"Buy, borrow, die":

The economics of lending to the wealthy*

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Abstract

We study bank lending to the wealthy using confidential data from the Federal Reserve. Direct and indirect loans to the wealthy now exceed $700 billion with a quarterly turnover of up to 30%. Market-wide shocks such as stock market returns, federal funds rate changes, and bank lending standards shifts are key predictors of borrowing activity of the wealthy. By contrast, local economic shocks only affect borrowing when stock valuations are high. Consistent with the presence of a financial accelerator effect, borrowing by the wealthy translates to greater local economic activity for up to 12 quarters in the future.

Keywords: private banking & wealth management, bank financial intermediation

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1. Introduction

Market participants and academics alike have identified borrowing by high net worth individuals (HNWI) as potentially a primary means for accessing wealth given the structure of the US tax code (Euart et al. 2023; The Budget Lab 2025; Fox and Liscow 2025; Kopczuk and Lupton 2007). Consequently, leveraging wealth may also be central for the consumption and investment decisions of HNWI examined in Alan et al. (2018); Guntin et al. (2023); Braxton et al. (2025). Despite the potential importance of borrowing by the wealthy, we know little about its prevalence, determinants, and investment implications.

We shed light on these issues using confidential data from the Federal Reserve, which contains most loan commitments extended by the wealth management functions of the 30 largest US banks since 2015, currently exceeding $700 billion. The typical loan to HNWI is a credit line with substantial unused capacity, short maturity, and securities collateral. Wealthy borrowers obtain roughly 70 cents of commitments and utilize 53 cents for pledging a dollar of securities collateral, suggesting that collateral consists of risky assets such as common equity. Liquidity needs may also often coincide with tighter credit conditions as collateral-commitment passthrough rates are higher when monetary policy tightens. Finally, frequent contracting activity translates to loan amount turnover of 20-30% per quarter, highlighting that the wealthy use debt far more actively than previously thought.

Market-wide factors such as stock returns, monetary policy, and bank credit standards are key predictors of borrowing and debt contracting by HNWI. By contrast, borrowing responds to local economic shocks only when stock returns are positive, highlighting stock market spillover effects to local economies. In addition, a 1% increase in borrowing translates to 0.5-0.8% higher establishment growth for up to twelve quarters, in line with HNWI financing investment in pass-through entities they own locally (Smith et al. 2021).

Given the majority of wealth of the top 1% is in the form of securities (Smith et al. 2021), stock returns positively predict borrowing activity, while monetary policy and credit

standards tightening slow the wealthy's borrowing. Similarly, loan origination and renegotiation activity of the wealthy declines with increases in the federal funds rate and with tightening in credit conditions in the banking sector and increases substantially with easing of bank credit conditions. Higher stock returns also translate to substantially lower renegotiation rates, potentially due to less need to renegotiate commitments.

In contrast with market-wide shocks, local economic shocks alone do not predict changes in borrowing behavior. However, we show that borrowing responds strongly to local economic shocks whenever stock prices have increased recently. This result is consistent with higher securities valuations increasing collateral values, thereby easing borrowing constraints. Importantly, local shocks do not appear to be associated with borrowers adjusting the size of credit commitments across the entirety of the stock market return distribution. Taken together, the results suggest that the wealthy increase borrowing when local economic conditions and aggregate financing condition are both favorable for investment. These empirical patterns are therefore consistent with macroeconomic financial accelerator models (Bernanke and Gertler 1989; Bernanke et al. 1999; Kiyotaki and Moore 1997).

The financial accelerator models predict that in our context positive stock market returns should lead to increases in local and regional economic activity from higher investment spending of wealthy entrepreneurs (See also Carlstrom and Fuerst 1997). In our final set of tests, we test whether county-level borrowing by the wealthy translates to greater economic activity in the future. We find evidence of such spillover effects. Specifically, a one percent increase in borrowing translates to 0.8% higher establishment growth for up to six quarters, declining to 0.5% thereafter. This result is consistent with the wealthy borrowing to invest in the local economy such as the pass-through entities they own locally (Smith et al. 2021) and provides additional support for amplification of shocks through a financial accelerator of the wealthy's borrowing. Also consistent with this idea, we show that it is only the securities-based loans and unsecured loans, and not local consumption such as real estate, that matter for future local economic growth, thereby corroborating the link we

document earlier between aggregate stock market returns and local economies. Overall, it appears that borrowing of the wealthy is a strong predictor of local economic growth in line with revisions to permanent income resulting in further saving such as investment in local companies (Braxton et al. 2025).

We contribute to the literature on the wealthy and their economic impact. Chodorow-Reich et al. (2021) study the consumption effect of stock market increases and find 3.2 cents of additional consumption expenditure in response to a 1 percent increase in stock market wealth as well as small increases in local employment and payrolls. Gaillard et al. (2023) show that in order for theory to reconcile the extant empirical evidence, the wealthy's savings motive ought to dominate the consumption one in response to additional stock market wealth. Our study complements these studies by showing that wealthy borrow more in response to stock market increases if they live in geographies with significant investment opportunities, proxied by past growth. These results corroborate the intuition behind the model in that most of additional borrowing driven by positive shocks to the stock market goes to investment.

A large literature starting with Bernanke and Gertler (1989); Bernanke et al. (1999); Kiyotaki and Moore (1997) assume the presence of a financial accelerator and either calibrates or estimates the underlying parameters using aggregate data.[1] Our paper provides comprehensive micro-level evidence on the presence of financial accelerators and the effects on local economies. Specifically, our granular loan-level data illustrates that stock market wealth shocks are transmitted to local economies through increased borrowing of the wealthy in the United States.

We also contribute to the literature examining the rise of wealth inequality in the United States. Piketty et al. (2019); Saez and Zucman (2016, 2020) all show that wealth inequality has increased substantially in the United States over past several decades. Using granu-

[1]One exception is Meisenzahl (2014) who provide evidence for the importance U.S. small business owners' net worth using survey data up to 2003. Another is Bahaj et al. (2020) who link housing wealth of directors of UK firms to firm investment.

lar administrative data from individual tax returns and new methodology to value the wealthy's assets, Smith et al. (2021) also find an increase in wealth inequality, albeit not as stark as in previous research. Other studies attribute at least part of the increase in wealth inequality to low interest rates over the past several decades (Greenwald et al. 2021; Gomez and Gouin-Bonenfant 2024). We contribute to this strand of literature by showing that borrowing plays an important role in the wealthy's consumption and investment decisions, which directly shape wealth inequality.

2. Data and sample selection

2.1 Loan data

We obtain quarterly loan-level data from Schedule H.1 of the Federal Reserve's Y-14 Collection, reported since 2012 for the purposes of the Dodd Frank Stress Tests (Board of Governors of the Federal Reserve System 2026). Initially the data set covered all BHCs in the United States with total consolidated assets exceeding $50 billion. Subsequently, the threshold increased to $100 billion in 2018Q3. As of the end of our sample period the data covered 33 banks. Schedule H1 that we rely on provides detailed loan-level information for all commercial and industrial loans and leases listed under Schedule HC-C of the FR Y-9C (Consolidated Financial Statements for Bank Holding Companies) and that exceed $1 million in commitment amount. These data include loans to individuals, family trusts, and non-individuals extended by the wealth management arms of Y-14 banks.

Schedule H.1 details the identity of the borrower, loan commitment amount and type, the funded portion of the commitment (less than 1 for credit lines), loan interest rate, origination date, maturity date, and each bank's internal risk assement of the borrower mapped to a 10-grade S&P scale. We exclude stock exchange listed borrowers whenever they are not borrowing from the private bank/wealth management divisions of Y-14 banks as we are interested in loans associated with wealth management. We similarly exclude borrowers

with CUSIPs, legal entity identifier (LEI), or classified as special purpose entities if they don't borrow from the private bank/wealth management divisions.

The richness of the data allow us to identify these loans as direct commitments to HNWIs and indirect commitments used for wealth management purposes extended to non-financial corporate borrowers, investment companies, and other banks. Specifically, we split lending activity associated with professional wealth management into three groups: family trusts, individuals, lending from private bank divisions to non-individuals. The rationale behind examining lending by private bank divisions to non-individuals is that bank wealth management arms not only work with HNWIs directly, but also offer services to their affiliated businesses as well as to banks and non-bank asset managers that manage money for HNWI.[2]

We classify lending activity to belong to a 'private banking division' if the lender's line of business description in the Y-14 data is listed as close variations of 'wealth management', 'asset management', 'private banking' or if the borrower name is redacted as 'confidential name' or 'confidential private.'[3] We identify family trusts through keyword searches in the borrower name such as 'family', 'marital', 'living', 'descendants', any of the 100 most common male or female names in the United States in the past 100 years,[4] or the NAICS code corresponding to Trusts, Estates, and Agency Accounts—525920. We then employ additional string searches and manual checks to ensure we are not accidentally selecting businesses when defining HNWI. As a hypothetical example, we keep "The John Smith Family Trust" but remove "The John Smith Media Trust, LLC."

We define "individuals" whenever the borrower name is listed as 'individual' or 'masked', or where the NAICS code corresponds to Private Households, 814110. The individuals category captures individuals that do not transact through a family trust and that are not investment companies or corporations obtaining credit from lenders' private bank divi-

[2]See, for example, What Does Private Banking Offer?
[3]Individual names in the Y-14 Collection are masked for privacy and confidentiality reasons.
[4]Top Names Over the Last 100 Years, U.S. Social Security Administration

sions. Even though Schedule H1 provides loan-level coverage since 2011, we exclude all data prior to the third quarter of 2015 as the borrower ID is less reliable during that period. We provide a detailed description of the sample selection procedure as well as how the loan composition in our sample maps to the Y-9C data in Appendix B.

2.2 Additional Data

We obtain monthly data on the federal funds rate, OECD Share Prices for the United States, and foreign exchange rates between the US dollar and the Brazilian real, Canadian dollar, Chinese yuan, Swiss frank, Hong Kong dollar, Indian rupee, Japanese yen, Mexican peso, South African rand, Singapore dollar, Australian dollar, EU euro, and British pound from the Federal Reserve Bank of Saint Louis FRED database (Board of Governors of the Federal Reserve System US; Organization for Economic Co-operation and Development 2026; Board of Governors of the Federal Reserve System US). Given the loan data are quarterly we keep the end-of-quarter federal funds rate and exchange rates and use the end-of-quarter stock prices to compute quarterly US stock returns. Finally, we obtain the quarterly percentage of domestic banks tightening standards for commercial and industrial loans to large and middle-market firms from the Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS) (Board of Governors of the Federal Reserve System US).

We obtain data on county-level real GDP in thousands of chained 2017 dollars from United States Bureau of Economic Analysis (2024), available annually through 2024. We also rely on the quarterly county-level establishment count, employment, and wages from the Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics (2025). We match these county-level data sets to the Y-14 borrow/loan panels via the borrower's zip code. We obtain quarterly zip to county crosswalks from United States Department of Housing and Urban Development (2026), largely following the algorithm in Ivanov et al. (2025) to produce a final zip code-county FIPS crosswalk with the exception of giving priority to zip code-county pairs with the highest share of residential addresses (as opposed

to business addresses) when arriving at a unique zip-county mapping. We do so because of our emphasis on (wealthy) individuals.

Finally, we obtain annual county-level tax return statistics from the United States Internal Revenue Service (2026)—the number of individual income tax returns filed, their associated taxable income amounts and total taxes paid, as well as taxable interest, dividend income, and capital gains income amount. We use these data to understand how county-level borrowing varies with realized capital gains, dividends, and interest income.

3. Loans to high net worth individuals

3.1 Borrowing activity over time

Lending to the wealthy has increased substantially since 2015. Panel (a) in Figure 1 shows that the total commitments to family trusts, individuals, and non-individuals via private bank divisions increased from approximately $450 billion in 2015 to over $700 billion in the third quarter of 2025. As total commitments include unused lines of credit, we also zoom in on funded exposures in panel (b) and show a similar rapid growth to over $400 billion by the end of the sample period from about $200 billion in 2015. This growth has been driven by the loans to family trusts and private bank divisions doubling, and to a lesser extent by loans to individuals. The trend for private bank division exposure, which contains a significant share of NBFI loans, mirrors closely the NBFI trends documented in Acharya et al. (2024).

Figure 2 provides insight on what the typical borrower total commitments look like over time. We aggregate to the borrower-quarter level as borrowers often have multiple credit facilities and the total is likely to paint a more comprehensive picture. The typical (median) loan commitments to family trusts and individuals stays flat over the sample period at about $2.5 million, before increasing significantly to about $3 million in the final year of the sample period. The average total commitment is substantially higher at about $8

million for family trusts and roughly $11-12 million for individuals, indicating substantial skewness in borrowing of the wealthy. The funded portion of commitments behave similarly in terms of mean/median differences, but there is also a notable decline in funded exposure of individuals between 2018 and 2023. This result combined with the roughly flat commitment levels indicate an increase in credit facility slack for a significant portion of the sample period.

Figure 3 shows the extent of turnover of total loans to family trusts, individuals, and non-individuals served by private banks. Specifically, in panel (a) quarterly loan originations account for roughly 5-10% of the total loan portfolio, while in panel (b) loan modifications of the commitment amount account for another 5% of total commitments. Loan portfolio turnover is even more pronounced when examining turnover in terms of funded exposure where these figures grow to about 10-15% for commitment modifications in panels (c) and (d). While the high-level trends appear to be roughly stable over time, all three series often exhibit jumps in the fourth calendar quarter or a spike in the aftermath of the Tax Reform of 2017. This evidence indicates that high net worth individuals working with the large US banks tend be active in the borrowing market and may significantly ramp up/reduce borrowing on a short-term basis. These findings combined with the earlier evidence on loan contract provisions highlight the easily adjustable nature of loan contracts to the wealthy, which may allow borrowing flexibility in light of market-wide or liquidity shocks.

3.2 Borrowing terms and contract design

Table 1 shows that the (vast) majority of loans to HNWI are in the form of lines of credit—81% for family trusts and 65% among individuals. By contrast, the analogous figure for non-individual loans extended by the private bank division is only 35%. While a large portion of credit line capacity has been utilized among both family trusts and individuals, credit lines in these groups have significant slack at 19% and 35%, respectively.

We also finds that family trusts and individuals borrow against their existing wealth, especially in the form of securities. Indeed we find that over 80% of loans to trusts and 60% of loans to individuals are collateralized by securities - see panel (a) of Figure 4 and commonly known to industry practitioners as 'securities-backed lines of credit.'[5] These shares appear to be slightly smaller when value-weighting by committed amount in panel (b), but it is nevertheless still substantial at 50-75%.

By contrast, a minor portion of lending to non-individuals by private banks, roughly 20% in terms of both count and committed exposure, is collateralized by securities. The low share of securities-backed lending within private bank division exposure to non-individuals indicates that further intermediate money to wealthy clients via other banks and non-bank financial intermediaries is more likely to be done on unsecured basis (about 35% of loan count).

Conditional on the presence of collateral, loans are heavily collateralized as the committed and funded exposures represent only 50-59% and 38-43% of collateral value, on average. Loans secured by real estate account for only 5-7% of total loan count, consistent with the result in Smith et al. (2021) that the majority of wealth in America concentrated in the top 1% comprises of stocks and bonds. Finally, the market value of collateral securing securities-based bank commitments, which account for slightly more than 50% of total loan volume to individuals and family trusts, has climbed to over $700 billion by the end of the sample period from well less than $300 billion. This trends is suggestive of aggregate lending activity roughly following the substantial increase in stock valuations in recent years.

