
OTHERLOAN_REL					-0.484***	0.024	-1.038***	-0.221***
					(-2.710)	(1.127)	(-3.638)	(-4.662)
MULTI_PRODUCT_REL					-1.626***	0.202***	-0.490***	0.055***
					(-16.843)	(33.874)	(-9.132)	(10.139)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	806,278	806,278	282,317	282,317	806,278	806,278	282,317	282,317
Adjusted R-squared	0.529	0.613	0.592	0.323	0.530	0.613	0.592	0.324

Panel B: Changes during the COVID-19 crisis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Decompositions of Bank Relationships							
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
CARD_REL_3Y × COVID-19 Crisis	0.034	-0.036**	-0.446***	0.077***	0.086	-0.035**	-0.456***	0.076***
	(0.224)	(-2.197)	(-2.896)	(3.455)	(0.574)	(-2.143)	(-3.007)	(3.371)
CONVENTIONAL_BANK_REL × COVID-19 Crisis	-0.992***	0.024	-0.198	0.074***				
	(-6.240)	(1.549)	(-1.363)	(3.546)				
DEPOSIT_REL × COVID-19 Crisis					-1.596***	0.025	-0.234	0.075***
					(-8.137)	(1.382)	(-1.483)	(3.321)
INVESTMENT_REL × COVID-19 Crisis					0.353	0.029	1.274	0.125
					(0.244)	(0.241)	(0.629)	(0.317)
MORTGAGE_REL × COVID-19 Crisis					1.488*	0.165***	-0.593	0.205
					(1.693)	(2.853)	(-0.457)	(1.197)
AUTO_REL × COVID-19 Crisis					-1.471*	0.069	1.973	0.023
					(-1.647)	(1.213)	(1.313)	(0.138)
STUDENT_REL × COVID-19 Crisis					1.506	0.098		
					(0.885)	(0.916)		
OTHERLOAN_REL × COVID-19 Crisis					-0.866	-0.097	-0.274	0.164
					(-0.761)	(-0.694)	(-0.467)	(1.153)
MULTI_PRODUCT_REL × COVID-19 Crisis					-0.141	0.003	0.075	0.071
					(-0.551)	(0.133)	(0.224)	(1.446)
CARD_BANK_REL_3Y	0.124	0.034***	1.434***	-0.239***	0.132	0.035***	1.436***	-0.239***
	(1.275)	(3.387)	(12.098)	(-16.290)	(1.354)	(3.462)	(12.147)	(-16.174)
CONVENTIONAL_BANK_REL	-1.212***	0.084***	-0.010	-0.051***				
	(-10.878)	(7.453)	(-0.093)	(-3.748)				
DEPOSIT_REL					-1.378***	0.058***	-0.032	-0.054***
					(-9.541)	(4.573)	(-0.269)	(-3.629)
INVESTMENT_REL					-0.342	0.178**	1.404	0.220
					(-0.460)	(2.355)	(1.365)	(1.133)
MORTGAGE_REL					-1.156**	-0.058	0.547	-0.222**
					(-2.353)	(-1.323)	(0.818)	(-2.222)
AUTO_REL					-0.905*	0.072**	1.828**	0.007
					(-1.771)	(2.162)	(2.392)	(0.080)
STUDENT_REL					-1.496*	0.093	-1.120	-0.092
					(-1.765)	(1.101)	(-1.592)	(-0.683)
OTHERLOAN_REL					-0.724	-0.131	-0.296	-0.535***
					(-0.992)	(-1.529)	(-0.813)	(-5.726)
MULTI_PRODUCT_REL					-1.046***	0.161***	-0.250	0.071**
					(-6.625)	(9.460)	(-1.127)	(2.403)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	61,688	61,688	34,221	34,221	61,688	61,688	34,221	34,221
Adjusted R-squared	0.530	0.648	0.637	0.252	0.530	0.648	0.637	0.254

Table 6: Effects by Customer Risk during Normal Times and Changes during the COVID-19 Crisis

This table analyzes the effects of relationships on credit card terms during normal times (Panel A) and changes during the COVID-19 crisis (Panel B) using subsamples by customer risk indicators based on customer credit score, customer income, and utilization ratio. Regressions use the full specifications, but all the controls and fixed effects coefficients are suppressed for brevity. The loan origination data are from the FR Y-14M credit card dataset and cover the period June 2013 through February 2020 for normal times, and the period November 2019 through June 2020 for changes during the COVID-19 crisis. We use a 0.5% random sample for consumer accounts and a 5% random sample for small business accounts. The dependent variables are: *APR Spread*, interest rate spread over the constant rate Treasury bonds with a similar maturity and *Ln(1+Limit)*, the natural log of 1 plus the origination credit limit on the account. The key explanatory variables are *BANK_REL_3Y* and *BANK_REL_3Y × COVID-19 Crisis*, where *BANK_REL_3Y* is a dummy that equals 1 if the customer has another credit card with the bank in the prior three years and/or a conventional relationship with the bank (based on past provision of deposits investments; mortgage, auto, student, or other loans; or multiple products), and *COVID-19 Crisis* is a dummy that equals 1 from March 1, 2020, onward. We include a broad set of customer and loan controls measured at the origination time or the FR Y-14M report month-end: *Customer Credit Score* dummies, *Customer Income* dummies, *Customer Utilization Rate*, joint account, many authorized users, variable interest rate account, secured card, promotional card, dummies for credit card purpose, and dummies for the channel through which the card was opened. We also include a number of bank characteristics, all lagged one quarter: bank size, bank age, capital ratio, and liquidity ratio, the ratio of non-performing loans, earnings, the ratio of loans to assets. Three local market controls are included, measured at the county level: *Cnty Unemployment*, *Cnty HPI*, and *Cnty Change in HPI*. All regressions include Bank, County, and Month-Year fixed effects. All variables are defined in Table 1. Heteroskedasticity-robust *t*-statistics clustered at county level are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Panel A: Normal Times ***(Full Specifications with Controls and Fixed Effects Coefficients Suppressed)***

	Customer Risk Indicators											
	Credit Score				Customer Income					Utilization Ratio		
Independent Variables:	<580	[580, 660)	[660,720)	≥720	<25K	[25K, 50K)	[50K, 100K)	[100K, 150K)	≥150K	≥90%	[50%, 90%)	<50%
	Consumer Accounts, Dependent Variable = APR Spread											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
BANK_REL_3Y	-0.608***	-1.728***	-1.014***	-0.252***	-0.750***	-0.714***	-0.520***	-0.584***	-0.436***	-1.287***	-1.080***	-0.455***
	(-4.996)	(-21.762)	(-12.544)	(-5.330)	(-8.108)	(-7.856)	(-8.916)	(-10.621)	(-7.622)	(-11.936)	(-13.038)	(-7.496)
Observations	17,059	113,229	224,341	450,549	95,755	222,609	301,970	94,785	89,534	24,696	43,549	736,903
Adjusted R-squared	0.678	0.596	0.642	0.503	0.611	0.570	0.527	0.506	0.470	0.782	0.766	0.518
	Consumer Accounts, Dependent Variable = Ln(1+Limit)											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
BANK_REL_3Y	0.041***	0.098***	0.144***	0.091***	0.082***	0.065***	0.065***	0.085***	0.076***	0.049***	0.072***	0.110***
	(3.420)	(14.095)	(30.342)	(28.529)	(13.046)	(16.059)	(17.758)	(14.496)	(14.012)	(3.611)	(6.778)	(42.039)
Observations	17,059	113,229	224,341	450,549	95,755	222,609	301,970	94,785	89,534	24,696	43,549	736,903
Adjusted R-squared	0.335	0.469	0.291	0.326	0.598	0.596	0.563	0.500	0.477	0.662	0.653	0.575
	Small Business Accounts, Dependent Variable = APR Spread											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
BANK_REL_3Y	-0.174	0.783***	0.450***	1.130***	0.807***	1.107***	1.421***	1.180***	0.884***	0.437*	0.238*	1.066***
	(-0.624)	(4.883)	(7.095)	(30.666)	(10.922)	(11.204)	(25.613)	(15.422)	(18.586)	(1.704)	(1.782)	(31.818)
Observations	1,785	11,221	54,248	213,670	30,334	27,702	81,248	42,045	98,556	1,928	5,943	273,647
Adjusted R-squared	0.655	0.604	0.669	0.576	0.830	0.667	0.583	0.545	0.502	0.745	0.744	0.591
	Small Business Accounts, Dependent Variable = Ln(1+Limit)											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
BANK_REL_3Y	-0.140***	-0.106***	-0.028***	-0.096***	0.006	-0.040***	-0.100***	-0.105***	-0.123***	-0.199***	-0.163***	-0.103***
	(-3.415)	(-6.176)	(-3.862)	(-24.977)	(0.506)	(-4.371)	(-16.773)	(-13.811)	(-22.781)	(-5.076)	(-8.095)	(-28.193)
Observations	1,785	11,221	54,248	213,670	30,334	27,702	81,248	42,045	98,556	1,928	5,943	273,647
Adjusted R-squared	0.705	0.573	0.284	0.183	0.509	0.333	0.295	0.216	0.194	0.416	0.364	0.314

Panel B: Changes in Effects during the COVID-19 crisis ***(Full Specification with Controls and Fixed Effects Coefficients Suppressed)***

	Customer Risk Indicators											
	Credit Score				Customer Income					Utilization Ratio		
	<580	[580, 660)	[660,720)	≥720	<25K	[25K, 50K)	[50K, 100K)	[100K, 150K)	≥150K	≥90%	[50%, 90%)	<50%
Independent Variables:	**Consumer Accounts, Dependent Variable = APR Spread**											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
BANK_REL_3Y × COVID-19 Crisis	-0.841	-0.345	-1.127***	-0.722***	-1.362**	-0.756**	-0.771***	-1.315***	-0.832**	0.317	-0.197	-0.806***
	(-1.090)	(-0.792)	(-3.935)	(-4.474)	(-2.325)	(-2.462)	(-3.562)	(-3.359)	(-2.277)	(0.240)	(-0.258)	(-6.137)
BANK_REL_3Y	-0.257	-2.166***	-1.586***	-0.486***	-1.800***	-0.896***	-0.812***	-0.793***	-0.577***	-0.313	-0.760**	-0.802***
	(-0.818)	(-8.733)	(-8.676)	(-4.772)	(-4.387)	(-4.907)	(-6.323)	(-3.764)	(-3.173)	(-0.519)	(-2.004)	(-9.002)
Observations	1,214	7,328	15,068	36,384	4,475	14,964	23,984	7,874	8,144	1,266	2,582	57,023
Adjusted R-squared	0.618	0.578	0.632	0.493	0.690	0.578	0.517	0.497	0.464	0.783	0.772	0.518
	Consumer Accounts, Dependent Variable = Ln(1+Limit)											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
BANK_REL_3Y × COVID-19 Crisis	-0.100	-0.042	0.001	0.013	-0.140***	0.002	0.019	0.049	0.067*	-0.255**	-0.140*	0.019
	(-1.257)	(-1.049)	(0.037)	(0.712)	(-2.664)	(0.057)	(0.916)	(1.237)	(1.715)	(-2.223)	(-1.934)	(1.337)
BANK_REL_3Y	0.085**	0.084***	0.155***	0.083***	0.108***	0.041**	0.045***	0.034	0.065***	0.143**	0.032	0.076***
	(2.159)	(2.892)	(7.612)	(8.031)	(2.976)	(2.210)	(3.276)	(1.263)	(2.839)	(2.017)	(0.706)	(8.188)
Observations	1,214	7,328	15,068	36,384	4,475	14,964	23,984	7,874	8,144	1,266	2,582	57,023
Adjusted R-squared	0.511	0.576	0.352	0.386	0.583	0.647	0.593	0.502	0.420	0.811	0.767	0.622
	Credit Score				Customer Income					Utilization Ratio		
	N/A	<660	[660,720)	≥720	<25K	[25K, 50K)	[50K, 100K)	[100K, 150K)	≥150K	≥90%	[50%, 90%)	<50%
	Small Business Accounts, Dependent Variable = APR Spread											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
BANK_REL_3Y × COVID-19 Crisis	N/A	-0.231	-0.281	-0.366**	-1.010	-0.186	-0.475**	-0.322	-0.025	0.198	-0.107	-0.358***
	N/A	(-0.274)	(-0.840)	(-2.374)	(-1.490)	(-0.390)	(-1.975)	(-1.023)	(-0.119)	(0.217)	(-0.157)	(-2.694)
BANK_REL_3Y	N/A	0.478	0.835***	0.824***	0.817**	0.998***	1.361***	0.889***	0.489***	0.475	0.751	0.967***
	N/A	(0.794)	(3.561)	(7.506)	(2.130)	(2.739)	(8.235)	(3.922)	(3.783)	(0.686)	(1.646)	(9.381)
Observations	N/A	979	5,718	26,825	1,093	2,378	8,704	5,492	14,989	190	675	32,973
Adjusted R-squared	N/A	0.637	0.687	0.627	0.804	0.724	0.667	0.642	0.586	0.818	0.720	0.638
	Small Business Accounts, Dependent Variable = Ln(1+Limit)											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
BANK_REL_3Y × COVID-19 Crisis	N/A	0.137	0.062	0.122***	0.217**	0.077	0.108***	0.134***	0.115***	0.130	-0.101	0.116***
	N/A	(1.237)	(1.384)	(6.350)	(2.103)	(0.980)	(3.156)	(2.757)	(3.886)	(0.350)	(-0.789)	(6.129)
BANK_REL_3Y	N/A	-0.050	-0.054*	-0.184***	0.061	-0.107***	-0.189***	-0.207***	-0.182***	-0.012	0.025	-0.178***
	N/A	(-0.879)	(-1.838)	(-14.821)	(1.117)	(-2.682)	(-9.179)	(-7.698)	(-9.135)	(-0.080)	(0.256)	(-13.928)
Observations	N/A	979	5,718	26,825	1,093	2,378	8,704	5,492	14,989	190	675	32,973
Adjusted R-squared	N/A	0.564	0.284	0.196	0.272	0.286	0.267	0.208	0.231	0.275	0.327	0.262

