Deposit Specialization and Lending Behavior

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Abstract

We examine how banks' depositor composition shapes lending behavior, using granular supervisory data on deposits, loans, and securities for the largest U.S. banks. Classifying banks by depositor specialization, we find persistent differences in funding that translate to differences in asset allocations. Retail-depositor oriented banks hold longer-maturity loans and conduct more real estate lending, while corporate- and NBFI-oriented banks, whose funding is more volatile, hold shorter loans and liquid securities. Loan-level analyses show that stable funding is associated with lower rates, longer maturities, and larger loans. Growth in deposits is allocated differently depending on the depositor specialization of the bank, something we can explore using exogenous deposit growth during COVID.

Key Words: Bank funding, deposit volatility, depositor flightiness, financial stability, lending decisions, loan terms

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Classical models envision banks as conducting maturity transformation; creating liquid demandable deposits while investing the corresponding funds into (hopefully profitable) long-term assets. While deposits provide liquidity insurance for their owners, they expose banks to run risk, which in turn endogenously constrains banks' asset portfolio choices (consider: Diamond and Dybvig (1983)). However, depositor types are extremely heterogeneous in their behavior, so the run risk to which banks are exposed depends on the types of depositors they serve.[1] Banks with different depositor clienteles may choose asset portfolios with systematically different risk profiles.

In this paper, we use supervisory data to document substantial and persistent heterogeneity in banks' depositor bases, with banks differentiating themselves by catering to distinct depositor segments. We show that this heterogeneity maps into meaningful differences in banks' lending behavior: they lend to different customers, at different maturities, and at different rates. Crucially, this heterogeneity in the depositor base implies that banks are not fungible. Aggregate shocks to specific types of deposits—such as the surge in corporate deposits during QE—are transmitted to the real economy differently depending on which types of banks receive the inflows. Therefore, understanding the depositor base-to-loan terms link is key to understanding how capital is allocated to the productive sector. Our results, discussed in detail below, provide useful evidence for both monetary policy and academic debates.

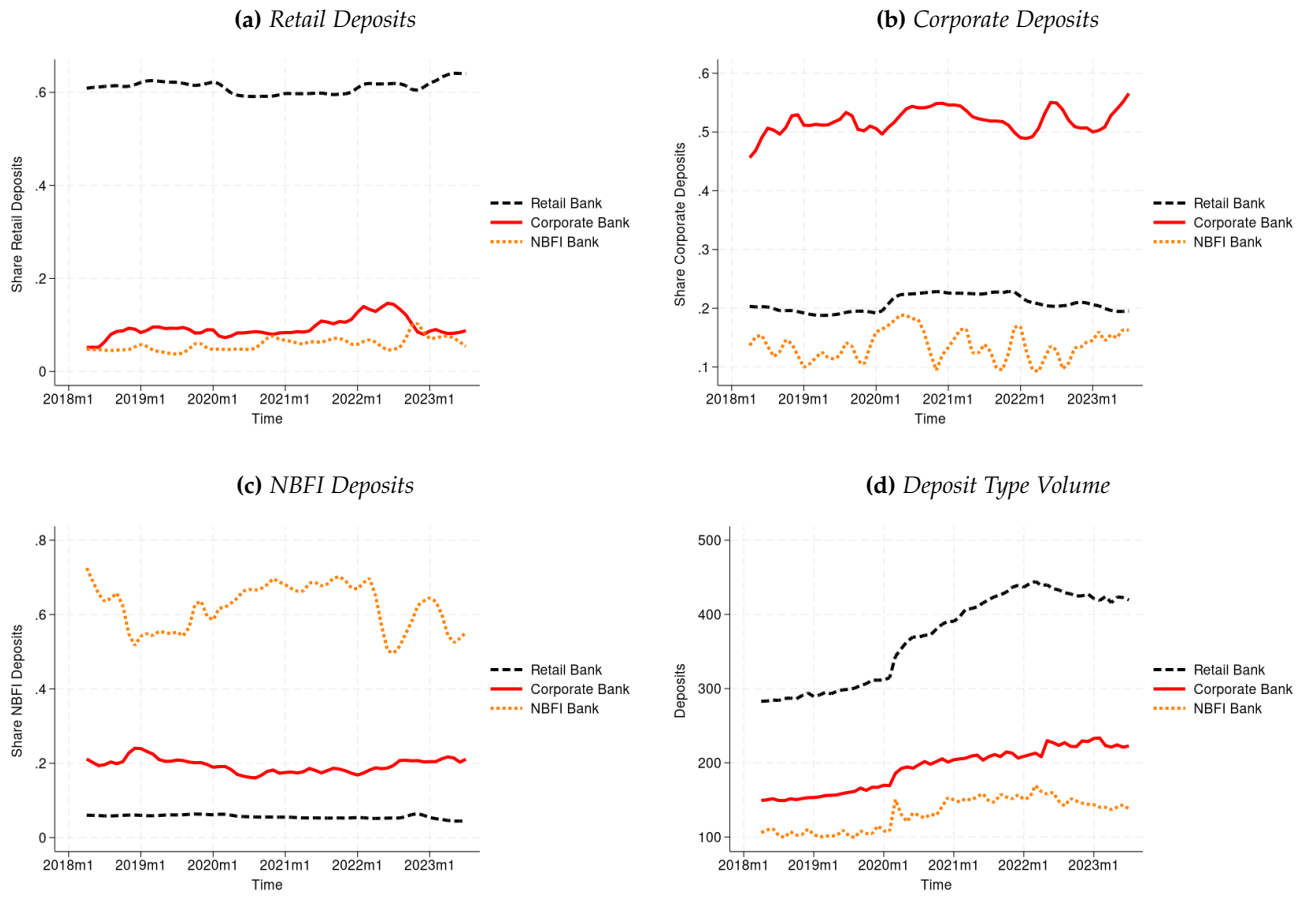
Our paper is based on granular monthly deposit data for the largest 50+ US banking institutions. We are able to identify deposit products, counter-party types, insured/uninsured deposits, and maturities. We document persistent differences in bank types: some banks consistently obtain a far larger share of their funding from certain deposit types than others. While we use a number of splits in our analyses below, for simplicity and demonstration purposes, we can focus on counterparty specialization here: banks are classified as retail, corporate, NBFI, or generalist depending on whether they receive a plurality (always more than a third) of their deposits from a single counterparty type.[2]

We find that retail banks have more stable depositor bases, on average, than NBFI and corporate depositor-oriented banks, and pay lower average deposit rates. This influences their asset holdings: retail banks tend to hold longer maturity loans, invest more in real estate, and less in securities. However, retail-oriented banks also take more credit risk, with higher risk-weighted assets (RWA) than NBFI-oriented banks, which are more likely to hold liquid securities such as Treasuries.

[1] Chen et al. (2022); Drechsler et al. (2023) find that insured and uninsured depositors generate different run risks. Blickle et al. (2025) show that rate-sensitive depositors increase aggregate run risk. Early work by Hannan and Berger (1991) and Neumark and Sharpe (1992) showed that banks can price deposit contracts differently depending on their depositor base, with franchise or market power playing a clear role (Drechsler et al., 2017).

[2] Excluded counterparties also include small businesses, the public sector, and "other" depositors.

Figure 1: ***Bank Types based on Deposit Structure***



Notes: This figure classifies banks in our sample into four types based on whether they obtain the plurality (usually more than a third) of their deposits from retail, corporate, or NBFI depositors. Generalist banks have no dominant depositor type. Panels (a)–(c) show the share of each deposit type held by each bank type. Panel (d) shows average bank size. Bank types are defined as of January 2020.

Specifically, using supervisory asset-side data on C&I loans, we find that banks with a greater share of stable deposits offer more generous loan terms, all else equal. However, banks focused on NBFI or corporate deposits have greater familiarity with unstable depositor bases and will therefore curtail lending less in response to an increase in deposit volatility. Crucially, deposit inflows elicit different lending responses depending on bank type, illustrating that funding shocks do not translate uniformly into credit supply. Retail depositor-oriented banks will transfer newly arriving retail deposits to real estate rather than to corporate lending, engaging in new corporate lending only at higher rates. Similarly, they will direct corporate deposits to securities or real estate as opposed to C&I lending. Corporate banks, on the other hand, will direct newly arriving funds, in particular, new corporate deposits, towards C&I lending. NBFI banks respond very little to new deposits, preferring to hold cash/reserves or liquid securities.

A growing literature shows that who a bank's depositors are influences both its resilience and its ability to lend. Sticky deposits create franchise value that supports long-term lending when rates rise (Drechsler et al., 2021), and pooling liquidity needs across depositors and credit line users lowers the cost of managing withdrawals and drawdowns (Kashyap et al., 2002). Consistent with this, banks with more stable funding appear more willing to engage in longer-term, relationship-based lending (e.g., Gatev and Strahan, 2006). By contrast, uninsured and information-sensitive depositors are more prone to run on signals of asset deterioration (e.g., Iyer and Puri, 2012; Iyer et al., 2016; Martin et al., ming; Blickle et al., 2024; Carletti et al., 2023; Jiang et al., 2024), and policy uncertainty can further amplify withdrawals among certain depositor segments (Arvanis et al., 2022). Recent work using granular deposit-level data similar to ours reinforces the idea that depositor composition matters: larger depositors are more flighty (Cipriani and Eisenbach, 2023); rapid growth from large individual depositors can allow banks to downsize their branch networks but increases outflow risk in stress periods (Benmelech et al., 2023); and banks appear to sort into distinct business models—high-rate/low-branch versus low-rate/high-branch—to attract different types of depositors (Kundu and Zhang, 2024).[3]

At the same time, complementary literature shows that banks specialize on the asset side—by borrower type, industry, or geography—because specialization reduces information production costs and strengthens relationships (e.g., Berger and Udell, 1995; Petersen and Rajan, 1995; Degryse and Ongena, 2005; Paravisini et al., 2023; Blickle et al., 2025, 2024). A number of recent papers bring liabilities into this picture by emphasizing how funding models, deposit stickiness, and rate sensitivity affect lending behavior and monetary policy transmission (e.g., Jiang et al., 2023; Egan et al., 2023; Drechsler et al., 2017; English et al., 2018). Similar to our paper, Chen et al. (2024) use public data to show that uninsured depositors are particularly sensitive to negative return shocks when the bank is invested in more illiquid assets. However, all this work typically treats depositor bases in broad aggregates—e.g., insured vs. uninsured, wholesale vs. retail—without examining the internal heterogeneity of depositor segments or how banks strategically specialize in them. Regulatory frameworks such as the Liquidity Coverage Ratio (LCR) acknowledge that deposit stability varies, but they do so only coarsely and without linking depositor composition to bank business models, portfolio choices, or lending outcomes.

