# Online Appendix for

## "Piercing through Opacity: Relationships and Credit Card Lending to Consumers and Small Businesses during Normal Times and the COVID-19 Crisis"


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# Online Appendix: Additional Analyses

We show extra robustness tests of our main findings in Section OA.1, results for other credit card terms in Section OA.2, additional robustness checks for the COVID-19 crisis in Section OA.3, investigate the heterogeneity of the main findings in Section OA.4, and analyze existing credit card account data in OA.5.

***OA.1 Extra Robustness Tests of Main Results***

We analyze the effects of relationships on credit card terms during normal times and changes during the COVID-19 crisis through several additional tests presented in Online Appendix Table OA1. First, as mentioned in Section 6.1, Panel A and Panel B control for additional variables such as *Behavioral Score*, *High Leverage1*, an indicator equal to one if a customer had income above 100K and credit score less than 660 (in unreported analysis we use *High Leverage2*, an indicator equal to one if a customer had income above 150K and credit score less than 660, and find similar results), and *Ln(1+ Num CC Complaints)*, the natural log of the number of credit card complaints against the bank using the CFPB complaints dataset. Second, Panels D – H present results from alternative specifications with various combinations of fixed effects included and the results are shown in Section 6.1. Third, Panel I shows effects of two capital shocks, the introduction of the GSIB capital surcharge and the stress tests public bank failure announcements, and the results are discussed in Section 6.3. Fourth, Panel J shows results with alternative relationship variables, indicators for whether the customer had another credit card with the bank in the prior four, five, or two years, one year, or any prior period and/or a conventional relationship with the bank. The results are discussed in Section 6.2. Fifth, Panel K shows results for customers with relatively short or long credit card relationships vs. no relationships, using a cut-off point of 3 years (in unreported analysis we find similar results for a cut-off point of 2 years).

In addition to the tests mentioned above, we further investigate different options of clustering standard errors. The main analysis uses heteroskedasticity-robust *t*-statistics clustered at the county level. Table OA.1 Panel L 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.

Moreover, we test whether the main results still hold using slightly different samples. 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. Panel M excludes banks with very different business models, i.e., primary business is credit card lending and do less in other bank activities. Panel NM only includes banks that exist in both the consumer and small business credit card samples. Panel ON 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. Our main results are confirmed in all these additional tests performed. Panel P shows effects for other credit card terms. Panel Q decomposes main bank relationships over time (including normal times and the COVID-19 Crisis). Panel R decomposes bank relationships by granular conventional bank relationships over time (including normal times and the COVID-19 Crisis).

***OA.2 Other Credit Card Terms***

Relationship credit card customers may also incur shared benefits or hold-up problems using credit terms other than APR spread and credit card limit. Hence, we also investigate effects on other credit terms for relationship customers during normal times and COVID-19 times. These terms are: *Log(1+ CashAdv Limit)*, the logarithm of one plus cash advance limit on the account; *Rewards*, an indicator for cards offering rewards; *Promo*, an indicator for promotional APR accounts; and *Annual Fee*, an indicator for accounts that charge an annual fee. These are reported in Online Appendix Table OA.1, Panels N1-N2.

In normal times, we find that relationship consumers receive a higher cash advance limit, more rewards, more promotions, and higher annual fees, suggesting shared benefits in all but one case. Small businesses that are relationship customers receive a lower cash advance limit, more rewards, more promotions, and higher annual fees, suggesting a mix of hold-up problems and shared benefits. During COVID-19 times, relationship consumers receive higher cash advance limit and lower promotions, suggesting partial shared benefits. Small businesses as relationship customers receive higher cash advance limit, more rewards, lower promotions, and lower annual fee, denoting benefits in all but one case. Thus, results in normal times and the COVID-19 crisis are at least partially consistent with the results on APR spread and limits. During normal times, consumers more often get a bright side of relationships, while during COVID-19, both customers groups generally benefit relative to normal times.

***OA.3 Additional Analyses on the COVID-19 Crisis***

We conduct four additional analyses that focus on the COVID-19 crisis and report results in Online Appendix Table OA2. First, we examine whether our main results for the COVID-19 crisis are sensitive to using three alternative samples and report results in Table OA2, Panel A. 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 re-estimate the regression models 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 2019. 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 shared benefits for both consumer and small business relationships during the COVID-19 crisis relative to normal times.

Next, we replace 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 (2022). 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.[1] Results using these five alternative COVID-19 crisis measures, shown in Table OA2, Panels B1-B2, show consistent results with our main findings.

We then 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

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

amounts from the FR-Y9C in 2020:Q2. We conduct two sets of tests. We first simply re-estimate 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 Table OA1, Panel C1 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 Table OA1, Panel C2, 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.

***OA.4 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).[2] 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. Online Appendix Table OA.3, Panels A-G focus on bank characteristics, while Panels H-J address county heterogeneity.

Results in Table OA.3 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.

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

Results for bank financial health in Table OA.3 Panels B, C, D, and E mostly suggest that banks in worse financial health (lower capital, liquidity, core deposits, core deposits, and earnings)[3] 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, Table OA.3 Panel F shows that 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, in Table OA3 Panel G, 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 Table OA.3 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.

***OA.5. 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 OA.5.1). We also analyze how these effects differ by customer risk characteristics (Section OA.5.2), and examine the impact of forbearance accommodations during the COVID-19 crisis (results are summarized in Section 9.2 ).

***OA.5.1 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%

[3] Bank financial information is from the Y-9C reports, while core deposits are from the Uniform Bank Performance Report (UBPR). Prior literature shows that core deposits are a mechanism that enhances relationship lending, as these deposits create funding and informational synergies (e.g., Berlin and Mester, 1999; Norden and Weber, 2010).

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 OA.4 shows summary statistics on this dataset, which we do not discuss for brevity.

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.[4] 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.

Online Appendix Table OA.5 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 shared benefits as stated in H1. For small businesses with relationships, banks provide lower credit limits but no significantly different spreads, some limited evidence hold-up problems and speaking against H1. Again, the results jointly support 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 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

[4] 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.

support for intertemporal smoothing as in H2, again likely due to stale information.

***OA.5.2 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.[5] Second, we divide the sample into not securitized and securitized, realizing that the bank bears the risk and earns 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. Results are shown in Online Appendix Table OA.6.

The normal-times findings in Table OA.6 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 OA.6 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.

[5] 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.

## Table OA.1: Extra 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*, Panel B controls for *High Leverage1*, indicator equal to one if a customer had income above 100K and credit score less than 660, and Panel C 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 D – H present results from alternative specifications with: *County* × *Year-Month FE* (Panel D); *Bank* × *Year-Month FE* (Panel E), *Bank* × *County* × *Year-Month FE* (Panel F); *ZIP FE* and error clustering at the ZIP level (Panel G); *Credit Score Dummies* × *Year-Month FE* and bank and county fixed effects (Panel H). Panel I shows effects of two capital shocks, the introduction of bank GSIB capital surcharge and the stress tests public bank failure announcements. The uninteracted dummy for introduction of the surcharge in 2016 is absorbed in these regressions. Further investigations (not shown) reveal that this dummy is aborbed exactly when we control for both bank fixed effects and time-varying bank characteristics, suggesting that decisions to impose these subcharges is coincident to bank identity and the bank characteristics for which we control. Panel J 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, two years, one year, or any prior period and/or a conventional relationship with the bank. Panel K shows results for relatively short and long relationships versus no relationships. Panel L uses double clustering by county and consumer. Panel M excludes banks with different business models (primary business is credit cards). Panel N focuses on banks that exist in both consumer and small business samples. Panel O excludes customers potentially affected by fraud in any of their accounts. Panel P shows effects for other credit card terms. Panel Q decomposes main bank relationships over time (including normal times and the COVID-19 Crisis). Panel R decomposes bank relationships by granular conventional bank relationships over time (including normal times and the COVID-19 Crisis). Unless specified otherwise, 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 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 Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 | -0.523*** | 0.091*** | 1.087*** | -0.105*** | -0.789*** | 0.078*** | 0.921*** | -0.186*** |
| | (-9.021) | (36.333) | (30.709) | (-27.742) | (-9.424) | (9.190) | (8.972) | (-15.608) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -0.886*** | 0.007 | -0.344*** | 0.116*** |
| | | | | | (-6.873) | (0.519) | (-2.669) | (6.277) |
| Behavioral Score | -1.143*** | 0.282*** | -1.271*** | -0.028** | -0.783*** | 0.146*** | -1.779*** | 0.247*** |
| | (-12.566) | (32.637) | (-12.691) | (-2.416) | (-3.992) | (5.087) | (-5.329) | (4.000) |
| Behavioral Score_Missing | -2.499*** | 0.275*** | -1.900*** | 0.185*** | -3.108*** | 0.152*** | -2.047*** | 0.394*** |
| | (-33.163) | (37.349) | (-32.755) | (20.379) | (-21.055) | (7.262) | (-17.052) | (22.988) |
| 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 | 0.530 | 0.614 | 0.591 | 0.322 | 0.533 | 0.648 | 0.637 | 0.257 |

*Panel B: Control for High Leverage1*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 | -0.493*** | 0.165*** | 1.060*** | -0.092*** | -0.723*** | 0.107*** | 0.923*** | -0.147*** |
| | (-8.742) | (39.071) | (29.737) | (-23.066) | (-8.663) | (9.861) | (9.009) | (-11.268) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -0.863*** | 0.017 | -0.308** | 0.130*** |
| | | | | | (-6.673) | (1.005) | (-2.346) | (6.487) |
| High Leverage1 | 1.716*** | -0.580*** | 1.655*** | -0.566*** | 2.007*** | -0.534*** | 1.594*** | -0.576*** |
| | (25.949) | (-52.418) | (16.203) | (-30.131) | (8.455) | (-18.607) | (6.163) | (-16.647) |
| 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 | 0.524 | 0.339 | 0.584 | 0.186 | 0.516 | 0.405 | 0.630 | 0.126 |

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

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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*** | 1.070*** | -0.105*** | -0.859*** | 0.081*** | 0.902*** | -0.184*** |
| | (-8.930) | (36.776) | (29.980) | (-27.689) | (-10.375) | (9.535) | (8.892) | (-15.451) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -0.812*** | 0.004 | -0.322** | 0.113*** |
| | | | | | (-6.282) | (0.275) | (-2.481) | (5.982) |
| Ln(1+ Num CC Complaints) | -0.338*** | 0.009 | 0.570*** | 0.041*** | 0.475* | 0.013 | -0.215 | -0.055 |
| | (-6.868) | (1.583) | (5.351) | (3.905) | (1.785) | (0.462) | (-0.751) | (-1.110) |
| 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 D: Alternative Specification: County × Year-Month FE*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 | -0.464*** | 0.092*** | 1.065*** | -0.103*** | -0.845*** | 0.082*** | 0.841*** | -0.181*** |
| | (-7.360) | (34.363) | (27.045) | (-24.240) | (-10.171) | (9.388) | (7.840) | (-14.449) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -0.707*** | 0.006 | -0.239* | 0.113*** |
| | | | | | (-5.196) | (0.459) | (-1.718) | (5.600) |
| 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 | 757,625 | 757,625 | 254,671 | 254,671 | 57,573 | 57,573 | 31,624 | 31,624 |
| Adjusted R-squared | 0.530 | 0.614 | 0.590 | 0.322 | 0.530 | 0.649 | 0.631 | 0.246 |