Table 7: Additional Analyses – Changes in Effects on Credit Card Customers during the COVID-19 Crisis

This table analyzes changes in the effects of relationships on credit card terms during the COVID-19 crisis using several additional robustness tests. The loan origination data are from the FR Y-14M credit card dataset and cover four months before and four months after COVID-19 started (after the first declaration of emergency by government officials in Washington state on Feb 29, 2020), spanning November 2019 through June 2020. We use a 0.5% random sample for consumer accounts and a 5% random sample for business accounts. Panel A shows results using three alternative samples: 1) subtract two months from our baseline pre-COVID-19 period, effectively starting on January 2020; 2) adding two extra months to our baseline pre-COVID-19 period, effectively starting on September 2020; 3) consider the pre-COVID-19 period to be same exact time that the COVID-crisis period is but one year earlier in 2019, that is March 1 through June 30 2019. Panel B1-B2 shows results using alternative COVID-19 continuous measures focused on government-activity restrictions and health intensity at the national, state, or county level. Panel C shows results when we replace the COVID-19 crisis variable used in our main analysis with dummies for each of the months of the crisis from March through June 2020, the end of our sample period, and also interact these indicators with *BANK_REL_3Y.* Panel D1-D2 shows results when controlling for the ratio of PPP loans to bank total assets, *PPP Loans/Total Assets*, as well as when we interact an indicator *High PPP* (for banks with above 75th percentile PPP loans relative to total assets) with *BANK_REL_3Y*, *COVID-19 Crisis*, and *BANK_REL_3Y×COVID-19 Crisis*. The dependent variables are: *APR Spread*, interest rate spread over the constant rate Treasury bonds with a similar maturity and *Ln(1+Limit)*, natural log of 1 plus the origination credit limit on the account. The key explanatory variable are *BANK_REL_3Y* and *BANK_REL_3Y × COVID-19 Crisis*, where *BANK_REL_3Y* is a dummy that equals 1 if the customer has another credit card with the bank in the prior three years and/or a conventional relationship with the bank (based on past provision of deposits; investments; mortgage, auto, student, or other loans; or multiple products), and *COVID-19 Crisis* is a dummy that equals 1 from March 1, 2020, onward. We include a broad set of customer and loan controls measured at the origination time or the FR Y-14M report month-end: *Customer Credit Score* dummies, *Customer Income* dummies, *Customer Utilization Rate*, joint account, many authorized users, variable interest rate account, secured card, promotional card, dummies for credit card purpose, and dummies for the channel through which the card was opened. We also include a number of bank characteristics, all lagged one quarter: bank size, bank age, capital ratio, and liquidity ratio, the ratio of non-performing loans, earnings, the ratio of loans to assets. Three local market controls are included, measured at the county level: *Cnty Unemployment*, *Cnty HPI*, and *Cnty Change in HPI*. All regressions include Bank, County, and Month-Year fixed effects. All variables are defined in Table 1. Heteroskedasticity-robust *t*-statistics clustered at county level are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Panel A: Different Pre+During COVID-19 Samples

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Sample	Start in 2020:M1 (Subtract 2 months)				Start in 2019:M9 (Add 2 months)				Same time in 2019 (Start in 2019:M3-2019:M6)			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln (1+Limit)	APR Spread	Ln (1+Limit)	APR Spread	Ln (1+Limit)	APR Spread	Ln (1+Limit)	APR Spread	Ln (1+Limit)	APR Spread	Ln (1+Limit)
Independent Variables:												
BANK_REL_3Y × COVID-19 Crisis	-0.705***	0.013	-0.361**	0.087***	-0.798***	0.004	-0.361***	0.105***	-1.745***	0.044***	-0.281**	0.051***
	(-4.532)	(0.860)	(-2.298)	(4.261)	(-6.011)	(0.338)	(-3.043)	(5.823)	(-11.933)	(3.329)	(-2.217)	(2.718)
BANK_REL_3Y	-0.988***	0.077***	0.960***	-0.171***	-0.794***	0.083***	0.952***	-0.169***	-0.114	0.048***	0.990***	-0.123***
	(-7.850)	(6.471)	(7.050)	(-11.123)	(-9.998)	(11.941)	(10.999)	(-17.715)	(-1.185)	(5.539)	(10.666)	(-11.963)
COVID-19 Crisis	2.125***	-0.078***	0.324*	-0.058*	2.237***	-0.070***	0.531***	-0.089**	0.262	-0.152***	0.269	-0.007
	(10.746)	(-3.217)	(1.843)	(-1.695)	(12.611)	(-3.268)	(3.028)	(-2.738)	(1.004)	(-5.501)	(1.313)	(-0.176)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	40,579	40,579	23,348	23,348	82,481	82,481	46,024	46,024	62,013	62,013	34,589	34,589
Adjusted R-squared	0.511	0.639	0.645	0.252	0.535	0.653	0.628	0.244	0.574	0.632	0.656	0.246

Panel B: Different Measures of Crisis: Crisis Intensity

Panel B1: Consumer Accounts

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Intensity Indicator	US Restrictions Index	State Restrictions Index	GPS State Immobility	County New Cases /100K Pop	County New Deaths /100K Pop	US Restrictions Index	State Restrictions Index	GPS State Immobility	County New Cases /100K Pop	County New Deaths /100K Pop
Dependent Variable:	APR Spread	APR Spread	APR Spread	APR Spread	APR Spread	Ln(1+Limit)	Ln(1+Limit)	Ln(1+Limit)	Ln(1+Limit)	Ln(1+Limit)
Independent Variables:										
BANK_REL_3Y × COVID-19 Crisis (Intensity Indicator)	-0.251***	-0.237***	-9.052***	-0.038***	-0.303**	0.001	0.001	0.035	-0.000	-0.018*
	(-10.386)	(-9.692)	(-9.938)	(-2.872)	(-2.234)	(0.433)	(0.396)	(0.439)	(-0.412)	(-1.814)
BANK_REL_3Y	-0.695***	-0.718***	-0.749***	-1.064***	-1.106***	0.080***	0.081***	0.080***	0.083***	0.084***
	(-8.647)	(-8.924)	(-9.479)	(-14.454)	(-15.769)	(9.747)	(9.865)	(10.002)	(11.367)	(11.866)
COVID-19 Crisis (Intensity Indicator)	0.136***	0.063**	0.544	0.000	-0.114*	-0.016***	-0.013***	-0.458***	-0.000	-0.010*
	(3.701)	(2.080)	(0.568)	(0.142)	(-1.818)	(-4.804)	(-4.343)	(-5.156)	(-0.728)	(-1.675)
Ln(1+Limit)	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	61,688	61,688	61,688	61,688	61,688	61,688	61,688	61,688	61,688	61,688
Adjusted R-squared	0.530	0.530	0.530	0.529	0.529	0.648	0.648	0.648	0.648	0.648

Panel B2: Small Business Accounts

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Intensity Indicator	US Restrictions Index	State Restrictions Index	GPS State Immobility	County New Cases /100K Pop	County New Deaths /100K Pop	US Restrictions Index	State Restrictions Index	GPS State Immobility	County New Cases /100K Pop	County New Deaths /100K Pop
Dependent Variable:	APR Spread	APR Spread	APR Spread	APR Spread	APR Spread	Ln(1+Limit)	Ln(1+Limit)	Ln(1+Limit)	Ln(1+Limit)	Ln(1+Limit)
Independent Variables:										
BANK_REL_3Y × COVID-19 Crisis (Intensity Indicator)	-0.059***	-0.051***	-1.447**	-0.019**	-0.224**	0.021***	0.021***	0.573***	0.003***	0.053***
	(-2.925)	(-2.614)	(-2.028)	(-2.267)	(-2.105)	(6.238)	(6.437)	(5.175)	(2.807)	(3.413)
BANK_REL_3Y	0.894***	0.882***	0.859***	0.836***	0.822***	-0.183***	-0.183***	-0.174***	-0.156***	-0.154***
	(9.384)	(9.386)	(9.202)	(10.070)	(9.949)	(-15.868)	(-16.055)	(-15.768)	(-16.436)	(-16.329)
COVID-19 Crisis (Intensity Indicator)	-0.010	-0.017	-1.297	0.006	0.046	-0.015***	-0.017***	-0.426***	-0.002*	-0.031***
	(-0.268)	(-0.533)	(-1.363)	(0.983)	(0.545)	(-3.436)	(-4.173)	(-3.528)	(-1.706)	(-2.819)
Ln(1+Limit)	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	34,221	34,221	34,221	34,221	34,221	34,221	34,221	34,221	34,221	34,221
Adjusted R-squared	0.635	0.635	0.635	0.635	0.635	0.248	0.248	0.248	0.247	0.247

Panel C: Month-by-Month Dynamics

	(1)	(2)	(3)	(4)
	Consumer Accounts		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:				
BANK_REL_3Y × COVID-19 Crisis_Mar 2020	0.556***	0.031	0.014	0.047*
	(2.809)	(1.541)	(0.077)	(1.904)
BANK_REL_3Y × COVID-19 Crisis_Apr 2020	-2.018***	-0.003	-0.473**	0.088**
	(-7.362)	(-0.125)	(-2.262)	(2.546)
BANK_REL_3Y × COVID-19 Crisis_May 2020	-1.745***	-0.008	-0.807***	0.184***
	(-6.757)	(-0.332)	(-3.329)	(4.588)
BANK_REL_3Y × COVID-19 Crisis_Jun 2020	-1.237***	-0.033	-0.703**	0.298***
	(-4.265)	(-1.196)	(-2.397)	(7.375)
BANK_REL_3Y	-0.842***	0.081***	0.908***	-0.185***
	(-10.158)	(9.555)	(8.926)	(-15.613)
Ln(1+Limit)	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES
Observations	61,688	61,688	34,221	34,221
Adjusted R-squared	0.530	0.648	0.635	0.249

Panel D: PPP Lending

Panel D1: Control for PPP Lending

	(1)	(2)	(3)	(4)
	Consumer Accounts		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:				
BANK_REL_3Y × COVID-19 Crisis	-0.866***	0.002	-0.335***	0.113***
	(-6.664)	(0.174)	(-2.584)	(6.027)
PPP Loans/Total Assets	-920.413***	-23.467***	-31.628	8.301
	(-11.364)	(-2.709)	(-0.119)	(0.202)
BANK_REL_3Y	-0.841***	0.082***	0.907***	-0.185***
	(-10.183)	(9.594)	(8.918)	(-15.587)
Ln(1+Limit)	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES
Observations	61,688	61,688	34,221	34,221
Adjusted R-squared	0.530	0.648	0.635	0.248

Panel D2: Interactions with High PPP Lending (PPP Loans/Total Assets ≥ P75)

	(1)	(2)	(3)	(4)
	Consumer Accounts		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:				
BANK_REL_3Y × COVID-19 Crisis × High PPP	2.292***	-0.072**	0.319	-0.003
	(7.334)	(-2.116)	(0.958)	(-0.073)
High PPP	1.007***	0.009	-0.408	0.110*
	(4.812)	(0.347)	(-0.953)	(1.726)
COVID-19 Crisis × High PPP	-2.713***	-0.038*	-0.762***	-0.016
	(-12.157)	(-1.801)	(-3.048)	(-0.434)
BANK_REL_3Y × High PPP	1.652***	0.048**	0.665***	-0.150***
	(8.751)	(2.282)	(2.813)	(-6.165)
COVID-19 Crisis	-1.207***	0.071***	0.742***	-0.144***
	(-13.120)	(7.199)	(8.509)	(-10.666)
BANK_REL_3Y	-1.371***	0.016	-0.429***	0.109***
	(-8.474)	(1.062)	(-3.421)	(4.752)
BANK_REL_3Y × COVID-19 Crisis	2.292***	-0.072**	0.319	-0.003
	(7.334)	(-2.116)	(0.958)	(-0.073)
Ln(1+Limit)	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES
Observations	61,688	61,688	34,221	34,221
Adjusted R-squared	0.532	0.648	0.636	0.249