[3]Recent work has also begun on the influence of fintechs on banks: Koont et al. (2024) divide banks into categories based on whether they offer an app or brokerage accounts. Banks with digital platforms experience faster deposit outflows when rates change. Similarly, Erel et al. (2023) compare FinTech online banks with traditional banks. They find that the former increase deposit rates significantly more than traditional banks following Federal funds rate increases. Lu et al. (2025) shows that payment conveniences increases depositor flightiness and reduces account balances. Narayanan et al. (2025) show that branch closures have been concentrated in markets with technologically savvier investors.

Our paper brings these strands together by taking a granular view of both sides of the balance sheet. We show that banks specialize not only in what they lend but also in whom they serve on the funding side, and that depositor-base specialization is tightly linked to borrower composition, loan terms, and securities holdings. Using highly granular supervisory data, we document that depositor composition is a persistent and defining feature of bank business models—one that co-evolves with lending specialization rather than simply constraining it. This fills a key gap: prior work recognizes that funding stability and depositor flightiness matter, but it has not shown how variation in who provides the deposits translates into systematic differences in how banks lend.

This perspective implies that banks are not interchangeable conduits for credit or monetary policy. Because asset and liability choices are jointly determined and mutually reinforcing, the allocation of liquidity shocks– such as those induced by QE, which reshaped bank funding structures (Greenwood et al., 2016; Rodda et al., 2022)–across heterogeneous bank types can meaningfully alter credit allocation, loan pricing, and maturity structures in the real economy.

1 Data

1.1 C&I Lending

Our loan-level C&I lending data is taken from the Y-14, schedule H. This data is maintained by the Federal Reserve for stress testing purposes. It tracks all C&I loans, originated or held by stress tested banks, over 1 million USD in size. It includes term loans and revolving credit lines. For each facility, the data includes borrower identifiers, industry codes, commitment and utilization amounts, interest-rate terms, collateral/guarantee data, origination and maturity dates, loan purpose information, and performance status (since loans tracked over time). Importantly, the data also contains details on the bank's internal loan rating, which is standardized across banks for the stress testing efforts. Data is collected at a quarterly frequency. Importantly, unlike commercial data sets, we can observe lending to both public and private businesses. After merging our datasets (see below) we observe a slightly unbalanced panel of 25 institutions. These 25 banks are the largest in the US C&I lending space and represent the vast majority (>65%) of US corporate lending.

We use our loan-level data in two ways. First, we collapse our data to the bank-quarter level. This allows us to construct asset-side composition measures by loan type, by rating bucket, and by maturity. Second, we use our loan-level data directly and look at loan pricing (interest rate), loan size and loan

maturity. The more granular approach allows us to account for more characteristics of the loan.

1.2 Securities Holding Data

Y-14 data includes information on the securities held by individual banks. Schedule B includes details that allow us to identify the specific security purchased by the bank in a given quarter. The data tracks purchase price and – where relevant – the current market value at quarter's end. For simplicity, we group the data into categories such as US treasuries, Mortgage backed Securities (MBS), (which together account for over 80% of securities held by banks in our data), as well as corporate bonds, and CLO investments. For most analyses, detailed below, we further collapse our data to the bank-quarter-security-type level. This is because additional details regarding the securities themselves are sparse or not useful for our purposes.

1.3 Deposit Data

We complement our asset data with high-frequency funding information from FR 2052a (also known as the Complex Institution Liquidity Monitoring Report). The 2052a includes information on a bank's contractual liabilities. We focus on deposits data, for which detailed granular breakdowns are available. While we cannot observe individual depositors, the data is broken into several useful categories. Specifically, we observe deposits at the maturity * insured/uninsured * product type * counter-party level. Maturities are mapped into standardized time buckets (e.g., open, 2–7 days, 8–30 days, etc.). We typically focus on "open" (i.e. demandable) vs time deposits. Counter-parties can be broadly grouped into banks, public sector entities, small businesses, NBFI's (which include funds and non-bank lenders), corporate depositors, and retail depositors.

While the largest systemically relevant banks report daily data, others report at lower frequencies. For our purposes, we primarily use monthly data, aggregating information from more frequent reporters where necessary. This sample is more consistent (daily reporters can change their reporting frequencies) and shows sufficient variation for our purposes. We can use deposit data from 2018q1 to around 2024q1. Some extensions can be performed with earlier data, though changes in reporting structures complicate certain analyses.

We separately collapse our data to the bank*counter-party*month, bank*insured*month, bank*maturity*month level before calculating the key metrics (such as variance) which we use below. Subsequently, we collapse our data further to the bank*quarter*type level for merging with quarterly data sets.

1.4 Y-9C Data

We merge the data, discussed above, with confidential Y-9C filings for bank holding companies. This data includes details on bank size, on risk total weighted assets, and on real estate lending, for which we currently have no more granular a breakdown. The confidential version of the Y-9C is slightly more detailed than the public version, which is useful for the capital measures and risk weights we analyze below.

Our merged sample contains 25 banks (after dropping non-domestic US banks or inconsistent filers of the 2052a). Total deposits of banks in our clean, merged sample account for 11.3 trillion USD of the approximately 17 trillion USD in deposits held by all banks at the end of 2022. For analyses that use deposit data that is not merged with Y-14 or Y-9c data, our deposit data accounts for 13 trillion USD of deposits in 2022. When showing

We show key summary statistics of variables – for our fully merged sample – in Table 1. We can see that there exists a large heterogeneity both in how banks in our sample invest funds and in how (i.e., from whom) they obtain deposits. Retail deposits make up around half of all deposits in our sample with significant heterogeneity across banks. just over 40% of deposits are insured – after all, there are several retail deposit accounts that are not insured. Interestingly, the vast majority of funds in our sample are demandable. The relative standard deviation (i.e. the 12 month standard deviation / 12-month mean deposit base) of retail deposits is much lower than NBFI deposits.

Around a third of lending in our sample is traditional C&I lending. The average size of our logged loans is 8.8. The average interest rate for loans in our sample period is 4.4%, a figure pulled up by recently higher rates. Around 25% of loans use no form of collateral while 40% can be classified as term loans.

2 Methodology

2.1 Bank-Level Analyses

We begin with simple bank-level analyses that test the relationships between a bank's funding structures and asset structures. Specifically, we relate the share of a bank's balance sheet devoted to (i) C&I lending (ii) Securities held (iii) Cash or Reserves held and (iv) real estate lending to the share of a bank's deposits that are either corporate, NBFI, retail, insured, or demandable deposits. For bank b in quarter t we run

Table 1: *Summary Statistics of Key Variables*

	N	Mean	SD	25-pct	75-pct
Aggregated Assets					
C&I lending share	500	0.31	0.16	0.18	0.43
Cash/reserves share	500	0.12	0.09	0.06	0.15
Real estate share	500	0.16	0.11	0.07	0.25
Securities share	500	0.20	0.08	0.15	0.24
Aggregated Liabilities					
Retail deposit share	500	0.49	0.24	0.41	0.59
Corp. deposit share	500	0.20	0.10	0.13	0.29
NBFI deposit share	500	0.16	0.24	0.03	0.18
Insured deposit share	500	0.42	0.21	0.32	0.53
Demandable/ST share	500	0.89	0.10	0.86	0.96
σ/μ total deposits	500	0.05	0.03	0.02	0.06
σ/μ retail deposits	500	0.05	0.10	0.02	0.06
σ/μ corp. deposits	500	0.08	0.07	0.04	0.11
σ/μ NBFI deposits	500	0.10	0.09	0.05	0.12
Loan-Level					
Interest rate	3,339,792	4.36	2.99	2.78	5.50
Loan maturity remaining	3,339,792	13.9	12.6	4	19
Log size	3,339,792	8.82	1.48	7.57	9.90
Unsecured loan	3,339,792	0.25	0.43	0	0
Term loan	3,339,792	0.40	0.49	0	1

Note: This table shows summary statistics for banks and loans in our sample. We collapse bank-level variables to the quarter-bank level (even if they are computed at a greater frequency). lending shares are the portion of a bank's total asets devoted to a certain type of asset-class. Cincludes all commitments and outstanding loans to corporates, as measured in hte Y-14 H data. Cash and reserves are combined and taken from Y-9C disclosures. Similarly, real estate lending represents all real estate (commercial and residential) as detailed in Y-9C data. Securities are the current market value of treasuries, MBS, corporate bonds, CLO investments or all other commercial paper held by the bank. On te liabilities side, we compute the share of deposits held by various counterparties (leaving out bank, small business, public entities, and other small groups for convenience), as well as by insured vs uninsured and by demandable (open or maturity of 1 day) vs time deposits. Finally, the relative standard deviation of total deposits is calculated using a 12 month rolling window for the sd and the mean deposit level and collapsed to the quarterly level using the final observation in each quarter.. For loan-level data, we count each bank-loan-time combination. The interest rate is the un-adjusted cost of the loan, measured in percent. Maturity is measured in quarters remaining. Unsecured is a dummy that takes the value of 1 if the loan is not secured with any type of collateral.

separate regressions of the form:

$$Y_{bt} = \eta DepositShare_{bt} + \delta_b + +\epsilon_{bt} \tag{1}$$

We are looking to identify η, which tracks the degree to which a bank's deposit makeup affects its asset makeup. As discussed above, one might conjecture that deposits, which are traditionally more stable (such as retail deposits), may allow a bank to invest in more long-term projects. The run risk – and consequently the costly liquidation risk – is much lower. We can account for bank fixed effects that remove any time-invariant bank characteristics. In the face of bank fixed effects, we are identifying the balance-sheet effect of a relative change in a bank's funding structure. In order to cleanly identify our effect of interest, we can further extend the analysis to include controls for bank funding characteristics such as its capital ratio, its risk weighted assets to total assets, and its size.