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

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 | -0.389*** | 0.094*** | 1.242*** | -0.113*** | -0.289*** | 0.085*** | 0.906*** | -0.178*** |
| | (-7.115) | (37.609) | (35.909) | (-29.954) | (-3.722) | (10.165) | (8.674) | (-14.777) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -1.449*** | 0.006 | -0.340** | 0.092*** |
| | | | | | (-10.151) | (0.451) | (-2.415) | (4.836) |
| 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 | 805,411 | 805,411 | 281,020 | 281,020 | 61,621 | 61,621 | 34,079 | 34,079 |
| Adjusted R-squared | 0.563 | 0.619 | 0.605 | 0.327 | 0.576 | 0.650 | 0.637 | 0.251 |

*Panel F: Alternative Specification: Bank × County × Year-Month FE*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 | -0.103*** | 0.093*** | 1.309*** | -0.103*** | -0.313*** | 0.084*** | 0.940*** | -0.172*** |
| | (-4.043) | (35.447) | (35.102) | (-25.695) | (-3.292) | (8.172) | (8.883) | (-12.973) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -1.101*** | 0.020 | -0.488*** | 0.122*** |
| | | | | | (-5.540) | (1.078) | (-2.710) | (5.045) |
| 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 | 613,564 | 613,564 | 215,947 | 215,947 | 45,260 | 45,260 | 26,892 | 26,892 |
| Adjusted R-squared | 0.587 | 0.627 | 0.600 | 0.329 | 0.596 | 0.652 | 0.624 | 0.253 |

*Panel G: Alternative Specification: ZIP FE and Cluster by ZIP*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 | -0.527*** | 0.090*** | 1.020*** | -0.101*** | -0.852*** | 0.082*** | 0.836*** | -0.182*** |
| | (-24.522) | (41.980) | (34.864) | (-29.261) | (-9.151) | (8.667) | (8.351) | (-14.319) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -0.809*** | -0.003 | -0.250* | 0.111*** |
| | | | | | (-5.019) | (-0.210) | (-1.664) | (5.143) |
| 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 | 800,574 | 800,574 | 276,045 | 276,045 | 57,305 | 57,305 | 30,555 | 30,555 |
| Adjusted R-squared | 0.529 | 0.616 | 0.591 | 0.328 | 0.524 | 0.649 | 0.634 | 0.255 |

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

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 | -0.537*** | 0.092*** | 1.055*** | -0.105*** | -0.865*** | 0.081*** | 0.889*** | -0.184*** |
| | (-9.097) | (36.803) | (29.593) | (-27.538) | (-10.373) | (9.545) | (8.731) | (-15.305) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -0.791*** | 0.003 | -0.300** | 0.110*** |
| | | | | | (-6.093) | (0.202) | (-2.289) | (5.836) |
| 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 | 805,433 | 805,433 | 281,034 | 281,034 | 61,621 | 61,621 | 34,082 | 34,082 |
| Adjusted R-squared | 0.534 | 0.613 | 0.590 | 0.322 | 0.530 | 0.649 | 0.636 | 0.249 |

*Panel I: Bank Capital Shocks*

| | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
|---|---|---|---|---|---|---|---|---|
| | GSIB Surcharge Shock | | | | Failed Stress Test Shock | | | |
| | **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 x Bank GSIB Surcharge | 0.190*** | 0.059*** | 0.833*** | -0.022*** | | | | |
| | (3.446) | (13.334) | (15.835) | (-2.792) | | | | |
| Bank GSIB Surcharge | NA | NA | NA | NA | | | | |
| | NA | NA | NA | NA | | | | |
| BANK_REL_3Y x Bank Failed | | | | | 0.961*** | 0.079*** | 0.921*** | 0.005 |
| | | | | | (14.805) | (9.005) | (9.160) | (0.510) |
| Bank Failed | | | | | 0.955*** | -0.128*** | -1.222*** | -0.025** |
| | | | | | (19.102) | (-23.605) | (-12.335) | (-2.352) |
| BANK_REL_3Y | -0.587*** | 0.072*** | 0.704*** | -0.096*** | -0.607*** | 0.085*** | 0.999*** | -0.105*** |
| | (-9.331) | (23.183) | (17.591) | (-21.294) | (-10.222) | (33.493) | (26.930) | (-25.858) |
| 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 | 805,433 | 805,433 | 281,034 | 281,034 |
| Adjusted R-squared | 0.529 | 0.613 | 0.590 | 0.320 | 0.529 | 0.613 | 0.590 | 0.320 |

*Panel J: Alternative Relationship Proxies*

*Panel J.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 | -0.502*** | | | 0.097*** | | | 1.025*** | | | -0.094*** | | |
| | (-8.968) | | | (38.439) | | | (29.552) | | | (-24.082) | | |
| BANK_REL_5Y | | -0.487*** | | | 0.100*** | | | 0.989*** | | | -0.085*** | |
| | | (-9.036) | | | (38.951) | | | (28.418) | | | (-21.783) | |
| BANK_REL_PRE | | | -0.642*** | | | 0.099*** | | | 0.569*** | | | -0.018*** |
| | | | (-12.959) | | | (34.104) | | | (16.701) | | | (-4.643) |
| 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 | 805,433 | 805,433 | 805,433 | 805,433 | 805,433 | 805,433 | 281,034 | 281,034 | 281,034 | 281,034 | 281,034 | 281,034 |
| Adjusted R-squared | 0.528 | 0.528 | 0.528 | 0.613 | 0.613 | 0.613 | 0.589 | 0.589 | 0.587 | 0.320 | 0.319 | 0.317 |

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | | **Consumer Accounts** | | | | **Small Business Accounts** | | |
| **Dependent Variable:** | APR Spread | APR Spread | Ln(1+Limit) | Ln(1+Limit) | APR Spread | APR Spread | Ln(1+Limit) | Ln(1+Limit) |
| **Independent Variables:** | | | | | | | | |
| BANK_REL_2Y | -0.575*** | | 0.083*** | | 1.024*** | | -0.112*** | |
| | (-9.212) | | (31.155) | | (30.681) | | (-30.141) | |
| BANK_REL_1Y | | -0.659*** | | 0.075*** | | 0.861*** | | -0.111*** |
| | | (-9.326) | | (24.470) | | (26.665) | | (-28.636) |
| Ln(1+Limit) | YES | YES | NO | NO | YES | YES | NO | 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 | 805,433 | 805,433 | 281,034 | 281,034 | 281,034 | 281,034 |
| Adjusted R-squared | 0.528 | 0.528 | 0.612 | 0.612 | 0.589 | 0.588 | 0.321 | 0.320 |

*Panel J.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 | -0.854*** | | | -0.008 | | | -0.348*** | | | 0.102*** | | |
| | (-6.653) | | | (-0.632) | | | (-2.814) | | | (5.537) | | |
| BANK_REL_5Y × COVID-19 Crisis | | -0.848*** | | | -0.013 | | | -0.380*** | | | 0.097*** | |
| | | (-6.608) | | | (-1.014) | | | (-3.128) | | | (5.200) | |
| BANK_REL_PRE × COVID-19 Crisis | | | -0.831*** | | | -0.018 | | | -0.452*** | | | 0.112*** |
| | | | (-6.494) | | | (-1.485) | | | (-3.599) | | | (5.695) |
| BANK_REL_4Y | -0.863*** | | | 0.092*** | | | 1.017*** | | | -0.164*** | | |
| | (-10.583) | | | (10.934) | | | (11.339) | | | (-13.454) | | |
| BANK_REL_5Y | | -0.849*** | | | 0.099*** | | | 1.029*** | | | -0.146*** | |
| | | (-10.526) | | | (12.042) | | | (11.155) | | | (-12.196) | |
| BANK_REL_PRE | | | -0.973*** | | | 0.109*** | | | 0.752*** | | | -0.055*** |
| | | | (-12.269) | | | (12.386) | | | (7.712) | | | (-4.375) |
| 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 | 61,621 | 61,621 | 61,621 | 61,621 | 61,621 | 61,621 | 34,082 | 34,082 | 34,082 | 34,082 | 34,082 | 34,082 |
| Adjusted R-squared | 0.529 | 0.529 | 0.530 | 0.648 | 0.648 | 0.649 | 0.636 | 0.636 | 0.635 | 0.247 | 0.246 | 0.242 |

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | **Consumer Accounts** | | | | **Small Business Accounts** | | | |
| **Dependent Variable:** | APR Spread | APR Spread | Ln(1+Limit) | Ln(1+Limit) | APR Spread | APR Spread | Ln(1+Limit) | Ln(1+Limit) |
| **Independent Variables:** | | | | | | | | |
| BANK_REL_2Y × COVID-19 Crisis | -0.835*** | | 0.012 | | -0.254** | | 0.116*** | |
| | (-6.299) | | (0.883) | | (-2.089) | | (6.172) | |
| BANK_REL_1Y × COVID-19 Crisis | | -0.969*** | | 0.023 | | -0.185 | | 0.094*** |
| | | (-6.711) | | (1.614) | | (-1.367) | | (4.889) |
| BANK_REL_2Y | -0.848*** | | 0.064*** | | 0.799*** | | -0.192*** | |
| | (-9.774) | | (7.104) | | (8.301) | | (-17.618) | |
| BANK_REL_1Y | | -0.744*** | | 0.053*** | | 0.603*** | | -0.193*** |
| | | (-7.838) | | (5.350) | | (5.694) | | (-16.783) |
| Ln(1+Limit) | YES | YES | NO | NO | YES | YES | NO | 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 | 61,621 | 61,621 | 61,621 | 61,621 | 34,082 | 34,082 | 34,082 | 34,082 |
| Adjusted R-squared | 0.529 | 0.529 | 0.648 | 0.647 | 0.635 | 0.635 | 0.249 | 0.249 |

*Panel K: Decomposition by Conventional Bank vs. Credit Card Relationships (Relationship Length of up to 3 years and above 3 years)*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | **Decompositions of Bank Relationships** | | | | | | | |
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 | 0.515*** | 0.026*** | 1.297*** | -0.122*** | -0.303** | 0.005 | 1.162*** | -0.159*** |
| | (14.801) | (8.807) | (22.693) | (-18.303) | (-2.514) | (0.420) | (7.098) | (-6.844) |
| CARD_BANK_REL_> 3Y | -0.021 | 0.132*** | 0.948*** | -0.012** | -0.301*** | 0.155*** | 0.980*** | -0.000 |
| | (-0.717) | (27.752) | (22.533) | (-2.176) | (-3.331) | (15.580) | (8.290) | (-0.004) |
| CONVENTIONAL_BANK_REL | -0.990*** | 0.078*** | 0.017 | -0.007 | -1.097*** | 0.058*** | 0.040 | -0.082*** |
| | (-11.908) | (20.838) | (0.319) | (-1.623) | (-9.746) | (5.213) | (0.375) | (-5.880) |
| CARD_REL_≤3Y × COVID-19 Crisis | | | | | 0.312 | -0.024 | -0.107 | 0.049 |
| | | | | | (1.547) | (-1.151) | (-0.501) | (1.394) |
| CARD_REL_>3Y × COVID-19 Crisis | | | | | -0.723*** | -0.055*** | -0.635*** | 0.068*** |
| | | | | | (-4.837) | (-3.688) | (-4.570) | (3.155) |
| CONVENTIONAL_BANK_REL × COVID-19 Crisis | | | | | -0.915*** | 0.031** | -0.218 | 0.077*** |
| | | | | | (-5.667) | (1.973) | (-1.495) | (3.670) |
| 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 | 0.529 | 0.614 | 0.588 | 0.319 | 0.530 | 0.650 | 0.635 | 0.246 |