Table 8: Tests of Atrophy in the Value of Consumer Credit Scores Due to the CARES Act during the COVID-19 Crisis

This table reports tests of atrophy in the value of consumer credit scores due to the CARES Act, by analyzing the changes in the value of credit scores on credit card terms for consumers during the COVID-19 crisis. The loan origination data come from the FR Y-14M credit card dataset and cover the period November 2019 through June 2020. It uses a 0.5% random sample for consumer accounts. The dependent variables are other credit card terms. The key explanatory variable are *BANK_REL_3Y × COVID-19 Crisis*, *Customer Credit Score [580, 660) × COVID-19 Crisis*, *Customer Credit Score [660, 720) × COVID-19 Crisis*, and *Customer Credit Score ≥720 × COVID-19 Crisis*, where *BANK_REL_3Y* is a dummy that equals 1 if the customer has another credit card with the bank in the prior three years and/or a conventional relationship with the bank (based on past provision of deposits; investments; mortgage, auto, student, or other loans; or multiple products), *Customer Credit Score [580, 660), Customer Credit Score [660, 720),* and *Customer Credit Score ≥720* are dummies for *Customer Credit Score* ranges [580, 660), [660, 720), and ≥720, and *COVID-19 Crisis* is a dummy that equals 1 from March 1, 2020, onward. We include a broad set of customer and loan controls measured at the origination time or the FR Y-14M report month-end: *Customer Credit Score* dummies, *Customer Income* dummies, *Customer Utilization Rate*, joint account, many authorized users, variable interest rate account, secured card, promotional card, dummies for credit card purpose, and dummies for the channel through which the card was opened. We also include a number of bank characteristics, all lagged one quarter: bank size, bank age, capital ratio, and liquidity ratio, the ratio of non-performing loans, earnings, the ratio of loans to assets. Three local market controls are included, measured at the county level: *Cnty Unemployment*, *Cnty HPI*, and *Cnty Change in HPI*. All regressions include Bank, County, and Month-Year fixed effects. All variables are defined in Table 1. Heteroskedasticity-robust *t*-statistics clustered at county level are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

	(1)	(2)
	Consumer Accounts	
Dependent Variable:	APR Spread	Ln(1+Limit)
Independent Variables:		
BANK_REL_3Y × COVID-19 Crisis	-0.812***	0.003
	(-6.255)	(0.251)
BANK_REL_3Y	-0.859***	0.081***
	(-10.341)	(9.516)
Customer Credit Score [580, 660) × COVID-19 Crisis	0.649*	-0.081**
	(1.792)	(-2.083)
Customer Credit Score [660, 720) × COVID-19 Crisis	1.243***	-0.137***
	(3.323)	(-3.648)
Customer Credit Score ≥720 × COVID-19 Crisis	1.301***	-0.243***
	(3.755)	(-6.525)
Customer Credit Score [580, 660)	-1.856***	0.369***
	(-8.683)	(15.637)
Customer Credit Score [660, 720)	-4.445***	1.102***
	(-19.095)	(43.816)
Customer Credit Score ≥720	-6.122***	1.799***
	(-25.066)	(71.394)
Ln(1+Limit)	YES	NO
Customer/Loan/Bank/County Controls	YES	YES
Bank, County, Year-Month FE	YES	YES
Observations	61,688	61,688
Adjusted R-squared	0.529	0.649

Appendix A: Additional Analyses

We show extra robustness tests of our main findings in Section A.1, investigate the heterogeneity of the main findings in Section A.2, and analyze existing credit card account data in A.3.

A.1 Extra Robustness Tests of Main Results

The main analysis uses heteroskedasticity-robust *t*-statistics clustered at the county level. Table A.1 Panel A instead double-clusters the error terms by *County* and *Customer* to better account for the level of variation in credit card terms. The results are similar to the main results.

The main findings are based on a sample that includes banks subject to stress tests and having material credit card portfolios in the U.S. Table A.1 Panel B excludes banks with very different business models, i.e., primary business is credit card lending and do less in other bank activities. Table A.1 Panel C only includes banks that exist in both the consumer and small business credit card samples. Our main findings are confirmed in both checks. Panel D excludes potential replacement credit cards for broken, stolen, lost, or for fraud reasons. To identify potential replacement cards, we look at whether a customer gets a new card in a month but closes any of the existing credit card accounts in the same month or in the months before and after the new issuance, considering a three-month window centered around the new card issuance. Panel E excludes customers potentially affected by fraud in any of their credit card accounts in FR Y-14M (new and existing) in a particular month. To identify these, we use the FR Y-14M indicator for whether there is potential fraud/fraud investigation on an account.

A.2 Heterogeneous Effects by Bank and County Characteristics

The main results are obtained while including numerous control variables. This approach may mask interesting heterogeneity of the results. We therefore next investigate whether our results differ by important bank and county characteristics. We do so by interacting the key exogenous variables – *BANK_REL_3Y, COVID-19 Crisis,* and *BANK_REL_3Y×COVID-19 Crisis* – with a dummy for a high or low value of a selected bank characteristic (bank size, capital, liquidity, ROE, credit card complaints, concentration in non-prime or subprime) or county characteristic (unemployment rate, county income and county minority percent)[24]. For normal times, we focus on *BANK_REL_3Y × Bank/County Characteristic,* while for changes during COVID-19, we concentrate on *BANK_REL_3Y × COVID-19 Crisis × Bank/County Characteristic* to capture how our main results vary with that characteristic. Table A.2 Panels A-G focus on bank characteristics, while Panels H-J address county heterogeneity.

[24] County income and minority percent are based on data from the American Community Surveys (ACS).

Results in Table A.2 Panel A suggest that relationship customers from smaller banks mostly fare better relative to large bank relationship customers during normal times, but this is reversed during the COVID-19 crisis. Three of the four key interaction terms show statistically significantly better terms (lower spreads and higher limits) during normal times, while three of the four are statistically significantly worse in the crisis. The normal times results are generally consistent with the literature's finding that smaller banks more often share relationship benefits, but the COVID-19 findings are not.

Results for bank financial health in Table A.2 Panels B, C, and D mostly suggest that banks in worse financial health (lower capital, liquidity, and earnings) tend to provide worse credit terms to relationship customers during normal times, possibly due to their own constraints. They do offer some pockets of "shared benefits" during the COVID-19 crisis, suggesting some bright side of relationships when customers are in need. In addition, banks having received more credit card complaints are associated with worse credit card terms during normal times and with minimal evidence of better terms during the COVID-19 crisis. The slightly better effects during the crisis may reflect pressures from complaints against banks potentially leading to slight improvements. Finally, banks with higher concentration in nonprime customers (credit scores < 720) – which may be seeking more profitability – tend to provide more "shared benefits" during normal times, but effects are more mixed during the COVID-19 crisis.

Turning to county heterogeneity, results in Panels H, I, and J suggest that relationship customers in counties with high unemployment rates and low income generally obtain better credit card terms during normal times, which may be consistent with banks seeking more profitability from these customer groups. During the COVID-19 crisis, benefits appear to be larger for counties with high unemployment rates, but no significant effects are observed for low-income counties. Finally, only mixed effects apply to customers in counties with high minority representation during both normal times and the crisis.

A.3. Analysis of Existing Credit Card Accounts (as Opposed to New Originations)

Our main analysis focuses on newly originated credit cards. The advantage of new originations is that all the information provided in the FR Y-14M is recent. An analysis of existing accounts is more challenging because some of the data on rates, limits, and controls may be stale, which may weaken the results. Nonetheless, we now employ data on a sample of existing accounts also drawn from the FR Y-14M to examine how relationships affect credit terms for existing credit card accounts (Section A.3.1). We also analyze how these effects differ by customer risk characteristics (Section A.3.2), and examine the impact of forbearance accommodations during the COVID-19 crisis (Section A.3.3).

A.3.1 Effects of Relationships on Credit Terms on Existing Accounts (as Opposed to New Originations)

Given the very large FR Y-14M credit card dataset for existing accounts, our analyses use a 0.1% random sample for consumers (9.97 million observations) and a 1% random sample for small businesses (5.55 million observations). We keep only accounts that are over 12 months old to avoid potential overlap with terms set on new accounts that may last for up to one year after origination. Table A.3 shows summary statistics on this dataset, which we do not discuss for brevity.

In Table A.4, we apply equations (1) and (2) to see if our main results extend to the existing accounts. Our key dependent variables, *APR Spread* and *Ln(1+Limit)*, are the same as in the main analysis, except that the *APR Spread* is the APR spread over the constant rate Treasury rate with a similar maturity structure at account cycle-end date.[25] As before, *BANK_REL_3Y* equals 1 if the customer has another credit card with the bank in the prior 3 years and/or has a conventional relationship with the bank. The *COVID-19 Crisis* dummy is based on account cycle-end date instead of origination date. We make a few alterations and additions to the controls to better capture the state of existing accounts. We include refreshed *Customer Credit Score* dummies when available and use the origination score for those that do not report a refreshed one. We also include a control for *Months Since Last Refresh* to assess how old the credit score information on the account is. Because accounts can be of varying ages with implications for credit terms, we include dummies for account age for the ranges [3, 5 years), [5, 10 years), and ≥10 years, with (1, 3 years) being the left-out category. We include a *Securitized* dummy indicating if the existing account was securitized (not an issue for new accounts) and an indicator for account delinquency (60 days past due or more over the past three years), *Ever 60dpd Previous 3 Years*. All other controls, fixed effects, and clustering are the same as in our new originations analysis.

Table A.4 shows main effects for normal times and changes during the COVID-19 crisis. The coefficients suggest that during normal times, banks provide lower spreads and higher limits to relationship consumer than to other consumers, again consistent with **H1a: "Shared Benefits**." For small businesses with relationships, banks provide lower credit limits but no significantly different spreads, some limited evidence for **H1b: "Hold-up Problems**." Again, the results jointly support **H3a: "Cross-sectional Smoothing Favoring Consumer Relationship Customers**." Overall, the normal times effects for existing accounts are consistent with the main new originations results, but the

[25] The account cycle end-date (or account statement closing date) is the date on which transactions are accumulated for billing purposes and any account activities and delinquencies are normally reported to the credit bureaus.

coefficients are much smaller in magnitude and the results are weaker overall. These findings are not surprising, given the arguments above about the influences of stale information on existing accounts. The changes during the COVID-19 crisis show even weaker results. There are fewer significant effects and they are very small in magnitude. The findings provide limited support for **H2a: "Intertemporal Smoothing**,**"** again likely due to stale information.

A.3.2 Results by Customer Risk on Existing Accounts (as Opposed to New Originations)

We next show how results for existing accounts differ by customer risks using four risk indicators, of which only the first one is similar to those employed for new originations in Section 7.2. Our first risk indicator is again credit score, with two categories (<720, ≥720) for subprime and prime.[26] Second, we divide the sample into not securitized and securitized, realizing that the bank bears the risk and enjoys profits only on the non-securitized cards. Third, we split accounts by account age (1, 3 years), [3, 5 years), [5, 10 years), and ≥10 years), whereby younger accounts are expected to be riskier. Finally, we divide accounts by customer payment behavior into Revolver (unpaid balances from month to month), Transactor (paid in full each month), and Dormant (no activity from month to month). Clearly, revolvers impose the most credit risk on banks and provide the most profits in normal times.

The normal-times findings in Table A.5 Panel A for existing accounts are mostly consistent with those for new originations in Table 6 Panel B, but are somewhat weaker, consistent with expectations. During normal times, banks provide preferential treatment to riskier relationship consumers in terms of both spreads and limits, consistent with arguments above about trying to retain more profitable risky relationship consumers. However, the effects of customer risks on loan terms for relationship small businesses is less clear. The crisis results in Table A.5 Panel B suggest minor movements toward less favorable treatment of riskier relationship consumers (higher spreads and lower limits), consistent with more risk management during the crisis. Again, the effects of relationship status on credit terms do not seem to differ substantially across the risk categories for small businesses.

A.3.3 Forbearance Accommodations Analysis (Existing Accounts)

Banks may always provide forbearance accommodations to customers that experience temporary hardship. While the use of such accommodations is quite infrequent during normal times, they are a prominent part of the CARES Act policies during the COVID-19 crisis (e.g., Cherry, Jiang, Matvos,

[26] For brevity, we include only two categories here for credit score, covering subprime and prime. Results using more detailed ranges are consistent and available upon request.

Piskorski, and Seru, 2021).[27] We now examine if banks were more likely to engage in forbearance with their relationship customers. The answer is unclear since banks could alternatively choose to hold up their relationship customers.