Figure 5 shows that the average interest rate on loans to family trusts and individuals co-move very closely when considering both originations (panel a) and renegotiations (panel b).[6] Interest rates on loans to non-individuals via private bank divisions tend to be

[5] https://www.finra.org/investors/insights/securities-backed-lines-credit

[6] We define originations when the new loan flag in the Y-14 data takes the value of one or the loan ID enters the sample for the first time. We define renegotiations whenever loans experience large changes in terms—a change in maturity of at least one year, in interest rates of at least 25 basis points, and in commitment amount

substantially higher, with a notable increase in 2021 and 2023 relative to trusts/individuals. These patterns are clearly visible within both originations and renegotiations. This discrepancy between the interest rates of wealthy households and non-individuals is all more surprising considering that the loans of wealthy households carry higher credit risk than those of non-individuals. Specifically, Table 1 shows that the average credit rating of non-individuals is slightly better than BBB, while the average rating of wealthy households is slightly worse than BBB-. A potential explanation is that individuals and trusts receive a wide array of services from the wealth management arms of large banks, thereby allowing banks to cross-subsidize the costs of lending via other services they offer to these individuals.

Table 2 sheds further light on how loan characteristics by loan maturity across the three types of borrowers. Overall, we observe large heterogeneity in lending patterns between lending to family trusts/individuals and non-individuals. Panel A shows that almost half of loan count to family trusts and individuals is in the form of demand loans callable by lenders over the life of the loan, with an average committed amount of $5.6 million, over 90% of which is backed by securities and with low collaterization ratios of 40-50%. Loan size increases nearly monotonically with maturity to $9.11, $14.79, $14.67, and $10.68 for loans with maturity of $<$1, 1-3, 3-5, and $\geq$5 years. The incidence of credit lines and collateral to commitment passthrough are also both declines monotonically with maturity, while utilization increases with maturity. These results suggest that the smaller-dollar clients are receiving/or prefer potentially less flexibility than larger clients.

The borrowing of non-individuals from private banking divisions exhibits several notable differences with direct loans to family trusts and individuals. Panel B of Table 2 shows that these loans are larger and skewed towards long-term lending—over 40% of loan-quarters have maturities of five or more years, while demand loans represent only 14% of observations. In addition, private bank division loans have lower utilization ratios

of at least 5%.

and the underlying borrower credit quality is significantly better in the longer end of the maturity spectrum.

3.3 Borrowing of the wealthy and securities income

We also conduct a validation exercise in which we compare borrowing by the wealthy at the county level and realized income from securities holdings at the county levels from the Internal Revenue Service using the binned scatter plots approach of Cattaneo et al. (2024). Finding a strong positive correlation between borrowing and these proxies for wealth should provide a validation of our data set as borrowing of the wealthy is more likely to be active in areas with greater concetration of wealth. We limit the sample to individuals or family trusts as lending to non-individuals via private bank divisions is more indirect in nature as we do not observe the clients of the borrower whenever they are asset managers, corporations, or banks.

To arrive at borrowing by the wealthy at the county level, we simply aggregate funded or committed exposure to the county-quarter and we then merge in income on securities holdings such as interest, capital gains, and dividends income as of the previous year. We also include both county and quarter fixed effects before producing the scatter plots in panels a, c, and e and only quarter fixed effects in panels b, d, and f of Figure 6. Residualizing with county fixed effects allows us to zoom in on how within-county variation in income on securities holdings translates to changes in county-level borrowing activity, while the quarter fixed effects remove aggregate variation attributable to macroeconomic or market-wide shocks. We implement these binned scatter plots using the programs from Cattaneo et al. (2025) and applying the natural logarithm transformation to both borrowing and realized securities income.

Figure 6 shows strong positive correlation between realized income on securities holdings and funded borrowing at the county level, albeit with a somewhat flat area for low levels of county income from securities holdings. These correlations are substantially stronger

before the inclusion of county fixed effects and hold across income types from securities holdings such as realized capital gains, dividends, or interest income. The slopes of the associations flatten across the board after the inclusion of county fixed effects but they remain strongly positive, especially in the portion of the distribution capturing greater securities income. Specifically, within-county borrowing is fairly flat for low values of realized capital gains or dividend income and increases significantly for higher values. The association between funded borrowing and interest income better resembles a straight, although it also steepens at higher values of interest income. Appendix Figure C.2 shows similar associations when measuring borrowing with total commitments instead of funded commitments.

Overall, these results provide strong validation of our data as borrowing of the wealthy co-moves strongly with proxies for wealth such as the amount of interest, dividends, and capital gains income both cross-sectionally and in a time-series sense when zooming on within-county variation.

4. Empirical specifications

Most of the assets of the wealthy are in form of securities (Smith et al. 2021) and it is important to understand the extent to which changes in securities valuations translate to borrowing capacity and funded debt. Prior corporate finance research has established that posting collateral and securities collateral, in particular, allows for the largest interest cost savings across collateral types and for the greatest potential to alleviate information asymmetry problems (Luck and Santos 2024; Ioannidou et al. 2022). The same intuition is likely to apply in the case of lending to the wealthy, significantly alleviating credit constraints over the business cycle. To this end, we estimate pass-through from collateral values to loan amounts within the subset of loans that are backed by securities.[7] We use the following regression specification of loan amounts on collateral values:

[7]Ideally, we would like to assess collateral-loan passthroughs across all asset classes, but collateral values are only consistently available for loans backed by securities collateral.

$$\text{Outcome}_{i,t} = \beta_1 \times \text{Log(Collateral)}_{i,t} + \beta_2 \times \text{Log(Collateral)}_{i,t} \times X_t + \psi_i + \theta_t + \epsilon_{i,t}, \quad (1)$$

where i and t index borrowers and quarters, respectively. $\text{Outcome}_{i,t}$ is either the natural logarithm of committed or funded amount of borrower i in quarter t, and $\text{Log(Collateral)}_{i,t}$ is the market value of the securities collateralizing the loan. We saturate the model with time fixed effects, or time and borrower fixed effects denoted as θ_t and ψ_i.

We also analyze whether the pass-through of collateral value is dependent on market-wide conditions such as quarterly stock market returns, changes in the federal funds rate, or changes in bank lending standards as measured by the Senior Loan Officer Opinion Survey conducted by the Federal Reserve. We therefore augment our baseline specification with an interaction of collateral value and measures of market-wide shocks.

In addtion, market-wide shocks should be of utmost importance for the borrowing response of the wealthy as securities wealth accounts for the bulk of wealth in the top 1% of the distribution (Smith et al. 2021). Understanding the sensitivity of borrowing to market shocks is important as it may imply a significant expansion of credit to the wealthy in the aftermath of tail market events. While we do not observe the specifics of the wealthy's security holdings, large borrowing responses to market movements may also be consistent with borrowing for tax optimization purposes. We therefore estimate the following regression specification to gauge the sensitity of borrowing activity to market-wide shocks:

$$\text{Outcome}_{i,t} = \beta_1 \times MarketShock_t^+ + \beta_2 \times MarketShock_t^- + \epsilon_{i,t}, \quad (2)$$

where i and t index borrowers and quarters, respectively. $\text{Outcome}_{i,t}$ is the outcome associated with borrower i in quarter t such as the quarter-over-quarter change in commitment amount, utilized amount, or indicators for loan origination/renegotiation. $Market\ Shock_t^+$ and $Market\ Shock_t^-$ are the positive and the negative portion of the market shock of interest

such stock returns, quarterly changes in the federal funds rate or SLOOS. We estimate this regression at the borrower-quarter level because borrowers often have multiple loans that are renegotiated frequently (see Figure 3) resulting in new loan IDs in our data. Borrower-level tests will therefore help us more accurately estimate the effect of market-wide shocks on borrowing activity. We the market-wide shocks into their positive and negative parts as favorable and adverse shocks may have an asymmetric effect on borrowing activity similar to the corporate loan market (Roberts and Sufi 2009).

To assess how borrowing activity responds to local economic shocks and whether that is dependent on aggregate stock market movements, we augment Equation 2 in the following manner:

$$\text{Outcome}_{i,t} = \sum_{k \in 1,\ldots,4} \beta_k ReturnQuartile_{k,t} \times LocalShock_{j,t} + \gamma_j + \delta_t + \epsilon_{i,t}, \tag{3}$$

where j, i, t, and k indexes counties, borrowers, quarters, US stock market return quartiles, respectively. $Local\ Shock_{j,t}$ is annual county-level GDP growth rate or quarterly log-change in county-level establishment count, lagged one period. County-level GDP is only available annually, so we relate loan outcomes in quarter t to the prior-year values of local GDP growth. We estimate this regression within the subset of individuals and family trusts only as the indirect nature of loans to non-individuals precludes us from observing the location of the wealthy households that work with the companies, asset managers, or banks borrowing from private bank divisions. Naturally, these specifications also exclude foreign borrowers as we are unable to observe the exact location of these borrowers (except for the country). Finally, we double-cluster the standard errors by county and NAICS 2012 industry-quarter and present them in parentheses.

5. Results

5.1 Collateral-loan passthrough

We first examine the pass-through of collateral values to credit amounts. While we expect the elasticity of loan amounts to changes in collateral to be positive and potentially close to one, banks may apply significant "haircuts" and the resulting borrowing may be significantly less than the value of the pledged collateral. These haircuts are generally larger, the riskier securities collateral is.[8] Since most loans in our sample are credit lines, we estimate the magnitude of this elasticity in the private banking market for utilized and commitment credit amounts. Here we expect the passthrough to be significantly higher for committed than for funded exposures as credit lines have substantial slack over the sample period. We estimate this elasticity within the subset of loans that are collateralized by marketable securities as the data coverage of the collateral variable is sparse for other collateral types.

Table 3, panel A shows the results of estimating equation 1 for funded loan amount. Columns 1, 3, and 5, the specification with time fixed effects only, show that there is an elasticity of funded borrowing to collateral value within the subset of individuals, family trusts, and non-individuals of about 0.53-0.55. These results are strikingly consistent across specifications and indicate a somewhat conservative level of borrowing based on liquid assets. In the specifications in columns 2, 4, 6, we also include borrower fixed effects to identify the collateral-borrowing passthrough from time-series shocks to borrowers' collateral. These tests produce elasticities of 0.28-0.31, indicating that a percent increase in collateral value translates to about 0.3% in additional borrowing. The panel and the time-series-based estimates combined imply that borrowing is strongly associated with collateral values but that there may be significant slack.

To reconcile the collateral-funded exposure passthrough, in Panel B we also consider the

[8] https://www.schwab.com/learn/story/what-is-securities-based-lending

collateral passthrough to committed amounts. In other words, funded exposure passthrough may be low because borrowers are conservative in leverage decisions or would like to leave sufficient slack for future growth opportunities. This is less likely to be the case with committed amounts as they should track collateral values minus potential haircuts banks impose to adjust for the riskiness of the assets. In other words, the collateral-committed passthrough will also provide insight into the potential riskiness of the underlying securities collateral.

In Panel B of Table 3, we find significantly larger elasticities of committed amounts to collateral values across all borrower types. For instance, the estimated panel elasticities for committed credit amounts (columns 1, 3, and 5) are at least 25% larger than the elasticities of the utilized amounts within the same groups in Panel A. This finding suggests that a one percent larger collateral value translates to about 0.7% larger commitments, substantially less than the theoretical unit elasticity if collateral values were to be solely comprised of treasury securities. By contrast, using within-borrower variation in the commitment specifications results in slightly larger passthroughs than in Panel A that are more or less in the same ballpark. In other words, a borrower-specific increase in collateral values of 1% translates to about 0.34% to 0.38% increase in commitment amounts. The within-borrower variation estimates from Panel A and B combined suggest a substantial potential to increase borrowing in response to increases in collateral values.

It is also important to note that variation in collateral amounts explains commitment amounts a lot better than funded amounts. This may be a byproduct of borrowing base style provisions that automatically expand credit lines formulaically in response to small changes in collateral values. Taken together, these results imply that credit lines to wealth management clients appear to behave similarly to those in corporate asset-based lending.

The pass-through of collateral to credit amounts could also depend on macroeconomic conditions. For instance, in times of monetary tightening banks typically reduce lending and could require more collateral in anticipation of a slowing economy in the future. To test

whether the pass-through of collateral values to credit amounts, we estimate specifications in which we interact collateral values with the US stock market returns, changes in the federal funds rate, or changes in lending standards (SLOOS).

Panels A and B of Table 4 show the results of estimating equation 1 for funded and committed amounts after interaction the collateral variable with market-wide shocks within the sample of individuals and family trusts. While we do not detect a significant interaction effect of collateral values with changes in stock market returns and changes in credit standards, we find a stronger positive relation between collateral values and funded credit after increases in the federal funds rate both in the overall panel and within borrowers (columns 3 and 4 of Panels A and B). Changes in funded and committed credit amounts appear to be more sensitive to changes in collateral values when monetary policy tightens. One interpretation of this result is that borrowers better utilize collateral when collateral is scarce such as in high interest rate environments. That said, these effects are not economically large and only account for about 2-3% of collateral-loan passthrough.

In Table 5 we show results from the same set of specifications with the subset of non-individuals borrowing from private bank divisions. Here we find largely insignificant interactive effects, suggesting that lenders may be more likely to accomodate individual borrowers than corporate clients. The only exception is column 3 of Panel B, but that effect does not survive the inclusion of borrower fixed effects.

5.2 Borrowing response to market-wide shocks

We first examine how borrowing evolves in response to market-wide shocks for both direct loans to the wealthy and indirect exposure via private bank divisions. Table 6 presents regression estimates of quarterly changes in funded exposure (panel A) and committed exposure (panel B) on market shocks within the subset of loans to individuals and family trusts. We consider three types of market-wide shocks—aggregate stock returns, changes in the federal funds rate, and tightening of borrowing conditions by the banking sector.

Panel A shows that when stock returns are large and positive, borrowers significantly increase draw on their commitments. For example, a tail realization of 5% quarterly stock return translates to approximately 34 basis points higher funded amount under credit commitments (column 1). Similarly, a symmetric 5% negative stock return translates to about a 39-basis point reduction in drawn amount. We also find that the wealthy draw less on credit commitments in response to monetary policy tightening—a 50 basis point increase in the fed funds rate translates to about 36 basis points less in new borrowing. Negative changes in the fed funds rates or the positive and negative parts of the SLOOS do not appear to matter for changes in funded exposure. Overall, borrower liquidity needs appear to coincide with positive realizations of stock returns and decline with negative realizations thereof as well as in tighter monetary policy environments.

Panel B shows a substantially stronger response of commitment size to market shocks. Total commitments increase by about 40 basis points in response to large positive stock returns and shrink by over 55 basis points in the aftermath of large negative stock returns. Similarly, a 50 basis points increase in the fed funds rate is associated with about 45 basis points reduction in commitments. These effects are large and consistent with Greenwald et al. (2021); Gomez and Gouin-Bonenfant (2024) in that higher interest rates adversely affect the net worth of the wealthy, making it more costly to raise capital.