*Panel L: Cluster by County and Customer*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | 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 | -0.525*** | 0.092*** | 1.069*** | -0.105*** | -0.859*** | 0.081*** | 0.902*** | -0.185*** |
| | (-8.951) | (36.800) | (29.986) | (-27.693) | (-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 M: Exclude Banks with Different Business Model*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | 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 | -0.292*** | 0.097*** | 1.171*** | -0.105*** | -0.290*** | 0.095*** | 0.945*** | -0.203*** |
| | (-5.204) | (36.425) | (29.008) | (-23.228) | (-3.499) | (10.966) | (6.844) | (-15.528) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -1.169*** | -0.004 | -0.365** | 0.106*** |
| | | | | | (-8.738) | (-0.295) | (-2.154) | (4.702) |
| 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 | 669,659 | 669,659 | 247,729 | 247,729 | 49,825 | 49,825 | 24,004 | 24,004 |
| Adjusted R-squared | 0.471 | 0.628 | 0.579 | 0.333 | 0.452 | 0.662 | 0.613 | 0.248 |

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

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | 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 | -0.523*** | 0.092*** | 1.070*** | -0.105*** | -0.871*** | 0.080*** | 0.902*** | -0.185*** |
| | (-8.923) | (36.926) | (30.023) | (-27.695) | (-10.478) | (9.391) | (8.881) | (-15.468) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -0.802*** | 0.002 | -0.322** | 0.113*** |
| | | | | | (-6.145) | (0.126) | (-2.480) | (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 | 803,660 | 803,660 | 281,021 | 281,021 | 61,356 | 61,356 | 34,080 | 34,080 |
| Adjusted R-squared | 0.528 | 0.613 | 0.589 | 0.320 | 0.529 | 0.649 | 0.636 | 0.248 |

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

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | 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 | -0.539*** | 0.093*** | 1.060*** | -0.103*** | -0.893*** | 0.083*** | 0.907*** | -0.183*** |
| | (-9.152) | (37.045) | (30.118) | (-26.986) | (-10.659) | (9.887) | (9.030) | (-15.278) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -0.796*** | 0.001 | -0.315** | 0.110*** |
| | | | | | (-6.186) | (0.098) | (-2.446) | (5.911) |
| 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 | 800,104 | 800,104 | 276,994 | 276,994 | 60,984 | 60,984 | 33,639 | 33,639 |
| Adjusted R-squared | 0.529 | 0.613 | 0.592 | 0.321 | 0.530 | 0.648 | 0.638 | 0.248 |

*Panel P: Other Credit Card Terms*

*Panel P1: Other Credit Card Terms during Normal Times*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | | **Consumer Accounts** | | | | **Small Business Accounts** | | |
| **Dependent Variable:** | Ln(1+Cash Limit) | Rewards | Promo | Annual Fee | Ln(1+Cash Limit) | Rewards | Promo | Annual Fee |
| **Independent Variables:** | | | | | | | | |
| BANK_REL_3Y | 0.531*** | 0.097*** | 0.069*** | 0.001*** | -0.081*** | 0.013*** | 0.056*** | 0.001*** |
| | (55.550) | (53.364) | (36.301) | (32.603) | (-7.329) | (14.580) | (21.778) | (24.924) |
| Ln(1+Limit) | NO | NO | NO | NO | NO | NO | NO | 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 | 804,109 | 805,433 | 805,433 | 805,433 | 281,034 | 281,034 | 281,034 | 281,034 |
| Adjusted R-squared | 0.570 | 0.434 | 0.270 | 0.119 | 0.478 | 0.310 | 0.539 | 0.211 |

*Panel P2: Other Credit Card Terms during the COVID-19 Crisis*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | | **Consumer Accounts** | | | | **Small Business Accounts** | | |
| **Dependent Variable:** | Ln(1+Cash Limit) | Rewards | Promo | Annual Fee | Ln(1+Cash Limit) | Rewards | Promo | Annual Fee |
| **Independent Variables:** | | | | | | | | |
| BANK_REL_3Y × COVID-19 Crisis | 0.236*** | 0.001 | -0.012* | -0.000 | 0.078* | 0.011** | -0.015* | -0.001*** |
| | (6.960) | (0.183) | (-1.878) | (-0.988) | (1.931) | (2.527) | (-1.959) | (-3.388) |
| BANK_REL_3Y | 0.440*** | 0.101*** | 0.052*** | 0.002*** | -0.167*** | -0.003* | 0.052*** | 0.002*** |
| | (24.764) | (23.582) | (11.486) | (8.889) | (-6.109) | (-1.740) | (9.229) | (15.826) |
| Ln(1+Limit) | NO | NO | NO | NO | NO | NO | NO | 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 | 61,621 | 61,621 | 61,621 | 61,621 | 34,082 | 34,082 | 34,082 | 34,082 |
| Adjusted R-squared | 0.566 | 0.507 | 0.220 | 0.126 | 0.644 | 0.541 | 0.467 | 0.246 |

*Panel Q: Decomposition of Bank Relationships over Time*
*Panel Q1: 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:** | | | | | | | | |
| BANK_REL_3Y × Y2013 | -2.655*** | 0.109*** | 2.057*** | -0.048*** | | | | |
| | (-24.766) | (13.612) | (16.634) | (-3.799) | | | | |
| BANK_REL_3Y × Y2014 | -0.847*** | 0.051*** | 1.924*** | -0.095*** | | | | |
| | (-9.285) | (9.326) | (20.378) | (-7.724) | | | | |
| BANK_REL_3Y × Y2015 | -0.449*** | 0.077*** | 0.719*** | -0.107*** | | | | |
| | (-4.710) | (15.969) | (9.771) | (-12.608) | | | | |
| BANK_REL_3Y × Y2016 | -0.510*** | 0.110*** | 0.886*** | -0.085*** | | | | |
| | (-6.213) | (23.206) | (12.068) | (-10.509) | | | | |
| BANK_REL_3Y × Y2017 | -0.494*** | 0.110*** | 1.102*** | -0.088*** | | | | |
| | (-7.841) | (23.140) | (12.684) | (-11.158) | | | | |
| BANK_REL_3Y × Y2018 | -0.313*** | 0.096*** | 0.717*** | -0.098*** | | | | |
| | (-5.143) | (17.941) | (12.576) | (-14.436) | | | | |
| BANK_REL_3Y × Y2019 | 0.125** | 0.091*** | 1.118*** | -0.131*** | | | | |
| | (2.261) | (17.983) | (22.233) | (-19.795) | | | | |
| BANK_REL_3Y × Y2020 | 1.224*** | 0.122*** | 1.071*** | -0.173*** | | | | |
| | (9.381) | (10.961) | (8.544) | (-12.300) | | | | |
| CARD_REL_3Y × Y2013 | | | | | 0.839*** | 0.091*** | 2.434*** | -0.103*** |
| | | | | | (8.307) | (7.911) | (18.857) | (-7.784) |
| CARD_REL_3Y × Y2014 | | | | | 0.772*** | 0.013** | 2.453*** | -0.149*** |
| | | | | | (10.859) | (2.093) | (22.924) | (-12.546) |
| CARD_REL_3Y × Y2015 | | | | | 0.481*** | 0.006 | 1.271*** | -0.129*** |
| | | | | | (6.788) | (1.031) | (11.298) | (-10.972) |
| CARD_REL_3Y × Y2016 | | | | | 0.765*** | 0.067*** | 2.222*** | -0.123*** |
| | | | | | (13.131) | (11.064) | (22.286) | (-10.864) |
| CARD_REL_3Y × Y2017 | | | | | 0.629*** | 0.048*** | 2.872*** | -0.177*** |
| | | | | | (12.328) | (8.072) | (27.395) | (-17.374) |
| CARD_REL_3Y × Y2018 | | | | | 0.602*** | 0.014** | 1.318*** | -0.189*** |
| | | | | | (11.980) | (2.028) | (20.954) | (-24.772) |
| CARD_REL_3Y × Y2019 | | | | | 0.493*** | 0.018*** | 1.573*** | -0.217*** |
| | | | | | (8.392) | (3.143) | (26.438) | (-30.969) |
| CARD_REL_3Y × Y2020 | | | | | 0.812*** | 0.019 | 1.029*** | -0.272*** |
| | | | | | (4.777) | (1.350) | (6.571) | (-15.927) |
| CONVENTIONAL_BANK_REL × Y2013 | | | | | -3.745*** | 0.065*** | 0.163 | 0.029* |
| | | | | | (-28.735) | (7.725) | (1.209) | (1.784) |
| CONVENTIONAL_BANK_REL × Y2014 | | | | | -1.501*** | 0.050*** | 0.297*** | -0.013 |
| | | | | | (-12.853) | (8.404) | (3.406) | (-1.067) |
| CONVENTIONAL_BANK_REL × Y2015 | | | | | -0.791*** | 0.085*** | -0.213*** | -0.043*** |
| | | | | | (-6.867) | (16.047) | (-2.864) | (-4.826) |
| CONVENTIONAL_BANK_REL × Y2016 | | | | | -1.116*** | 0.092*** | -0.465*** | 0.004 |
| | | | | | (-11.164) | (14.570) | (-6.106) | (0.500) |
| CONVENTIONAL_BANK_REL × Y2017 | | | | | -1.136*** | 0.121*** | -0.666*** | 0.041*** |
| | | | | | (-12.876) | (19.572) | (-8.108) | (5.311) |
| CONVENTIONAL_BANK_REL × Y2018 | | | | | -0.796*** | 0.128*** | -0.192** | 0.045*** |
| | | | | | (-9.199) | (19.951) | (-2.146) | (5.804) |
| CONVENTIONAL_BANK_REL × Y2019 | | | | | 0.079 | 0.116*** | 0.240*** | 0.017** |
| | | | | | (1.007) | (18.676) | (2.703) | (2.082) |
| CONVENTIONAL_BANK_REL × Y2020 | | | | | 1.377*** | 0.153*** | 0.487*** | -0.013 |
| | | | | | (10.866) | (11.957) | (4.030) | (-0.811) |
| 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 | 277,562 | 277,562 | 805,433 | 805,433 | 277,562 | 277,562 |
| Adjusted R-squared | 0.529 | 0.613 | 0.591 | 0.324 | 0.531 | 0.613 | 0.595 | 0.328 |