We measure credit card forbearances several ways, following Cordell, Hossain, and Roy (2020). We use: *All Forbearances*, an indicator for whether the account is in any type of forbearance/non-payment workout status; *Forb Reduced Rate*, APR rates reduced to 10% or lower; *Forb $0 Min Pay*, customer having nonzero balance but being allowed $0 minimum payment; *Forb Defer Pay*, payment deferral for accounts with nonzero balances; *Forb Waive Late Fees*, waived late fees; *Forb Waive Interest*, waived interest payments; and *Forb Other*, all other types of forbearance.

The normal-times results in Table A.6 suggest that consumers with relationships are more likely to be granted credit card forbearances consistent with shared benefits, while small businesses with relationships are less likely to obtain these consistent with hold-up problems. These results support the empirical dominance of **H3a: "Cross-sectional Smoothing Favoring Consumer Relationship Customers"** during normal times.

The COVID-19 crisis results in Table A.6 Panel B show that both consumers and small businesses with relationships are more likely to be granted credit card forbearances: they were more likely to get a waiver for the $0 minimum payment requirement, were allowed to defer payments, and enjoyed other forbearances. The forbearance accommodations are benefits to relationship customers in need during the COVID-19 crisis, and support **H2a: "Intertemporal Smoothing"** for both consumer and small business relationships.

[27] Unreported data means suggest that forbearance accommodations are about ten times more frequent during the COVID-19 crisis than normal times.

Table A.1: Extra Robustness Tests of Main Results

This table provides additional robustness tests of the effects of relationships on credit card terms during normal times and changes during the COVID-19 crisis. Panel A uses double clustering by county and consumer. Panel B excludes banks with different business models (primary business is credit cards). Panel C focuses on banks that exist in both consumer and small business samples. Panel D excludes potential replacement credit cards for broken, stolen, lost, or for fraud. Panel E excludes customers potentially affected by fraud in any of their accounts. In each panel, columns (1)-(4) show results during normal times, while columns (5)-(8) show changes during the COVID-19 crisis. The loan origination data come from the FR Y-14M credit card dataset and cover the period June 2013 through February 2020 for normal times, and the period November 2019 through June 2020 for changes during the COVID-19 crisis. We use a 0.5% random sample for consumer accounts and a 5% random sample for small business accounts. The dependent variables are: *APR Spread*, interest rate spread over the constant rate Treasury bonds with a similar maturity and *Ln(1+Limit)*, natural log of 1 plus the origination credit limit on the account. The key explanatory variables are *BANK_REL_3Y* and *BANK_REL_3Y × COVID-19 Crisis*, where *BANK_REL_3Y* is a dummy that equals 1 if the customer has another credit card with the bank in the prior three years and/or a conventional relationship with the bank (based on past provision of deposits; investments; mortgage, auto, student, or other loans; or multiple products), and *COVID-19 Crisis* is a dummy that equals 1 from March 1, 2020, onward. We include a broad set of customer and loan controls measured at the origination time or the FR Y-14M report month-end: *Customer Credit Score* dummies, *Customer Income* dummies, *Customer Utilization Rate*, joint account, many authorized users, variable interest rate account, secured card, promotional card, dummies for credit card purpose, and dummies for the channel through which the card was opened. We also include a number of bank characteristics, all lagged one quarter: bank size, bank age, capital ratio, and liquidity ratio, the ratio of non-performing loans, earnings, the ratio of loans to assets. Three local market controls are included, measured at the county level: *Cnty Unemployment*, *Cnty HPI*, and *Cnty Change in HPI*. All regressions include Bank, County, and Month-Year fixed effects. All variables are defined in Table 1. Heteroskedasticity-robust *t*-statistics clustered at county level are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Panel A: Cluster by County and Customer

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Cluster by County and Customer				Cluster by County and Customer			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y	-0.524***	0.092***	1.071***	-0.106***	-0.857***	0.081***	0.907***	-0.185***
	(-8.952)	(37.095)	(30.296)	(-27.979)	(-10.349)	(9.524)	(8.920)	(-15.588)
BANK_REL_3Y × COVID-19 Crisis					-0.819***	0.003	-0.335***	0.113***
					(-6.332)	(0.265)	(-2.584)	(6.026)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	806,278	806,278	282,317	282,317	61,688	61,688	34,221	34,221
Adjusted R-squared	0.528	0.613	0.589	0.319	0.529	0.648	0.635	0.248

Panel B: Exclude Banks with Different Business Model

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Exclude Banks with Different Business Model				Exclude Banks with Different Business Model			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y	-0.290***	0.097***	1.177***	-0.106***	-0.290***	0.095***	0.945***	-0.205***
	(-5.186)	(36.692)	(29.239)	(-23.514)	(-3.513)	(10.931)	(6.858)	(-15.602)
BANK_REL_3Y × COVID-19 Crisis					-1.171***	-0.004	-0.380**	0.108***
					(-8.759)	(-0.282)	(-2.242)	(4.764)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	670,373	670,373	248,538	248,538	49,883	49,883	24,087	24,087
Adjusted R-squared	0.471	0.628	0.579	0.332	0.452	0.662	0.613	0.248

Panel C: Include only Banks that Exist in Both Consumer and Small Business Credit Card Samples

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Include only Banks that Exist in Both Consumer and Small Business Samples				Include only Banks that Exist in Both Consumer and Small Business Samples			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y	-0.522***	0.092***	1.072***	-0.106***	-0.869***	0.080***	0.907***	-0.185***
	(-8.924)	(37.213)	(30.335)	(-27.985)	(-10.469)	(9.385)	(8.920)	(-15.589)
BANK_REL_3Y × COVID-19 Crisis					-0.806***	0.002	-0.335***	0.113***
					(-6.184)	(0.123)	(-2.585)	(6.025)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	804,505	804,505	282,304	282,304	61,423	61,423	34,219	34,219
Adjusted R-squared	0.528	0.613	0.589	0.319	0.529	0.649	0.635	0.248

Panel D: Exclude Potential Credit Card Replacements due to Broken/Stolen/Lost/Fraud

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Exclude Potential Card Replacements due to Broken/Stolen/Lost/Fraud				Exclude Potential Card Replacements due to Broken/Stolen/Lost/Fraud			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y	-0.525***	0.092***	1.069***	-0.105***	-0.859***	0.081***	0.902***	-0.185***
	(-8.951)	(36.803)	(29.991)	(-27.704)	(-10.358)	(9.534)	(8.881)	(-15.468)
BANK_REL_3Y × COVID-19 Crisis					-0.815***	0.004	-0.322**	0.113***
					(-6.294)	(0.269)	(-2.479)	(5.989)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	805,433	805,433	281,034	281,034	61,621	61,621	34,082	34,082
Adjusted R-squared	0.528	0.613	0.589	0.320	0.529	0.648	0.636	0.248

Panel E: Exclude Customers Potentially Affected by Fraud in Any of Their Accounts

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Exclude Customers Potentially Affected by Fraud				Exclude Customers Potentially Affected by Fraud			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y	-0.538***	0.093***	1.062***	-0.104***	-0.894***	0.083***	0.913***	-0.184***
	(-9.153)	(37.302)	(30.457)	(-27.240)	(-10.674)	(9.883)	(9.070)	(-15.371)
BANK_REL_3Y × COVID-19 Crisis					-0.797***	0.001	-0.329**	0.111***
					(-6.192)	(0.098)	(-2.546)	(5.947)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	800,909	800,909	278,239	278,239	61,044	61,044	33,775	33,775
Adjusted R-squared	0.529	0.613	0.592	0.320	0.530	0.648	0.638	0.247

Table A.2: Heterogeneous Effects by Bank and County Characteristics

This table examines how the effects of relationships on credit card terms differ by bank and county characteristics. Panels A-F focus on bank characteristics (smaller bank size, low capital ratio, low liquidity ratio, low profitability (ROE), high CFPB customer credit card complaints, high non-prime customer concentration, using the median of the characteristic as a cutoff). Panels G-I focus on county characteristics (high unemployment rate, low family income, high minority percent, using the median of the characteristic as a cutoff). In each panel, Columns (1)-(4) show results during normal times, while columns (5)-(8) show changes during the COVID-19 crisis. The loan origination data come from the FR Y-14M credit card dataset and cover the period June 2013 through February 2020 for normal times, and the period November 2019 through June 2020 for changes during the COVID-19 crisis. We use a 0.5% random sample for consumer accounts and a 5% random sample for small business accounts. The dependent variables are: *APR Spread*, interest rate spread over the constant rate Treasury bonds with a similar maturity and *Ln(1+Limit)*, natural log of 1 plus the origination credit limit on the account. The key explanatory variables are interactions of a bank/county characteristic and *BANK_REL_3Y* and *BANK_REL_3Y × COVID-19 Crisis*, where *BANK_REL_3Y* is a dummy that equals 1 if the customer has another credit card with the bank in the prior three years and/or a conventional relationship with the bank (based on past provision of deposits; investments; mortgage, auto, student, or other loans; or multiple products), and *COVID-19 Crisis* is a dummy that equals 1 from March 1, 2020, onward. We include a broad set of customer and loan controls measured at the origination time or the FR Y-14M report month-end: *Customer Credit Score* dummies, *Customer Income* dummies, *Customer Utilization Rate*, joint account, many authorized users, variable interest rate account, secured card, promotional card, dummies for credit card purpose, and dummies for the channel through which the card was opened. We also include a number of bank characteristics, all lagged one quarter: bank size, bank age, capital ratio, and liquidity ratio, the ratio of non-performing loans, earnings, the ratio of loans to assets. Three local market controls are included, measured at the county level: *Cnty Unemployment*, *Cnty HPI*, and *Cnty Change in HPI*. All regressions include Bank, County, and Month-Year fixed effects. All variables are defined in Table 1. Heteroskedasticity-robust *t*-statistics clustered at county level are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Panel A: Effects - Smaller Size (< Median) Banks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y × Smaller Bank	-2.933***	-0.075***	-2.007***	0.055***	-2.716***	-0.121***	-0.962***	0.078***
	(-36.254)	(-15.273)	(-25.438)	(7.114)	(-14.140)	(-7.090)	(-4.849)	(3.299)
BANK_REL_3Y × COVID-19 Crisis × Smaller Bank					4.038***	-0.051*	1.039***	0.016
					(12.443)	(-1.702)	(3.738)	(0.459)
Smaller Bank	3.000***	0.059***	-0.254**	-0.141***	-5.212***	-0.278***		
	(36.762)	(8.869)	(-1.996)	(-11.323)	(-14.695)	(-8.859)		
COVID-19 Crisis × Smaller Bank					0.103	0.117***	0.157	-0.066**
					(0.489)	(5.758)	(0.725)	(-2.280)
BANK_REL_3Y	0.662***	0.122***	1.913***	-0.127***	0.431***	0.137***	1.253***	-0.213***
	(12.104)	(40.758)	(35.595)	(-24.432)	(4.086)	(12.107)	(7.728)	(-15.823)
BANK_REL_3Y × COVID-19 Crisis					-2.336***	0.016	-0.635***	0.087***
					(-13.686)	(0.918)	(-2.882)	(3.586)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	806,278	806,278	282,317	282,317	61,688	61,688	34,221	34,221
Adjusted R-squared	0.532	0.613	0.592	0.320	0.534	0.649	0.636	0.248

Panel B: Effects - Low Capital (< Median) Banks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y × Low Capital Bank	1.078***	0.030***	1.852***	-0.086***	-1.986***	0.185***	1.245***	-0.167***
	(14.939)	(6.829)	(22.422)	(-10.321)	(-11.197)	(11.337)	(6.671)	(-7.900)
BANK_REL_3Y × COVID-19 Crisis × Low Capital Bank					-0.645**	-0.033	-1.192***	0.060
					(-2.256)	(-1.119)	(-4.550)	(1.605)
Low Capital Bank	-2.750***	-0.014***	-0.131*	0.048***	-0.702***	-0.048*	-0.502**	0.114***
	(-50.105)	(-3.302)	(-1.828)	(5.030)	(-2.919)	(-1.881)	(-2.106)	(3.128)
COVID-19 Crisis × Low Capital Bank					0.579**	0.017	-0.443*	0.001
					(2.514)	(0.738)	(-1.854)	(0.033)
BANK_REL_3Y	-1.115***	0.075***	-0.003	-0.056***	0.112	-0.011	0.138	-0.086***
	(-21.612)	(18.679)	(-0.053)	(-11.055)	(0.994)	(-0.906)	(1.334)	(-4.955)
BANK_REL_3Y × COVID-19 Crisis					-0.029	-0.003	0.460**	0.079***
					(-0.159)	(-0.131)	(2.548)	(2.758)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	806,278	806,278	282,317	282,317	61,688	61,688	34,221	34,221
Adjusted R-squared	0.531	0.612	0.591	0.320	0.530	0.649	0.636	0.249