Credit commitments also decline in response to reductions in the fed funds rate by about 33 basis points for a 50-basis point decline in the fed funds rate. This may be a byproduct of the easing of the fed funds rate happening during the early Covid-19 period in 2020, when investment opportunities and therefore borrowing demand may have been lower. It is also noteworthy that a tail realization of easing credit standards of -25% would translate to about 67 basis points larger commitments. This finding is analogous to the strong association between borrowing and the positive part of stock market returns and suggests that the wealthy may capitalize on easing of credit conditions in the banking sector.

Table 7 shows that borrowing by non-individuals from private bank divisions is largerly unresponsive to borrower-favorable shocks, but similarly responsive to adverse realizations of market conditions. Additional intermediation of credit for wealth management purposes to corporations, other banks, and non-banks may therefore mask its responsiveness to market shocks. To ease the comparison between direct loans to wealthy individuals and less direct ones to non-individuals via private banks, we further limit attention to loans backed by securities collateral. Additionally, liquid collateral such as securities is more likely to be responsive to changes to macroeconomic shocks and provide a better opportunity for us to study the associated changes in borrowing activity.

In Tables C.1 and C.2, we show that after conditioning the sample on securities collateral, the associations between borrowing and market shocks appear to be largely similar between direct loans to the wealthy and less direct ones via other intermediaries or firms. This implies that it is the nature of loan collateralization that led to the above differences. Overall, borrowing by the wealthy appears highly sensitive to market-wide shocks and these sensitivies are generally stronger when examining the size of credit commitments.

Appendix Tables C.3 and C.4 generally show substantially weaker results for the subset of loans that are not backed by securities collateral among both individuals/family trusts and non-individuals. The results for commitment amounts in those tests are largely statistically insignificant, while the results for funded amounts with the subset of non-individuals show better responsiveness of positive values in SLOOS. These effects are large—about 1 percentage point reduction in drawn amount in response to a 50 basis point rate hike.

Appendix Table C.5 relate loan origination and renegotiation activity to market-wide shocks that origination activity with the subset of loans to individuals/family trusts declines with increases in the federal funds rate and with tightening in credit conditions in the banking sector (more positive SLOOS). Conversely, originations increase substantially with easing of bank credit conditions. For example, a 25 percent net easing in bank credit conditions is associated with over 3 percentage points higher quarterly originations

as compared to under 1 percentage point decline in originations in response to bank credit condition tightening. Renegotiations among individuals are responsive to increases in the fed funds rate and bank credit conditions, but not to other market wide shocks. Higher stock returns also translate to substantially lower renegotiation rates, potentially due to less need to renegotiate commitments.

Appendix Table C.6 shows similar associations for non-individual borrowers via private bank divisions, albeit slightly different responsiveness to stock martket shocks (responsiveness in terms of originations but not renegotiations), weaker general responsiveness to changes in the federal funds rate and largely similar responsiveness to changes in bank credit conditions.

5.3 Borrowing response to local shocks

We also examine how local shocks are related to borrowing activity. Specifically, HNWI could borrow more when local growth high and new investment opportunities arise. In fact, lenders often cite one of the purposes of securities-based lines of credit, the typical contract type extended to HNWI in our sample, as business investment.[9]

Table 8 shows the responses of borrower's funded and committed exposure to past county-level establishment growth and GDP growth. These results are generally weak and statistically insignificant. For example, a large positive local shock in the 90^{th} percentile of the local establishment growth distribution of 5.97% translates to about 11 basis points greater funded exposure, on average. However, this result does not hold in the committed exposure specifications and only holds when accounting for county fixed effects. None of the specifications detect a significant response of borrowing activity to past local GDP growth. Overall, it does not appear that local shocks by themselves may trigger additional borrowing activity.

In the next set of tests, we examine whether the response of borrowing activity to local

[9]SBLOC 101: Guide to securities-based lines of credit

shocks may be dependent on market-wide shocks. Given the majority of wealth of the top 1% of the wealth distribution is concentrated in securities, local shocks may only matter for additional borrowing when the bulk of the wealthy's portfolio has done well recently. In other words, higher securities valuation implies higher potential collateral values, thereby easing additional borrowing.

In Table 9, we allow for this possibility by interacting the local shocks with stock market return quartile indicators. To give a better sense of the magnitude of quarterly returns across quartiles, stock market returns are on average -4.5%, 0.6%, 3.5%, and 7.9% in the first through the fourth quartile, respectively. Columns 1-3 show that funded exposure responds to recent local establishment growth only when stock market returns are significant and positive (quartiles 3 and 4) and that the responses are significantly stronger in the fourth than in the third quartile. Specifically, a large positive revision to local establishment growth translates to up to an additional 26 basis points of funded borrowing. Columns 4-6 paint a similar picture for local GDP growth when stock market returns are in the fourth quartile of the distribution—a large positive local shock in the 90^{th} percentile of the local GDP growth distribution of 7.2% translates to about 25 basis points more funded exposure. Importantly, local shocks do not appear to be associated with borrowers adjusting credit commitments across any of the stock market return quartiles (see Table C.7). In other words, borrowers increase the utilization of their exisiting commitments without raising credit limits. This may be a byproduct of significant slack under credit commitments as documented in Tables 1 and 2.

5.4 Real effects

In our final set of tests, we examine whether borrowing activity at the county level by family trusts and wealthy individuals translates to greater economic activity in the future. Specifically, in a "buy, borrow, die" strategy often discussed in the financial press, the wealthy are often portrayed as funding consumption and investment in businesses (further

saving) with loans based on their securities holdings.[10]. To the extent that a large of borrowing is intended for business investment, then the local economic outcomes will improve in the aftermath of significant borrowing activity. Conversely, borrowing for consumption is less likely to generate significant improvements in the local economy. For instance, Di Maggio et al. (2020); Chodorow-Reich et al. (2021); Auclert et al. (2025) find MPCs out of stock market wealth that are low.

Prior theory literature also emphasizes the saving channel. For example, Braxton et al. (2025); Gaillard et al. (2023) show that the wealthy increase saving significantly more than consumption in response to increases in permanent income risk than lower income households with permanent income risk being substantial in recent years. Similarly, Alan et al. (2018); Guntin et al. (2023) shows that the consumption of the wealthy is a lot more volatile, potentially implying that further saving may be the primary reason for the borrowing of the wealthy.

Figure 7 shows the estimates of local projection regressions of local establishment count on total county-level borrowing in terms of committed and utilized exposure in Panels a and b, respectively. Both borrowing activity and 1 through 12 quarters-ahead establishment count are in logs and the regressions include borrower and quarter fixed effects. Both figures show that a one percent increase in borrowing is associated with 0.5% to 0.8% percent increase in establishment count. In terms of commitments, these estimates are strikingly stable in the first 6-7 quarters following a positive borrowing shock and decline in quarters 8-12 to roughly 0.5%. In terms of funded exposure, the decline starts earlier and by quarter 6 the estimate is slightly about 0.6%. This may be a byproduct of borrowers increasing commitments in anticipation of future investment, thereby commitment growth being a stronger signal of future local growth than realized borrowing. All in all, however, the two series are very close to each other.

In Figure 8, we re-estimate the projection specifications based on collateral type—real

[10]Buy, Borrow, Die: How Rich Americans Live Off Their Paper Wealth

estate, securities, other fixed assets, as well as unsecured loans. About 6%, 67%, and 13% of loans of wealthy individuals and family trusts are secured by real estate, securities, and other assets, respectively, while about 14% of loans are unsecured. Not surprisingly, the projection coefficients for committed or utilized borrowing backed by securities collateral is about 0.5% to 0.7% and very stable over the 12 quarter horizon with the 12^{th} values of about 0.5%. In contrast with effects attributable to consumption that are typically associated with transmission lags of 4-8 quarters (Chodorow-Reich et al. 2021; Caballero and Simsek 2024), our results exhibit an immediate increase within a quarter of borrowing spikes and dissipate slowly thereafter. These patterns further emphasize the importance of an investment channel.

Finally, in robustness tests we show that loans secured by real estate and other assets are not significantly related to future growth, while the effect of unsecured loans hoovers around 0.5%. This heterogeneity reveals that the vast majority of the effects in Figure 7 comes from borrowing that is unlikely to be tied to the local economy as the local projections are only significant in the subset of securities-based and unsecured loans. Overall, it appears that borrowing of the wealthy is a strong predictor of future local economic growth.

6. Conclusion

Using confidential data from the Federal Reserve's Y-14 Collection, we show that direct and indirect loan commitments for wealth management purposes now exceed $700 billion. Our results show that the wealthy borrow more after positive stock returns and especially when combined with past strong local economic growth. We also find that borrowing by the wealthy predicts future local economic growth, consistent with the presence of a significant financial accelerator effect for the wealthy. Our findings hence indicate an amplification of shocks through the borrowing and investment of the wealthy in addition to previously documented consumption effects.

Our findings raise important questions about the incentives of the wealthy to borrow and by extension taxation of wealth at the top end of the distribution. Given the effects of borrowing of the wealthy on local economic growth, tax policies that discourage borrowing of the wealthy against unrealized capital gains may be detrimental to growth. Conversely, leveraging unrealized capital gains is likely to further increase wealth equality as stock holdings are concentrated in the top decile of the wealth distribution. Moreover, if growth is increasingly financed by leveraging unrealized capital gains, then local economies may be susceptible to adverse stock market shocks.

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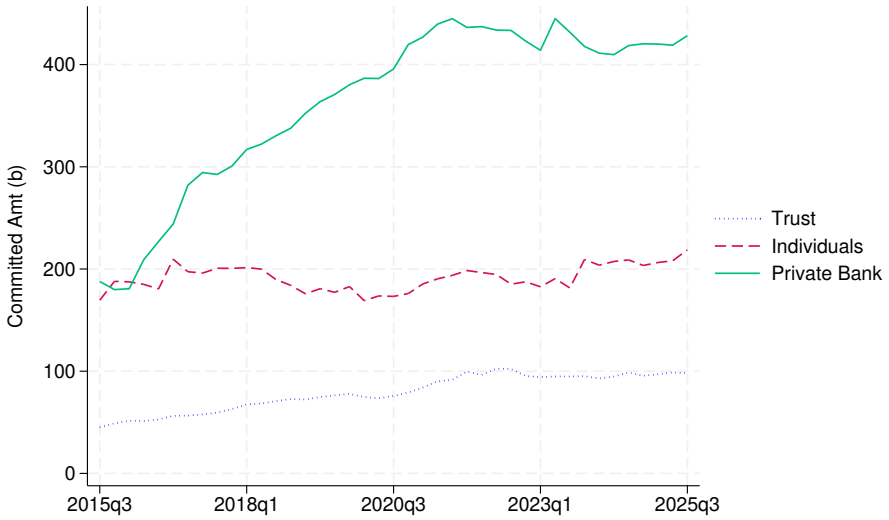
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Figures

Figure 1: Borrowing activity over time This figure presents total committed and funded exposure to family trusts, individuals, and to non-individual borrowers via private bank divisions. The three groups are mutually exclusive. Specifically, the "individual" group does not include any family trusts and the "private bank division" group does not include any family trusts and individuals.

(a) Committed exposure



(b) Funded exposure

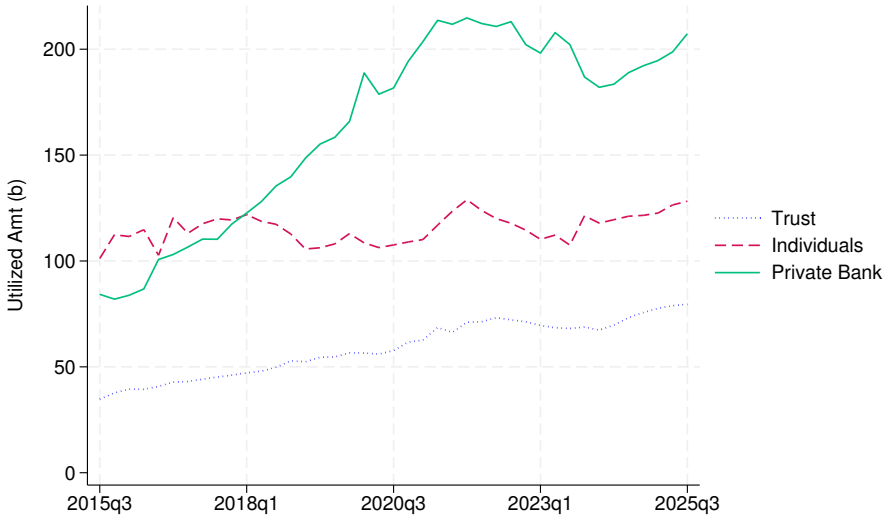
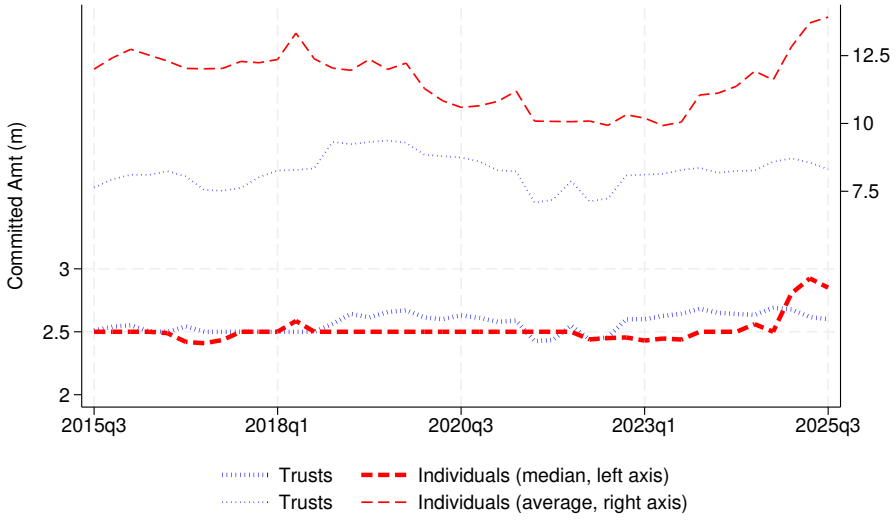


Figure 2: Loan size over time. This figure presents average committed and funded exposure to family trusts and individuals. The two groups are mutually exclusive. Specifically, the "individual" group does not include any family trusts.