*Panel Q2: 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:** | | | | | | | | |
| BANK_REL_3Y × COVID-19 Crisis_Mar 2020 | 0.567*** | 0.032 | 0.034 | 0.048* | | | | |
| | (2.860) | (1.561) | (0.189) | (1.959) | | | | |
| BANK_REL_3Y × COVID-19 Crisis_Apr 2020 | -2.019*** | -0.003 | -0.468** | 0.084** | | | | |
| | (-7.353) | (-0.134) | (-2.244) | (2.399) | | | | |
| BANK_REL_3Y × COVID-19 Crisis_May 2020 | -1.740*** | -0.007 | -0.805*** | 0.182*** | | | | |
| | (-6.739) | (-0.319) | (-3.296) | (4.501) | | | | |
| BANK_REL_3Y × COVID-19 Crisis_Jun 2020 | -1.242*** | -0.034 | -0.686** | 0.296*** | | | | |
| | (-4.310) | (-1.218) | (-2.335) | (7.346) | | | | |
| CARD_REL_3Y × COVID-19 Crisis_Mar 2020 | | | | | -0.414* | -0.045* | -0.358* | 0.026 |
| | | | | | (-1.914) | (-1.882) | (-1.838) | (0.953) |
| CARD_REL_3Y × COVID-19 Crisis_Apr 2020 | | | | | 0.859*** | -0.062* | 0.064 | 0.091** |
| | | | | | (2.723) | (-1.948) | (0.248) | (2.147) |
| CARD_REL_3Y × COVID-19 Crisis_May 2020 | | | | | -0.001 | -0.058* | -0.982*** | 0.199*** |
| | | | | | (-0.002) | (-1.675) | (-3.300) | (4.481) |
| CARD_REL_3Y × COVID-19 Crisis_Jun 2020 | | | | | 0.410 | 0.044 | -0.763* | 0.112** |
| | | | | | (1.162) | (1.286) | (-1.676) | (1.974) |
| CONVENTIONAL_BANK_REL × COVID-19 Crisis_Mar 2020 | | | | | 0.984*** | 0.068*** | 0.205 | 0.031 |
| | | | | | (4.361) | (2.740) | (1.109) | (1.214) |
| CONVENTIONAL_BANK_REL × COVID-19 Crisis_Apr 2020 | | | | | -2.911*** | 0.032 | -0.884*** | 0.001 |
| | | | | | (-8.655) | (1.203) | (-3.206) | (0.040) |
| CONVENTIONAL_BANK_REL × COVID-19 Crisis_May 2020 | | | | | -2.128*** | 0.016 | -0.464 | 0.111** |
| | | | | | (-7.040) | (0.611) | (-1.599) | (2.233) |
| CONVENTIONAL_BANK_REL × COVID-19 Crisis_Jun 2020 | | | | | -1.699*** | -0.060** | -0.562* | 0.268*** |
| | | | | | (-5.510) | (-1.993) | (-1.826) | (5.654) |
| BANK_REL_3Y | -0.843*** | 0.081*** | 0.903*** | -0.184*** | | | | |
| | (-10.162) | (9.566) | (8.889) | (-15.491) | | | | |
| CARD_REL_3Y | | | | | 0.105 | 0.033*** | 1.423*** | -0.240*** |
| | | | | | (1.066) | (3.286) | (12.101) | (-16.140) |
| CONVENTIONAL_BANK_REL | | | | | -1.139*** | 0.085*** | -0.004 | -0.049*** |
| | | | | | (-10.328) | (7.584) | (-0.042) | (-3.607) |
| 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 | 61,621 | 61,621 | 34,082 | 34,082 | 61,621 | 61,621 | 34,082 | 34,082 |
| Adjusted R-squared | 0.530 | 0.648 | 0.636 | 0.249 | 0.531 | 0.648 | 0.637 | 0.253 |

*Panel R: Decomposition of Bank Relationships by Granular Conventional Bank Relationships Over Time*
*Panel R1: Effects during Normal Times*

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | **Decompositions of Bank Relationships** | | | |
| | **Consumer Accounts** | | **Small Business Accounts** | |
| **Dependent Variable:** | APR Spread | Ln(1+Limit) | APR Spread | Ln(1+Limit) |
| **Independent Variables:** | | | | |
| CARD_REL_3Y × Y2013 | 0.862*** | 0.090*** | 2.461*** | -0.100*** |
| | (8.544) | (7.966) | (18.941) | (-7.657) |
| CARD_REL_3Y × Y2014 | 0.787*** | 0.016** | 2.462*** | -0.147*** |
| | (11.046) | (2.448) | (22.761) | (-12.366) |
| CARD_REL_3Y × Y2015 | 0.505*** | 0.010 | 1.252*** | -0.127*** |
| | (7.125) | (1.613) | (11.137) | (-10.917) |
| CARD_REL_3Y × Y2016 | 0.734*** | 0.068*** | 2.175*** | -0.125*** |
| | (12.609) | (11.304) | (22.290) | (-10.770) |
| CARD_REL_3Y × Y2017 | 0.636*** | 0.048*** | 2.832*** | -0.178*** |
| | (12.435) | (8.047) | (26.850) | (-17.333) |
| CARD_REL_3Y × Y2018 | 0.604*** | 0.014** | 1.322*** | -0.186*** |
| | (12.165) | (2.107) | (21.085) | (-23.866) |
| CARD_REL_3Y × Y2019 | 0.459*** | 0.018*** | 1.581*** | -0.218*** |
| | (7.875) | (3.223) | (26.365) | (-30.902) |
| CARD_REL_3Y × Y2020 | 0.776*** | 0.020 | 1.064*** | -0.272*** |
| | (4.555) | (1.445) | (6.844) | (-15.886) |
| DEPOSIT_REL × Y2013 | -4.096*** | 0.010 | 0.007 | -0.011 |
| | (-24.512) | (1.010) | (0.050) | (-0.608) |
| DEPOSIT_REL × Y2014 | -1.563*** | -0.006 | 0.456*** | -0.052*** |
| | (-11.525) | (-0.849) | (4.886) | (-3.681) |
| DEPOSIT_REL × Y2015 | -0.814*** | 0.029*** | 0.046 | -0.067*** |
| | (-6.043) | (4.892) | (0.515) | (-6.145) |
| DEPOSIT_REL × Y2016 | -0.736*** | 0.060*** | -0.073 | -0.011 |
| | (-7.759) | (7.838) | (-0.792) | (-1.071) |
| DEPOSIT_REL × Y2017 | -1.118*** | 0.096*** | -0.390*** | 0.026** |
| | (-10.849) | (12.814) | (-3.590) | (2.501) |
| DEPOSIT_REL × Y2018 | -0.911*** | 0.089*** | -0.184* | 0.006 |
| | (-8.185) | (11.712) | (-1.773) | (0.604) |
| DEPOSIT_REL × Y2019 | 0.349*** | 0.059*** | 0.355*** | 0.003 |
| | (3.845) | (7.960) | (3.865) | (0.353) |
| DEPOSIT_REL × Y2020 | 1.568*** | 0.097*** | 0.565*** | -0.003 |
| | (9.919) | (6.364) | (4.237) | (-0.191) |
| INVESTMENT_REL × Y2013 | 0.360 | 0.247*** | 0.755 | 0.172 |
| | (0.599) | (4.670) | (0.793) | (0.996) |
| INVESTMENT_REL × Y2014 | 1.139** | 0.262*** | 0.236 | -0.001 |
| | (2.416) | (6.384) | (0.277) | (-0.006) |
| INVESTMENT_REL × Y2015 | 0.222 | 0.183*** | -0.440 | 0.072 |
| | (0.491) | (4.535) | (-0.744) | (0.976) |
| INVESTMENT_REL × Y2016 | -2.191*** | 0.198*** | -0.404 | 0.095 |
| | (-6.969) | (5.939) | (-0.521) | (1.072) |
| INVESTMENT_REL × Y2017 | -3.652*** | 0.215*** | -0.075 | 0.243** |
| | (-10.472) | (6.162) | (-0.103) | (2.554) |
| INVESTMENT_REL × Y2018 | -2.121*** | 0.226*** | -1.246 | 0.180 |
| | (-5.480) | (5.024) | (-1.432) | (1.518) |
| INVESTMENT_REL × Y2019 | -1.402*** | 0.179*** | 1.694** | 0.001 |
| | (-3.394) | (4.265) | (2.076) | (0.016) |
| INVESTMENT_REL × Y2020 | 2.061** | 0.014 | 0.055 | 0.463* |
| | (2.076) | (0.121) | (0.056) | (1.646) |
| MORTGAGE_REL × Y2013 | 2.739*** | 0.017 | -0.093 | 0.045 |
| | (8.242) | (0.579) | (-0.190) | (0.812) |
| MORTGAGE_REL × Y2014 | 4.023*** | 0.044* | 0.021 | 0.125*** |
| | (14.671) | (1.958) | (0.058) | (2.912) |
| MORTGAGE_REL × Y2015 | 3.734*** | 0.047** | -0.013 | 0.122*** |
| | (13.612) | (2.041) | (-0.036) | (2.792) |
| MORTGAGE_REL × Y2016 | -1.686*** | 0.064*** | -0.041 | 0.123** |
| | (-8.341) | (3.213) | (-0.099) | (2.401) |
| MORTGAGE_REL × Y2017 | -1.691*** | 0.095*** | -0.194 | 0.004 |
| | (-8.386) | (4.196) | (-0.438) | (0.074) |
| MORTGAGE_REL × Y2018 | -2.359*** | 0.044** | 1.833*** | 0.054 |
| | (-9.924) | (2.551) | (3.297) | (1.041) |
| MORTGAGE_REL × Y2019 | -1.952*** | -0.024 | 1.790*** | 0.039 |
| | (-8.189) | (-1.190) | (4.151) | (0.702) |
| MORTGAGE_REL × Y2020 | 0.420 | -0.022 | -0.147 | -0.088 |
| | (0.668) | (-0.383) | (-0.160) | (-0.871) |
| AUTO_REL × Y2013 | 0.983** | 0.061 | 1.014 | 0.010 |
| | (2.528) | (1.585) | (1.026) | (0.078) |
| AUTO_REL × Y2014 | 1.552*** | 0.012 | 1.104** | -0.030 |
| | (4.936) | (0.483) | (2.014) | (-0.492) |
| AUTO_REL × Y2015 | 1.657*** | 0.047* | -0.229 | -0.042 |
| | (5.214) | (1.820) | (-0.406) | (-0.619) |