Panel C: Effects - Low Liquidity (< Median) Banks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y × Low Liquidity Bank	0.575***	-0.077***	-0.005	-0.048***	1.114***	0.018	0.523***	0.023
	(7.118)	(-17.896)	(-0.065)	(-7.001)	(6.001)	(1.081)	(2.991)	(1.058)
BANK_REL_3Y × COVID-19 Crisis × Low Liquidity Bank					0.495*	-0.107***	-0.333	0.070*
					(1.654)	(-3.273)	(-1.363)	(1.853)
Low Liquidity Bank	0.280***	-0.012***	-0.878***	-0.078***	-0.076	0.069***	-1.505**	-0.078
	(6.654)	(-2.798)	(-16.173)	(-11.049)	(-0.471)	(4.515)	(-2.396)	(-0.790)
COVID-19 Crisis × Low Liquidity Bank					-0.884***	-0.083***	0.603**	-0.071**
					(-4.116)	(-4.019)	(2.442)	(-2.020)
BANK_REL_3Y	-0.756***	0.124***	1.055***	-0.080***	-1.519***	0.074***	0.645***	-0.197***
	(-9.215)	(39.522)	(15.478)	(-14.959)	(-10.186)	(5.652)	(4.268)	(-12.881)
BANK_REL_3Y × COVID-19 Crisis					-0.635***	0.025	-0.161	0.086***
					(-3.404)	(1.401)	(-0.888)	(3.829)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	806,278	806,278	282,317	282,317	61,688	61,688	34,221	34,221
Adjusted R-squared	0.528	0.613	0.585	0.319	0.530	0.648	0.636	0.248

Panel D: Effects - Low ROE (< Median) Banks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y × Low ROE Bank	1.951***	0.006	0.329***	0.055***	-2.447***	-0.053***	-1.410***	0.096***
	(32.387)	(1.505)	(5.657)	(8.503)	(-13.741)	(-3.041)	(-8.090)	(3.812)
BANK_REL_3Y × COVID-19 Crisis × Low ROE Bank					-0.921***	-0.046	0.371	0.071*
					(-3.283)	(-1.381)	(1.229)	(1.709)
Low ROE Bank	-2.378***	-0.057***	-0.827***	-0.011	0.190	-0.011	1.151***	-0.010
	(-59.684)	(-15.210)	(-10.645)	(-1.522)	(1.189)	(-0.686)	(3.305)	(-0.136)
COVID-19 Crisis × Low ROE Bank					1.272***	0.100***	0.376	-0.023
					(4.428)	(3.802)	(1.426)	(-0.643)
BANK_REL_3Y	-1.561***	0.089***	0.900***	-0.136***	0.203**	0.107***	1.313***	-0.211***
	(-21.547)	(26.315)	(20.666)	(-28.471)	(2.054)	(9.548)	(10.235)	(-14.711)
BANK_REL_3Y × COVID-19 Crisis					0.606***	0.047*	-0.027	0.017
					(3.119)	(1.789)	(-0.101)	(0.503)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	806,278	806,278	282,317	282,317	61,688	61,688	34,221	34,221
Adjusted R-squared	0.532	0.612	0.588	0.319	0.532	0.648	0.636	0.248

Panel E: Effects - High CC Complaints (≥ Median) Banks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y × High CC Complaints	2.167***	0.031***	1.209***	-0.123***	1.971***	-0.054***	0.388**	-0.100***
	(34.469)	(6.556)	(21.683)	(-17.301)	(10.472)	(-3.304)	(2.316)	(-4.835)
BANK_REL_3Y × COVID-19 Crisis × High CC Complaints					0.342	0.064**	-0.110	0.028
					(1.200)	(2.362)	(-0.426)	(0.664)
High CC Complaints	-0.633***	-0.030***	-0.168**	0.108***	0.270*	0.070***	-0.466***	0.024
	(-12.466)	(-7.841)	(-2.465)	(12.973)	(1.832)	(5.064)	(-3.317)	(1.228)
COVID-19 Crisis × High CC Complaints					-2.768***	-0.176***	-0.538**	0.048
					(-14.501)	(-9.896)	(-2.562)	(1.386)
BANK_REL_3Y	-1.711***	0.075***	0.347***	-0.032***	-1.957***	0.113***	0.678***	-0.125***
	(-21.533)	(19.999)	(7.618)	(-5.573)	(-14.638)	(8.781)	(6.646)	(-7.409)
BANK_REL_3Y × COVID-19 Crisis					-1.028***	-0.036*	-0.297*	0.104***
					(-4.582)	(-1.868)	(-1.761)	(3.028)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	806,278	806,278	282,317	282,317	61,688	61,688	34,221	34,221
Adjusted R-squared	0.530	0.613	0.590	0.320	0.533	0.649	0.636	0.248

Panel F: Effects - High Nonprime (<720 Credit Score) Concentration Banks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y × High Nonprime Concentration	-2.897***	-0.012**	-2.174***	0.076***	-2.155***	-0.014	-1.549***	0.208***
	(-51.334)	(-2.515)	(-24.987)	(9.384)	(-12.662)	(-0.799)	(-6.996)	(9.342)
BANK_REL_3Y × COVID-19 Crisis × High Nonprime Concentration					-0.505*	-0.093***	1.734***	-0.135***
					(-1.813)	(-3.256)	(6.207)	(-3.472)
High Nonprime Concentration	0.823***	0.071***	-1.076***	-0.133***	-0.179	-0.025	1.007***	-0.194***
	(16.349)	(14.429)	(-8.318)	(-10.884)	(-0.692)	(-0.927)	(3.676)	(-5.321)
COVID-19 Crisis × High Nonprime Concentration					1.995***	0.160***	-0.280	0.013
					(9.827)	(7.798)	(-1.079)	(0.381)
BANK_REL_3Y	0.849***	0.098***	2.003***	-0.139***	0.332***	0.086***	1.686***	-0.288***
	(18.668)	(30.965)	(33.750)	(-24.549)	(2.834)	(6.284)	(8.548)	(-17.432)
BANK_REL_3Y × COVID-19 Crisis					-0.656***	0.054***	-1.152***	0.172***
					(-4.491)	(2.785)	(-4.970)	(6.570)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	806,278	806,278	282,208	282,208	61,688	61,688	34,221	34,221
Adjusted R-squared	0.532	0.613	0.592	0.320	0.532	0.648	0.636	0.250

Panel G: Effects - High (≥Median) Unemployment Rate (UR) County

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y × High UR County	-0.509***	0.002	0.104	0.020***	0.110	0.003	-0.097	-0.019
	(-6.383)	(0.537)	(1.566)	(3.370)	(0.747)	(0.164)	(-0.520)	(-0.781)
BANK_REL_3Y × COVID-19 Crisis × High UR County					-0.963***	-0.026	-0.114	0.086**
					(-3.041)	(-0.909)	(-0.339)	(1.996)
High County UR	0.148***	-0.002	-0.053	-0.009	0.322**	-0.004	-0.026	0.020
	(3.531)	(-0.744)	(-1.033)	(-1.564)	(2.539)	(-0.310)	(-0.181)	(1.010)
COVID-19 Crisis × High County UR					0.279	0.038*	0.163	-0.033
					(1.334)	(1.888)	(0.651)	(-1.047)
BANK_REL_3Y	-0.262***	0.091***	1.021***	-0.116***	-0.896***	0.080***	0.942***	-0.178***
	(-5.940)	(28.096)	(25.041)	(-24.566)	(-8.769)	(7.556)	(7.937)	(-13.106)
BANK_REL_3Y × COVID-19 Crisis					-0.135	0.023	-0.205	0.057*
					(-0.527)	(0.946)	(-0.789)	(1.797)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	806,278	806,278	282,317	282,317	61,688	61,688	34,221	34,221
Adjusted R-squared	0.528	0.613	0.589	0.319	0.529	0.648	0.635	0.248

Panel H: Effects - Low (<Median) Family Income County

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y × Low Family Income County	-0.313***	0.004	-0.164***	0.032***	-0.186	0.028*	0.061	0.037
	(-3.067)	(0.871)	(-3.165)	(4.854)	(-1.230)	(1.784)	(0.308)	(1.629)
BANK_REL_3Y × COVID-19 Crisis × Low Family Income County					0.178	-0.006	-0.157	-0.055
					(0.699)	(-0.216)	(-0.614)	(-1.473)
Low County Income	0.301**	-0.004	-0.021	-0.028***	-0.507	0.062	-0.801***	-0.044
	(2.412)	(-0.719)	(-0.244)	(-2.957)	(-0.770)	(0.815)	(-3.012)	(-1.202)
COVID-19 Crisis × Low County Income					0.522***	0.034**	0.339*	0.042
					(3.413)	(2.234)	(1.848)	(1.496)
BANK_REL_3Y	-0.375***	0.090***	1.152***	-0.122***	-0.773***	0.068***	0.876***	-0.202***
	(-5.719)	(27.439)	(25.990)	(-26.039)	(-7.364)	(5.818)	(7.317)	(-14.210)
BANK_REL_3Y × COVID-19 Crisis					-0.890***	0.007	-0.245	0.140***
					(-5.130)	(0.371)	(-1.395)	(5.182)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	806,262	806,262	282,315	282,315	61,688	61,688	34,221	34,221
Adjusted R-squared	0.528	0.613	0.589	0.319	0.529	0.648	0.635	0.248

Panel I: Effects - High (≥Median) Minority Percent County

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y × High Minority Percent County	0.108	0.015***	0.098*	0.007	0.042	-0.003	-0.261	0.001
	(1.286)	(3.090)	(1.697)	(0.848)	(0.277)	(-0.168)	(-1.425)	(0.029)
BANK_REL_3Y × COVID-19 Crisis × High Minority Percent County					-0.461*	0.024	0.411*	0.003
					(-1.793)	(0.945)	(1.651)	(0.085)
High County Minority					N/A	N/A	N/A	N/A
					N/A	N/A	N/A	N/A
COVID-19 Crisis × High County Minority					-0.491***	0.019	-0.437**	0.022
					(-3.129)	(1.182)	(-2.489)	(0.760)
BANK_REL_3Y	-0.581***	0.085***	1.022***	-0.109***	-0.900***	0.084***	1.036***	-0.185***
	(-11.704)	(25.744)	(24.278)	(-22.948)	(-7.377)	(7.313)	(8.273)	(-11.287)
BANK_REL_3Y × COVID-19 Crisis					-0.501**	-0.013	-0.529***	0.110***
					(-2.442)	(-0.657)	(-2.772)	(4.200)
Ln(1+Limit)	YES	NO	YES	NO	YES	NO	YES	NO
Customer/Loan/Bank/County Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	806,262	806,262	282,315	282,315	61,688	61,688	34,221	34,221
Adjusted R-squared	0.528	0.613	0.589	0.319	0.529	0.648	0.635	0.248

Table A.3: Additional Summary Statistics for Existing Accounts

Panel A provides additional variable definitions (not covered in Table 1 and pertinent to existing accounts only). Panel B contains summary statistics for our sample of existing credit card accounts (loan age > 12 months) for normal times and changes during the COVID-19 crisis. The existing loan data come from the FR Y-14M credit card dataset and cover the period June 2013 through February 2020 for normal times, and the period November 2019 through June 2020 (pre+during COVID-19) for changes during the COVID-19 crisis. We use a 0.1% random sample for consumer accounts and a 1% random sample for small business accounts.