We can extend the idea behind the above analysis and integrate deposit changes as a key variable. After all, we are interested in seeing not only whether different bank-types have different asset structures but also whether different bank-types respond differently to deposit changes. Our regression of interest, using the same dependent variables outlined above, becomes:

$$Y_{bt} = \eta DepositShare_{bt} + \zeta DepositChange_{bt} + \beta DepositChange_{bt} * DepositShare_{bt} + \delta_b + +\epsilon_{bt} \tag{2}$$

Where our variable of interest is now β, which shows how banks with different depositor specializations may respond to changes in various types of deposits. We run separate regressions for changes in retail, corporate, NBFI, or insured deposits. We can again account for bank fixed effects and also its capital ratio, its risk weighted assets to total assets, and its size in extensions. However, given the small number of observations available to us at the bank*quarter level, we cannot saturate our regression with a large number of controls or fixed effects. To this end, we also use analyses at the loan/security level.

2.2 Loan-Level Analyses

At the loan-level, we relate a loan's (i) interest rate, (ii) the maturity on the loan, and (iii) the size of the loan to the balance sheet composition of the bank. As above, we are particularly interested in the share of the deposits a bank has obtained from NBFI depositors, corporate depositors, retail depositors, or insured depositors. However, unlike in the regressions above, we are able to account for a host of controls and fixed effects. First, we are able to account for loan terms that are not the dependent

variable, acknowledging that all terms are determined simultaneously during a negotiation. Second, we can control for the collateral pledged as well as industry*time, loan purpose, loan-type, and risk rating fixed effects.

In saturated extensions, we can also include bank fixed effects. This allows us to make inferences about the effect that a relative change in a bank's funding structure may have on C&I loan terms. The regressions would take the following form for loan i, to firm operating in 4-digit NAICS industry j, at time t, made by bank b:

$$Y_{ibjt} = \eta DepositShare_{bt} + \alpha Collateral_i + \alpha Terms_{ij} + \delta_{jt} + \delta_b + \alpha Purpose/Type_j + \epsilon_{ibjt} \tag{3}$$

We again may expect a bank with more stable funding (such as banks with a higher share of retail deposits or a larger share of insured deposits) to offer longer maturity loans – all else equal. Similarly one may expect banks with funding that is less responsive to aggregate rate changes – and therefore less costly – to offer more generous loan rates (or larger loans for a given rate). We can run the regressions for all loan-observations, including re-negotiations that may occur during times when a bank's funding structure undergoes changes, as well as new observations only.

As above, we are also interested in teasing out the degree to which a bank may respond to changes in its deposit base. We can again interact our variables of interest (the share of a bank's deposit from a specific source) with changes in various deposit types. Given the greater number of observations in our loan-level data, we can specifically focus on the COVID-era, which saw unprecedented deposit growth. Since much of this deposit growth was unsolicited, it gives us a view into how different types of banks allocate exogenous deposits.

3 Deposit Specialization and Depositor Characteristics

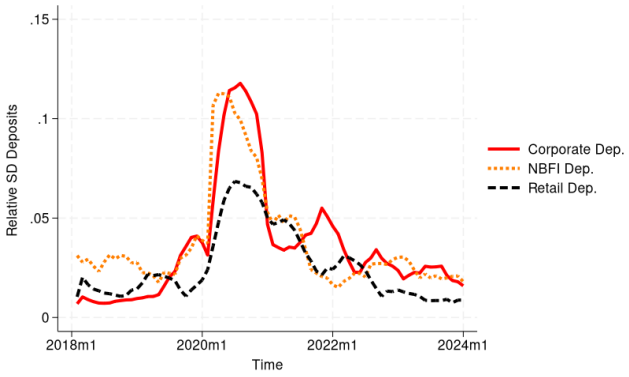
As discussed in Figure 1 above, banks show a clear preference for certain types of deposits. In the figure, we use counterparty type, as this is perhaps the most intuitive split. The specialization in deposit types can have implications for the stability of a bank's deposit base. After all, different types of deposits have – on average – different degrees of volatility.

We plot the relative variability of deposits in Figure 2. We define relative variability as the 12-month standard deviation in deposit type over the 12-month mean deposit volume. Panel (a) shows that retail

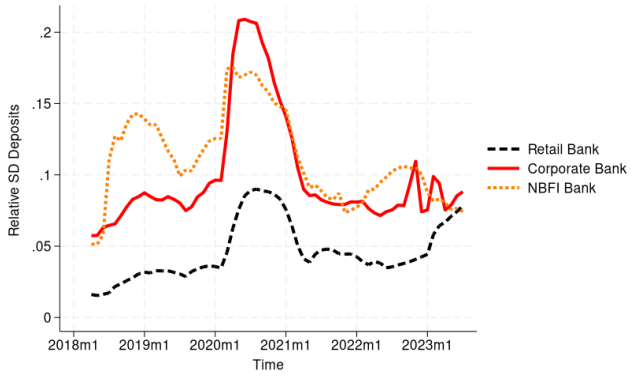
deposits enjoy the lowest variability on average. This held even during 2020, when aggregate volatility rose substantially. Panel (b) corroborates panel (a) and shows that banks with greater concentrations of retail depositors see lower average deposit volatility. Corporate or NBFI deposit-oriented banks deal with more volatile depositor bases on average. Moreover, these banks saw their aggregate deposit variability rise substantially during COVID.[4].

Figure 2: ***Depositor Types behave Differently***

(a) *Relative SD. of Aggregate Depositor Types*



(b) *Relative SD. of Total Deposits per Bank Type*



Notes: Panel (a) depicts the relative standard deviation (12-month rolling window standard deviation over 12-month mean deposit level) for different depositor types. Panel (b) uses the definitions of banks, established in figure 1 and depicts the total aggregate volatility of deposits at each type of bank.

In Appendix Figure A.1, we show the maximum draw-down per depositor type in any given quarter across all banks in the sample. We smooth the lines for ease of viewing. The maximum flight of retail depositors from any bank in our sample is always smaller than that of corporate or NBFI depositors. In fact, corporate depositors are liable to engage in the largest single quarter-on-quarter outflow.

We see that the relationships discussed above are not driven by individual outliers. Instead, in Appendix Figure A.2, we relate the average 12-month standard deviation of deposits in any given quarter to the share of the balance sheet comprised of either retail- (panel (a)), corporate- (panel (b)) or nbfi-depositors (panel (c)). The relationship is almost linear: the greater the share of corporate- or nbfi-depositors the greater the average variability of a bank's deposits. Conversely, the greater the share of retail depositors, the lower the average deposit variability. This holds in levels as well as in changes, as can be seen in Appendix Figure A.3, where an increase in volatile depositor types increases the bank's deposit volatility.

We can extend papers such as Chen et al. (2024) or Canals-Cerdá (2022) and use our proprietary

[4]NBFI deposits are typically amongst the most volatile in ordinary times, as funds have little use for the traditional "conveniences" of a deposit account and frequently enter and exit the banking system based on the investment opportunities available (Blickle et al., 2025)

data to analyze the responsiveness of different depositor types to drops in bank RoA. We compute a negative RoA "shock" as an event wherein a bank's RoA decreases (relative to the previous quarter) by more than two standard deviations (relative to the past 12 months). These large RoA shocks occur for around 5% of our bank-quarter observations. We can relate these shocks to logged depositor changes – after accounting for bank assets, capital, risk weighted assets, etc. Results are reported in Appendix Table A.1. Retail depositors are not very sensitive to these shocks[5]. Corporate depositors and especially NBFI depositors are responsive to RoA shocks. these customers – mostly uninsured – seem the most susceptible to poor bank returns. We extend the analysis somewhat by interacting our RoA-shock variable with indicators for whether a bank is oriented towards, NBFI-, corporate-, or retail depositors. We find that depositors of such specialized banks are somewhat less – not more – responsive to these shocks. However, these differences are small and not statistically significant in the face of our controls.

It seems then, that to a certain extent specialization in a certain type of depositor reduces the flightiness of that depositor type. Some of this may result from the same logic that drove results in Blickle et al. (2024). A bank focused on a certain depositor type may manage that depositor better, know how to offer terms that keep those depositors, etc. We can see this dynamic at play in Appendix Figure A.4, where we relate the share of deposits a bank receives from a certain type of depositor to the volatility of that depositor type. The more specialized a bank is in corporate deposits, for instance, the smaller the volatility of its corporate depositor base. This may enable specialized banks to still engage in some maturity transformation with traditionally volatile deposits.