(a) Committed exposure



(b) Funded exposure

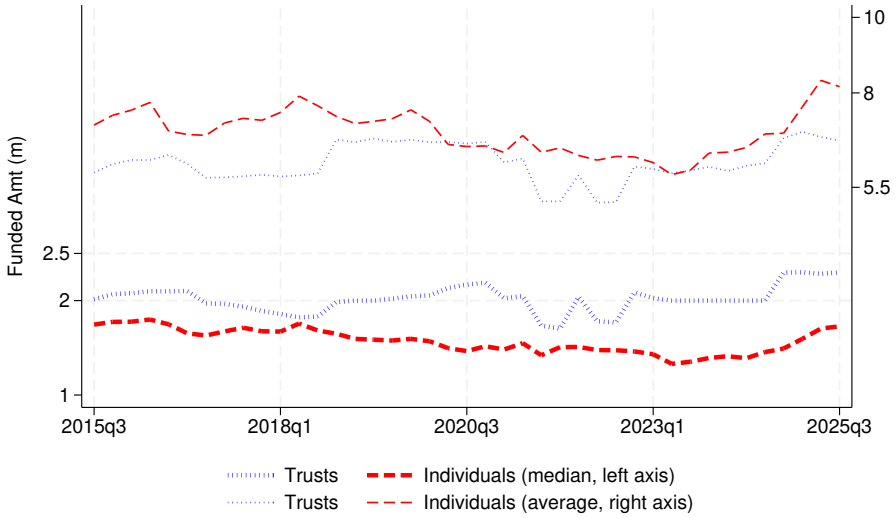
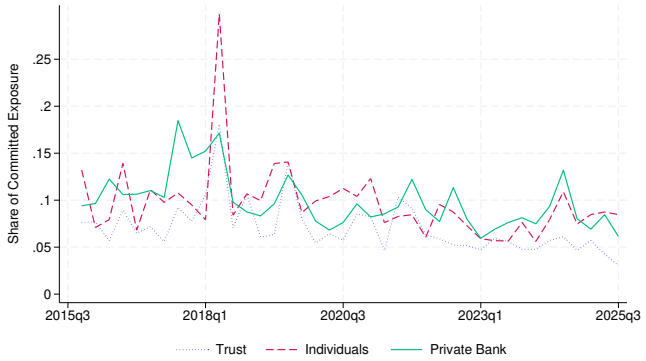
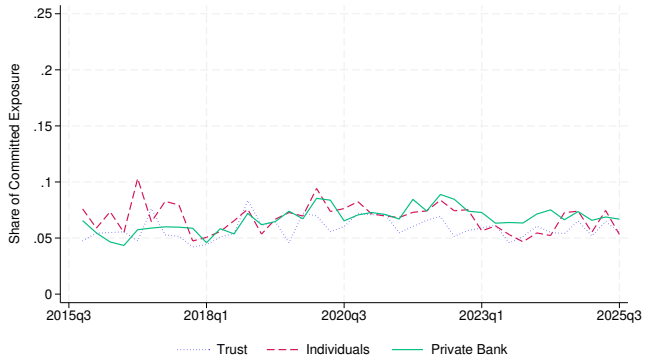


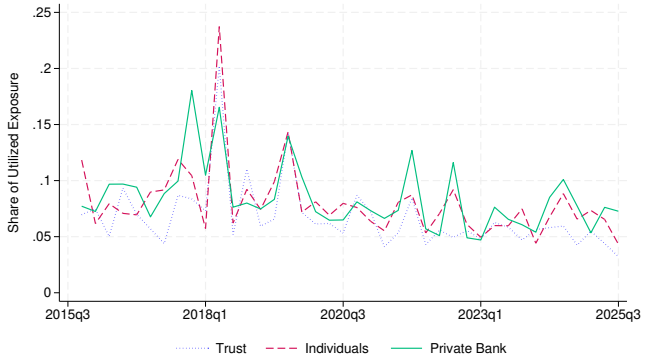
Figure 3: Quarterly origination and renegotiation activity This figure depicts the dollar volume of origination and renegotiation activity as a share of total outstanding committed and funded loan balances for family trusts, individuals, and private bank divisions. The three groups are mutually exclusive. Specifically, the "individual" group does not include any family trusts and the "private bank division" group does not include any family trusts and individuals.



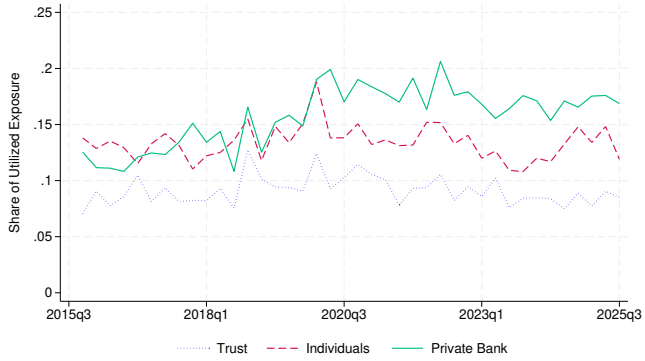
(a) Originations (committed)



(b) Renegotiations (committed)



(c) Originations (funded)

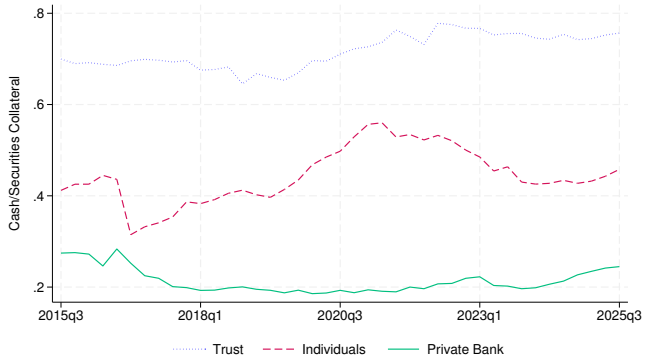


(d) Renegotiations (funded)

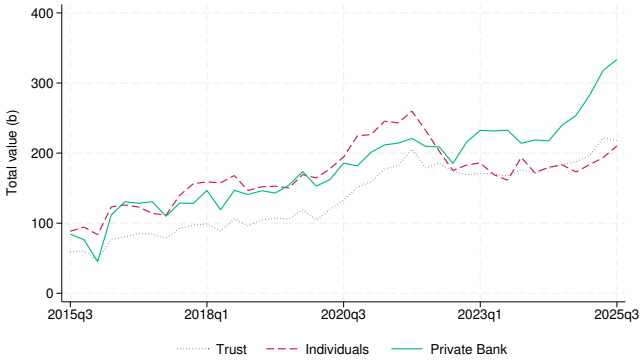
Figure 4: Lending activity collateralized by securities This figure depicts the share of loan count and total committed loan volume collateralized by securities (Panels A and B, respectively), as well as the market value of cash/securities collateral pledged by family trusts, individuals, and non-individuals working with private bank divisions in billions of US dollars. The three groups are mutually exclusive—the "individual" group does not include any family trusts and the "private bank division" group does not include any family trusts and individuals.



(a) Cash/Securities Collateral (loan count)



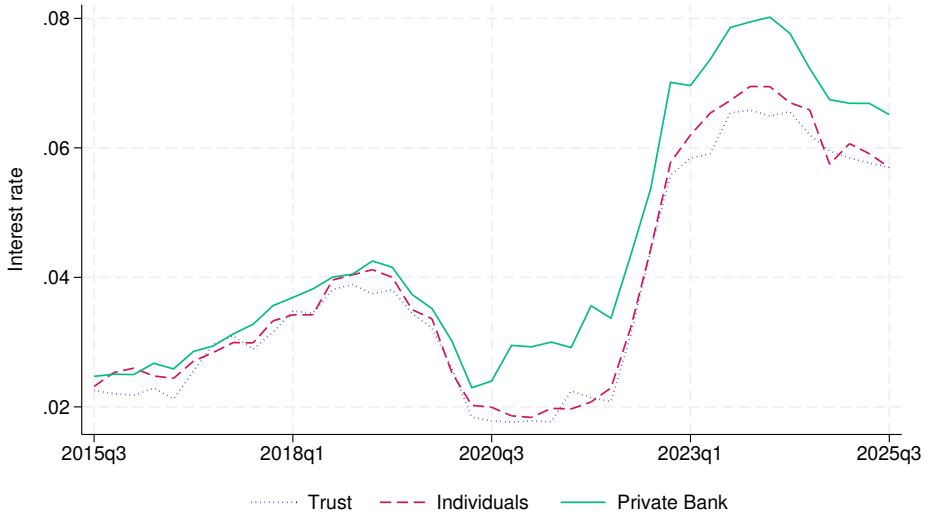
(b) Cash/Securities Collateral (loan volume)



(c) Cash/Securities Collateral Value

Figure 5: Borrowing costs over time This figure presents average interest rates to family trusts, individuals, and to non-individual borrowers via private bank divisions within the subset of loan originations (Panel A) and renegotiations (Panel B). We define renegotiations as any large changes in loan terms including a change in maturity of at least a year, in interest rates of at least 25 basis points and in commitment amount of at least 5%. The three groups are mutually exclusive—the "individual" group does not include any family trusts and the "private bank division" group does not include any family trusts and individuals.

(a) Originations



(b) Renegotiations

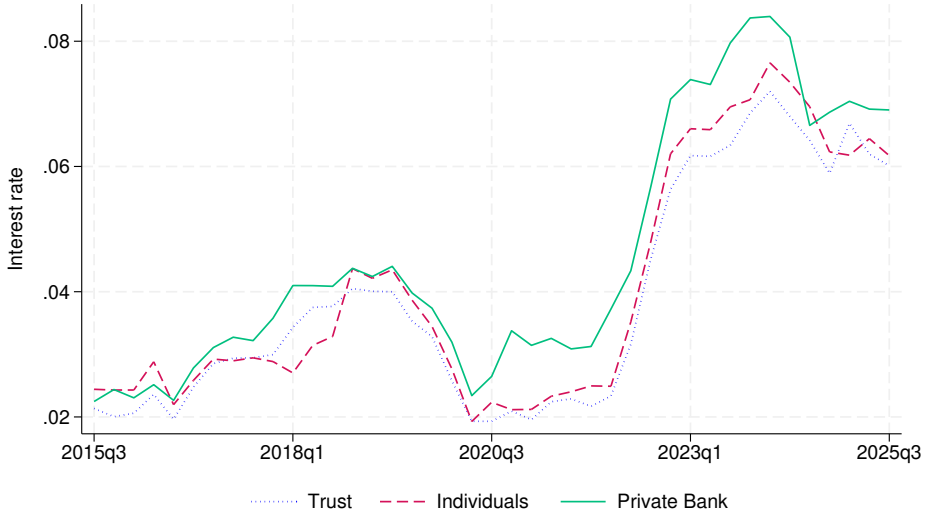
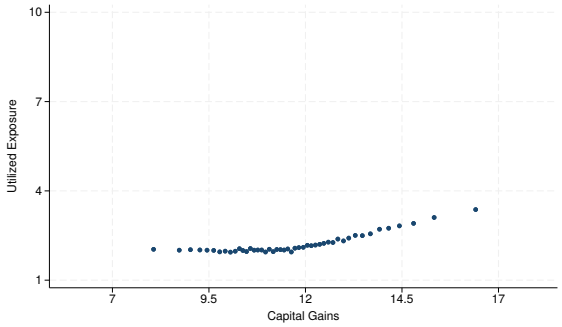
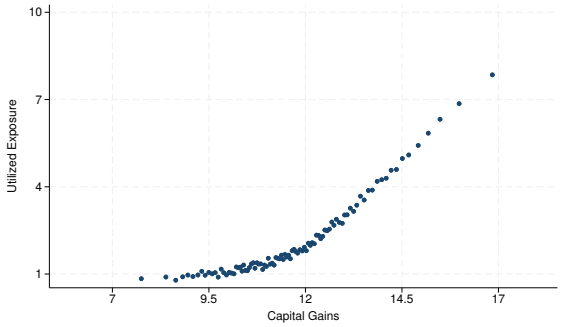


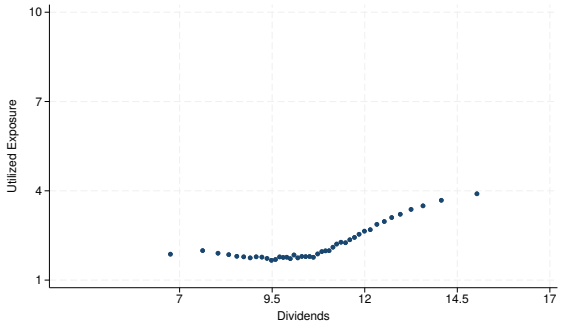
Figure 6: Borrowing of the wealthy and capital gains, dividends, and interest income (funded commitments). This figure depicts county-level funded commitments against total income from securities holdings such as realized capital gains, dividends, and interest income. We relate borrowing to these measures of wealth from tax records using the binned scatter approach of Cattaneo et al. (2024), after applying the natural logarithm transformation to both county-quarter funded borrowing and the measures of county wealth.



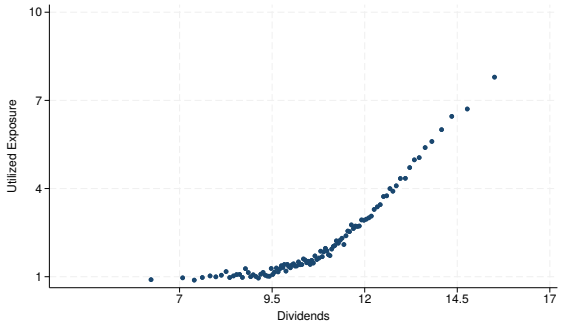
(a) Realized Capital Gains



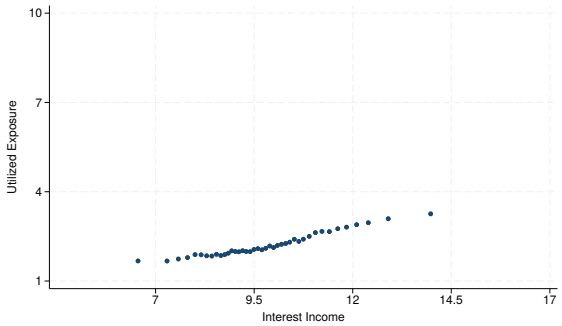
(b) Realized Capital Gains (no county FE)



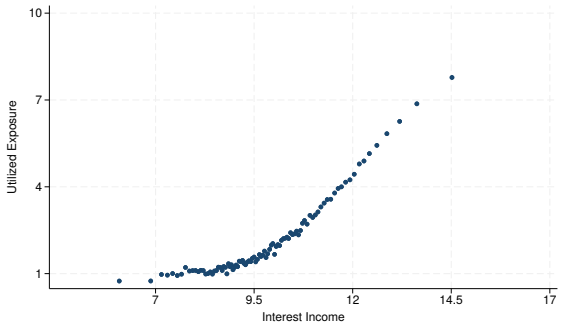
(c) Dividend Income



(d) Dividend Income (no county FE)



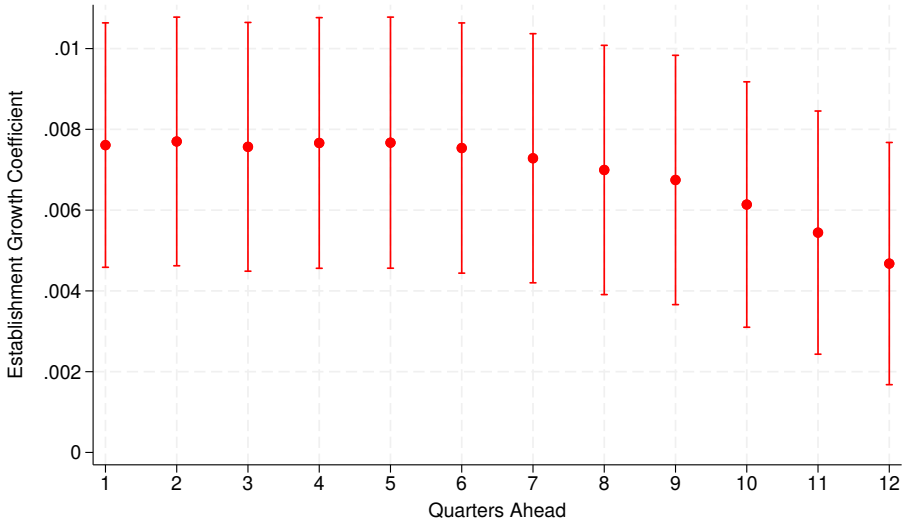
(e) Interest Income



(f) Interest Income (no county FE)

Figure 7: Borrowing by the wealthy and future economic activity This figure presents coefficient estimates from regressions of one through twelve quater ahead county level establishments count on current loan committed exposure (Panel A) and utilized exposure (Panel B) to the wealthy. All specifications include county and calendar quarter fixed effects and the standard errors are clustered at the county and state by year level. Both establishment count and committed/utilized exposure are in logs. The sample is limited to individuals and family trusts.