| | | | | |
|---|---|---|---|---|
| AUTO_REL × Y2016 | -0.180 | -0.100*** | -0.295 | -0.018 |
| | (-0.829) | (-4.375) | (-0.542) | (-0.340) |
| AUTO_REL × Y2017 | -0.038 | -0.007 | 1.161** | 0.082 |
| | (-0.171) | (-0.315) | (2.234) | (1.356) |
| AUTO_REL × Y2018 | -1.276*** | 0.013 | 1.395*** | -0.055 |
| | (-4.584) | (0.563) | (2.953) | (-1.002) |
| AUTO_REL × Y2019 | -0.997*** | 0.064*** | 1.434*** | 0.035 |
| | (-3.900) | (3.073) | (3.119) | (0.541) |
| AUTO_REL × Y2020 | 0.484 | 0.088** | 2.954*** | -0.023 |
| | (0.805) | (1.996) | (2.966) | (-0.182) |
| STUDENT_REL × Y2013 | 2.048** | -0.025 | 3.301 | -0.235*** |
| | (2.158) | (-0.262) | (1.198) | (-6.968) |
| STUDENT_REL × Y2014 | 1.217** | 0.013 | -1.017 | -0.212 |
| | (2.138) | (0.240) | (-1.571) | (-1.236) |
| STUDENT_REL × Y2015 | 2.353*** | 0.100 | 1.817 | -0.314 |
| | (3.445) | (1.620) | (1.055) | (-1.029) |
| STUDENT_REL × Y2016 | 0.699 | -0.092 | -0.589 | 0.031 |
| | (1.387) | (-1.541) | (-0.217) | (0.236) |
| STUDENT_REL × Y2017 | -1.056** | 0.096* | -4.965* | 0.005 |
| | (-2.352) | (1.698) | (-1.822) | (0.020) |
| STUDENT_REL × Y2018 | -1.530*** | 0.163*** | -3.827*** | -0.137 |
| | (-2.618) | (2.832) | (-24.235) | (-0.994) |
| STUDENT_REL × Y2019 | -1.589*** | 0.033 | -3.161 | -0.335 |
| | (-3.163) | (0.607) | (-1.396) | (-0.688) |
| STUDENT_REL × Y2020 | -6.434*** | 0.183 | 0.037 | -0.094 |
| | (-5.296) | (1.427) | (0.075) | (-0.558) |
| OTHERLOAN_REL × Y2013 | 0.616 | 0.046 | -0.958 | 0.610*** |
| | (0.745) | (0.464) | (-0.841) | (4.972) |
| OTHERLOAN_REL × Y2014 | 0.457 | 0.007 | -0.573 | 0.073 |
| | (0.864) | (0.108) | (-0.856) | (0.595) |
| OTHERLOAN_REL × Y2015 | 0.704 | -0.010 | -0.295 | 0.128 |
| | (1.447) | (-0.199) | (-0.277) | (1.082) |
| OTHERLOAN_REL × Y2016 | -0.047 | 0.040 | -0.153 | -0.014 |
| | (-0.103) | (0.626) | (-0.123) | (-0.109) |
| OTHERLOAN_REL × Y2017 | -1.259*** | 0.017 | 1.099* | 0.535** |
| | (-2.901) | (0.299) | (1.703) | (2.368) |
| OTHERLOAN_REL × Y2018 | -1.076*** | 0.058 | -2.091** | 0.450*** |
| | (-2.670) | (0.934) | (-2.387) | (4.292) |
| OTHERLOAN_REL × Y2019 | -0.708* | 0.042 | -1.218*** | -0.360*** |
| | (-1.801) | (0.954) | (-2.598) | (-5.041) |
| OTHERLOAN_REL × Y2020 | -5.862*** | -0.064 | -0.744 | -0.426*** |
| | (-5.062) | (-0.531) | (-1.227) | (-4.172) |
| MULTI_PRODUCT_REL × Y2013 | -4.827*** | 0.171*** | 0.389 | 0.100*** |
| | (-28.055) | (13.867) | (1.570) | (3.818) |
| MULTI_PRODUCT_REL × Y2014 | -2.591*** | 0.150*** | -0.195 | 0.070*** |
| | (-17.317) | (16.716) | (-1.278) | (3.781) |
| MULTI_PRODUCT_REL × Y2015 | -1.670*** | 0.193*** | -0.616*** | -0.015 |
| | (-11.592) | (20.709) | (-6.811) | (-1.402) |
| MULTI_PRODUCT_REL × Y2016 | -2.009*** | 0.184*** | -0.908*** | 0.025*** |
| | (-14.654) | (18.724) | (-10.736) | (2.978) |
| MULTI_PRODUCT_REL × Y2017 | -1.284*** | 0.198*** | -1.084*** | 0.067*** |
| | (-9.357) | (19.210) | (-12.906) | (7.364) |
| MULTI_PRODUCT_REL × Y2018 | -0.395*** | 0.240*** | -0.437*** | 0.104*** |
| | (-3.072) | (23.303) | (-4.411) | (10.404) |
| MULTI_PRODUCT_REL × Y2019 | -0.121 | 0.259*** | -0.138 | 0.081*** |
| | (-0.970) | (25.826) | (-1.313) | (6.984) |
| MULTI_PRODUCT_REL × Y2020 | 1.407*** | 0.311*** | -0.135 | 0.032 |
| | (6.290) | (15.220) | (-0.471) | (0.707) |
| 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 | 805,433 | 805,433 | 277,562 | 277,562 |
| Adjusted R-squared | 0.533 | 0.613 | 0.595 | 0.329 |

*Panel R2: Changes during the COVID-19 Crisis*

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | **Decompositions of Bank Relationships** | | | |
| | **Consumer Accounts** | | **Small Business Accounts** | |
| **Dependent Variable:** | APR Spread | Ln(1+Limit) | APR Spread | Ln(1+Limit) |
| **Independent Variables:** | | | | |
| CARD_REL_3Y × COVID-19 Crisis_Mar 2020 | -0.396* | -0.045* | -0.338* | 0.021 |
| | (-1.846) | (-1.896) | (-1.755) | (0.761) |
| CARD_REL_3Y × COVID-19 Crisis_Apr 2020 | 0.808** | -0.061* | 0.039 | 0.091** |
| | (2.575) | (-1.919) | (0.147) | (2.157) |
| CARD_REL_3Y × COVID-19 Crisis_May 2020 | 0.151 | -0.060* | -0.963*** | 0.203*** |
| | (0.483) | (-1.704) | (-3.264) | (4.528) |
| CARD_REL_3Y × COVID-19 Crisis_Jun 2020 | 0.496 | 0.048 | -0.747 | 0.131** |
| | (1.401) | (1.384) | (-1.613) | (2.268) |
| DEPOSIT_REL × COVID-19 Crisis_Mar 2020 | 0.571** | 0.057* | 0.260 | 0.027 |
| | (2.174) | (1.912) | (1.244) | (0.994) |
| DEPOSIT_REL × COVID-19 Crisis_Apr 2020 | -3.216*** | 0.026 | -1.011*** | -0.003 |
| | (-8.566) | (0.848) | (-3.445) | (-0.066) |
| DEPOSIT_REL × COVID-19 Crisis_May 2020 | -3.025*** | 0.053* | -0.595* | 0.099* |
| | (-8.469) | (1.697) | (-1.810) | (1.885) |
| DEPOSIT_REL × COVID-19 Crisis_Jun 2020 | -2.448*** | -0.066** | -0.668** | 0.294*** |
| | (-6.596) | (-1.993) | (-2.135) | (6.179) |
| INVESTMENT_REL × COVID-19 Crisis_Mar 2020 | 2.414 | 0.111 | 0.448 | -0.158 |
| | (0.996) | (0.582) | (0.245) | (-0.524) |
| INVESTMENT_REL × COVID-19 Crisis_Apr 2020 | -2.326 | 0.230 | 1.863 | 0.055 |
| | (-0.896) | (1.513) | (0.426) | (0.048) |
| INVESTMENT_REL × COVID-19 Crisis_May 2020 | 4.575** | -0.152 | 2.535 | 0.813 |
| | (2.546) | (-0.906) | (0.560) | (1.322) |
| INVESTMENT_REL × COVID-19 Crisis_Jun 2020 | -3.352 | -0.111 | | |
| | (-1.276) | (-0.504) | | |
| MORTGAGE_REL × COVID-19 Crisis_Mar 2020 | 1.089 | 0.178** | -0.531 | 0.349** |
| | (0.658) | (2.165) | (-0.371) | (2.087) |
| MORTGAGE_REL × COVID-19 Crisis_Apr 2020 | -2.154 | 0.172 | 0.409 | -0.585** |
| | (-1.268) | (1.629) | (0.162) | (-2.131) |
| MORTGAGE_REL × COVID-19 Crisis_May 2020 | 2.751* | 0.122 | -0.535 | 1.620*** |
| | (1.871) | (1.287) | (-0.728) | (15.170) |
| MORTGAGE_REL × COVID-19 Crisis_Jun 2020 | 3.438** | 0.157* | -7.419*** | -0.341*** |
| | (2.249) | (1.656) | (-8.660) | (-3.173) |
| AUTO_REL × COVID-19 Crisis_Mar 2020 | 1.112 | 0.078 | 3.303** | 0.085 |
| | (0.947) | (0.840) | (2.084) | (0.413) |
| AUTO_REL × COVID-19 Crisis_Apr 2020 | -5.271*** | 0.052 | -0.366 | -0.194 |
| | (-3.227) | (0.554) | (-0.137) | (-0.720) |
| AUTO_REL × COVID-19 Crisis_May 2020 | -1.581 | 0.190** | -1.285 | 0.611*** |
| | (-1.023) | (2.112) | (-1.511) | (6.144) |
| AUTO_REL × COVID-19 Crisis_Jun 2020 | -0.988 | -0.056 | | |
| | (-0.651) | (-0.589) | | |
| STUDENT_REL × COVID-19 Crisis_Mar 2020 | 5.073** | -0.022 | | |
| | (1.976) | (-0.118) | | |
| STUDENT_REL × COVID-19 Crisis_Apr 2020 | 1.014 | 0.224* | | |
| | (0.438) | (1.915) | | |
| STUDENT_REL × COVID-19 Crisis_May 2020 | 0.867 | 0.114 | | |
| | (0.785) | (0.930) | | |
| STUDENT_REL × COVID-19 Crisis_Jun 2020 | -1.988 | 0.135 | | |
| | (-0.352) | (0.498) | | |
| OTHERLOAN_REL × COVID-19 Crisis_Mar 2020 | -0.284 | -0.092 | 0.222 | 0.148 |
| | (-0.207) | (-0.446) | (0.299) | (0.782) |
| OTHERLOAN_REL × COVID-19 Crisis_Apr 2020 | 0.257 | 0.123 | -0.925 | 0.033 |
| | (0.111) | (0.653) | (-1.140) | (0.154) |
| OTHERLOAN_REL × COVID-19 Crisis_May 2020 | -2.387* | -0.209 | -0.259 | 0.360 |
| | (-1.674) | (-0.925) | (-0.249) | (1.539) |
| OTHERLOAN_REL × COVID-19 Crisis_Jun 2020 | -3.609 | -0.471* | -0.235 | 0.129 |
| | (-1.462) | (-1.827) | (-0.205) | (0.463) |
| MULTI_PRODUCT_REL × COVID-19 Crisis_Mar 2020 | 1.590*** | 0.082** | -0.289 | 0.039 |
| | (4.598) | (2.167) | (-0.646) | (0.565) |
| MULTI_PRODUCT_REL × COVID-19 Crisis_Apr 2020 | -1.817*** | 0.023 | 0.056 | 0.154* |
| | (-3.320) | (0.438) | (0.081) | (1.654) |
| MULTI_PRODUCT_REL × COVID-19 Crisis_May 2020 | -1.423*** | -0.093* | 0.110 | 0.068 |
| | (-2.643) | (-1.873) | (0.167) | (0.798) |
| MULTI_PRODUCT_REL × COVID-19 Crisis_Jun 2020 | -0.942* | -0.082 | 0.186 | 0.118 |
| | (-1.837) | (-1.546) | (0.275) | (1.193) |
| CARD_REL_3Y | 0.114 | 0.034*** | 1.421*** | -0.240*** |
| | (1.158) | (3.365) | (12.080) | (-16.047) |
| DEPOSIT_REL | -1.306*** | 0.059*** | -0.023 | -0.052*** |
| | (-9.130) | (4.679) | (-0.192) | (-3.534) |
| INVESTMENT_REL | -0.275 | 0.179** | 1.428 | 0.216 |
| | (-0.368) | (2.366) | (1.388) | (1.114) |
| MORTGAGE_REL | -1.073** | -0.056 | 0.527 | -0.223** |

| | | | | |
|---|---|---|---|---|
| | (-2.194) | (-1.271) | (0.777) | (-2.241) |
| AUTO_REL | -0.859* | 0.073** | 1.837** | 0.005 |
| | (-1.682) | (2.191) | (2.405) | (0.061) |
| STUDENT_REL | -1.497* | 0.093 | -1.154 | -0.086 |
| | (-1.762) | (1.095) | (-1.635) | (-0.632) |
| OTHERLOAN_REL | -0.747 | -0.131 | -0.306 | -0.533*** |
| | (-1.009) | (-1.500) | (-0.845) | (-5.720) |
| MULTI_PRODUCT_REL | -0.975*** | 0.163*** | -0.232 | 0.073** |
| | (-6.166) | (9.523) | (-1.048) | (2.478) |
| 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 | 61,621 | 61,621 | 34,082 | 34,082 |
| Adjusted R-squared | 0.532 | 0.648 | 0.638 | 0.256 |