However, it is worth emphasizing that the negative relationships between the share of a bank's deposits that are comprised of flighty depositors and their actual flightiness does not overcome aggregate differences in volatility across depositor types established above. Banks that cater to more volatile depositors still face greater variability and greater monthly draw-downs on average.

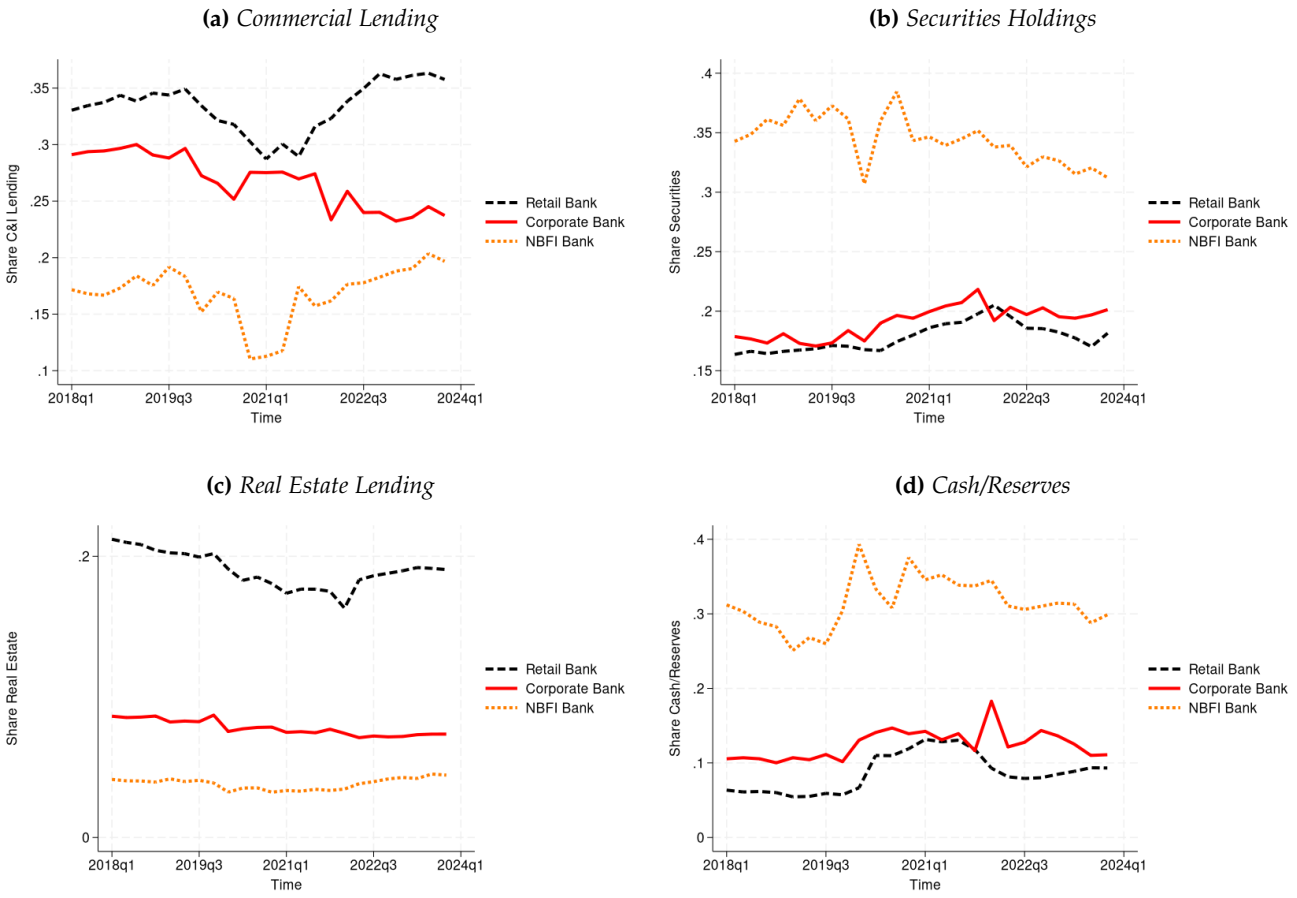
4 Bank Asset Allocation vs. Deposit Structure

Different bank-types engage in different lending. These differences in lending appear to follow – at least in part – from a bank's funding structure. This is easily depicted in Figure 3, where we use the same bank-type definitions, based on depositor-types, as in Figure 1 above. We plot the share of a bank's balance sheet directed towards C&I lending, real estate lending, securities investing, or cash and

[5]This corroborates earlier evidence by Blickle et al. (2024) who show that retail depositors fail to run until news of a bank's insolvency becomes public.

reserves held. One can see that retail banks actually engage in more C&I lending, on average, than corporate- or NBFI-oriented banks do. Moreover, they devote a far greater share of their assets to real estate lending. NBFI banks, on the other hand, are almost entirely concentrated into cash/reserves or other securities. If we break down securities further, we find that NBFI banks focus almost exclusively on treasuries (not reported for brevity).

Figure 3: ***Bank Types and Lending Behavior***

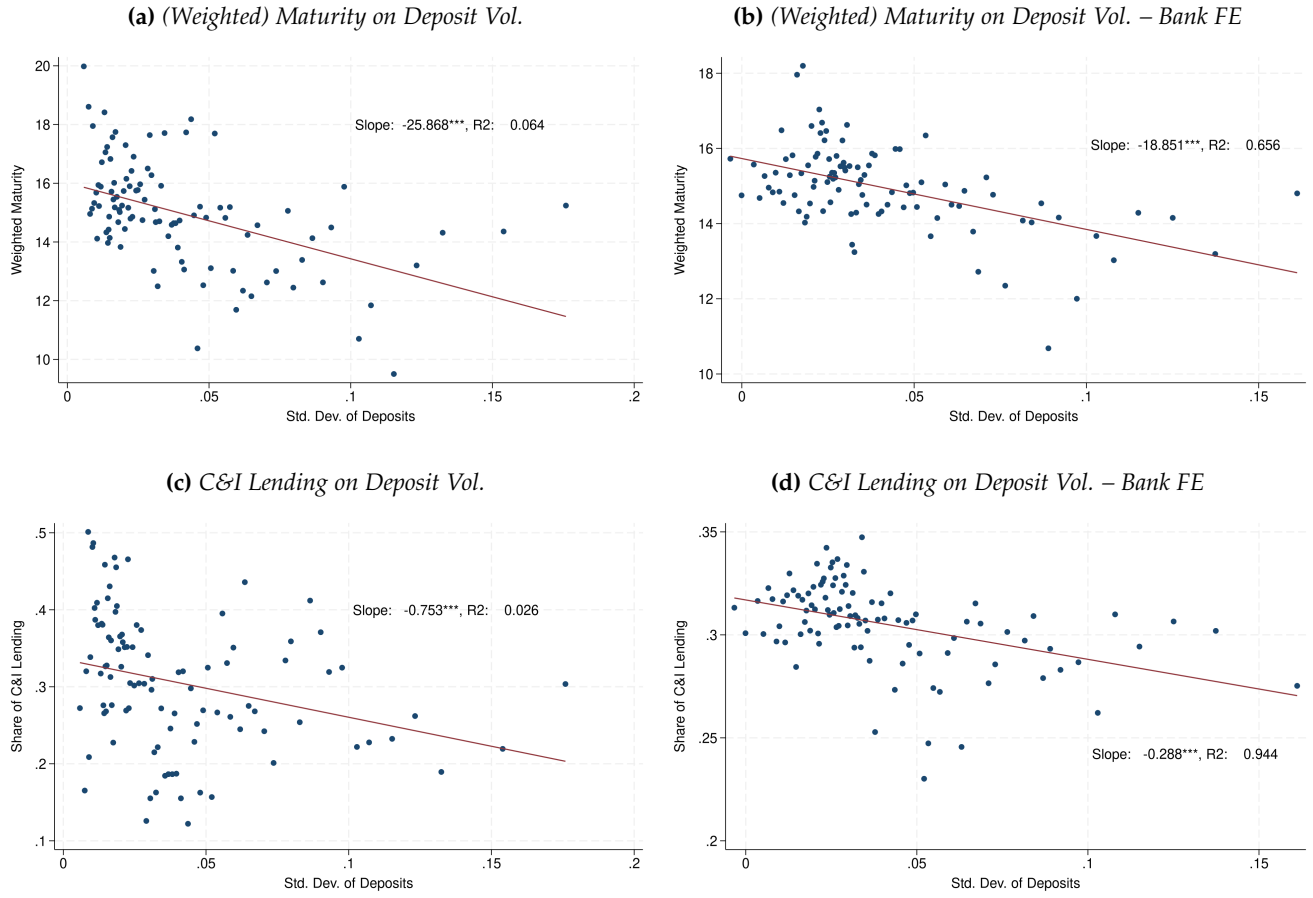


Notes: this Figure depicts the share of a bank's balance sheet directed towards different types of investments. Panel (a) shows C&I lending, including undrawn credit lines, Panel (b) shows securities held by banks, Panel (c) shows real estate lending (commercial and residential) and panel (d) shows Cash/Reserves held.