(a) Committed exposure



(b) Funded exposure

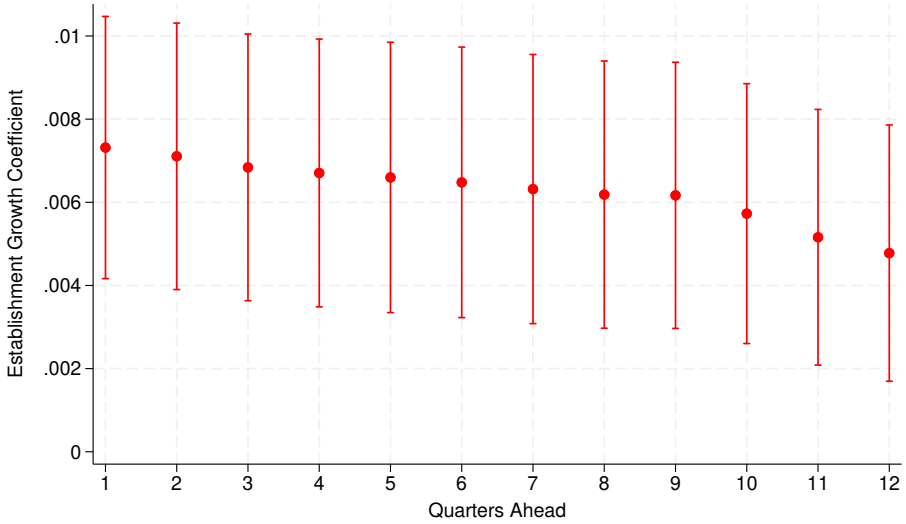
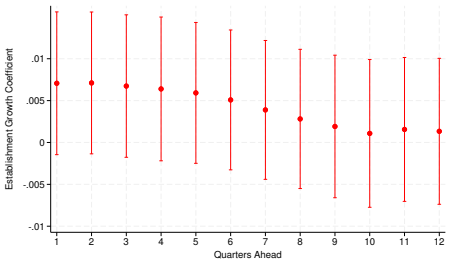
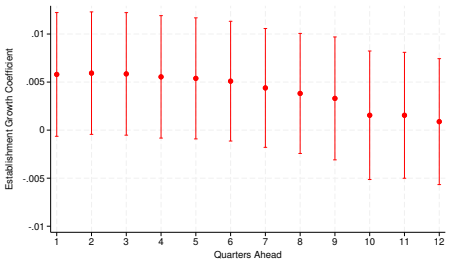


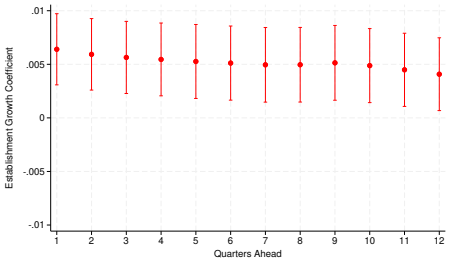
Figure 8: Borrowing by the wealthy and future economic activity: collateral type. This figure presents coefficient estimates from regressions of one through twelve quater ahead county-level establishment count on current loan utilized or committed exposure to the wealthy in Panels a, c, e or b, d, f, respectively. All specifications include county and calendar quarter fixed effects and the standard errors are double-clustered at the county and state-by-year level. Establishment count and loan exposure are in logs. The sample includes individuals and family trusts.



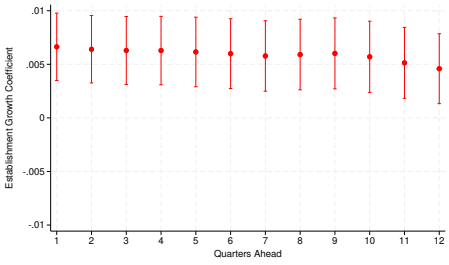
(a) Real Estate (funded)



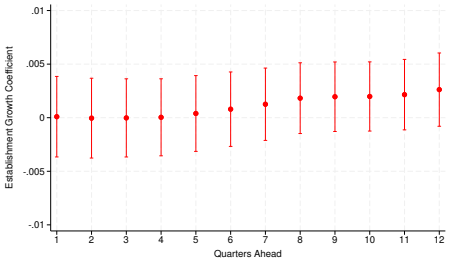
(b) Real Estate (committed)



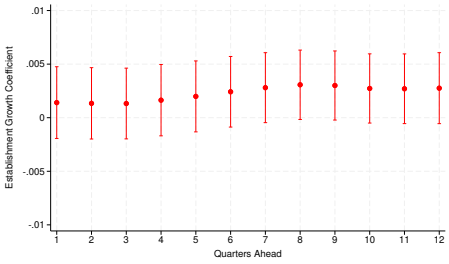
(c) Securities (funded)



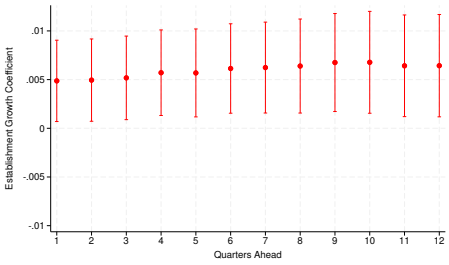
(d) Securities (committed)



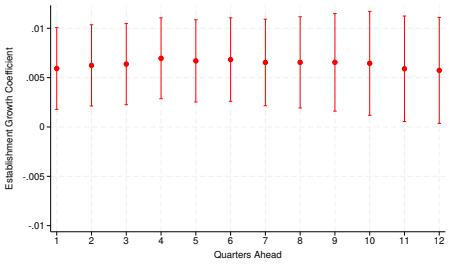
(e) Other Assets (funded)



(f) Other Assets (committed)



(g) Unsecured (funded)



(h) Unsecured (committed)

Tables

Table 1: Summary Statistics. Table 1 presents summary statistics for the main variables in our analysis. The first row next to each variable shows averages, while the second one standard deviations (in parentheses). Please see Section A for variable definitions

	Trusts	Individuals	Private Bank
Committed Amt (m)	7.69	10.07	12.55
	(29.31)	(40.75)	(40.03)
Utilized Amt (m)	5.73	6.07	5.66
	(23.10)	(27.46)	(26.98)
Credit Line	0.81	0.65	0.35
	(0.40)	(0.48)	(0.48)
Term Loan	0.09	0.18	0.14
	(0.29)	(0.39)	(0.35)
Utilization	0.81	0.65	0.38
	(0.36)	(0.42)	(0.47)
Demand Loan	0.63	0.36	0.14
	(0.48)	(0.48)	(0.35)
Maturity (years)	5.58	5.85	6.08
	(5.16)	(5.31)	(3.80)
Rem Maturity (years)	2.68	2.68	3.01
	(4.21)	(3.89)	(2.57)
Interest Rate	0.04	0.04	0.05
	(0.02)	(0.02)	(0.03)
Collateral Amt (m)	20.06	22.57	44.82
	(176.32)	(105.79)	(244.52)
Utilized/Collateral	0.38	0.39	0.43
	(0.27)	(0.29)	(0.30)
Committed/Collateral	0.50	0.59	0.54
	(0.34)	(0.38)	(0.35)
Secured by Cash, Securities	0.83	0.58	0.25
	(0.38)	(0.49)	(0.43)
Secured by Real Estate	0.05	0.07	0.06
	(0.22)	(0.25)	(0.24)
Credit Rating	4.42	4.31	3.89
	(0.98)	(1.21)	(1.16)

Table 2: Summary statistics by maturity groups. This table presents averages of each variable split by maturity—demand loans and those with maturities of less than a year, 1-3, 3-5, and great than or equal to 5 years. Demand loans are callable by the lender at any point in time. Panel A presents statistics for family trusts/individuals, while Panel B for non-individual borrowers of private bank divisions

Panel A: Family Trusts/Individuals

Obs	Demand 546,312	<1 87,706	1-3 156,426	3-5 132,888	≥5 274446
Committed Amt (m)	5.59	9.11	14.79	14.67	10.68
Utilized Amt (m)	4.78	5.06	8.58	8.53	5.76
Credit Line	0.83	0.86	0.78	0.58	0.43
Term Loan	0.01	0.07	0.14	0.24	0.43
Utilization	0.81	0.51	0.57	0.61	0.68
Maturity (years)	.	0.93	1.98	4.13	10.31
Rem Maturity (years)	.	0.45	0.90	1.87	4.71
Interest Rate	0.04	0.04	0.04	0.04	0.04
Collateral Amt (m)	15.95	15.42	30.60	35.03	35.32
Utilized/Collateral	0.38	0.40	0.39	0.41	0.38
Committed/Collateral	0.51	0.68	0.65	0.62	0.58
Secured by Cash, Securities	0.91	0.76	0.67	0.49	0.26
Secured by Real Estate	0.00	0.01	0.01	0.05	0.24
Credit Rating	4.14	4.25	4.50	4.46	4.68

Panel B: Private Bank

Obs	Demand 171,483	<1 39,388	1-3 107,028	3-5 369,525	≥5 494,674
Committed Amt (m)	10.71	18.05	23.64	11.56	10.83
Utilized Amt (m)	8.78	8.61	12.09	4.30	3.97
Credit Line	0.89	0.60	0.58	0.18	0.22
Term Loan	0.00	0.20	0.21	0.12	0.19
Utilization	0.84	0.48	0.50	0.22	0.31
Maturity (years)	.	0.89	2.09	4.62	8.45
Rem Maturity (years)	.	0.45	0.97	2.80	3.79
Interest Rate	0.04	0.04	0.04	0.05	0.05
Collateral Amt (m)	25.91	59.84	76.08	60.61	45.87
Utilized/Collateral	0.45	0.45	0.41	0.43	0.38
Committed/Collateral	0.50	0.62	0.60	0.57	0.54
Secured by Cash, Securities	0.81	0.40	0.44	0.12	0.09
Secured by Real Estate	0.00	0.02	0.03	0.03	0.11
Credit Rating	4.12	4.07	4.26	3.67	3.88

Table 3: Collateral-Borrowing Passthrough. This table presents fixed effects regressions estimates of collateral amount-loan amount passthrough using funded exposure amount (Panel A) and committed exposure amount (Panel B) to proxy for loan amount in a loan-quarter panel spanning 2015Q3 through 2025Q3. The sample is limited to loans secured by cash/securities collateral. Columns 1-2 present results for family trusts, columns 3-4 for individuals, and columns 5-6 for non-individual borrowers serviced by private bank divisions. The three groups are mutually exclusive—the "individual" group does not include any family trusts and the "private bank division" group does not include any family trusts and individuals. We include quarter and borrower fixed effects. We double-cluster standard errors by borrower and NAICS 2012 industry-quarter and present them in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel A: Log(Funded Amt)

	Family Trust		Individual		Private Bank	
	(1)	(2)	(3)	(4)	(5)	(6)
Log(Collateral)	0.534***	0.313***	0.547***	0.280***	0.525***	0.303***
	(0.008)	(0.014)	(0.007)	(0.021)	(0.008)	(0.010)
Constant	-7.187***	-3.680***	-7.392***	-3.196***	-6.951***	-3.373***
	(0.130)	(0.221)	(0.105)	(0.325)	(0.117)	(0.157)
R-squared	0.474	0.907	0.486	0.905	0.438	0.918
Obs	304319	297818	348702	338687	220642	216633
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Borrower FE	No	Yes	No	Yes	No	Yes

Panel B: Log(Committed Amt)

	Family Trust		Individual		Private Bank	
	(1)	(2)	(3)	(4)	(5)	(6)
Log(Collateral)	0.677***	0.369***	0.690***	0.339***	0.706***	0.375***
	(0.006)	(0.015)	(0.006)	(0.025)	(0.005)	(0.011)
Constant	-9.601***	-4.718***	-9.650***	-4.118***	-9.934***	-4.609***
	(0.100)	(0.245)	(0.093)	(0.393)	(0.082)	(0.175)
R-squared	0.567	0.926	0.630	0.937	0.639	0.941
Obs	304317	297816	348701	338687	220642	216633
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Borrower FE	No	Yes	No	Yes	No	Yes

Table 4: Collateral-Borrowing Passthrough and Market Shocks: Individuals. This table presents fixed effects regressions estimates of collateral amount-loan amount passthrough using funded exposure amount (Panel A) and committed exposure amount (Panel B). The sample is limited to loans secured by securities collateral of family trusts or individuals. Columns 1-2, 3-4, and 5-6 present coefficient estimates for interactions between collateral amount and stock returns, the federal funds rate, and the net share of banks tightening standards for commercial and industrial loans to middle-market and large firms from the Senior Loan Officer Survey (SLOOS). The SLOOS variable therefore ranges between -1 and $+1$. We include quarter and borrower fixed effects. We double-cluster standard errors by borrower and NAICS 2012 industry-quarter and present them in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel A: Log(Funded Amt)

	(1)	(2)	(3)	(4)	(5)	(6)
Log(Collateral)	0.542***	0.293***	0.540***	0.292***	0.539***	0.293***
	(0.006)	(0.015)	(0.006)	(0.015)	(0.007)	(0.015)
Log(Collateral) × Return	0.015	-0.013				
	(0.081)	(0.028)				
Log(Collateral) × ΔFF			0.013*	0.011***		
			(0.008)	(0.003)		
Log(Collateral) × SLOOS					0.029	0.006
					(0.023)	(0.010)
R-squared	0.480	0.906	0.480	0.906	0.480	0.906
Obs	653021	636505	653021	636505	653021	636505
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Borrower FE	No	Yes	No	Yes	No	Yes

Panel B: Log(Committed Amt)

	(1)	(2)	(3)	(4)	(5)	(6)
Log(Collateral)	0.682***	0.351***	0.680***	0.349***	0.679***	0.350***
	(0.005)	(0.018)	(0.005)	(0.018)	(0.006)	(0.018)
Log(Collateral) × Return	-0.033	-0.022				
	(0.052)	(0.030)				
Log(Collateral) × Δ FF			0.013**	0.014***		
			(0.005)	(0.002)		
Log(Collateral) × SLOOS					0.021	0.003
					(0.019)	(0.011)
R-squared	0.598	0.932	0.598	0.933	0.598	0.932
Obs	653018	636503	653018	636503	653018	636503
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Borrower FE	No	Yes	No	Yes	No	Yes