*Panel R3: Changes during the COVID-19 Crisis*

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | | **Decompositions of Bank Relationships** | | |
| | **Consumer Accounts** | | **Small Business Accounts** | |
| **Dependent Variable:** | APR Spread | Ln(1+Limit) | APR Spread | Ln(1+Limit) |
| **Independent Variables:** | | | | |
| CARD_REL_3Y × Nov 2019 | 0.196 | 0.024 | 1.201*** | -0.263*** |
| | (1.055) | (1.181) | (6.149) | (-9.373) |
| CARD_REL_3Y × Dec 2019 | -0.228 | 0.042** | 1.553*** | -0.243*** |
| | (-1.286) | (2.327) | (8.169) | (-10.077) |
| CARD_REL_3Y × Jan 2020 | 0.157 | 0.055*** | 1.626*** | -0.209*** |
| | (0.858) | (2.913) | (8.336) | (-8.627) |
| CARD_REL_3Y × Feb 2020 | 0.325 | 0.008 | 1.293*** | -0.248*** |
| | (1.543) | (0.384) | (6.644) | (-11.751) |
| CARD_REL_3Y × Mar 2020 | -0.297 | -0.010 | 1.088*** | -0.217*** |
| | (-1.416) | (-0.446) | (6.443) | (-8.683) |
| CARD_REL_3Y × Apr 2020 | 0.924*** | -0.027 | 1.465*** | -0.147*** |
| | (3.011) | (-0.890) | (6.430) | (-3.925) |
| CARD_REL_3Y × May 2020 | 0.262 | -0.025 | 0.462 | -0.035 |
| | (0.841) | (-0.759) | (1.574) | (-0.835) |
| CARD_REL_3Y × Jun 2020 | 0.609* | 0.082** | 0.681 | -0.107** |
| | (1.820) | (2.518) | (1.483) | (-1.982) |
| DEPOSIT_REL × Nov 2019 | -2.009*** | 0.025 | -0.011 | -0.057** |
| | (-8.640) | (1.112) | (-0.052) | (-2.424) |
| DEPOSIT_REL × Dec 2019 | -1.797*** | 0.089*** | 0.112 | -0.017 |
| | (-7.879) | (3.913) | (0.571) | (-0.595) |
| DEPOSIT_REL × Jan 2020 | -1.774*** | 0.041* | -0.109 | -0.028 |
| | (-8.474) | (1.748) | (-0.574) | (-1.143) |
| DEPOSIT_REL × Feb 2020 | 0.632*** | 0.075*** | -0.051 | -0.098*** |
| | (2.715) | (3.558) | (-0.264) | (-4.084) |
| DEPOSIT_REL × Mar 2020 | -0.678*** | 0.114*** | 0.232 | -0.027 |
| | (-2.742) | (4.092) | (1.138) | (-1.176) |
| DEPOSIT_REL × Apr 2020 | -4.499*** | 0.085*** | -1.040*** | -0.056 |
| | (-12.122) | (2.938) | (-3.585) | (-1.446) |
| DEPOSIT_REL × May 2020 | -4.310*** | 0.113*** | -0.620* | 0.047 |
| | (-12.368) | (3.722) | (-1.881) | (0.915) |
| DEPOSIT_REL × Jun 2020 | -3.725*** | -0.007 | -0.690** | 0.241*** |
| | (-10.273) | (-0.226) | (-2.341) | (5.245) |
| INVESTMENT_REL × Nov 2019 | -2.027 | 0.532*** | 3.915** | 0.316 |
| | (-1.388) | (5.552) | (2.247) | (1.599) |
| INVESTMENT_REL × Dec 2019 | -1.355 | 0.257** | 1.696 | -0.238 |
| | (-0.846) | (2.158) | (0.714) | (-0.582) |
| INVESTMENT_REL × Jan 2020 | -0.897 | 0.196 | -2.118 | -0.107 |
| | (-0.816) | (1.358) | (-0.960) | (-0.437) |
| INVESTMENT_REL × Feb 2020 | 2.844* | -0.195 | -0.720 | 0.625 |
| | (1.854) | (-1.099) | (-0.498) | (1.448) |
| INVESTMENT_REL × Mar 2020 | 2.242 | 0.288* | 1.870 | 0.061 |
| | (0.950) | (1.646) | (1.170) | (0.258) |
| INVESTMENT_REL × Apr 2020 | -2.597 | 0.410*** | 3.291 | 0.275 |
| | (-1.052) | (3.261) | (0.776) | (0.243) |
| INVESTMENT_REL × May 2020 | 4.344*** | 0.027 | 3.963 | 1.033* |
| | (2.646) | (0.180) | (0.888) | (1.772) |
| INVESTMENT_REL × Jun 2020 | -3.655 | 0.068 | | |
| | (-1.484) | (0.330) | | |
| MORTGAGE_REL × Nov 2019 | -1.450 | 0.140* | -0.036 | -0.332** |
| | (-1.505) | (1.806) | (-0.026) | (-2.241) |
| MORTGAGE_REL × Dec 2019 | -1.417 | -0.209** | 1.917 | -0.356 |
| | (-1.600) | (-2.343) | (1.611) | (-1.499) |
| MORTGAGE_REL × Jan 2020 | -2.971*** | -0.179** | -0.850 | 0.032 |
| | (-3.043) | (-2.239) | (-0.505) | (0.214) |
| MORTGAGE_REL × Feb 2020 | 1.730* | 0.054 | 0.602 | -0.189 |
| | (1.917) | (0.703) | (0.460) | (-1.396) |
| MORTGAGE_REL × Mar 2020 | 0.137 | 0.120* | -0.006 | 0.128 |

| | | | | |
|---|---|---|---|---|
| | (0.089) | (1.654) | (-0.005) | (0.916) |
| MORTGAGE_REL × Apr 2020 | -3.265** | 0.116 | 0.941 | -0.805*** |
| | (-1.966) | (1.240) | (0.399) | (-3.241) |
| MORTGAGE_REL × May 2020 | 1.654 | 0.067 | -0.010 | 1.398*** |
| | (1.161) | (0.713) | (-0.029) | (29.930) |
| MORTGAGE_REL × Jun 2020 | 2.323 | 0.102 | -6.882*** | -0.565*** |
| | (1.507) | (1.175) | (-15.164) | (-9.506) |
| AUTO_REL × Nov 2019 | -1.063 | 0.171** | 0.172 | 0.071 |
| | (-0.988) | (2.056) | (0.116) | (0.443) |
| AUTO_REL × Dec 2019 | -0.357 | 0.042 | 1.265 | 0.090 |
| | (-0.419) | (0.557) | (0.838) | (0.544) |
| AUTO_REL × Jan 2020 | -2.521*** | 0.070 | 3.141** | 0.002 |
| | (-2.955) | (1.150) | (2.390) | (0.011) |
| AUTO_REL × Feb 2020 | 0.400 | 0.028 | 3.302** | -0.171 |
| | (0.419) | (0.405) | (2.180) | (-0.923) |
| AUTO_REL × Mar 2020 | 0.308 | 0.150* | 5.137*** | 0.094 |
| | (0.288) | (1.828) | (3.670) | (0.508) |
| AUTO_REL × Apr 2020 | -6.159*** | 0.125 | 1.478 | -0.186 |
| | (-4.105) | (1.387) | (0.587) | (-0.720) |
| AUTO_REL × May 2020 | -2.457* | 0.264*** | 0.561* | 0.623*** |
| | (-1.687) | (3.007) | (1.697) | (12.696) |
| AUTO_REL × Jun 2020 | -1.847 | 0.016 | | |
| | (-1.279) | (0.182) | | |
| STUDENT_REL × Nov 2019 | -0.173 | -0.110 | | |
| | (-0.112) | (-0.554) | | |
| STUDENT_REL × Dec 2019 | 0.331 | 0.015 | -3.831*** | 0.185*** |
| | (0.200) | (0.125) | (-13.303) | (3.915) |
| STUDENT_REL × Jan 2020 | 0.440 | 0.259 | -0.537 | -0.139 |
| | (0.369) | (0.980) | (-0.998) | (-0.951) |
| STUDENT_REL × Feb 2020 | -6.149*** | 0.260** | | |
| | (-4.554) | (2.481) | | |
| STUDENT_REL × Mar 2020 | 3.586 | 0.070 | | |
| | (1.453) | (0.393) | | |
| STUDENT_REL × Apr 2020 | -0.487 | 0.317*** | | |
| | (-0.227) | (3.960) | | |
| STUDENT_REL × May 2020 | -0.614 | 0.206* | | |
| | (-0.758) | (1.839) | | |
| STUDENT_REL × Jun 2020 | -3.515 | 0.228 | | |
| | (-0.650) | (0.887) | | |
| OTHERLOAN_REL × Nov 2019 | 3.970*** | -0.192 | -0.062 | -0.430 |
| | (3.445) | (-0.981) | (-0.078) | (-1.546) |
| OTHERLOAN_REL × Dec 2019 | -0.906 | -0.366* | 0.371 | -0.731*** |
| | (-0.710) | (-1.855) | (0.503) | (-4.763) |
| OTHERLOAN_REL × Jan 2020 | -0.253 | -0.025 | -1.151* | -0.728*** |
| | (-0.227) | (-0.123) | (-1.653) | (-4.852) |
| OTHERLOAN_REL × Feb 2020 | -4.594*** | 0.034 | -0.650 | -0.213 |
| | (-3.710) | (0.245) | (-1.155) | (-1.481) |
| OTHERLOAN_REL × Mar 2020 | -1.015 | -0.224 | -0.079 | -0.383** |
| | (-0.870) | (-1.196) | (-0.120) | (-2.436) |
| OTHERLOAN_REL × Apr 2020 | -0.477 | -0.009 | -1.232 | -0.501*** |
| | (-0.218) | (-0.054) | (-1.631) | (-2.591) |
| OTHERLOAN_REL × May 2020 | -3.130*** | -0.340* | -0.562 | -0.173 |
| | (-2.585) | (-1.699) | (-0.607) | (-0.862) |
| OTHERLOAN_REL × Jun 2020 | -4.298* | -0.606** | -0.572 | -0.405 |
| | (-1.830) | (-2.515) | (-0.539) | (-1.535) |
| MULTI_PRODUCT_REL × Nov 2019 | -1.910*** | 0.182*** | -0.459 | 0.129*** |
| | (-5.557) | (5.050) | (-0.923) | (2.733) |
| MULTI_PRODUCT_REL × Dec 2019 | -1.869*** | 0.181*** | -0.318 | 0.152** |
| | (-6.303) | (5.973) | (-0.718) | (2.147) |
| MULTI_PRODUCT_REL × Jan 2020 | -1.290*** | 0.130*** | -0.276 | 0.009 |
| | (-4.938) | (4.727) | (-0.679) | (0.144) |
| MULTI_PRODUCT_REL × Feb 2020 | 1.327*** | 0.154*** | 0.065 | 0.013 |
| | (4.310) | (4.849) | (0.152) | (0.204) |
| MULTI_PRODUCT_REL × Mar 2020 | 0.676** | 0.243*** | -0.521 | 0.111* |
| | (1.969) | (6.768) | (-1.451) | (1.894) |
| MULTI_PRODUCT_REL × Apr 2020 | -2.798*** | 0.185*** | -0.175 | 0.229*** |
| | (-5.110) | (3.894) | (-0.253) | (2.709) |
| MULTI_PRODUCT_REL × May 2020 | -2.401*** | 0.070 | -0.117 | 0.142* |
| | (-4.687) | (1.453) | (-0.192) | (1.699) |
| MULTI_PRODUCT_REL × Jun 2020 | -1.916*** | 0.081* | -0.041 | 0.193** |
| | (-3.752) | (1.661) | (-0.060) | (2.052) |
| 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 | 61,621 | 61,621 | 34,082 | 34,082 |
| Adjusted R-squared | 0.534 | 0.648 | 0.638 | 0.256 |