The differences in lending behavior come in part from the fact that more stable deposits can be lent out to long-term projects more easily. A bank with a highly volatile depositor base cannot risk the costly liquidation that may follow from having invested in too many long-term projects, such as long maturity C&I loans (>1 year) or real estate lending. We can examine this relationship more closely by combining our aggregate data with some aggregated loan-level data. In Figure 4, one can see that the average maturity of C&I loans made by banks with more volatile deposits is lower. We relate the relative standard deviation of deposits (measured as the 12 month standard deviation relative to the

12 month mean level of assets) to the average loan maturity. We weight loans by their (drawn) size when computing average maturity. The observed negative relationship holds across and within banks (Panel (b)), meaning that banks experiencing an uptick in deposit volatility opt for lower maturity loans. Moreover, these results hold despite the fact that banks with a more volatile depositor base engage in less C&I lending to begin with (Panels (c) and (d)).

Figure 4: ***C&I Lending and Loan Maturity vs. Deposit Volatility***



Notes: This Figure shows the relationship between average C&I loan maturity, weighted for loan size, in quarters and the relative standard deviation of a bank's deposits (12-month rolling standard deviation over 12 month mean deposit level) in Panels (a) and (b). Panels (c) and (d) depict the relationship between C&I lending (including credit line commitments) and the relative standard deviation of deposits. Panels (b) and (d) include bank fixed effects. Each bin contains at least 5 bank-time observations.

We can analyze the relationships between a bank's balance sheet composition and its assets, discussed above, more directly. In Table 2 we show separate regressions that relate a bank's C&I lending, securities held, real estate, or cash/reserves to the share of its deposits that are from retail, corporate, or NBFI depositors, the share that are demandable (vs. time deposits of any maturity), or the share that are insured. One can see that retail and insured deposits are related to a higher share of real estate lending. On average, short-term deposit banks and corporate deposit banks have a higher share of C&I lending,

though short term depositor banks and corporate depositor oriented banks tend to match their deposits with revolving credit lines of less than 1 year maturity (not reported for brevity). Banks with high retail and banks with high levels of insured deposits are less likely to invest in liquid, short term securities or cash.

If we include bank fixed effects (columns (5) -(8)), we are ostensibly analyzing a responsiveness to a change in a certain deposit-share, relative to a bank's average. Higher retail and insured deposit shares are again correlated with more real estate lending and lower cash holdings. However, we do find that these deposit shares are now correlated with C&I lending. Conversely, C&I lending is no longer positively associated with higher relative shares of corporate deposits. This is some initial evidence that not all banks treat different deposits in the same way. Unsolicited (and likely volatile) corporate deposits may not be invested in C&I or real estate lending. In the Appendix we run the same analysis on a slightly larger sample of banks where we can match Y9C and deposit data but not Y14 data. In these regressions we additionally include controls for a bank's tier 1 equity relative to total assets and its risk weighted assets relative to total assets. As can be seen in Appendix table A.3, the results are indistinguishable.

Table 2: *Balance Sheet Composition on Deposit Shares*

	(1) C&I Lending Share	(2) Securities Share	(3) Cash/Reserves Share	(4) Real Estate Share	(5) C&I Lending Share	(6) Securities Share	(7) Cash/Reserves Share	(8) Real Estate Share
				Panel A				
Share of Retail Deposits	0.056*	-0.221***	-0.289***	0.064***	0.407***	-0.131***	-0.433***	0.170***
	[0.029]	[0.012]	[0.012]	[0.020]	[0.059]	[0.039]	[0.054]	[0.031]
				Panel B				
Share of Corp. Deposits	0.884***	-0.179***	-0.284***	0.521	-0.294***	0.195***	0.593***	-0.332***
	[0.057]	[0.035]	[0.039]	[0.342]	[0.067]	[0.043]	[0.057]	[0.031]
				Panel C				
Share of NBFI Deposits	-0.220***	0.245***	0.342***	-0.231***	-0.036	0.081	0.055	-0.037
	[0.028]	[0.011]	[0.009]	[0.018]	[0.092]	[0.059]	[0.086]	[0.047]
				Panel D				
Share of ST-Deposits	0.301***	0.395***	0.330***	0.050	-0.204***	0.093***	0.157***	-0.002
	[0.065]	[0.030]	[0.037]	[0.046]	[0.035]	[0.023]	[0.033]	[0.019]
				Panel E				
Share of Insured Deposits	0.012	-0.205***	-0.327***	0.134***	0.217***	-0.035	-0.360***	0.157***
	[0.033]	[0.015]	[0.014]	[0.022]	[0.052]	[0.034]	[0.046]	[0.026]
N	500	500	500	500	500	500	500	500
Fixed Effects	-	-	-	-			Bank	

Notes: This Table shows the relationship between a bank's asset-side composition (the share of a balance sheet invested in C&I lending (including commitments), value of securities held relative to all assets, the cash or reserves held relative to all assets and real estate lending (including commercial and residential) relative to all assets) and depositor composition (the share of depositors that are insured, the share that are short termist or demandable, the share that are corporations and the share that are retail). Each cell represents an individual and independent regression. Standard errors are heteroskedasticity robust while *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Another dimension to observe, when looking at the impact of deposits on lending, would be to look

at changes in deposits directly. In Table 3, we look at the effect of changes in corporate, retail or NBFI deposits on changes in C&I , real estate, cash or securities lending. In columns (1)-(4) results match expectations. Increases in corporate deposits are invested in all types of lending. Retail deposit increases are invested broadly too, though less into C&I lending than one might expect, given aggregate levels of C&I lending for retail-oriented banks. Finally, NBFI deposits – which are the most volatile on average – are invested primarily into more liquid cash/reserves or securities.

In columns (5)-(8) we include not only bank fixed effects, to control for average levels, but we also interact our variable of interest with the share of deposits a bank has issued to certain types of depositors. We now see that corporate deposit growth is invested into C&I lending primarily by those banks that already have a large share of corporate deposits. Similarly, retail-banks are more likely to invest in real estate. Perhaps a little surprisingly, these banks are also considerably more likely to hold retail deposits in cash. This may be a function of the fact that it takes time for real estate opportunities to materialize, necessitating a temporary cash storage. NBFI banks focus newly arriving NBFI deposits into cash while all other banks concentrate NBFI deposits into securities. Neither invest in more long-term loans. The results for short-term deposits look similar to corporate depositors and the results for insured depositors mirror retail depositors (not shown for brevity).

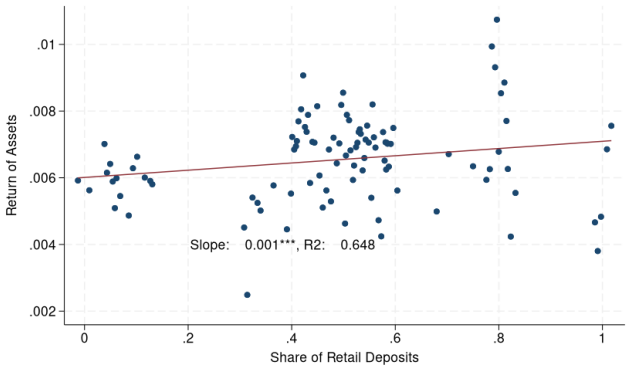
While the results discussed thus far are illuminating, the low number of observations confounds more detailed analyses that include a larger number of co-variates. To this end, we focus on loan-level outcomes from the Y14 C&I data. It allows us to see exactly how banks reprice loans or change loan terms in response to changes in depositor types or changes in depositor volatility.

Given that we have shown that banks with more stable funding engage in more maturity transformation – on average – it begs a question of bank earnings. After all, longer maturity loans are usually more expensive, all else equal. We first show – in Appendix Table A.2 – that banks with higher shares of more stable deposit lend to more risky borrowers. We can ascertain this by looking at the rating assigned to loans, where the rating system runs from 1-10 with lower numbers being better ratings. Banks with high shares of retail deposits have slightly though significantly worse rated loans, all else equal. In a similar vein, we see that loans by retail-depositor oriented banks perform worse (i.e. become non-accruing) more often.

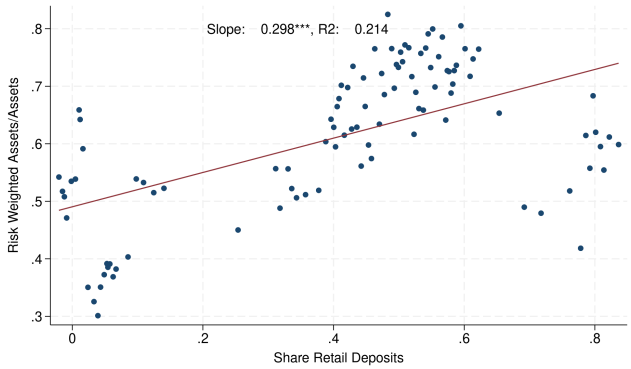
We indeed find that banks with a higher share of stable funding earn more – on aggregate. In Figure 5, we can see that retail-oriented banks, with more retail depositors, earn more interest income. The relationship is neutral for corporate banks and negative for NBFI banks. This begs the question of why