Table 5: Collateral-Borrowing Passthrough and Market Shocks: Private Bank. This table presents fixed effects regressions estimates of collateral amount-loan amount passthrough using funded exposure amount (Panel A) and committed exposure amount (Panel B). The sample is limited to loans secured by securities collateral of non-individuals working with private bank divisions. Columns 1-2, 3-4, and 5-6 present coefficient estimates for interactions between collateral amount and stock returns, the federal funds rate, and the net share of banks tightening standards for commercial and industrial loans to middle-market and large firms from the Senior Loan Officer Survey (SLOOS). The SLOOS variable therefore ranges between -1 and $+1$. We include quarter and borrower fixed effects. We double-cluster standard errors by borrower and NAICS 2012 industry-quarter and present them in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel A: Log(Funded Amt)

	(1)	(2)	(3)	(4)	(5)	(6)
Log(Collateral)	0.525***	0.303***	0.524***	0.302***	0.524***	0.303***
	(0.008)	(0.010)	(0.008)	(0.010)	(0.007)	(0.010)
Log(Collateral) × Return	-0.008	-0.007				
	(0.072)	(0.018)				
Log(Collateral) × Δ FF			0.007	0.002		
			(0.008)	(0.003)		
Log(Collateral) × SLOOS					0.007	-0.003
					(0.016)	(0.006)
R-squared	0.438	0.918	0.438	0.918	0.438	0.918
Obs	220642	216633	220642	216633	220642	216633
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Borrower FE	No	Yes	No	Yes	No	Yes

Panel B: Log(Committed Amt)

	(1)	(2)	(3)	(4)	(5)	(6)
Log(Collateral)	0.707***	0.376***	0.705***	0.375***	0.705***	0.375***
	(0.005)	(0.011)	(0.005)	(0.011)	(0.005)	(0.011)
Log(Collateral) × Return	-0.054	-0.014				
	(0.047)	(0.021)				
Log(Collateral) × ΔFF			0.011**	0.004		
			(0.006)	(0.003)		
Log(Collateral) ×SLOOS					0.008	0.001
					(0.011)	(0.005)
R-squared	0.639	0.941	0.639	0.941	0.639	0.941
Obs	220642	216633	220642	216633	220642	216633
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Borrower FE	No	Yes	No	Yes	No	Yes

Table 6: Commitment use and market-wide shocks: Individuals. This table presents borrower-quarter panel regression estimates of quarterly changes in funded exposures (Panel A) and committed exposures (Panel B) in response to market-wide shocks such as stock returns, the change in the fed funds rate, and the net share of banks tightening standards for commercial and industrial loans to middle-market and large firms from the Senior Loan Officer Survey (SLOOS) within the subset of family trusts and individuals. We split the market-wide shocks into their positive and negative parts. We double-cluster standard errors by borrower and two-digit NAICS 2012 industry-quarter and present them in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel A: ΔFunded Amt

	(1)	(2)	(3)	(4)	(5)	(6)
Return$^+$	0.0694**					
	(0.0288)					
Return$^-$		0.0772***				
		(0.0289)				
ΔFF$^+$			-0.0072***			
			(0.0026)			
ΔFF$^-$				0.0011		
				(0.0033)		
SLOOS$^+$					-0.0031	
					(0.0065)	
SLOOS$^-$						-0.0194*
						(0.0117)
R-squared	0.000	0.000	0.000	0.000	0.000	0.000
N Borrowers	103728	103728	103728	103728	103728	103728
Obs	921580	921580	921580	921580	921580	921580

Panel B: ΔCommitted Amt

	(1)	(2)	(3)	(4)	(5)	(6)
Return$^+$	0.0794***					
	(0.0292)					
Return$^-$		0.1136***				
		(0.0329)				
ΔFF$^+$			-0.0089***			
			(0.0019)			
ΔFF$^-$				0.0067**		
				(0.0029)		
SLOOS$^+$					-0.0020	
					(0.0056)	
SLOOS$^-$						-0.0269**
						(0.0110)
R-squared	0.000	0.000	0.000	0.000	0.000	0.000
N Borrowers	103728	103728	103728	103728	103728	103728
Obs	921580	921580	921580	921580	921580	921580

Table 7: Commitment use and market-wide shocks: private bank. This table presents borrower-quarter panel regression estimates of quarterly changes in funded exposures (Panel A) and committed exposures (Panel B) in response to market-wide shocks such as stock returns, the change in the fed funds rate, and the net share of banks tightening standards for commercial and industrial loans to middle-market and large firms from the Senior Loan Officer Survey (SLOOS) within the subset of non-individuals working with private banks. We split the market-wide shocks into their positive and negative parts. We double-cluster standard errors by borrower and two-digit NAICS 2012 industry-quarter and present them in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel A: ΔFunded Amt

	(1)	(2)	(3)	(4)	(5)	(6)
Return$^+$	0.0373					
	(0.0247)					
Return$^-$		0.1027***				
		(0.0268)				
ΔFF$^+$			-0.0071***			
			(0.0013)			
ΔFF$^-$				-0.0055		
				(0.0047)		
SLOOS$^+$					-0.0140**	
					(0.0055)	
SLOOS$^-$						-0.0124
						(0.0085)
R-squared	0.000	0.000	0.000	0.000	0.000	0.000
N Borrowers	46835	46835	46835	46835	46835	46835
Obs	468319	468319	468319	468319	468319	468319

Panel B: ΔCommitted Amt

	(1)	(2)	(3)	(4)	(5)	(6)
Return$^+$	0.0409					
	(0.0253)					
Return$^-$		0.0720**				
		(0.0321)				
ΔFF$^+$			-0.0066***			
			(0.0016)			
ΔFF$^-$				0.0033		
				(0.0057)		
SLOOS$^+$					-0.0049	
					(0.0054)	
SLOOS$^-$						-0.0128
						(0.0088)
R-squared	0.000	0.000	0.000	0.000	0.000	0.000
N Borrowers	46835	46835	46835	46835	46835	46835
Obs	468319	468319	468319	468319	468319	468319

Table 8: Loan use and local shocks: individuals. This table presents regression estimates of quarterly changes in funded and committed exposures in response to local shocks. We first aggregate loan commitments and funded exposures to the borrower-quarter level and then compute the quarterly change in funded exposure, scaled by the average of committed exposure in the current and prior quarter. We use two types of local shocks—1) the year-over-year log-change in county establishment count as of the previous quarter and 2) the annual county GDP growth rate as of the previous year. We double-cluster standard errors by borrower and two-digit NAICS 2012 industry-quarter and present them in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel A: Funded Exposures

	ΔFunded					
	(1)	(2)	(3)	(4)	(5)	(6)
ΔEst	0.0128	0.0134*	0.0193**			
	(0.0080)	(0.0078)	(0.0085)			
ΔGDP				0.0056	0.0062	0.0031
				(0.0092)	(0.0103)	(0.0123)
Constant	0.0011*	0.0011*	0.0010*	0.0013*	0.0012*	0.0013**
	(0.0006)	(0.0006)	(0.0005)	(0.0007)	(0.0007)	(0.0006)
R-squared	0.002	0.002	0.004	0.002	0.002	0.004
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	No	Yes	No	No	Yes	No
County FE	No	No	Yes	No	No	Yes
N Borrowers	83797	83797	83753	82756	82756	82712
Obs	761972	761972	761920	754661	754661	754610

Panel B: Committed Exposures

	ΔCommitted					
	(1)	(2)	(3)	(4)	(5)	(6)
ΔEst	0.0033	0.0088	0.0111			
	(0.0074)	(0.0075)	(0.0082)			
ΔGDP				0.0105	0.0111	0.0058
				(0.0070)	(0.0082)	(0.0096)
Constant	0.0021***	0.0020***	0.0020***	0.0019***	0.0019***	0.0020***
	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
R-squared	0.002	0.002	0.004	0.002	0.002	0.003
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	No	Yes	No	No	Yes	No
County FE	No	No	Yes	No	No	Yes
N Borrowers	83797	83797	83753	82756	82756	82712
Obs	761972	761972	761920	754661	754661	754610

Table 9: Loan use, local shocks, and the stock market. This table presents regression estimates of quarterly changes in funded exposures in response to local shocks across quartiles of stock market returns.We first aggregate loan commitments and funded exposures to the borrower-quarter level and then compute the quarterly change in funded exposure, scaled by the average of committed exposure in the current and prior quarter. We use two types of local shocks—1) the year-over-year log-change in county establishment count as of the previous quarter and 2) the annual county GDP growth rate as of the previous year. We double-cluster standard errors by borrower and two-digit NAICS 2012 industry-quarter and present them in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

	ΔFunded					
	(1)	(2)	(3)	(4)	(5)	(6)
Q1 Ret × ΔEst	-0.0155	-0.0168	-0.0102			
	(0.0160)	(0.0155)	(0.0166)			
Q2 Ret × ΔEst	0.0080	0.0077	0.0133			
	(0.0146)	(0.0138)	(0.0142)			
Q3 Ret × ΔEst	0.0232*	0.0242*	0.0288**			
	(0.0133)	(0.0142)	(0.0141)			
Q4 Ret × ΔEst	0.0330**	0.0363**	0.0428***			
	(0.0157)	(0.0151)	(0.0160)			
Q1 Ret × ΔGDP				-0.0075	-0.0047	-0.0029
				(0.0226)	(0.0233)	(0.0264)
Q2 Ret × ΔGDP				0.0040	0.0023	0.0002
				(0.0170)	(0.0172)	(0.0169)
Q3 Ret × ΔGDP				-0.0071	-0.0076	-0.0155
				(0.0204)	(0.0203)	(0.0231)
Q4 Ret × ΔGDP				0.0372***	0.0386**	0.0346**
				(0.0144)	(0.0153)	(0.0156)
Constant	0.0012**	0.0012**	0.0011**	0.0014*	0.0014*	0.0015**
	(0.0006)	(0.0006)	(0.0005)	(0.0007)	(0.0007)	(0.0006)
R-squared	0.002	0.002	0.004	0.002	0.002	0.004
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	No	Yes	No	No	Yes	No
County FE	No	No	Yes	No	No	Yes
N Borrowers	83797	83797	83753	82756	82756	82712
Obs	761972	761972	761920	754661	754661	754610

Internet Appendix: Not For Publication

This appendix includes several sections of supplemental information. Appendix A contains definitions for all the variables used in the paper. Appendixes C and D include additional robustness specifications.

A Variable Definitions

Below we present variable definitions for the financial statement data coming from the FR-Y-14Q Collection. The item numbers of data fields refer to Schedule H1 of the Y-14Q data on the Federal Reserve's website:
`https://www.federalreserve.gov/apps/reportingforms/Report/Index/FR_Y-14Q`:

Variable Name	**Description**
Committed Amt	The total commitment amount of the credit facility in a given quarter, 'Committed Exposure Global', item #24, at the loan-level or aggregated to the borrower-level. *Source:* FR Y-14Q, Schedule H1.
Utilized Amt	The total funded amount of the credit facility in a given quarter, 'Utilized Exposure Global', item #25, at the loan-level or aggregated to the borrower-level. *Source:* FR Y-14Q, Schedule H1.
Credit Line	An indicator variable taking the value of one whenever a credit facility is a line of credit, zero elsewhere. We set this variable to one whenever 'Credit Facility Type' (item #20) is equal to one through six, the words 'REVOLVER' or "LINE" appear in 'Other Credit Facility Type Description' (item #21), the words 'REVOLVER' or 'LINE' but not 'TERM' appear in 'Other Credit Facility Purpose Description' (item #23), the words 'CREDIT LINE' or 'ACCESS LINE' appear in 'Line of Business' (item #27) and 'Credit Facility Type' is equal to zero. *Source:* FR Y-14Q, Schedule H1.
Term Loan	An indicator taking the value of one whenever a credit facility is a term loan, zero elsewhere. We set this variable to one whenever 'Credit Facility Type' (item #20) is equal to 7 through 13. *Source:* FR Y-14Q, Schedule H1.
Utilization	The utilization of a credit facility, constructed as the ratio of 'Utilized Exposure Global, item #25 and 'Committed Exposure Global, item #24. *Source:* FR Y-14Q, Schedule H1.

Continued on next page

Table A.1 – *Continued from previous page*

Variable	**Description**
Demand Loan	An indicator variable equal to one whenever a credit facility is a demand loan, or callable by the lender at any point in time. We set this indicator equal to one whenever 'MaturityDate', item #19) takes the value of '9999-01-01' or the keyword 'DEMAND' appears in 'Other Credit Facility Type Description' (item #21). *Source:* FR Y-14Q, Schedule H1.
Maturity	The original contract maturity of the credit facility (in years) defined as the difference between the 'MaturityDate', item #19, and the 'OriginationDate', item #18, divided by 365.25. We set the maturity to missing whenever the credit facility is a demand loan.
Interest Rate	The interest rate charged on the credit facility in the current quarter, item #36. If the facility allows for multiple credit line draws with different interest rates, the quarterly interest rate is the dollar weighted average interest rate across the draws. Fully undrawn facilities that allow for multiple interest rates, the interest rate is the most conservative rate across potential draws. Finally, the interest rate is not available for facilities that are entirely fee-based. *Source:* FR Y-14Q, Schedule H1.
Collateral Amt	The market value of securities that back the loan in a given quarter. Derived from Collateral Market Value Item #93. *Source:* FR Y-14Q, Schedule H1.
Backed by Securities	An indicator variable taking the value of one if the credit facility is collateralized by securities—Security Type Category (item # 36) equals to 'Cash and Marketable Securities'—and zero otherwise *Source:* FR Y-14Q, Schedule H1.
Backed by Real Estate	An indicator taking the value of one if the credit facility is collateralized by real estate and zero otherwise—Security Type Category (item # 36) equals to 'Real Estate only'—and zero otherwise *Source:* FR Y-14Q, Schedule H1.
Credit Rating	The internal risk rating of the borrower assigned by each the lender, mapped to a 10-grade Standard and Poor's scale—1, . . . , 10 for AAA through D. The internal risk rating of the borrower is based on bank's probability of default (PD) estimate and reflects one-year ahead through-the-cycle default probability.

Continued on next page

Table A.1 – *Continued from previous page*

Variable	**Description**
Zip Code	The five-digit zip code for locations within the 50 US states, Washington DC, and US territories. For all other locations it is the foreign mailing code at the domicile of the borrower, item #7. *Source:* FR Y-14Q, Schedule H1.
SLOOS	The quarterly net percentage of domestic banks tightening standards for commercial and industrial loans to large and middle-market firms as reported in the Board of Governors of the Federal Reserve System's Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS) *Source:* FRED.
ΔFF	The quarterly change in the effective federal funds in percentage points from the Board of Governors of the Federal Reserve System.
Return	The quarterly US stock market returns derived from the Share Prices for the United States from the Organization for Economic Co-operation and Development *Source:* FRED.
ΔEst	The year-over-year log-change in county establishment count as of the previous quarter, *Source:* The Quarterly Census of Employment and Wages at the Bureau of Labor Statistics.
ΔGDP	The annual county GDP growth rate as of the previous year, *Source:* The US Bureau of Economic Analysis.
Interest Income	The total interest income of individuals filing tax returns in a given county-year, *Source:* SOI Tax Stats data from the US Internal Revenue Service.
Dividend Income	The total dividend income of individuals filing tax returns in a given county-year, *Source:* SOI Tax Stats data from the US Internal Revenue Service.
Realized Capital Gains	The total realized capital gains income of individuals filing tax returns in a given county-year, *Source:* SOI Tax Stats data from the US Internal Revenue Service.