## Table OA.2: 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 C1-C2 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*

| Sample | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 | -0.698*** | 0.014 | -0.354** | 0.085*** | -0.795*** | 0.004 | -0.346*** | 0.105*** | -1.748*** | 0.043*** | -0.278** | 0.050*** |
| | (-4.480) | (0.864) | (-2.257) | (4.191) | (-5.979) | (0.348) | (-2.898) | (5.818) | (-11.934) | (3.275) | (-2.180) | (2.680) |
| BANK_REL_3Y | -0.995*** | 0.077*** | 0.962*** | -0.169*** | -0.796*** | 0.083*** | 0.944*** | -0.170*** | -0.110 | 0.049*** | 0.998*** | -0.122*** |
| | (-7.904) | (6.442) | (7.089) | (-10.854) | (-9.988) | (11.905) | (10.906) | (-17.534) | (-1.143) | (5.596) | (10.655) | (-11.914) |
| 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 | 40,539 | 40,539 | 23,256 | 23,256 | 82,395 | 82,395 | 45,832 | 45,832 | 61,960 | 61,960 | 34,452 | 34,452 |
| Adjusted R-squared | 0.511 | 0.639 | 0.645 | 0.253 | 0.535 | 0.653 | 0.628 | 0.245 | 0.574 | 0.632 | 0.657 | 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*** | -9.045*** | -0.038*** | -0.303** | 0.001 | 0.001 | 0.034 | -0.000 | -0.019* |
| | (-10.370) | (-9.679) | (-9.914) | (-2.871) | (-2.234) | (0.424) | (0.385) | (0.424) | (-0.443) | (-1.815) |
| BANK_REL_3Y | -0.695*** | -0.718*** | -0.750*** | -1.064*** | -1.107*** | 0.080*** | 0.080*** | 0.080*** | 0.083*** | 0.084*** |
| | (-8.628) | (-8.903) | (-9.461) | (-14.428) | (-15.764) | (9.768) | (9.889) | (10.026) | (11.369) | (11.873) |
| COVID-19 Crisis (Intensity Indicator) | 0.138*** | 0.063** | 0.563 | 0.000 | -0.114* | -0.016*** | -0.013*** | -0.458*** | -0.000 | -0.010* |
| | (3.727) | (2.083) | (0.586) | (0.143) | (-1.818) | (-4.791) | (-4.329) | (-5.152) | (-0.723) | (-1.676) |
| 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 | 61,621 | 61,621 | 61,621 | 61,621 | 61,621 | 61,621 | 61,621 | 61,621 | 61,621 | 61,621 |
| 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*** | -0.050** | -1.430** | -0.019** | -0.227** | 0.021*** | 0.021*** | 0.564*** | 0.003*** | 0.052*** |
| | (-2.884) | (-2.566) | (-2.006) | (-2.285) | (-2.128) | (6.162) | (6.370) | (5.103) | (2.752) | (3.349) |
| BANK_REL_3Y | 0.892*** | 0.880*** | 0.857*** | 0.835*** | 0.821*** | -0.182*** | -0.183*** | -0.173*** | -0.155*** | -0.154*** |
| | (9.372) | (9.364) | (9.196) | (10.072) | (9.952) | (-15.743) | (-15.943) | (-15.654) | (-16.293) | (-16.203) |
| COVID-19 Crisis (Intensity Indicator) | -0.009 | -0.015 | -1.279 | 0.006 | 0.049 | -0.015*** | -0.017*** | -0.423*** | -0.001* | -0.031*** |
| | (-0.233) | (-0.480) | (-1.338) | (0.985) | (0.579) | (-3.329) | (-4.101) | (-3.471) | (-1.691) | (-2.810) |
| 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 | 34,082 | 34,082 | 34,082 | 34,082 | 34,082 | 34,082 | 34,082 | 34,082 | 34,082 | 34,082 |
| Adjusted R-squared | 0.636 | 0.636 | 0.636 | 0.636 | 0.636 | 0.249 | 0.249 | 0.248 | 0.248 | 0.248 |

*Panel C: PPP Lending*

*Panel C1: 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 | -0.863*** | 0.002 | -0.322** | 0.113*** |
| | (-6.634) | (0.176) | (-2.479) | (5.991) |
| BANK_REL_3Y | -0.843*** | 0.081*** | 0.902*** | -0.185*** |
| | (-10.187) | (9.606) | (8.879) | (-15.466) |
| PPP Loans/Total Assets | -924.709*** | -23.519*** | -29.881 | 7.668 |
| | (-11.416) | (-2.716) | (-0.113) | (0.187) |
| 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 | 61,621 | 61,621 | 34,082 | 34,082 |
| Adjusted R-squared | 0.530 | 0.648 | 0.636 | 0.248 |

*Panel C2: 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 | 2.286*** | -0.072** | 0.321 | -0.006 |
| | (7.326) | (-2.100) | (0.961) | (-0.131) |
| High PPP | 0.994*** | 0.008 | -0.387 | 0.112* |
| | (4.736) | (0.325) | (-0.902) | (1.749) |
| COVID-19 Crisis × High PPP | -2.707*** | -0.039* | -0.758*** | -0.016 |
| | (-12.132) | (-1.809) | (-3.028) | (-0.428) |
| BANK_REL_3Y × High PPP | 1.666*** | 0.048** | 0.685*** | -0.145*** |
| | (8.872) | (2.277) | (2.920) | (-5.884) |
| BANK_REL_3Y | -1.212*** | 0.070*** | 0.731*** | -0.145*** |
| | (-13.201) | (7.203) | (8.344) | (-10.670) |
| BANK_REL_3Y × COVID-19 Crisis | -1.365*** | 0.016 | -0.415*** | 0.109*** |
| | (-8.440) | (1.060) | (-3.300) | (4.731) |
| 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 | 61,621 | 61,621 | 34,082 | 34,082 |
| Adjusted R-squared | 0.532 | 0.648 | 0.636 | 0.249 |

## Table OA.3: 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 core deposits 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 Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 | -2.932*** | -0.075*** | -1.991*** | 0.053*** | -2.737*** | -0.121*** | -0.961*** | 0.075*** |
| | (-36.037) | (-15.175) | (-25.234) | (6.795) | (-14.274) | (-7.144) | (-4.879) | (3.127) |
| BANK_REL_3Y × COVID-19 Crisis × Smaller Bank | | | | | 4.058*** | -0.050* | 1.037*** | 0.020 |
| | | | | | (12.475) | (-1.675) | (3.717) | (0.547) |
| Smaller Bank | 3.000*** | 0.059*** | -0.270** | -0.139*** | -5.216*** | -0.280*** | | |
| | (36.689) | (8.797) | (-2.100) | (-11.096) | (-14.727) | (-8.926) | | |
| COVID-19 Crisis × Smaller Bank | | | | | 0.106 | 0.116*** | 0.168 | -0.067** |
| | | | | | (0.503) | (5.738) | (0.776) | (-2.299) |
| BANK_REL_3Y | 0.661*** | 0.122*** | 1.903*** | -0.126*** | 0.439*** | 0.137*** | 1.246*** | -0.211*** |
| | (12.013) | (40.596) | (35.447) | (-24.205) | (4.150) | (12.158) | (7.746) | (-15.714) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -2.342*** | 0.015 | -0.617*** | 0.084*** |
| | | | | | (-13.707) | (0.906) | (-2.805) | (3.514) |
| 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 | 0.532 | 0.613 | 0.593 | 0.321 | 0.535 | 0.649 | 0.636 | 0.249 |

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

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 | 1.074*** | 0.030*** | 1.834*** | -0.084*** | -1.979*** | 0.186*** | 1.243*** | -0.165*** |
| | (14.899) | (6.780) | (22.208) | (-10.092) | (-11.148) | (11.430) | (6.722) | (-7.743) |
| BANK_REL_3Y × COVID-19 Crisis × Low Capital Bank | | | | | -0.662** | -0.033 | -1.192*** | 0.058 |
| | | | | | (-2.314) | (-1.117) | (-4.530) | (1.546) |
| Low Capital Bank | -2.747*** | -0.014*** | -0.123* | 0.048*** | -0.692*** | -0.048* | -0.510** | 0.112*** |
| | (-50.015) | (-3.318) | (-1.698) | (5.010) | (-2.875) | (-1.904) | (-2.143) | (3.056) |
| COVID-19 Crisis × Low Capital Bank | | | | | 0.581** | 0.018 | -0.457* | 0.000 |
| | | | | | (2.526) | (0.756) | (-1.914) | (0.012) |
| BANK_REL_3Y | -1.113*** | 0.075*** | 0.005 | -0.056*** | 0.107 | -0.011 | 0.133 | -0.086*** |
| | (-21.520) | (18.604) | (0.099) | (-11.047) | (0.956) | (-0.968) | (1.275) | (-4.950) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -0.015 | -0.003 | 0.475*** | 0.079*** |
| | | | | | (-0.083) | (-0.140) | (2.610) | (2.730) |
| 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 | 0.531 | 0.612 | 0.591 | 0.321 | 0.531 | 0.649 | 0.636 | 0.250 |

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

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 | 0.582*** | -0.077*** | 0.014 | -0.050*** | 1.115*** | 0.019 | 0.502*** | 0.018 |
| | (7.198) | (-17.827) | (0.175) | (-7.242) | (6.029) | (1.120) | (2.887) | (0.831) |
| BANK_REL_3Y × COVID-19 Crisis × Low Liquidity Bank | | | | | 0.494* | -0.107*** | -0.312 | 0.074* |
| | | | | | (1.651) | (-3.276) | (-1.275) | (1.929) |
| Low Liquidity Bank | 0.277*** | -0.012*** | -0.885*** | -0.078*** | -0.082 | 0.069*** | -1.488** | -0.074 |
| | (6.593) | (-2.802) | (-16.331) | (-11.312) | (-0.509) | (4.515) | (-2.360) | (-0.751) |
| COVID-19 Crisis × Low Liquidity Bank | | | | | -0.886*** | -0.083*** | 0.610** | -0.073** |
| | | | | | (-4.129) | (-4.035) | (2.441) | (-2.064) |
| BANK_REL_3Y | -0.760*** | 0.124*** | 1.042*** | -0.078*** | -1.520*** | 0.073*** | 0.651*** | -0.194*** |
| | (-9.253) | (39.129) | (15.270) | (-14.643) | (-10.235) | (5.600) | (4.332) | (-12.652) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -0.632*** | 0.026 | -0.156 | 0.084*** |
| | | | | | (-3.389) | (1.414) | (-0.862) | (3.725) |
| 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 | 0.586 | 0.320 | 0.530 | 0.648 | 0.636 | 0.249 |