Figure 5: ***Share of Deposits on Interest Income and Risk Weighted Assets***

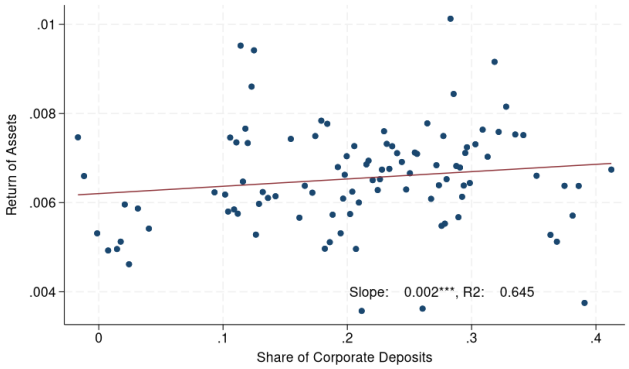
(a) *Income on Retail Share*



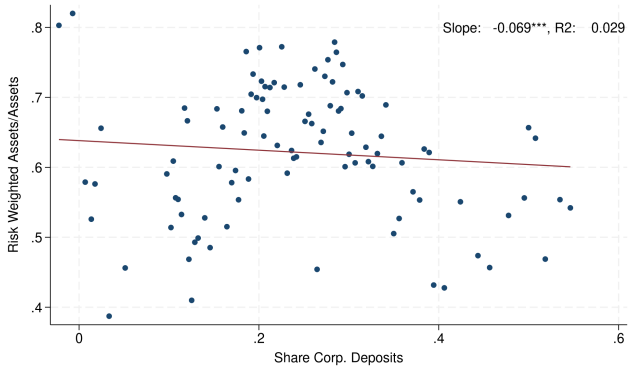
(b) *RWA on Retail Share*



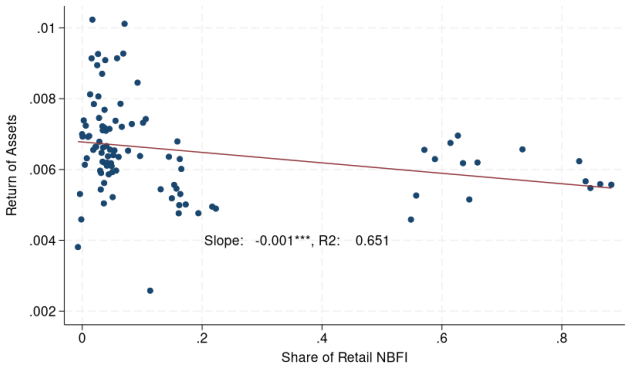
(c) *Income on Corporate Share*



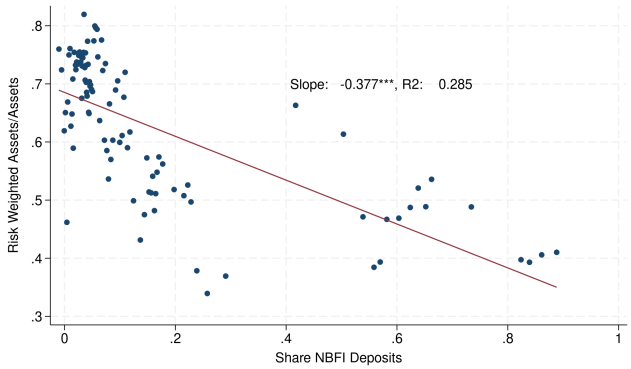
(d) *RWA on Corporate Share*



(e) *Income on NBFI Share*



(f) *RWA on NBFI Share*



This Figure shows the relationship between the share of retail, corporate, or NBFI depositors that comprise a bank's deposit base and the bank's income (panels (a)-(c)) or the bank's risk weighted assets (panels (d)-(f)). All points is binned collapsed bank-quarter level data with at least three bank-quarters per bin. We absorb time fixed effects. Each bin contains 5 bank-time observations.

Table 3: *Lending Changes on Deposit Changes*

	(1) Δ C&I Lending	(2) Δ Securities	(3) Δ Cash/Reserves	(4) Δ Real Estate	(5) Δ C&I Lending	(6) Δ Securities	(7) Δ Cash/Reserves	(8) Δ Real Estate
					Panel A			
Δ Corp. Dep.	0.122***	0.039**	1.006***	0.172***	-0.012	0.023	0.200	0.239***
	[0.031]	[0.018]	[0.120]	[0.041]	[0.046]	[0.025]	[0.228]	[0.079]
Share Corp. Dep.					-0.140***	-0.031	-0.048	-0.136***
					[0.047]	[0.026]	[0.126]	[0.044]
Δ Corp. Dep. * Share Corp. Dep.					0.745***	0.124	4.553***	-0.346*
					[0.178]	[0.124]	[1.107]	[0.152]
					Panel B			
Δ Retail Dep.	0.001	0.109***	0.184*	0.151***	0.052	-0.002	-0.004	0.042
	[0.038]	[0.024]	[0.094]	[0.029]	[0.048]	[0.030]	[0.105]	[0.031]
Share of Retail Deposits					0.027	0.013	-0.039	-0.083***
					[0.024]	[0.015]	[0.052]	[0.015]
Δ Retail Dep. * Share of Retail Deposits					-0.340	0.709***	2.057***	1.116***
					[0.292]	[0.117]	[0.520]	[0.154]
					Panel C			
Δ NBFI Dep.	0.023	0.117***	0.140*	0.051	0.005	0.110***	-0.014	0.065**
	[0.038]	[0.021]	[0.074]	[0.044]	[0.046]	[0.024]	[0.079]	[0.026]
Share of NBFI Deposits					0.001	-0.017	-0.063	0.080***
					[0.031]	[0.016]	[0.049]	[0.016]
Δ NBFI Dep. * Share of NBFI Deposits					0.119	0.084	2.299***	-0.189
					[0.163]	[0.148]	[0.484]	[0.158]
N	475	475	475	475	475	475	475	475
Fixed Effects			Time				Time, Bank	

Notes: This table shows quarterly log changes in a bank's investments (the amount invested in C&I lending (including commitments), the value of securities held, the cash or reserves held, and real estate lending (including commercial and residential)) relative to contemporaneous changes in corporate, retail, or NBFI deposits. Columns (5) -(8) include bank fixed effects and interactions with the share of a bank's balance sheet the corresponding depositor-type represents. Standard errors are heteroskedasticity robust while *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

all banks may not simply wish to compete for retail depositors. One possible answer may lie in the the above discussed risk that retail-depositor oriented banks engage in when pursuing higher-paying customers. Commensurate with this assessment, we can see from Figure 5 that the risk weighted assets of banks with more stable funding sources are higher. Higher RWA naturally come with having to hold more/larger (expensive) capital buffers. Moreover, we can see from Appendix Figure A.5 that banks with more retail depositors have slightly higher general expenses – perhaps due to maintaining a larger branch network.

5 Loan-Level Results

5.1 Funding Structure and Loan Terms

Y-14 Schedule H allows us to examine how the terms of individual C&I loans (i.e. rates, maturities, and sizes) vary with the funding structures of the issuing banks. Given the high number of observations, we

Table 4: *Loan Terms on Deposit Shares*

	(1) Rate	(2) Maturity	(3) Log Size	(4) Rate	(5) Maturity	(6) Log Size	(7) Rate	(8) Maturity	(9) Log Size
Share Corp. Dep.	1.266***	-11.668***	-1.199***						
	[0.026]	[0.110]	[0.012]						
Share Retail Dep.				-0.313***	6.969***	1.217***			
				[0.014]	[0.059]	[0.007]			
Share NBFI Dep.							0.145***	-4.840***	-1.019***
							[0.0013]	[0.054]	[0.006]
Fixed Effects	Collateral type, industry*year*quarter, loan purpose, loan type								
Controls	Total interest paid, bank assets, bank expenses, loan terms (other than the dep. var), loan rating								
R^2	0.26	0.32	0.28	0.26	0.32	0.28	0.26	0.32	0.28
N	3,339,792	3,339,792	3,339,792	3,339,792	3,339,792	3,339,792	3,339,792	3,339,792	3,339,792

Notes: This Table relates loan terms (interest rate, maturity remaining, and log loan size) to the degree to which a bank makes use of a certain type of deposit. We include bank-controls such as interest paid on all loans, banks operating expenses, and total assets as well as loan controls such as the rate, the size, and the maturity (in those regressions in which they are not the dependent variable). We further include fixed effects such as the time*industry, the collateral type, the loan type, the loan purpose, the bank's internal rating of the borrower's risk (standardized across banks). Standard errors are robust and clustered at the industry*time level while *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

are able to account for loan-specific characteristics, a bank's assessment of borrower risk, collateral type, and other fixed effects, which ensures that we are comparing like loans with like loans, differing only by the degree to which the lender is using different types of deposits.

We first link loan terms directly to the share of deposits from corporate, retail, and NBFI sources in Table 4. This follows the analysis pattern we established above. The results show stark differences across depositor types. Banks with a larger corporate (or NBFI) deposit share charge significantly higher loan rates, extend substantially shorter maturities, and make smaller loans. In contrast, banks with greater retail or insured deposit shares (not reported for brevity) offer lower rates, longer maturities, and larger loans. The economic magnitudes are considerable: moving from the 25th to the 75th percentile in retail deposit share is associated with a maturity increase of roughly seven quarters. These patterns are consistent with the view that stable funding enables banks to extend more generous credit terms, while volatile funding leads to more restrictive lending. NBFI banks are more extreme in terms of the pricing of corporate loans (not reported for brevity).

These results corroborate earlier work – either theoretical or based on public data – which has argued that retail banks with lower deposit betas charge less for some loans while corporate depositor oriented banks have to pay higher rates to compete with money-market-funds. See for instance: Craig and Koepke (2019), Dräger et al. (2021), Ritz and Walther (2020), Drechsler et al. (2017), Hannan and

Berger (1991), Chodorow-Reich et al. (2022), d'Avernas et al. (2023), or Drechsler et al. (2021). Or Carletti et al. (2024) who show that households are less likely to move deposits even in a run.

These results are perhaps initially somewhat surprising, given the fact that corporate-deposit banks have a relatively high C&I lending share on aggregate (see Table 2). However, the results discussed in the section above do not broach the topic of terms. Instead, we explicitly see lower maturity loans for more corporate deposit heavy banks. While banks with more volatile deposit bases charge higher rates for smaller loans, it does not necessarily imply that they make fewer such loans in aggregate. Overall, if other banks are focused on different lending activities, corporate-depositor-oriented banks may still be the only viable option for some C&I borrowers.