Panel A: Additional Variable Definitions

Variable	Definition	Source/ Authors' Calculation Based on:
Main Customer and Loan Characteristics		
COVID-19 Crisis	=1 from March 1, 2020, onward based on the account cycle ending date.	Johns Hopkins University / FR Y-14M
Customer Credit Score *(regr. use dummies)*	Customer refreshed credit score or credit score at origination when a refreshed score is not available.	FR Y-14M
Months Since Last Refresh	Number of months since the last refresh on the credit score.	FR Y-14M
Account Age <3 years *(left-out category)*	=1 for accounts that are less than 3 years old, where age is the difference in years between report date and origination date for the account.	FR Y-14M
Account Age [3, 5 years)	=1 for accounts 3 to 5 years old, where age is the difference in years between report date and origination date for the account.	FR Y-14M
Account Age [5, 10 years)	=1 for accounts 5 to 10 years old, where age is the difference in years between report date and origination date for the account.	FR Y-14M
Account Age ≥10 years	=1 for accounts over 10 years old, where age is the difference in years between report date and origination date for the account.	FR Y-14M
Securitized	=1 for securitized accounts.	FR Y-14M
Ever 60dpd Previous 3 years	=1 for accounts that have been 60 days past due or more in the last 3 years.	FR Y-14M
All Forbearances	=1 for whether the account is in any type of forbearance/non-payment workout status.	FR Y-14M
Forb Reduced Rate	Forbearance type: reduced rate.	FR Y-14M
Forb $0 Min Pay	Forbearance type: $0 minimum payment.	FR Y-14M
Forb Defer Pay	Forbearance type: payment deferral.	FR Y-14M
Forb Waive Late Fees	Forbearance type: waive late fees.	FR Y-14M
Forb Waive Interest	Forbearance type: waive interest.	FR Y-14M
Forb Other	Forbearance type: other types not included above.	FR Y-14M

Panel B: Summary Statistics

Panel B.1: Normal Times Samples

	Consumers (0.1% Random Sample: 9,970,834 obs)		**Small Businesses** (1% Random Sample: 5,553,293 obs)	
Variable	**mean**	**sd**	**mean**	**sd**
APR Spread	16.955	5.126	15.685	4.673
Ln(1+Limit)	8.555	1.129	9.157	1.053
Limit ($)	8,529.388	7,937.292	14,509.540	13,195.720
BANK_REL_3Y	0.336	0.472	0.500	0.500
Customer Credit Score *(not used in regr.)*	735.304	84.848	757.172	74.885
Customer Credit Score < 580 *(left-out category)*	0.053	0.224	0.028	0.166
Customer Credit Score [580, 660)	0.131	0.337	0.078	0.269
Customer Credit Score [660_720)	0.201	0.401	0.162	0.368
Customer Credit Score ≥720	0.615	0.487	0.732	0.443
Months Since Last Refresh	0.268	1.311	0.181	1.645
Ln(1+Customer Income) *(not used in regr.)*	10.219	2.818	10.868	2.512
Customer Income < 25K *(left-out category)*	0.180	0.384	0.119	0.324
Customer Income [25K, 50K)	0.268	0.443	0.121	0.326
Customer Income [50K, 100K)	0.357	0.479	0.344	0.475
Customer Income [100K, 150K)	0.107	0.309	0.153	0.360
Customer Income ≥150K	0.088	0.284	0.262	0.440
Customer Utilization Ratio	0.326	0.389	0.264	0.349
Account Age < 3 years *(left-out category)*	0.327	0.469	0.313	0.464
Account Age [3, 5 years)	0.217	0.412	0.225	0.418
Account Age [5, 10 years)	0.284	0.451	0.329	0.470
Account Age ≥10 years	0.172	0.378	0.133	0.340
Joint Account	0.027	0.162	0.244	0.430
Many Authorized Users	0.017	0.129	0.163	0.369
Variable Rate	0.949	0.220	0.982	0.134
Secured	0.071	0.257	0.040	0.196
Promotional	0.008	0.091	0.004	0.066
Securitized	0.234	0.423	0.159	0.365
Ever 60dpd Previous 3 years	0.029	0.167	0.016	0.124
General Purpose	0.779	0.415	0.814	0.389

Cobrand	0.171	0.377	0.183	0.387
Affinity	0.039	0.194	0.002	0.046
Other Card *(left-out category)*	0.011	0.104	0.052	0.223
Customer Init: Branch Application	0.295	0.456	0.277	0.447
Customer Init: Other Application	0.125	0.330	0.202	0.401
Bank Init: Pre-Approved Offer	0.301	0.459	0.194	0.395
Bank Init: Invitation to Apply	0.207	0.405	0.275	0.447
Other Initi *(left-out category)*	0.073	0.261	0.052	0.223
Bank Size	20.325	1.212	20.778	1.104
Bank Age	44.369	37.349	53.556	38.688
Capital Ratio	0.119	0.019	0.113	0.019
Liquidity Ratio	0.238	0.058	0.254	0.046
NPL Ratio	0.016	0.009	0.017	0.009
Earnings	0.116	0.073	0.118	0.069
Loans Ratio	0.552	0.175	0.501	0.165
Cnty Unemployment	4.659	1.706	4.605	1.676
Cnty HPI	184.142	51.289	191.185	54.429
Cnty Change in HPI	0.003	0.010	0.003	0.009

Panel B.2: Pre+During COVID-19 Samples

Sample	**Consumer Sample** (0.5% Random Sample)						**Small Business Sample** (5% Random Sample)					
	Pre+During COVID-19 (1,316,356 obs)		*Pre-COVID-19 (655,733 obs)*		*During COVID-19 (660,613 obs)*		*Pre+During COVID-19 (753,888 obs)*		*Pre-COVID-19 (373,552 obs)*		*During COVID-19 (380,318 obs)*	
Variable	**mean**	**sd**	**mean**	**sd**	**mean**	**sd**	**mean**	**sd**	**mean**	**sd**	**mean**	**sd**
APR Spread	18.076	5.090	17.969	5.113	18.182	5.064	16.518	4.284	16.509	4.296	16.528	4.273
Ln(1+Limit)	8.629	1.146	8.624	1.144	8.634	1.148	9.349	1.042	9.344	1.042	9.355	1.042
Limit ($)	9,245.2	8,508.052	9198.518	8477.066	9291.661	8538.485	17,498.9	15,893.0	17399.7	15862.2	17596.390	15922.720
BANK_REL_3Y	0.337	0.473	0.336	0.472	0.338	0.473	0.514	0.500	0.513	0.500	0.516	0.500
COVID-19 Crisis	0.502	0.500	0.000	0.000	1.000	0.000	0.504	0.500	0.000	0.000	1.000	0.000
Customer Credit Score *(not used in regr.)*	735.850	88.496	734.549	88.610	737.143	88.362	763.473	77.469	762.608	77.233	764.323	77.692
Customer Credit Score < 580 *(left-out category)*	0.060	0.237	0.061	0.240	0.059	0.235	0.027	0.162	0.027	0.162	0.027	0.161
Customer Credit Score [580, 660)	0.131	0.337	0.133	0.339	0.129	0.335	0.074	0.262	0.075	0.263	0.074	0.262
Customer Credit Score [660_720)	0.196	0.397	0.196	0.397	0.195	0.396	0.155	0.362	0.157	0.364	0.154	0.361
Customer Credit Score ≥720	0.614	0.487	0.609	0.488	0.618	0.486	0.743	0.437	0.741	0.438	0.745	0.436
Months Since Last Refresh	0.205	1.512	0.214	1.455	0.196	1.565	0.200	2.198	0.199	2.176	0.201	2.219
Ln(1+Customer Income)	10.569	2.205	10.559	2.223	10.580	2.187	11.216	2.261	11.187	2.287	11.244	2.234
Customer Income < 25K *(left-out category)*	0.147	0.354	0.148	0.355	0.146	0.353	0.067	0.250	0.073	0.260	0.061	0.239
Customer Income [25K, 50K)	0.274	0.446	0.275	0.446	0.274	0.446	0.113	0.317	0.114	0.317	0.113	0.317
Customer Income [50K, 100K)	0.364	0.481	0.363	0.481	0.364	0.481	0.327	0.469	0.326	0.469	0.328	0.469
Customer Income [100K, 150K)	0.115	0.320	0.115	0.319	0.116	0.320	0.167	0.373	0.166	0.372	0.169	0.375
Customer Income ≥150K	0.100	0.300	0.099	0.299	0.100	0.300	0.325	0.468	0.321	0.467	0.330	0.470
Customer Utilization Ratio	0.317	0.384	0.331	0.389	0.302	0.377	0.245	0.348	0.254	0.355	0.236	0.341
Account Age < 3 years *(left-out category)*	0.286	0.452	0.288	0.453	0.284	0.451	0.273	0.445	0.274	0.446	0.272	0.445
Account Age [3, 5 years)	0.239	0.427	0.242	0.428	0.237	0.425	0.239	0.427	0.241	0.428	0.238	0.426
Account Age [5, 10 years)	0.283	0.450	0.278	0.448	0.288	0.453	0.297	0.457	0.294	0.455	0.299	0.458
Account Age ≥10 years	0.191	0.393	0.191	0.393	0.191	0.393	0.191	0.393	0.191	0.393	0.191	0.393
Joint Account	0.020	0.139	0.020	0.140	0.019	0.138	0.241	0.427	0.238	0.426	0.243	0.429
Many Authorized Users	0.019	0.136	0.019	0.136	0.019	0.137	0.160	0.367	0.164	0.370	0.157	0.363
Variable Rate	0.478	0.500	0.959	0.199	0.000	0.000	0.487	0.500	0.983	0.131	0.000	0.000
Promotional	0.070	0.256	0.072	0.259	0.068	0.252	0.028	0.165	0.031	0.172	0.025	0.157
Secured	0.009	0.096	0.009	0.094	0.010	0.097	0.003	0.058	0.003	0.058	0.003	0.057
Securitized	0.152	0.359	0.154	0.361	0.150	0.357	0.096	0.295	0.098	0.297	0.094	0.292
Ever 60dpd Previous 3 years	0.032	0.176	0.033	0.178	0.032	0.175	0.016	0.126	0.016	0.126	0.016	0.126
General Purpose	0.752	0.432	0.755	0.430	0.750	0.433	0.781	0.413	0.783	0.412	0.780	0.414
Cobrand	0.223	0.417	0.221	0.415	0.226	0.418	0.216	0.411	0.214	0.410	0.218	0.413
Affinity	0.014	0.118	0.014	0.119	0.014	0.117	0.002	0.039	0.002	0.040	0.001	0.038
Other Card *(left-out category)*	0.010	0.100	0.010	0.101	0.010	0.100	0.001	0.036	0.001	0.037	0.001	0.036
Customer Init: Branch Application	0.364	0.481	0.361	0.480	0.366	0.482	0.343	0.475	0.341	0.474	0.345	0.475
Customer Init: Other Application	0.115	0.319	0.116	0.320	0.114	0.318	0.175	0.380	0.177	0.381	0.174	0.379
Bank Init: Pre-Approved Offer	0.229	0.420	0.230	0.421	0.227	0.419	0.144	0.351	0.145	0.352	0.144	0.351
Bank Init: Invitation to Apply	0.217	0.412	0.216	0.411	0.219	0.413	0.275	0.447	0.275	0.447	0.276	0.447
Other Initi *(left-out category)*	0.075	0.264	0.077	0.267	0.073	0.261	0.062	0.241	0.063	0.242	0.061	0.240
Bank Size	20.300	1.181	20.279	1.168	20.322	1.193	20.607	1.161	20.589	1.137	20.625	1.184
Bank Age	49.681	42.939	49.211	42.797	50.147	43.074	69.723	51.315	68.951	51.051	70.481	51.561
Capital Ratio	0.115	0.023	0.119	0.021	0.111	0.023	0.112	0.022	0.115	0.021	0.108	0.023
Liquidity Ratio	0.241	0.059	0.231	0.059	0.252	0.058	0.245	0.039	0.233	0.041	0.256	0.034
NPL Ratio	0.010	0.003	0.010	0.003	0.010	0.003	0.010	0.002	0.010	0.002	0.010	0.003
Earnings	0.084	0.093	0.131	0.073	0.038	0.087	0.098	0.096	0.148	0.078	0.049	0.087
Loans Ratio	0.549	0.177	0.555	0.176	0.543	0.178	0.529	0.164	0.537	0.166	0.521	0.163
Cnty Unemployment	6.257	5.062	3.456	1.153	9.037	5.851	6.219	5.078	3.367	1.090	9.021	5.840
Cnty HPI	210.046	54.969	208.252	54.259	211.828	55.608	218.147	57.277	216.238	56.608	220.025	57.865
Cnty Change in HPI	0.003	0.009	0.003	0.009	0.004	0.009	0.003	0.009	0.003	0.009	0.004	0.009