B Identification of loans to the wealthy

Private bank divisions. Within the private banking division we include all loans that have labelled as line of business wealth, private bank, asset management, investment managements, private client and variations on the name. We also assign loans where the borrower name is listed as confidential name or confidential private. We further drop publicly listed companies through the stock exchange variable or those that have registered CUSIP through the issuer CUSIP ID. We also remove firms that have Legal Entity Identifiers (LEIs) and Special Purpose Vehicles, both filters in the data.

Family Trusts. We first identify trusts which have a combination of "trust" and variations of words such as family, lifetime, living, GST, survivor, shelter or life insurance trusts. We also label as trusts obligors which have in name "estate of", but do not include terms such as "chapter 11" or "real" which may capture real estate companies or bankrupty proceeds. We then perform a series of string searches to identify names of individuals such as "John A. Doe Trust", "John Doe Trust" , " John A Doe Trust" or " The Doe Family Trust/Partnership" and variations. We drop observations that are firms, and also loans which have in the name words such as foundation, school, bank, college, llc, transport, energy and so on. We also identify trusts based on the top 100 female and male names in the US over the past 100 years. We then keep family trusts if the NAICS code is 525920 for trusts. We also assign to family trusts the NAICS code corresponding to establishments engaged in providing fiduciary services, trust administration and asset custody - 523991, but remove the values where the obligor name includes words such as climate, LLC, charity, properties, university, hospital, and so on. We then clean the data further to remove firm names and other businesses that were omitted in the previous data filters.

Individuals. Lastly, we assign individuals when the obligor name is either labelled as "masked" or "individual", or belongs to the Households NAICS code 814110. We also perform additional checks on these data.

To confirm the reliability of our selection, Y14 reporting guidelines indicate that individuals should not have a value registered for the Tax Identification Number (TIN). We confirm that indeed the TIN values are almost exclusively NA.

Further data cleaning. We note that certain loans are denoted in foreign currency based on the Credit Facility Currency variable. For that, we use the exchange rate at the date of loan initiation to transform the loan size in USD.

Due to the hidden nature of most of the names in the sample, we track loans in time through the internal obligor ID field at bank level, which is an internal string assigned by each bank to their customers.

About 70% of the direct loans to HNWI as of 2025Q3 were classified in Y-9C category 8, which is defined as "all other loans excluding consumer loans" such as credit cards and mortgages. The remaining direct exposure to HNWI falls mostly into category 4, 5, and 10, which cover commercial loans to US and non-US addresses as well as "loans secured by owner-occupied nonfarm nonresidential properries originated in domestic offices."[11] These shares are somewhat different for exposure originating from the private bank divisions extended to non-individuals. There about 70% is classified as corporate exposure to

[11] See page 163 of the Y-14 Instructions `https://www.federalreserve.gov/apps/reportingforms/Report/Index/FR_Y-14Q`.

US and foreign addresses (categories 4 and 5), 15% as exposure to "all other loans" (category 8), 12% as exposure to non-depository financial institutions (category 7), and virtually all remaining exposure as real estate loans (category 10).

C Additional analysis

Figure C.1: Average loan size over time: private bank divisions This figure presents average committed and funded exposure to non-individual borrowers via private bank divisions. The "private bank division" group does not include any family trusts and individuals.

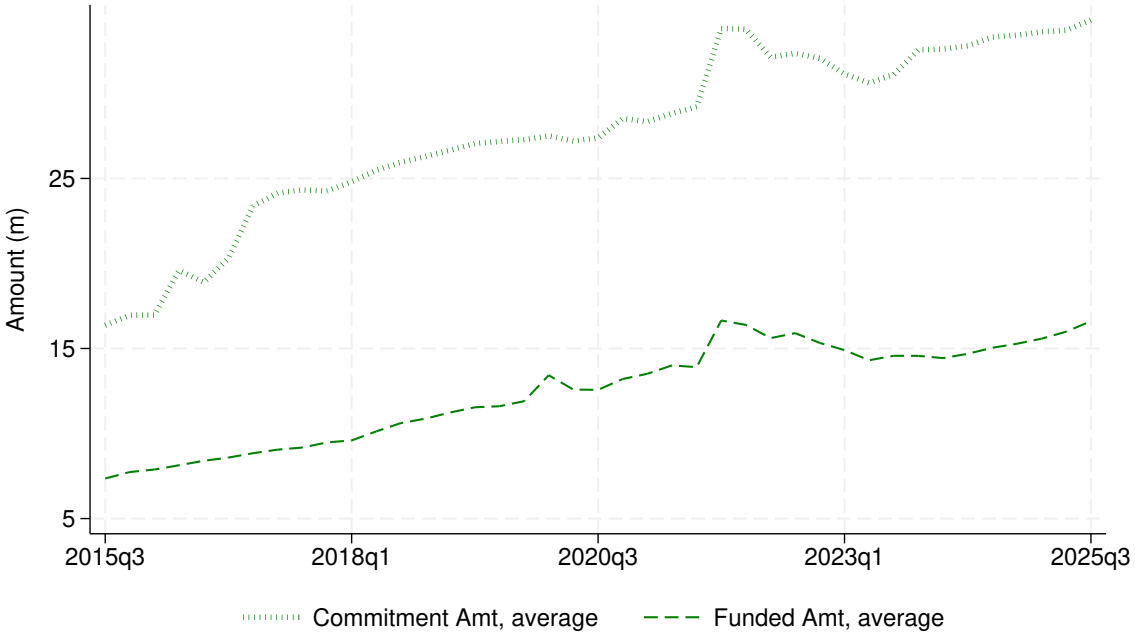
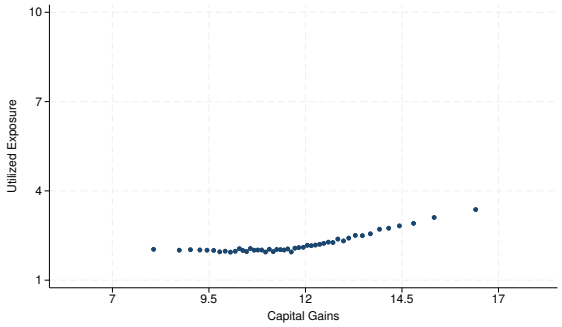
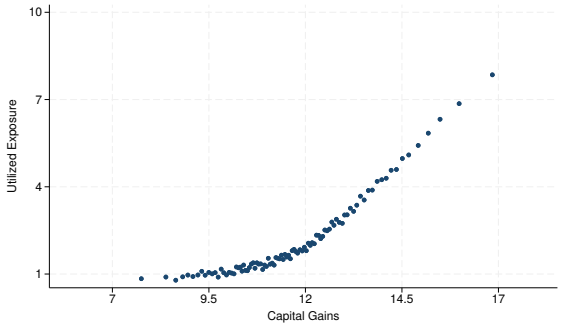


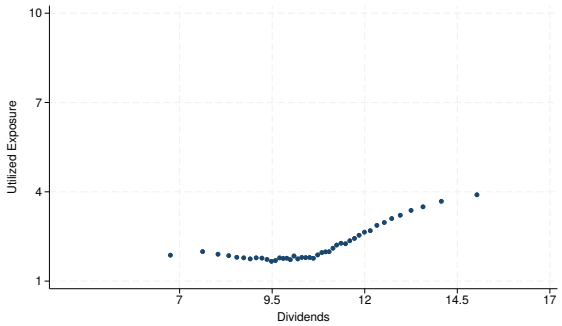
Figure C.2: Borrowing of the wealthy and capital gains, dividends, and interest income (total commitments). This figure depicts county-level total commitments against total income from securities holdings such as realized capital gains, dividends, and interest income. We relate borrowing to these measures of wealth from tax records using the binned scatter approach of Cattaneo et al. (2024), after applying the natural logarithm transformation to both county-quarter committed amount and the measures of county wealth.



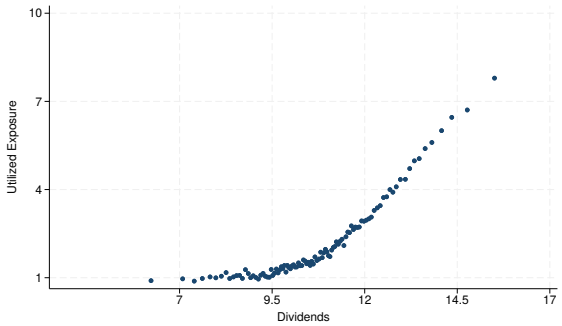
(a) Realized Capital Gains



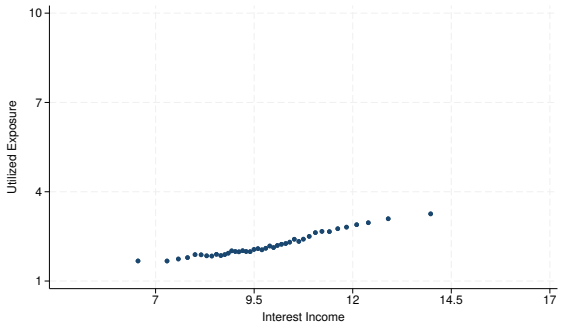
(b) Realized Capital Gains (no county FE)



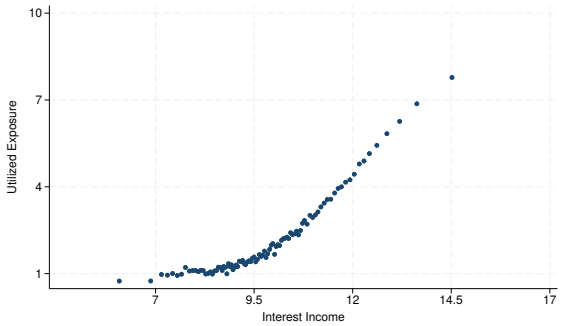
(c) Dividend Income



(d) Dividend Income (no county FE)



(e) Interest Income



(f) Interest Income (no county FE)

Table C.1: Commitment use and market-wide shocks: individuals. This table presents borrower-quarter panel regression estimates of quarterly changes in funded exposures (Panel A) and committed exposures (Panel B) in response to market-wide shocks such as stock returns, the change in the fed funds rate, and the net share of banks tightening standards for commercial and industrial loans to middle-market and large firms from the Senior Loan Officer Survey (SLOOS) within the subset of family trusts and individuals. We limit the sample to loans backed by securities collateral before collapsing to the borrower-quarter level. We split the market-wide shocks into their positive and negative parts. We double-cluster standard errors by borrower and two-digit NAICS 2012 industry-quarter and present them in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel A: ΔFunded Amt

	(1)	(2)	(3)	(4)	(5)	(6)
Return $^+$	0.1190***					
	(0.0336)					
Return $^-$		0.1145***				
		(0.0380)				
ΔFF^+			-0.0139***			
			(0.0023)			
ΔFF^-				0.0003		
				(0.0045)		
SLOOS $^+$					-0.0098	
					(0.0085)	
SLOOS $^-$						-0.0218
						(0.0139)
R-squared	0.000	0.000	0.001	0.000	0.000	0.000
N Borrowers	75674	75674	75674	75674	75674	75674
Obs	654076	654076	654076	654076	654076	654076

Panel B: ΔCommitted Amt

	(1)	(2)	(3)	(4)	(5)	(6)
Return $^+$	0.1301***					
	(0.0365)					
Return $^-$		0.1698***				
		(0.0449)				
Δ FF$^+$			-0.0135***			
			(0.0024)			
Δ FF$^-$				0.0078**		
				(0.0038)		
SLOOS $^+$					-0.0045	
					(0.0073)	
SLOOS $^-$						-0.0279**
						(0.0137)
R-squared	0.001	0.000	0.001	0.000	0.000	0.000
N Borrowers	75674	75674	75674	75674	75674	75674
Obs	654076	654076	654076	654076	654076	654076

Table C.2: Commitment use and market-wide shocks: private bank divisions. This table presents borrower-quarter panel regression estimates of quarterly changes in funded exposures (Panel A) and committed exposures (Panel B) in response to market-wide shocks such as stock returns, the change in the fed funds rate, and the net share of banks tightening standards for commercial and industrial loans to middle-market and large firms from the Senior Loan Officer Survey (SLOOS) within the subset of non-individuals working with private banks. We limit the sample to loans backed by securities collateral before collapsing to the borrower-quarter level. We split the market-wide shocks into their positive and negative parts. We double-cluster standard errors by borrower and two-digit NAICS 2012 industry-quarter and present them in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel A: ΔFunded Amt

	(1)	(2)	(3)	(4)	(5)	(6)
Return $^+$	0.0828***					
	(0.0305)					
Return $^-$		0.1233***				
		(0.0350)				
Δ FF$^+$			-0.0104***			
			(0.0021)			
Δ FF$^-$				-0.0032		
				(0.0047)		
SLOOS $^+$					-0.0057	
					(0.0073)	
SLOOS $^-$						-0.0249**
						(0.0115)
R-squared	0.000	0.000	0.000	0.000	0.000	0.000
N Borrowers	24216	24216	24216	24216	24216	24216
Obs	226494	226494	226494	226494	226494	226494

Panel B: ΔCommitted Amt

	(1)	(2)	(3)	(4)	(5)	(6)
Return $^+$	0.0833***					
	(0.0300)					
Return $^-$		0.1371***				
		(0.0331)				
Δ FF$^+$			-0.0091***			
			(0.0019)			
Δ FF$^-$				0.0023		
				(0.0052)		
SLOOS $^+$					-0.0044	
					(0.0071)	
SLOOS $^-$						-0.0284**
						(0.0120)
R-squared	0.000	0.000	0.000	0.000	0.000	0.000
N Borrowers	24216	24216	24216	24216	24216	24216
Obs	226494	226494	226494	226494	226494	226494

Table C.3: Commitment use and market-wide shocks: individuals. This table presents borrower-quarter panel regression estimates of quarterly changes in funded exposures (Panel A) and committed exposures (Panel B) in response to market-wide shocks such as stock returns, the change in the fed funds rate, and the net share of banks tightening standards for commercial and industrial loans to middle-market and large firms from the Senior Loan Officer Survey (SLOOS) within the subset of family trusts and individuals. We limit the sample to loans not backed by securities collateral before collapsing to the borrower-quarter level. We split the market-wide shocks into their positive and negative parts. We double-cluster standard errors by borrower and two-digit NAICS 2012 industry-quarter and present them in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel A: ΔFunded Amt

	(1)	(2)	(3)	(4)	(5)	(6)
Return $^+$	-0.0704*					
	(0.0419)					
Return $^-$		-0.0002				
		(0.0504)				
Δ FF $^+$			0.0140*			
			(0.0077)			
Δ FF $^-$				0.0028		
				(0.0047)		
SLOOS $^+$					0.0115	
					(0.0089)	
SLOOS $^-$						-0.0045
						(0.0150)
R-squared	0.000	0.000	0.001	0.000	0.000	0.000
N Borrowers	30642	30642	30642	30642	30642	30642
Obs	269451	269451	269451	269451	269451	269451

Panel B: ΔCommitted Amt

	(1)	(2)	(3)	(4)	(5)	(6)
Return $^+$	-0.0653*					
	(0.0370)					
Return $^-$		-0.0082				
		(0.0281)				
Δ FF $^+$			0.0044			
			(0.0031)			
Δ FF $^-$				0.0040		
				(0.0039)		
SLOOS $^+$					0.0008	
					(0.0066)	
SLOOS $^-$						-0.0149
						(0.0113)
R-squared	0.000	0.000	0.000	0.000	0.000	0.000
N Borrowers	30642	30642	30642	30642	30642	30642
Obs	269451	269451	269451	269451	269451	269451