5.2 Depositor Volatility and Lending

Table 5: *Loan Terms on Deposit Variability*

	(1) Rate	(2) Maturity	(3) Log Size	(4) Rate	(5) Maturity	(6) Log Size
Relative Std. Dev. total deposits	0.194***	-4.835***	-0.747***	0.357***	-4.835***	-0.747***
	[0.062]	[0.260]	[0.029]	[0.062]	[0.260]	[0.029]
Fixed Effects I	Collateral type, industry*year*quarter, loan purpose, loan type					
Fixed Effects II					Loan Rating	
Controls	int. paid, bank assets, bank expenses, loan terms					
R^2	0.26	0.32	0.28	0.26	0.33	0.28
N	3,220,902	3,220,902	3,220,902	3,220,902	3,220,902	3,220,902

Notes: This Table relates loan terms (interest rate, maturity remaining, and log loan size) to the variability of a bank's total deposits (measured as σ/μ.) We interact our variable of interest with bank-type dummies. We include bank-controls such as interest paid on all loans, banks operating expenses, and total assets as well as loan controls such as the rate, the size, and the maturity (in those regressions in which they are not the dependent variable). We further include fixed effects such as the time*industry, the collateral type, the loan type, the loan purpose, the bank's internal rating of the borrower's risk (standardized across banks). Standard errors are robust and clustered at the industry*time level while *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

In Table 5 we show that the average variability of a bank's total deposits is related to the loan terms it offers – much as we might have expected, given the aggregate results discussed above. More volatile deposits are associated with charging higher rates for shorter maturity loans that may also be smaller. This holds whether we include the ratings a bank assigns to loans. The effect is pronounced; a one standard deviation increase in the relative variability of deposits is associated with a 6 basis points increase in the interest rate charged, all else equal.

Table 6 shows that the relationship between funding volatility and lending behavior differs across

bank types. Given the similarities between NBFI and corporate-depositor-oriented banks, as well as the similarities between insured-depositors and retail-depositor-oriented banks, we focus only on two types of entities—corporate banks and retail-depositor-oriented banks—in these tables for convenience.

Retail banks respond to greater depositor volatility with higher rates and smaller maturities and loans, suggesting a precautionary tightening when their traditionally stable base becomes less predictable. Corporate banks, by contrast, increase maturities and loan sizes in response to volatility. This may simply be a reflection of the fact that such banks are more familiar with how to value and invest in less stable deposits. Compared to less corporate-depositor-oriented banks, this familiarity with volatility expresses itself as *relatively* more generous lending. [6]

Table 6: *Loan Terms on Deposit Variability Interacted with Bank Type*

	(1) Rate	(2) Maturity	(3) Log Size	(4) Rate	(5) Maturity	(6) Log Size
Interaction: Std. Dev. *Retail share	19.148***	-15.074***	-7.215***			
	[0.422]	[1.760]	[0.197]			
Relative Std. Dev. total deposits	-9.461***	-10.433***	3.201***	5.733***	-42.324***	-4.154***
	[0.220]	[0.917]	[0.103]	[0.218]	[0.909]	[0.102]
Retail share	-1.142***	6.273***	1.523***			
	[0.023]	[0.097]	[0.011]			
Interaction: Std. Dev. *Corporate share				-20.776***	139.103***	12.571***
				[0.807]	[3.364]	[0.379]
Corporate share				2.035***	-16.900***	-1.679***
				[0.040]	[0.165]	[0.019]
Fixed Effects	Collateral type, industry*year*quarter, loan purpose, loan type					
Controls	int. paid, bank assets, bank expenses, loan terms, loan rating					
R^2	0.26	0.32	0.28	0.26	0.33	0.28
N	3,220,902	3,220,902	3,220,902	3,220,902	3,220,902	3,220,902

Notes: This Table relates loan terms (interest rate, maturity remaining, and log loan size) to the variability of a bank's total deposits (measured as σ/μ.) We interact our variable of interest with bank-type dummies. We include bank-controls such as interest paid on all loans, banks operating expenses, and total assets as well as loan controls such as the rate, the size, and the maturity (in those regressions in which they are not the dependent variable). We further include fixed effects such as the time*industry, the collateral type, the loan type, the loan purpose, the bank's internal rating of the borrower's risk (standardized across banks). Standard errors are robust and clustered at the industry*time level while *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

[6] Given that deposit volatility rose in part due to an increase in deposit volume – as discussed below– , it would naturally follow that experienced, corporate-oriented banks may use these funds to engage in C&I lending.

5.3 Deposit Changes and Loan Terms

Taken together, the loan-level results discussed thus far reveal that depositor composition affects lending terms. Moreover, the sensitivity of those terms to funding volatility is pronounced. Stable funding sources, such as retail and insured deposits, are generally associated with more favorable credit terms, while volatile sources, such as corporate deposits, correspond to tighter lending. However, different banks – with different depositor specializations – react differently to deposit variability.

A final concept worth considering is the relationship between deposit changes and loan terms. Table 7 shows that increases in corporate deposits are associated with higher loan rates, shorter maturities, and modestly smaller loans, suggesting that such inflows are viewed as temporary or higher-cost funding. The effects are sizeable; a one standard deviation increase in "expensive" corporate deposits at the average bank in our sample would result in a 2 basis points increase in the cost of a loan (relative to an unaffected bank). Retail deposit inflows, by contrast, are linked to lower rates, longer maturities, and slightly larger loans, reflecting the perception of these funds as stable and well-suited for term lending.

Tables 8 and 9 again show that the effects of deposit growth are heterogeneous across banks with different familiarities with certain depositor types. In columns (1)-(3) we interact the share of a banks depositor base that stems from retail depositors with the change in corporate deposits. In columns (4-(6) we interact our changes in corporate deposits with the degree to which a bank relies on corporate deposits. We see that retail-depositor oriented banks are more likely to raise rates and reduce loan size/maturities in response to rising corporate deposits. Conversely, corporate-depositor-oriented banks are more comfortable lowering rates and increasing loan sizes/maturities in response to an increase in corporate deposits. Familiarity with the deposit type makes it more likely that the affected bank will lend newly arriving deposits to customers.

We make use of retail deposit inflows in Table 9. We find that retail-oriented banks again show little inclination to lend newly arriving retail deposit funds to C&I borrowers (preferring residential real estate investments instead). Interestingly, corporate deposit oriented banks are similarly disinclined to invest retail deposits in C&I lending, preferring even longer term investments such as real estate.

Table 7: *Loan Terms on Deposit Changes*

	(1) Rate	(2) Maturity	(3) Log Size	(4) Rate	(5) Maturity	(6) Log Size
Δ Corp. Deposits	0.458***	-0.713***	-0.063***			
	[0.029]	[0.120]	[0.014]			
Δ Retail. Deposits				-0.454***	2.286***	0.063***
				[0.049]	[0.201]	[0.023]
Fixed Effects	Collateral type, industry*year*quarter, loan purpose, loan type					
Controls	int. paid, bank assets, bank expenses, loan terms, loan rating					
R^2	0.26	0.32	0.28	0.26	0.34	0.3
N	3,314,961	3,314,961	3,314,961	3,339,792	3,339,792	3,339,792

Notes: This Table relates loan terms (interest rate, maturity remaining, and log loan size) to the log changes in certain depositor types. We interact our variable of interest with bank-type dummies. We include bank-controls such as interest paid on all loans, banks operating expenses, and total assets as well as loan controls such as the rate, the size, and the maturity (in those regressions in which they are not the dependent variable). We further include fixed effects such as the time*industry, the collateral type, the loan type, the loan purpose, the bank's internal rating of the borrower's risk (standardized across banks). Standard errors are robust and clustered at the industry*time level while *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Of course, it is worth noting that we lack a way of identifying exogenous deposit growth in the above analyses. It is entirely possible that corporate banks attracted corporate depositors because these banks had lending opportunities. Similarly, it is possible that deposit growth and lending growth occurred together as part of a package deal. In the next section, we make use of the COVID shock as a source of exogenous deposit variation.