Table A.4: Effects of Relationships on Credit Terms on *Existing* Accounts

This table examines the effects of relationships on credit card terms for existing accounts (loan age > 12 months). Columns (1)-(4) show results during normal times, while columns (5)-(8) show changes during the COVID-19 crisis. The existing loan data come from the FR Y-14M credit card dataset and cover the period June 2013 through February 2020 for normal times, and the period November 2019 through June 2020 for changes during the COVID-19 crisis. We use a 0.1% random sample for consumer accounts and a 1% random sample for small business accounts. The dependent variables are: *APR Spread*, interest rate spread over the constant rate Treasury bonds with a similar maturity and *Ln(1+Limit)*, natural log of 1 plus the origination credit limit on the account. The key explanatory variables are *BANK_REL_3Y* and *BANK_REL_3Y × COVID-19 Crisis*, where *BANK_REL_3Y* is a dummy that equals 1 if the customer has another credit card with the bank in the prior three years and/or a conventional relationship with the bank (based on past provision of deposits; investments; mortgage, auto, student, or other loans; or multiple products), and *COVID-19 Crisis* is a dummy that equals 1 from March 1, 2020, onward. We include a broad set of consumer and loan controls measured at origination time or most recent account cycle time (if refreshed values are available): *Customer Credit Score* dummies, *Customer Income* dummies, *Customer Utilization Rate*, *Account Age* dummies, joint account, many authorized users, variable interest rate account, secured card, securitized card, indicator for delinquency in last three years, promotional card, dummies for credit card purpose, and dummies for the channel through which the card was opened. We also include a number of bank characteristics, all lagged one quarter: bank size, bank age, capital ratio, and liquidity ratio, the ratio of non-performing loans, earnings, the ratio of loans to assets. Three local market controls are included, measured at the county level: *Cnty Unemployment*, *Cnty HPI*, and *Cnty Change in HPI*. All regressions include Bank, County, and Month-Year fixed effects. All variables are defined in Table 1. Heteroskedasticity-robust *t*-statistics clustered at county level are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Normal Times				COVID-19 Crisis			
	Consumer Accounts		**Small Business Accounts**		**Consumer Accounts**		**Small Business Accounts**	
Dependent Variable:	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)	APR Spread	Ln(1+Limit)
Independent Variables:								
BANK_REL_3Y	-0.201***	0.030***	0.032	-0.136***	-0.150***	0.045***	0.098***	-0.148***
	(-9.931)	(7.282)	(1.233)	(-24.002)	(-6.219)	(9.065)	(3.399)	(-23.116)
BANK_REL_3Y × COVID-19 Crisis					-0.023*	-0.007***	-0.087***	-0.001
					(-1.876)	(-3.726)	(-7.687)	(-0.459)
Customer & Loan Controls								
Ln(1+Limit)	-1.022***		-0.947***		-1.069***		-0.832***	
	(-98.223)		(-67.137)		(-78.027)		(-50.935)	
Customer Credit Score [580, 660)	0.435***	0.349***	-0.163***	0.425***	0.349***	0.368***	-0.360***	0.403***
	(17.946)	(55.176)	(-2.899)	(31.808)	(9.328)	(37.078)	(-4.381)	(16.950)
Customer Credit Score [660_720)	0.243***	0.822***	-0.608***	0.915***	0.324***	0.902***	-0.796***	0.912***
	(8.063)	(92.251)	(-9.784)	(54.196)	(7.514)	(79.577)	(-9.029)	(35.978)
Customer Credit Score ≥720	-1.346***	1.370***	-2.238***	1.461***	-1.149***	1.450***	-2.359***	1.419***
	(-37.686)	(142.290)	(-35.819)	(76.929)	(-22.968)	(111.415)	(-26.785)	(52.189)
Months Since Last Refresh	0.041***	-0.006***	-0.018***	0.001	0.048***	-0.010***	-0.022***	0.002
	(4.866)	(-4.014)	(-2.947)	(1.107)	(5.095)	(-5.350)	(-3.737)	(0.984)
Customer Income [25k, 50k)	0.236***	0.190***	-0.246***	-0.007	0.353***	0.159***	-0.103*	-0.095***
	(8.553)	(30.125)	(-4.625)	(-0.569)	(9.322)	(23.064)	(-1.726)	(-6.025)
Customer Income [50k, 100k)	0.210***	0.495***	-0.394***	0.301***	0.273***	0.453***	-0.293***	0.156***
	(7.773)	(82.156)	(-8.708)	(27.273)	(7.226)	(72.259)	(-5.795)	(11.398)
Customer Income [100k, 150k)	0.111***	0.744***	-0.427***	0.525***	0.161***	0.703***	-0.460***	0.364***
	(3.186)	(111.033)	(-8.263)	(44.684)	(3.638)	(79.551)	(-8.575)	(23.792)
Customer Income ≥150k	0.070*	0.977***	-0.442***	0.741***	0.093*	0.952***	-0.498***	0.606***
	(1.929)	(118.027)	(-8.895)	(63.320)	(1.907)	(90.043)	(-9.887)	(41.913)
Customer Utilization Ratio	0.583***	0.032***	0.996***	0.060***	0.715***	0.063***	0.870***	0.102***
	(27.518)	(6.741)	(29.900)	(8.394)	(24.700)	(9.169)	(18.245)	(7.981)
Account Age [3, 5 years)	-0.128***	0.084***	-0.248***	0.002	0.239***	0.107***	-0.066**	0.114***
	(-10.004)	(28.758)	(-20.271)	(0.596)	(9.207)	(19.732)	(-2.279)	(16.550)
Account Age [5, 10 years)	-1.525***	0.150***	-0.932***	0.015**	-0.350***	0.196***	-0.765***	0.054***
	(-75.930)	(33.391)	(-44.774)	(2.161)	(-12.626)	(31.966)	(-25.039)	(6.670)
Account Age ≥10 years	-2.210***	0.362***	-1.484***	0.075***	-2.824***	0.323***	-2.281***	0.109***
	(-64.620)	(53.336)	(-40.503)	(6.794)	(-63.647)	(40.418)	(-53.500)	(9.890)
Joint Account	-0.133**	0.253***	-0.773***	0.159***	-0.376***	0.197***	-0.893***	0.245***
	(-2.435)	(23.029)	(-16.629)	(16.259)	(-4.623)	(13.665)	(-18.946)	(19.230)
Many Authorized Users	-0.165***	0.254***	-0.175***	0.339***	-0.063	0.246***	-0.097***	0.398***
	(-2.587)	(21.503)	(-5.559)	(47.080)	(-0.895)	(18.221)	(-2.827)	(50.189)
Variable Rate	1.392***	-0.106***	2.643***	-0.033	1.581***	-0.179***	2.632***	0.041**
	(21.383)	(-10.714)	(22.281)	(-1.562)	(12.381)	(-14.379)	(18.383)	(2.034)
Promotional	-1.316***	0.197***	-1.369***	0.099***	-2.303***	0.194***	-1.334***	0.067***

	(-24.549)	(47.855)	(-20.150)	(11.496)	(-29.172)	(27.972)	(-14.018)	(5.366)
Secured	-0.615***	-1.345***	-1.782***	-1.517***	-0.453***	-1.394***	-0.775***	-1.737***
	(-12.568)	(-84.009)	(-14.220)	(-47.101)	(-7.951)	(-71.670)	(-3.490)	(-34.855)
Securitized	-0.916***	0.240***	-1.573***	0.096***	-0.601***	0.234***	-0.769***	-0.025**
	(-29.371)	(43.585)	(-35.677)	(9.782)	(-17.076)	(34.231)	(-16.583)	(-2.287)
Ever 60dpd Previous 3 years	-0.108***	-0.161***	1.650***	-0.175***	-0.280***	-0.122***	1.182***	-0.139***
	(-2.780)	(-18.259)	(16.980)	(-9.592)	(-5.080)	(-9.124)	(9.039)	(-4.817)
General Purpose	1.688***	0.523***	0.595***	0.532***	1.328***	0.448***	-0.488**	0.676***
	(32.428)	(32.759)	(2.876)	(8.195)	(16.051)	(23.824)	(-2.172)	(8.777)
Cobrand	1.578***	0.631***	1.150***	0.580***	0.978***	0.540***	0.263	0.733***
	(26.159)	(37.100)	(5.545)	(8.883)	(11.529)	(27.055)	(1.160)	(9.376)
Affinity	1.071***	0.560***	0.207	0.289***	-0.236*	0.434***	-1.725***	0.228**
	(15.673)	(31.901)	(0.736)	(3.783)	(-1.918)	(16.487)	(-4.937)	(2.199)
Customer Init: Branch Application	-0.018	-0.051***	0.154***	-0.053***	1.557***	0.037***	0.150***	0.074***
	(-0.382)	(-6.057)	(2.644)	(-4.376)	(19.673)	(3.518)	(2.600)	(4.904)
Customer Init: Other Application	-0.839***	-0.094***	-0.567***	-0.031**	0.759***	0.036**	-0.406***	0.138***
	(-16.321)	(-7.954)	(-8.914)	(-2.255)	(10.011)	(2.474)	(-6.374)	(8.291)
Bank Init: Pre-Approved Offer	-1.608***	0.032***	-0.435***	-0.003	0.081	0.095***	-0.634***	0.162***
	(-38.561)	(3.576)	(-6.983)	(-0.223)	(1.167)	(8.521)	(-9.599)	(10.184)
Bank Init: Invitation to Apply	-1.319***	0.101***	-0.167**	0.165***	0.245***	0.167***	-0.195***	0.371***
	(-31.051)	(11.917)	(-2.447)	(11.971)	(3.393)	(15.546)	(-2.791)	(21.198)
Bank Controls (Lagged one quarter)								
Bank Size	-0.656***	-0.233***	0.360*	0.211***	0.853***	-0.082***	-1.908***	-0.187
	(-4.743)	(-9.065)	(1.729)	(4.494)	(6.455)	(-5.393)	(-7.817)	(-0.263)
Bank Age	0.218***	-0.136***	0.106***	-0.155***	-0.164	-0.266***	0.306	0.143***
	(9.057)	(-17.813)	(3.975)	(-22.693)	(-0.580)	(-3.784)	(0.874)	(2.719)
Capital Ratio	-1.027	-2.614***	13.249***	-0.605*	3.177***	-0.526***	9.996***	0.180
	(-1.086)	(-13.166)	(9.896)	(-1.924)	(2.579)	(-3.082)	(3.880)	(0.018)
Liquidity Ratio	-2.781***	-1.529***	-7.356***	-0.664***	-0.308	-0.574***	-23.880***	10.124
	(-10.194)	(-22.742)	(-19.404)	(-7.845)	(-0.350)	(-6.099)	(-23.215)	(0.177)
NPL Ratio	9.732***	3.962***	-14.050***	5.661***	36.525***	-3.789***	-73.119***	1.271
	(6.563)	(17.273)	(-8.407)	(11.654)	(5.881)	(-3.875)	(-8.337)	(1.598)
Earnings	1.271***	0.111***	-0.958***	0.390***	0.125	0.049***	2.294***	-2.097**
	(21.224)	(9.052)	(-9.313)	(15.240)	(1.616)	(3.828)	(14.107)	(-2.506)
Loans Ratio	4.489***	-0.627***	-4.250***	0.702***	-2.348***	-0.391***	-21.944***	-0.187
	(13.733)	(-8.425)	(-8.010)	(5.351)	(-4.747)	(-6.154)	(-28.376)	(-0.263)
Local Market Controls (Lagged one month)								
Cnty Unemployment	-0.016***	-0.000	0.000	-0.002	-0.002**	0.000	-0.001	0.000
	(-2.620)	(-0.203)	(0.008)	(-1.172)	(-2.066)	(0.128)	(-0.513)	(0.393)
Cnty HPI	0.003***	0.001***	0.001	0.000**	0.001	-0.000*	-0.000	-0.000
	(6.242)	(4.940)	(1.379)	(2.245)	(0.868)	(-1.911)	(-0.374)	(-1.040)
Cnty Change in HPI	-0.010	-0.013	0.023	-0.022	0.201	0.011	-0.051	-0.031
	(-0.085)	(-0.572)	(0.174)	(-0.688)	(1.036)	(0.382)	(-0.208)	(-0.755)
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	9,970,834	9,970,834	5,553,293	5,553,293	1,316,356	1,316,356	753,888	753,888
Adjusted R-squared	0.392	0.478	0.350	0.406	0.392	0.496	0.333	0.380

Table A.5: Effects of Relationships on Credit Terms on *Existing* Accounts for Customers Split by Risk Characteristics

This table examines the effects of relationships on credit card terms on existing accounts (loan age > 12 months) for customers split by risk characteristics: credit score, securitized status, account age, and account type (revolver (unpaid balances from month to month), transactor (paid in full each month), dormant (no activity from month to month)). Regressions use the full specifications but only the key coefficients are shown for brevity. Panel A shows results during normal times, while Panel B shows changes during the COVID-19 crisis. The existing loan data come from the FR Y-14M credit card dataset and cover the period June 2013 through February 2020 for normal times, and the period November 2019 through June 2020 for changes during the COVID-19 crisis. We use a 0.1% random sample for consumer accounts and a 1% random sample for small business accounts. The dependent variables are: *APR Spread*, interest rate spread over the constant rate Treasury bonds with a similar maturity and *Ln(1+Limit)*, natural log of 1 plus the origination credit limit on the account. The key explanatory variables are *BANK_REL_3Y* and *BANK_REL_3Y* × *COVID-19 Crisis*, where *BANK_REL_3Y* is a dummy that equals 1 if the customer has another credit card with the bank in the prior three years and/or a conventional relationship with the bank (based on past provision of deposits; investments; mortgage, auto, student, or other loans; or multiple products), and *COVID-19 Crisis* is a dummy that equals 1 from March 1, 2020, onward. Both panels include a broad set of consumer and loan controls measured at origination time or most recent account cycle time (if refreshed values are available): *Customer Credit Score* dummies, *Customer Income* dummies, *Customer Utilization Rate*, *Account Age* dummies, joint account, many authorized users, variable interest rate account, secured card, securitized card, indicator for delinquency in last three years, promotional card, dummies for credit card purpose, and dummies for the channel through which the card was opened. We also include a number of bank characteristics, all lagged one quarter: bank size, bank age, capital ratio, and liquidity ratio, the ratio of non-performing loans, earnings, the ratio of loans to assets. Three local market controls are included, measured at the county level: *Cnty Unemployment*, *Cnty HPI*, and *Cnty Change in HPI*. All regressions include Bank, County, and Month-Year fixed effects. All variables are defined in Table 1. Heteroskedasticity-robust *t*-statistics clustered at county level are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Panel A: Normal Times (Full Specification with All Controls and Fixed Effects Suppressed)