Table C.4: Commitment use and market-wide shocks: private bank divisions. This table presents borrower-quarter panel regression estimates of quarterly changes in funded exposures (Panel A) and committed exposures (Panel B) in response to market-wide shocks such as stock returns, the change in the fed funds rate, and the net share of banks tightening standards for commercial and industrial loans to middle-market and large firms from the Senior Loan Officer Survey (SLOOS) within the subset of non-individuals working with private banks. We limit the sample to loans not backed by securities collateral before collapsing to the borrower-quarter level. We split the market-wide shocks into their positive and negative parts. We double-cluster standard errors by borrower and two-digit NAICS 2012 industry-quarter and present them in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel A: ΔFunded Amt

	(1)	(2)	(3)	(4)	(5)	(6)
Return $^+$	-0.0153					
	(0.0262)					
Return $^-$		0.0770				
		(0.0471)				
Δ FF $^+$			-0.0036*			
			(0.0022)			
Δ FF $^-$				-0.0086		
				(0.0082)		
SLOOS $^+$					-0.0220***	
					(0.0052)	
SLOOS $^-$						-0.0098
						(0.0086)
R-squared	0.000	0.000	0.000	0.000	0.000	0.000
N Borrowers	24594	24594	24594	24594	24594	24594
Obs	245209	245209	245209	245209	245209	245209

Panel B: ΔCommitted Amt

	(1)	(2)	(3)	(4)	(5)	(6)
Return $^+$	0.0045					
	(0.0275)					
Return $^-$		0.0170				
		(0.0475)				
ΔFF $^+$			-0.0040			
			(0.0027)			
ΔFF $^-$				0.0052		
				(0.0084)		
SLOOS $^+$					-0.0061	
					(0.0054)	
SLOOS $^-$						-0.0071
						(0.0094)
R-squared	0.000	0.000	0.000	0.000	0.000	0.000
N Borrowers	24594	24594	24594	24594	24594	24594
Obs	245209	245209	245209	245209	245209	245209

Table C.5: Recontracting and market-wide shocks: individuals. This table presents loan-quarter level linear probability model estimates of origination (Panel A) and renegotiation (Panel B) incidence in response to stock returns, the change in the fed funds rate, and the net share of banks tightening standards for commercial and industrial loans to middle-market and large firms from the Senior Loan Officer Survey (SLOOS) within the subset of family trusts and individuals. We split the market-wide shocks into their positive and negative parts. The sample in Panel A excludes renegotiations and the sample in Panel B excludes originations. We double-cluster standard errors by borrower and NAICS 2012 industry-quarter and present them in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel A: Originations

	Origination					
	(1)	(2)	(3)	(4)	(5)	(6)
Return$^+$	-0.0310					
	(0.0536)					
Return$^-$		-0.0128				
		(0.0661)				
ΔFF$^+$			-0.0113***			
			(0.0037)			
ΔFF$^-$				0.0034		
				(0.0074)		
SLOOS$^+$					-0.0332***	
					(0.0126)	
SLOOS$^-$						-0.1339**
						(0.0581)
R-squared	0.000	0.000	0.000	0.000	0.001	0.002
Obs	1119081	1119081	1119081	1119081	1119081	1119081

Panel B: Renegotiations

	Renegotiation					
	(1)	(2)	(3)	(4)	(5)	(6)
Return$^+$	-0.5125***					
	(0.1780)					
Return$^-$		-0.8106				
		(0.5099)				
ΔFF$^+$			-0.0250***			
			(0.0095)			
ΔFF$^-$				0.0271		
				(0.0228)		
SLOOS$^+$					-0.0798***	
					(0.0289)	
SLOOS$^-$						-0.0668
						(0.0661)
R-squared	0.006	0.008	0.002	0.001	0.004	0.001
Obs	1116173	1116173	1116173	1116173	1116173	1116173

Table C.6: Recontracting and market-wide shocks: private bank divisions. This table presents loan-quarter level linear probability model estimates of origination (Panel A) and renegotiation (Panel B) incidence in response to stock returns, the change in the fed funds rate, and the net share of banks tightening standards for commercial and industrial loans to middle-market and large firms from the Senior Loan Officer Survey (SLOOS) within the subset of non-individuals working with private banks. We split the market-wide shocks into their positive and negative parts. The sample in Panel A excludes renegotiations and the sample in Panel B excludes originations. We double-cluster standard errors by borrower and NAICS 2012 industry-quarter and present them in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel A: Originations

	Origination					
	(1)	(2)	(3)	(4)	(5)	(6)
Return^+	-0.1839**					
	(0.0821)					
Return^-		0.1363				
		(0.1220)				
ΔFF^+			-0.0047			
			(0.0071)			
ΔFF^-				0.0041		
				(0.0195)		
SLOOS^+					-0.0730***	
					(0.0185)	
SLOOS^-						-0.0589*
						(0.0330)
R-squared	0.000	0.000	0.000	0.000	0.002	0.000
Obs	1104633	1104633	1104633	1104633	1104633	1104633

Panel B: Renegotiations

	Renegotiation					
	(1)	(2)	(3)	(4)	(5)	(6)
Return^+	-0.1632					
	(0.1119)					
Return^-		-0.3998				
		(0.2968)				
ΔFF^+			-0.0174**			
			(0.0076)			
ΔFF^-				0.0159		
				(0.0115)		
SLOOS^+					-0.0404**	
					(0.0187)	
SLOOS^-						-0.1658***
						(0.0614)
R-squared	0.001	0.002	0.001	0.000	0.001	0.003
Obs	1062523	1062523	1062523	1062523	1062523	1062523

Table C.7: Loan commitment dynamics around local shocks: individuals. This table presents regression estimates of quarterly changes in committed exposures in response to local shocks across quartiles of stock market returns. We first aggregate loan commitments to the borrower-quarter level and then compute the quarterly change in committed exposure, scaled by the average of committed exposure in the current and prior quarter. We use two types of local shocks—1) the year-over-year log-change in county establishment count as of the previous quarter and 2) the annual county GDP growth rate as of the previous year. We double-cluster standard errors by borrower and two-digit NAICS 2012 industry-quarter and present them in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

	ΔCommitted					
	(1)	(2)	(3)	(4)	(5)	(6)
Q1 Ret × ΔEst	-0.0131	-0.0085	-0.0076			
	(0.0110)	(0.0102)	(0.0110)			
Q2 Ret × ΔEst	0.0138	0.0179	0.0202*			
	(0.0119)	(0.0115)	(0.0121)			
Q3 Ret × ΔEst	0.0160	0.0221*	0.0243**			
	(0.0117)	(0.0115)	(0.0118)			
Q4 Ret × ΔEst	-0.0144	-0.0066	-0.0035			
	(0.0192)	(0.0202)	(0.0207)			
Q1 Ret × ΔGDP				0.0266*	0.0292*	0.0261
				(0.0153)	(0.0159)	(0.0173)
Q2 Ret × ΔGDP				0.0027	0.0012	-0.0039
				(0.0117)	(0.0127)	(0.0124)
Q3 Ret × ΔGDP				-0.0106	-0.0116	-0.0205
				(0.0207)	(0.0208)	(0.0235)
Q4 Ret × ΔGDP				0.0249*	0.0274**	0.0253*
				(0.0134)	(0.0139)	(0.0143)
Constant	0.0022***	0.0021***	0.0020***	0.0019***	0.0019***	0.0020***
	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
R-squared	0.002	0.002	0.004	0.002	0.002	0.003
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	No	Yes	No	No	Yes	No
County FE	No	No	Yes	No	No	Yes
N Borrowers	83797	83797	83753	82756	82756	82712
Obs	761972	761972	761920	754661	754661	754610

D Loan interest rates and negotiation activity

We then examine the extent to which origination and renegotiation activity translate to borrowing costs, depending on macroeconomic conditions. Specificaly, we estimate the following equation:

$$\text{Interest Rate}_{i,t} = \beta_1 \times \text{Negotiation}_{i,t} + \beta_2 \times \text{Negotiation}_{i,t} \times X_t + \psi_i + \theta_t + \epsilon_{i,t}, \quad (4)$$

where all variables are defined as in Equation 1 and $Negotiation_{i,t}$ is either loan origination or renegotiation.

Next, we assess how origination and renegotiation activity incorporates information into loan interest rates. In these tests, we use the full panel of loans including those for which the collateral type is not known. In theory, if a loan is fully collateralized with marketable securities that can be sold little cost, interest rates should not be sensitive to collateral values. However, if the loan is collateralized with less liquid assets, loan interest rates can be sensitive to economic conditions that affect probability of having to liquidate the collateral and the value of collateral.

Table D.1, panel A shows the results of estimating equation **??** for the interest rates paid by family trusts and individuals at origination. Since the specifications include time fixed effects, we estimate the effect of loan spreads over the average interest rate. We do not find that the loan spreads are sensitive to collateral values interacted with changes in the federal funds rate (column 3 and 4) or lending standards (columns 5 and 6). This finding is consistent with the fact that most loans are collateralized with marketable securities.

In contrast, panel B shows that interest rates on loans to non-individual borrowers from private bank units are sensitive to changes in the federal funds rate (column 3). Loan spreads increase when the federal funds rate increases, consistent with banks reducing credit supply after monetary tightening. This finding holds controlling for maturity-by-quarter fixed effects (column 4). Specifically, a 25 basis points increase in interest rates translates to about 7-8 basis points higher spreads at loan origination This results suggests difference in the underlying collateral between private bank unit clients and direct loans to individual and family trust that are mostly backed by marketable securities. Finally, we do not detect an effect of the interaction of collateral values with changes in lending standards at originations.

Next, we repeat these tests with interest rates set during loan renegotiations. Table D.2, panel A shows the results of estimating equation **??** for the interest rates paid by family trusts and individuals after loan renegotiations. We again do not detect an effect of collateral values or their interaction with changes in the federal funds rate on loan spreads (columns 3 and 4). However, we find that loan that are renegotiated during a general tightening of lending standards carry a higher spreads (columns 5 and 6).

For loans to private banking unit clients, shown in table B, we find that interest rates on renegotiated loans are higher after a monetary tightening (column 4) and after a tightening of lending standards (columns 5 and 6).

Table D.1: Loan Interest Rates and Origination Activity. This table presents regressions estimates of how loan interest rates vary with origination activity among family trusts/individuals (Panel A) and non-individual private bank borrowers (Panel B). We interact origination activity with market-wide shocks such as qarterly stock market returns, changes in the fed funds rate, as well as the the net share of banks tightening standards for commercial and industrial loans to middle-market and large firms from the Senior Loan Officer Survey (SLOOS). The SLOOS variable therefore ranges between -1 and $+1$. We include quarter or maturity years-by-quarter fixed effects. The maturity-by-quarter fixed effects flexibly control for the time-varying yield curve. We double-cluster standard errors by borrower and NAICS 2012 industry-quarter and present them in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel A: Family Trusts/Individuals

	Interest Rate					
	(1)	(2)	(3)	(4)	(5)	(6)
Origination	-0.0003	0.0005	-0.0004	0.0005	-0.0003	0.0005
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0004)	(0.0004)
Origination x Return	0.0012	0.0030				
	(0.0050)	(0.0039)				
Origination x ΔFF			0.0007	0.0004		
			(0.0007)	(0.0006)		
Origination x SLOOS					0.0005	0.0001
					(0.0017)	(0.0018)
R-squared	0.608	0.650	0.608	0.650	0.608	0.650
Obs	1007595	1005402	1007595	1005402	1007595	1005402
Quarter FE	Yes	No	Yes	No	Yes	No
Maturity-by-quarter FE	No	Yes	No	Yes	No	Yes

Panel B: Private Bank Divisions

	Interest Rate					
	(1)	(2)	(3)	(4)	(5)	(6)
Origination	0.0015***	0.0020***	0.0008**	0.0015***	0.0013***	0.0018***
	(0.0005)	(0.0004)	(0.0004)	(0.0003)	(0.0004)	(0.0004)
Origination x Return	-0.0129*	-0.0068				
	(0.0068)	(0.0052)				
Origination x ΔFF			0.0033***	0.0028***		
			(0.0004)	(0.0004)		
Origination x SLOOS					-0.0003	0.0009
					(0.0019)	(0.0014)
R-squared	0.559	0.629	0.559	0.629	0.559	0.629
Obs	669051	668173	669051	668173	669051	668173
Quarter FE	Yes	No	Yes	No	Yes	No
Maturity-by-quarter FE	No	Yes	No	Yes	No	Yes

Table D.2: Loan Interest Rates and Renegotiation Activity. This table presents regressions estimates of how loan interest rates vary with renegotiation activity among family trusts/individuals (Panel A) and non-individual private bank borrowers (Panel B). We define renegotiations as any large changes in loan terms including a change in maturity of at least a year, interest rates of at least 25 basis points and commitment amount of at least 5%. We interact renegotiation activity with qarterly stock market returns, changes in the fed funds rate, and the the net share of banks tightening standards for commercial and industrial loans to middle-market and large firms from the Senior Loan Officer Survey (SLOOS), rangging between -1 and $+1$. We include quarter or maturity years-by-quarter fixed effects. The maturity-by-quarter fixed effects flexibly control for the time-varying yield curve. We double-cluster standard errors by borrower and NAICS 2012 industry-quarter and present them in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel A: Family Trusts/Individuals

	Interest Rate					
	(1)	(2)	(3)	(4)	(5)	(6)
Renegotiation	0.0003	-0.0009	0.0007	-0.0005	-0.0001	-0.0011*
	(0.0007)	(0.0006)	(0.0007)	(0.0006)	(0.0007)	(0.0006)
Renegotiation x Return	0.0251**	0.0275**				
	(0.0127)	(0.0135)				
Renegotiation x ΔFF			-0.0000	0.0009		
			(0.0013)	(0.0013)		
Renegotiation x SLOOS					0.0109***	0.0100***
					(0.0028)	(0.0026)
R-squared	0.605	0.647	0.605	0.647	0.606	0.648
Obs	1002669	1000777	1002669	1000777	1002669	1000777
Quarter FE	Yes	No	Yes	No	Yes	No
Maturity-by-quarter FE	No	Yes	No	Yes	No	Yes

Panel B: Private Bank Divisions

	Interest Rate					
	(1)	(2)	(3)	(4)	(5)	(6)
Renegotiation	0.0034***	0.0011*	0.0031***	0.0008	0.0033***	0.0008
	(0.0007)	(0.0007)	(0.0008)	(0.0008)	(0.0008)	(0.0007)
Renegotiation x Return	0.0034	-0.0030				
	(0.0118)	(0.0106)				
Renegotiation x ΔFF			0.0036***	0.0032**		
			(0.0012)	(0.0013)		
Renegotiation x SLOOS					0.0022	0.0038***
					(0.0020)	(0.0014)
R-squared	0.561	0.627	0.561	0.627	0.561	0.627
Obs	672801	671989	672801	671989	672801	671989
Quarter FE	Yes	No	Yes	No	Yes	No
Maturity-by-quarter FE	No	Yes	No	Yes	No	Yes