*Panel D: Effects – Low Core Deposits (<Median) Banks*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 Core Deposit Bank | 1.577*** | 0.015*** | 1.134*** | -0.085*** | -0.821*** | 0.052*** | 0.455** | 0.021 |
| | (21.355) | (2.604) | (15.834) | (-11.621) | (-4.642) | (2.714) | (2.438) | (0.942) |
| BANK_REL_3Y × COVID-19 Crisis x Low Core Deposit Bank | | | | | -0.540** | 0.010 | -0.464* | -0.007 |
| | | | | | (-2.049) | (0.300) | (-1.779) | (-0.179) |
| Low Core Deposit Bank | 0.025 | -0.031*** | -2.046*** | 0.098*** | -0.433*** | -0.074*** | 0.590 | 0.053 |
| | (0.366) | (-3.850) | (-23.651) | (8.675) | (-2.594) | (-3.085) | (1.083) | (0.764) |
| COVID-19 Crisis × Low Core Deposit Bank | | | | | -0.417* | 0.078*** | 0.603*** | -0.015 |
| | | | | | (-1.885) | (2.699) | (2.842) | (-0.344) |
| BANK_REL_3Y | -1.121*** | 0.078*** | 0.495*** | -0.050*** | 0.257** | 0.041*** | 0.629*** | -0.183*** |
| | (-15.824) | (19.101) | (9.677) | (-8.435) | (2.300) | (3.584) | (3.830) | (-12.165) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | 0.582*** | 0.010 | -0.025 | 0.112*** |
| | | | | | (4.116) | (0.510) | (-0.119) | (4.638) |
| 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 | 767,424 | 767,424 | 274,313 | 274,313 | 53,575 | 53,575 | 32,641 | 32,641 |
| Adjusted R-squared | 0.528 | 0.619 | 0.578 | 0.312 | 0.614 | 0.672 | 0.605 | 0.239 |

*Panel E: Effects - Low ROE (< Median) Banks*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 | 1.949*** | 0.006 | 0.133** | 0.058*** | -2.461*** | -0.053*** | -1.399*** | 0.097*** |
| | (32.232) | (1.481) | (2.392) | (8.794) | (-13.880) | (-3.004) | (-8.073) | (3.835) |
| BANK_REL_3Y × COVID-19 Crisis × Low ROE Bank | | | | | -0.923*** | -0.047 | 0.338 | 0.070* |
| | | | | | (-3.300) | (-1.404) | (1.119) | (1.687) |
| Low ROE Bank | -2.378*** | -0.057*** | -0.776*** | -0.014** | 0.194 | -0.012 | 1.161*** | -0.009 |
| | (-59.788) | (-15.168) | (-10.875) | (-2.067) | (1.220) | (-0.715) | (3.332) | (-0.132) |
| COVID-19 Crisis × Low ROE Bank | | | | | 1.273*** | 0.100*** | 0.389 | -0.024 |
| | | | | | (4.434) | (3.805) | (1.474) | (-0.655) |
| BANK_REL_3Y | -1.561*** | 0.089*** | 1.005*** | -0.135*** | 0.208** | 0.106*** | 1.307*** | -0.211*** |
| | (-21.497) | (26.401) | (23.243) | (-28.309) | (2.106) | (9.536) | (10.228) | (-14.620) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | 0.615*** | 0.048* | 0.004 | 0.017 |
| | | | | | (3.167) | (1.807) | (0.017) | (0.504) |
| 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 | 0.532 | 0.612 | 0.589 | 0.320 | 0.532 | 0.648 | 0.636 | 0.249 |

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

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 | 2.171*** | 0.030*** | 1.217*** | -0.124*** | 1.973*** | -0.054*** | 0.399** | -0.098*** |
| | (34.520) | (6.495) | (21.783) | (-17.146) | (10.419) | (-3.313) | (2.381) | (-4.703) |
| BANK_REL_3Y × COVID-19 Crisis × High CC Complaints | | | | | 0.341 | 0.064** | -0.109 | 0.023 |
| | | | | | (1.191) | (2.342) | (-0.419) | (0.559) |
| High CC Complaints | -0.630*** | -0.030*** | -0.162** | 0.107*** | 0.266* | 0.070*** | -0.468*** | 0.021 |
| | (-12.384) | (-7.803) | (-2.361) | (12.965) | (1.803) | (5.077) | (-3.304) | (1.079) |
| COVID-19 Crisis × High CC Complaints | | | | | -2.781*** | -0.177*** | -0.525** | 0.049 |
| | | | | | (-14.548) | (-9.918) | (-2.484) | (1.415) |
| BANK_REL_3Y | -1.713*** | 0.076*** | 0.341*** | -0.031*** | -1.959*** | 0.113*** | 0.667*** | -0.126*** |
| | (-21.549) | (19.972) | (7.443) | (-5.400) | (-14.633) | (8.764) | (6.489) | (-7.400) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -1.025*** | -0.035* | -0.287* | 0.106*** |
| | | | | | (-4.551) | (-1.850) | (-1.694) | (3.071) |
| 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 | 0.530 | 0.613 | 0.590 | 0.321 | 0.534 | 0.649 | 0.636 | 0.249 |

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

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 | -2.901*** | -0.012** | -2.149*** | 0.075*** | -2.160*** | -0.014 | -1.548*** | 0.205*** |
| | (-51.321) | (-2.522) | (-24.599) | (9.160) | (-12.696) | (-0.770) | (-7.034) | (9.126) |
| BANK_REL_3Y × COVID-19 Crisis × High Nonprime Concentration | | | | | -0.507* | -0.093*** | 1.732*** | -0.132*** |
| | | | | | (-1.820) | (-3.259) | (6.160) | (-3.373) |
| High Nonprime Concentration | 0.825*** | 0.072*** | -1.162*** | -0.136*** | -0.150 | -0.025 | 1.024*** | -0.193*** |
| | (16.385) | (14.495) | (-8.892) | (-11.764) | (-0.581) | (-0.925) | (3.738) | (-5.260) |
| COVID-19 Crisis × High Nonprime Concentration | | | | | 1.997*** | 0.161*** | -0.272 | 0.013 |
| | | | | | (9.831) | (7.814) | (-1.049) | (0.380) |
| BANK_REL_3Y | 0.851*** | 0.098*** | 1.989*** | -0.137*** | 0.334*** | 0.085*** | 1.679*** | -0.286*** |
| | (18.715) | (30.683) | (33.445) | (-24.338) | (2.848) | (6.241) | (8.571) | (-17.261) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -0.654*** | 0.054*** | -1.133*** | 0.169*** |
| | | | | | (-4.478) | (2.795) | (-4.888) | (6.521) |
| 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 | 280,925 | 280,925 | 61,621 | 61,621 | 34,082 | 34,082 |
| Adjusted R-squared | 0.532 | 0.613 | 0.592 | 0.321 | 0.532 | 0.648 | 0.637 | 0.251 |

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

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 | -0.640*** | -0.004 | 0.088 | 0.022*** | -0.169 | 0.014 | -0.015 | -0.010 |
| | (-9.116) | (-0.915) | (1.380) | (3.447) | (-1.088) | (0.922) | (-0.082) | (-0.455) |
| BANK_REL_3Y × COVID-19 Crisis × High UR County | | | | | 0.294 | -0.026 | 0.087 | 0.011 |
| | | | | | (1.155) | (-1.008) | (0.348) | (0.315) |
| High County UR | 0.222*** | -0.005 | -0.095 | -0.009 | 0.426** | 0.009 | -0.106 | 0.021 |
| | (4.671) | (-1.130) | (-1.498) | (-1.340) | (2.007) | (0.496) | (-0.509) | (0.762) |
| COVID-19 Crisis × High County UR | | | | | -0.126 | 0.007 | 0.146 | -0.004 |
| | | | | | (-0.822) | (0.459) | (0.797) | (-0.151) |
| BANK_REL_3Y | -0.209*** | 0.094*** | 1.027*** | -0.116*** | -0.775*** | 0.073*** | 0.908*** | -0.180*** |
| | (-4.205) | (29.716) | (25.591) | (-24.481) | (-6.473) | (6.350) | (6.630) | (-11.537) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -0.957*** | 0.016 | -0.355* | 0.108*** |
| | | | | | (-5.080) | (0.860) | (-1.951) | (4.379) |
| 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 I: Effects - Low (<Median) Family Income County*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 | -0.169*** | 0.031*** | -0.189 | 0.026* | 0.082 | 0.038* |
| | (-3.055) | (0.916) | (-3.237) | (4.765) | (-1.231) | (1.675) | (0.416) | (1.679) |
| BANK_REL_3Y × COVID-19 Crisis × Low Family Income County | | | | | 0.283 | 0.000 | -0.178 | -0.055 |
| | | | | | (1.097) | (0.018) | (-0.698) | (-1.489) |
| Low County Income | 0.300** | -0.004 | -0.029 | -0.025*** | -0.491 | 0.063 | -0.801*** | -0.049 |
| | (2.403) | (-0.723) | (-0.347) | (-2.616) | (-0.746) | (0.828) | (-2.848) | (-1.368) |
| COVID-19 Crisis × Low County Income | | | | | 0.452*** | 0.030* | 0.350* | 0.042 |
| | | | | | (2.977) | (1.953) | (1.903) | (1.512) |
| BANK_REL_3Y | -0.376*** | 0.090*** | 1.152*** | -0.121*** | -0.778*** | 0.069*** | 0.861*** | -0.203*** |
| | (-5.735) | (27.187) | (25.574) | (-26.444) | (-7.540) | (6.010) | (7.104) | (-14.125) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -0.926*** | 0.004 | -0.222 | 0.140*** |
| | | | | | (-5.435) | (0.229) | (-1.265) | (5.178) |
| 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 | 805,417 | 805,417 | 281,032 | 281,032 | 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 J: Effects - High (≥Median) Minority Percent County*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Normal Times Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 | 0.106 | 0.014*** | 0.104* | 0.007 | 0.036 | -0.004 | -0.252 | 0.001 |
| | (1.258) | (3.062) | (1.774) | (0.885) | (0.234) | (-0.220) | (-1.379) | (0.023) |
| BANK_REL_3Y × COVID-19 Crisis × High Minority Percent County | | | | | -0.440* | 0.024 | 0.386 | 0.003 |
| | | | | | (-1.707) | (0.926) | (1.547) | (0.089) |
| 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 | | | | | -0.493*** | 0.018 | -0.428** | 0.021 |
| | | | | | (-3.145) | (1.150) | (-2.434) | (0.735) |
| BANK_REL_3Y | -0.581*** | 0.085*** | 1.017*** | -0.109*** | -0.899*** | 0.084*** | 1.027*** | -0.184*** |
| | (-11.675) | (25.692) | (24.078) | (-22.888) | (-7.352) | (7.298) | (8.111) | (-11.221) |
| BANK_REL_3Y × COVID-19 Crisis | | | | | -0.509** | -0.012 | -0.503*** | 0.109*** |
| | | | | | (-2.481) | (-0.636) | (-2.623) | (4.132) |
| 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 | 805,417 | 805,417 | 281,032 | 281,032 | 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 |

## Table OA.4: 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 OA.5: 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 Sample | | | | Pre+During COVID-19 Crisis Sample | | | |
| | **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 OA.6: 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 OA.7: 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 |