	Customer Risk Indicators										
	Credit Score		Securitized		Account Age				Account Type		
	<720	≥720	No	Yes	(1,3) yrs	[3,5 yrs)	[5,10 yrs)	≥10 yrs	Revolver	Transactor	Dormant
	Consumer Accounts, Dependent Variable = APR Spread										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
BANK_REL_3Y	-0.218***	-0.177***	-0.284***	-0.048	-0.452***	-0.075***	-0.087***	-0.054	-0.321***	-0.042	-0.070**
	(-7.787)	(-7.302)	(-13.472)	(-0.915)	(-18.078)	(-3.118)	(-2.895)	(-0.964)	(-12.952)	(-1.464)	(-2.288)
Observations	3,839,686	6,131,129	7,639,858	2,330,968	3,256,459	2,159,550	2,836,393	1,718,383	5,624,099	1,553,532	2,793,073
Adjusted R-squared	0.296	0.296	0.399	0.276	0.398	0.474	0.377	0.297	0.370	0.389	0.437
	Consumer Accounts, Dependent Variable = Ln(1+Limit)										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
BANK_REL_3Y	0.048***	0.057***	0.073***	-0.051***	0.065***	0.064***	0.036***	-0.054***	0.050***	0.046***	0.029***
	(7.633)	(11.802)	(15.010)	(-5.214)	(13.798)	(9.368)	(5.037)	(-5.142)	(9.719)	(7.142)	(3.950)
Observations	3,839,686	6,131,129	7,639,858	2,330,968	3,256,459	2,159,550	2,836,393	1,718,383	5,624,099	1,553,532	2,793,073
Adjusted R-squared	0.365	0.221	0.455	0.377	0.533	0.449	0.362	0.389	0.504	0.440	0.378
	Small Business Accounts, Dependent Variable = APR Spread										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
BANK_REL_3Y	-0.024	0.027	0.024	-0.025	-0.016	-0.043	0.066	0.009	-0.002	0.069**	-0.021
	(-0.543)	(0.980)	(0.904)	(-0.330)	(-0.748)	(-1.473)	(1.567)	(0.135)	(-0.061)	(2.367)	(-0.582)
Observations	1,490,668	4,062,575	4,671,547	881,737	1,737,763	1,249,511	1,825,150	740,789	2,813,825	1,354,730	1,384,555
Adjusted R-squared	0.348	0.232	0.365	0.371	0.414	0.429	0.310	0.349	0.377	0.336	0.339
	Small Business Accounts, Dependent Variable = Ln(1+Limit)										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
BANK_REL_3Y	-0.120***	-0.116***	-0.128***	-0.153***	-0.133***	-0.134***	-0.121***	-0.156***	-0.122***	-0.133***	-0.105***
	(-10.903)	(-18.372)	(-21.039)	(-9.989)	(-21.179)	(-17.552)	(-14.666)	(-10.206)	(-19.388)	(-18.031)	(-10.952)
Observations	1,490,668	4,062,575	4,671,547	881,737	1,737,763	1,249,511	1,825,150	740,789	2,813,825	1,354,730	1,384,555
Adjusted R-squared	0.377	0.197	0.374	0.420	0.422	0.398	0.356	0.444	0.440	0.304	0.295
All Other Controls & FE	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**

Panel B: Changes during the COVID-19 Crisis (Full Specification with All Controls and Fixed Effects Suppressed)

	Customer Risk Indicators										
	Credit Score		Securitized		Account Age				Account Type		
	<720	≥720	No	Yes	(1,3) yrs	[3,5 yrs)	[5,10 yrs)	≥10 yrs	Revolver	Transactor	Dormant
	Consumer Accounts, Dependent Variable = APR Spread										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
BANK_REL_3Y × COVID-19 Crisis	-0.022	-0.020	-0.023	0.005	-0.033	-0.050**	-0.041***	-0.068***	-0.017	-0.036	-0.034
	(-1.071)	(-1.212)	(-1.611)	(0.240)	(-0.943)	(-2.392)	(-2.769)	(-3.246)	(-0.908)	(-1.511)	(-1.229)
BANK_REL_3Y	-0.205***	-0.099***	-0.221***	-0.079	-0.472***	-0.111***	-0.031	-0.051	-0.246***	0.044	-0.057
	(-5.782)	(-3.122)	(-8.632)	(-1.068)	(-9.983)	(-2.833)	(-0.788)	(-0.849)	(-8.104)	(1.196)	(-1.255)
Observations	508,426	807,870	1,115,864	200,464	376,698	315,187	372,573	251,754	736,596	249,950	329,559
Adjusted R-squared	0.319	0.278	0.379	0.318	0.395	0.469	0.398	0.296	0.367	0.388	0.440
	Consumer Accounts, Dependent Variable = Ln(1+Limit)										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
BANK_REL_3Y × COVID-19 Crisis	-0.012***	-0.005*	-0.009***	0.003	-0.036***	0.001	-0.000	0.000	-0.010***	0.006	-0.000
	(-2.756)	(-1.836)	(-4.047)	(0.844)	(-7.173)	(0.224)	(-0.103)	(0.094)	(-3.022)	(1.039)	(-0.077)
BANK_REL_3Y	0.049***	0.084***	0.072***	-0.045***	0.027***	0.082***	0.066***	-0.020	0.062***	0.045***	0.051***
	(5.687)	(13.988)	(13.298)	(-2.913)	(2.919)	(8.143)	(6.742)	(-1.554)	(9.896)	(5.524)	(4.911)
Observations	508,426	807,870	1,115,864	200,464	376,698	315,187	372,573	251,754	736,596	249,950	329,559
Adjusted R-squared	0.389	0.222	0.474	0.322	0.590	0.519	0.413	0.384	0.507	0.444	0.421
	Small Business Accounts, Dependent Variable = APR Spread										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
BANK_REL_3Y × COVID-19 Crisis	0.023	-0.129***	-0.084***	0.010	-0.075**	-0.109***	-0.121***	-0.060***	-0.088***	-0.125***	-0.012
	(0.796)	(-9.189)	(-6.915)	(0.353)	(-2.544)	(-4.489)	(-6.378)	(-2.890)	(-4.574)	(-5.574)	(-0.438)
BANK_REL_3Y	-0.001	0.110***	0.091***	-0.086	-0.017	0.185***	0.127***	-0.036	0.062	0.167***	0.014
	(-0.017)	(3.542)	(3.070)	(-0.932)	(-0.357)	(3.878)	(2.967)	(-0.559)	(1.527)	(4.809)	(0.296)
Observations	193,506	560,305	681,498	72,354	205,653	180,426	223,508	144,166	365,366	221,972	166,277
Adjusted R-squared	0.333	0.235	0.345	0.400	0.364	0.417	0.383	0.296	0.356	0.297	0.361
	Small Business Accounts, Dependent Variable = Ln(1+Limit)										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
BANK_REL_3Y × COVID-19 Crisis	-0.000	-0.000	-0.001	0.003	-0.007	0.009	0.003	-0.003	0.002	-0.000	-0.009
	(-0.067)	(-0.049)	(-0.217)	(0.611)	(-1.163)	(1.401)	(0.691)	(-0.697)	(0.429)	(-0.010)	(-1.324)
BANK_REL_3Y	-0.144***	-0.124***	-0.148***	-0.157***	-0.137***	-0.149***	-0.124***	-0.158***	-0.142***	-0.162***	-0.085***
	(-10.833)	(-18.708)	(-21.421)	(-7.707)	(-13.151)	(-11.860)	(-10.576)	(-10.396)	(-18.247)	(-18.375)	(-6.203)
Observations	193,506	560,305	681,498	72,354	205,653	180,426	223,508	144,166	365,366	221,972	166,277
Adjusted R-squared	0.373	0.187	0.342	0.416	0.372	0.380	0.373	0.416	0.405	0.260	0.306
All Other Controls & FE	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**

Table A.6: Forbearance Accommodations during Normal Times and the COVID-19 Crisis

This table examines whether relationship customers are more likely to be granted forbearance during normal times and the COVID-19 crisis. The focus is on existing credit card accounts (loan age > 12 months). The existing loan data come from the FR Y-14M credit card dataset and cover the period June 2013 through February 2020 for normal times, and the period November 2019 through June 2020 for changes during the COVID-19 crisis. We use a 0.1% random sample for consumer accounts and a 1% random sample for small business accounts. The dependent variables are several forbearance indicators, including *All Forbearances* and subcategories such as *Forb Reduced Rate* (reduced APR rate less or equal to 10 percent), *Forb $0 Min Pay* ($0 minimum payment), *Forb Defer Pay* (payment deferral), *Forb Waive Late Fees* (waiving of late fees), *Forb Waive Interest* (waiving of interest), and *Forb Other* (other forbearance types). The key explanatory variables are *BANK_REL_3Y* and *BANK_REL_3Y × COVID-19 Crisis*, where *BANK_REL_3Y* is a dummy that equals 1 if the customer has another credit card with the bank in the prior three years and/or a conventional relationship with the bank (based on past provision of deposits; investments; mortgage, auto, student, or other loans; or multiple products), and *COVID-19 Crisis* is a dummy that equals 1 from March 1, 2020, onward. In all panels, we include a broad set of consumer and loan controls measured at origination time or most recent account cycle time (if refreshed values are available): *Customer Credit Score* dummies, *Customer Income* dummies, *Customer Utilization Rate*, *Account Age* dummies, joint account, many authorized users, variable interest rate account, secured card, securitized card, indicator for delinquency in last three years, promotional card, dummies for credit card purpose, and dummies for the channel through which the card was opened. We also include a number of bank characteristics, all lagged one quarter: bank size, bank age, capital ratio, and liquidity ratio, the ratio of non-performing loans, earnings, the ratio of loans to assets. Three local market controls are included, measured at the county level: *Cnty Unemployment*, *Cnty HPI*, and *Cnty Change in HPI*. All regressions include Bank, County, and Month-Year fixed effects. All variables are defined in Table 1. Heteroskedasticity-robust *t*-statistics clustered at county level are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Panel A: Normal Times

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Consumer Accounts							**Small Business Accounts**						
Dependent Variable:	All Forbearances	Forb Reduced Rate	Forb $0 Min Pay	Forb Defer Pay	Forb Waive Late Fees	Forb Waive Interest	Forb Other	All Forbearances	Forb Reduced Rate	Forb $0 Min Pay	Forb Defer Pay	Forb Waive Late Fees	Forb Waive Interest	Forb Other
Independent Variables:														
BANK_REL_3Y	0.004***	0.004***	0.001***	-0.000	-0.001***	0.001*	-0.000	-0.006***	-0.006***	0.002***	-0.000**	-0.001**	-0.002*	0.000
	(4.124)	(4.453)	(7.159)	(-0.056)	(-4.422)	(1.702)	(-0.211)	(-4.906)	(-4.991)	(10.925)	(-1.987)	(-2.448)	(-1.950)	(0.350)
Ln(1+Limit)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Customer/Loan/Bank/ County Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	9,970,834	9,970,834	9,970,834	9,970,834	9,970,834	9,970,834	9,970,834	5,553,293	5,553,293	5,553,293	5,553,293	5,553,293	5,553,293	5,553,293
Adjusted R-squared	0.127	0.098	0.021	0.304	0.051	0.073	0.022	0.136	0.164	0.024	0.223	0.035	0.092	0.042

Panel B: Changes during the COVID-19 Crisis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Consumer Accounts							**Small Business Accounts**						
Dependent Variable:	All Forbearances	Forb Reduced Rate	Forb $0 Min Pay	Forb Defer Pay	Forb Waive Late Fees	Forb Waive Interest	Forb Other	All Forbearances	Forb Reduced Rate	Forb $0 Min Pay	Forb Defer Pay	Forb Waive Late Fees	Forb Waive Interest	Forb Other
Independent Variables:														
BANK_REL_3Y × COVID-19 Crisis	0.102***	-0.001*	0.005***	0.104***	-0.000	-0.001**	0.001***	0.046***	-0.012***	0.009***	0.051***	0.002**	0.001	0.001***
	(18.243)	(-1.714)	(10.747)	(18.181)	(-0.188)	(-2.125)	(4.136)	(13.001)	(-12.015)	(12.915)	(16.046)	(2.162)	(1.438)	(3.342)
BANK_REL_3Y	-0.045***	0.002*	-0.002***	-0.050***	0.000	0.003***	-0.000***	-0.021***	0.001	-0.003***	-0.020***	-0.001	-0.000	-0.000***
	(-15.746)	(1.938)	(-6.064)	(-17.556)	(0.004)	(5.654)	(-3.510)	(-10.095)	(1.068)	(-10.333)	(-11.439)	(-1.509)	(-0.537)	(-3.025)
Ln(1+Limit)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Customer/Loan/Bank/ County Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank, County, Year-Month FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	1,316,356	1,316,356	1,316,356	1,316,356	1,316,356	1,316,356	1,316,356	753,888	753,888	753,888	753,888	753,888	753,888	753,888
Adjusted R-squared	0.253	0.112	0.024	0.351	0.046	0.037	0.014	0.213	0.121	0.049	0.320	0.032	0.038	0.011