Table 8: *Loan Terms on Deposit Changes Interacted with Depositor Shares (Corporate)*

	(1) Rate	(2) Maturity	(3) Log Size	(4) Rate	(5) Maturity	(6) Log Size
Interaction:Δ Corp. Dep * Retail Share	5.512***	4.488***	-0.483***			
	[0.181]	[0.747]	[0.084]			
Δ Corp. Dep	-2.427***	-1.992***	0.262***	1.638***	1.994***	-0.159***
	[0.092]	[0.382]	[0.043]	[0.094]	[0.391]	[0.044]
Retail Share	-0.153**	-6.713***	0.407***			
	[0.068]	[0.283]	[0.032]			
Interaction:Δ Corp. Dep * Corp. Share				-4.744***	-8.603***	0.942***
				[0.344]	[1.432]	[0.162]
Corp. Share				1.411***	-11.458***	-0.809***
				[0.028]	[0.117]	[0.037]
Fixed Effects	Collateral type, industry*year*quarter, loan purpose, loan type					
Controls	int. paid, bank assets, bank expenses, loan terms, loan rating					
R^2	0.26	0.34	0.3	0.26	0.33	0.3
N	3,314,961	3,314,961	3,314,961	3,314,961	3,314,961	3,314,961

Notes: This Table relates loan terms (interest rate, maturity remaining, and log loan size) to the log changes in corporate deposits. We interact our variable of interest with the share of a bank's deposits originating from either retail or corporate depositors. We include bank-controls such as interest paid on all loans, banks operating expenses, and total assets as well as loan controls such as the rate, the size, and the maturity (in those regressions in which they are not the dependent variable). We further include fixed effects such as the time*industry, the collateral type, the loan type, the loan purpose, the bank's internal rating of the borrower's risk (standardized across banks). Standard errors are robust and clustered at the industry*time level while *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

6 COVID-19 as a Source of Exogenous Deposit Variation

Deposits grew sharply during the COVID-19 pandemic as consumers saved money – due in part to a lack of spending opportunities –, and the government engaged in quantitative easing measures. Some of the deposit growth can be inferred from Figure 1, Panel (d). We can look at the growth in deposits held by various counter-parties more directly in Figure 6. In Panel (a), we index each type of deposit (Corporate, NBFI, and Retail) to January of 2019. Here, we can see that the deposits of corporations grew most strongly during the entire period, before beginning a longer contraction at the very end of the COVID/lockdown cycle. NBFI deposits spiked initially, before growing more slowly during the remaining period. Finally, retail deposits grew almost steadily throughout the period. In Panel (b) we show the distribution of logged deposit growth for banks in our sample over the entire COVID period. One can see that there exists significant heterogeneity in the degree to which different banks grew their

Table 9: *Loan Terms on Deposit Changes Interacted with Depositor Shares (Retail)*

	(1) Rate	(2) Maturity	(3) Log Size	(4) Rate	(5) Maturity	(6) Log Size
Interaction:Δ Ret. Dep * Retail Share	5.414***	-9.463***	-0.293**			
	[0.282]	[1.174]	[0.135]			
Δ Retail Dep	-2.619***	6.365***	0.034	-0.939***	23.243***	0.438***
	[0.136]	[0.568]	[0.065]	[0.153]	[0.639]	[0.073]
Retail Share	-0.392***	7.063***	0.395***			
	[0.015]	[0.062]	[0.032]			
Interaction:Δ Ret. Dep * Corp. Share				3.089***	-78.554***	-1.358***
				[0.563]	[2.346]	[0.266]
Corp. Share				1.207***	-10.169***	-0.772***
				[0.028]	[0.118]	[0.036]
Fixed Effects	Collateral type, industry*year*quarter, loan purpose, loan type					
Controls	int. paid, bank assets, bank expenses, loan terms, loan rating					
R^2	0.26	0.32	0.3	0.26	0.32	0.3
N	3,339,792	3,339,792	3,339,792	3,339,792	3,339,792	3,339,792

Notes: This Table relates loan terms (interest rate, maturity remaining, and log loan size) to the log changes in retail deposits. We interact our variable of interest with the share of a bank's deposits originating from either retail or corporate depositors. We include bank-controls such as interest paid on all loans, banks operating expenses, and total assets as well as loan controls such as the rate, the size, and the maturity (in those regressions in which they are not the dependent variable). We further include fixed effects such as the time*industry, the collateral type, the loan type, the loan purpose, the bank's internal rating of the borrower's risk (standardized across banks). Standard errors are robust and clustered at the industry*time level while *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

deposit base during COVID.[7]

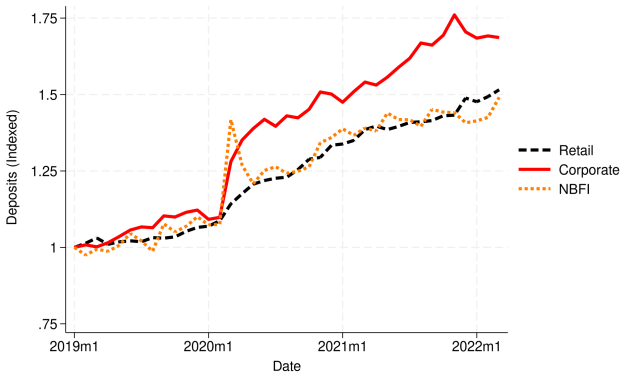
Importantly, for our purposes, the deposit growth was in part related to existing customer relations. Corporations and retail consumers deposited funds with existing bank partners. A very significant portion of this deposit growth was exogenous to bank lending opportunities during the crisis. We can view the deposit growth during the COVID-period as quasi exogenous; it provides a useful natural experiment to study the lending decisions of different types of banks.

We begin by examining how deposit changes during COVID affected aggregate bank lending behavior in Table 10. While inflows of corporate deposits were not associated with a systematic increase in C&I lending at the aggregate level, we observe heterogeneity across banks (just as we do above). Specifically, banks with a pre-existing specialization in corporate depositors were somewhat more likely to increase C&I lending in response to corporate deposit growth. This effect is economically large. We

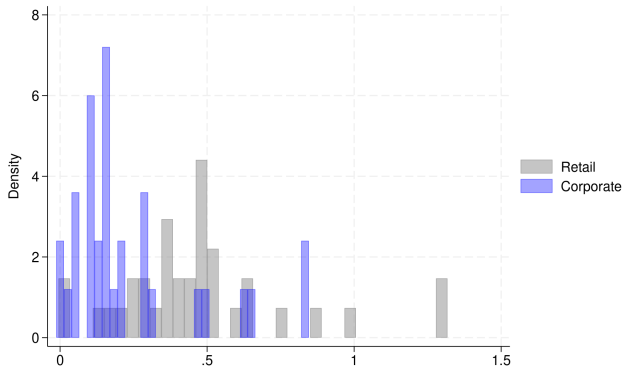
[7]Different banks were observed to grow at different rates in 2023 as well. There was a flight to large banks during that time. See for instance Caglio et al. (2025).

Figure 6: ***COVID Deposit Growth***

(a) *Indexed Deposit Growth*



(b) *Distribution of Deposit Growth*



Notes: This figure shows the growth in various types of deposits over the COVID crisis. We index growth to January 2019. In Panel (b) we show the distribution of deposit growth over the entire COVID period for banks in our sample. We focus on Retail and Corporate deposits for ease of viewing.

may lack sufficient observations given the large variability of our variables in question, so the effects are borderline significant. Corporate banks also direct some of these (usually more volatile) corporate deposits towards real estate lending. Possibly because loan demand was high and corporate banks felt comfortable in being able to manage their deposit base enough to perform long-term maturity transformation. The inflows of retail depositors are treated differently. Retail-oriented banks use these inflows to fund growth in real estate lending. This is consistent with our earlier findings. As above, we again find that retail-oriented banks respond to retail deposit inflows with an increase in cash holdings as well. This may reflect an operational lag: banks may need time to originate new loans or reallocate capital, and therefore temporarily park the new deposits.

We next assess how bank-level lending responses translate into real economic outcomes at the firm level. To do so, we merge loan-level supervisory data with firm-level financial data from Compustat. Our matching approach is as exhaustive as possible. We first match based on clear identifiers including ticker symbols, CUSIP and TIN. Where we cannot match firms, we use a combination of and firm name and headquarter zip code fuzzy matching. This linked dataset covers approximately 80% of the Compustat universe by firm assets. We calculate the degree to which a given borrower's lenders were affected by funding shocks. In cases where a borrower has multiple banks, we average across lenders. Our results look very similar if we take the largest lender or the maximum value for deposit changes (not reported for brevity). With this data, we are able to track how quasi exogenous changes in the funding environment of a firm's lender affect the borrowing firm's performance. Our sample is naturally limited to public firms and skews towards larger firms. We view these results as being

indicative rather than causal.

Table 10: *Lending Changes on Deposit Changes during COVID*

	(1) Δ C&I Lending	(2) Δ Securities	(3) Δ Cash/Reserves	(4) Δ Real Estate	(5) Δ C&I Lending	(6) Δ Securities	(7) Δ Cash/Reserves	(8) Δ Real Estate
					Panel A			
Δ Corp. Dep.	-0.009	0.173***	0.510***	0.042	-0.017	0.127*	0.050	-0.124**
	[0.043]	[0.046]	[0.179]	[0.039]	[0.074]	[0.072]	[0.307]	[0.061]
Share Corp. Dep.					-0.262	-0.181	1.255	0.143
					[0.271]	[0.275]	[1.297]	[0.256]
Δ Corp. Dep. * Share Corp. Dep.					0.063*	0.217	3.027*	0.892***
					[0.031]	[0.304]	[1.704]	[0.336]
					Panel B			
Δ Retail Dep.	0.083	0.207***	0.713***	0.357***	0.149	-0.000	0.487	0.195**
	[0.075]	[0.061]	[0.263]	[0.051]	[0.131]	[0.102]	[0.431]	[0.077]
Share of Retail Deposits					-0.122	-0.220	-1.680*	-0.494***
					[0.284]	[0.217]	[0.904]	[0.162]
Δ Retail Dep. * Share of Retail Deposits					-0.314	0.690***	1.198	0.449**
					[0.334]	[0.258]	[1.048]	[0.188]
					Panel C			
Δ NBFI Dep.	0.058*	0.083***	0.212*	0.016	0.036	0.067*	0.036	-0.014
	[0.035]	[0.030]	[0.122]	[0.026]	[0.045]	[0.036]	[0.138]	[0.029]
Share of NBFI Deposits					0.148	-0.214	-5.056***	-0.404
					[0.280]	[0.376]	[1.737]	[0.366]
Δ NBFI Dep. * Share of NBFI Deposits					0.115	0.019	3.224***	0.174
					[0.208]	[0.197]	[0.692]	[0.146]
N	190	190	190	190	190	190	190	190
Fixed Effects			Time				Time, Bank	

Notes: This table shows quarterly log changes in a bank's investments (the amount invested in C&I lending (including commitments), the value of securities held, the cash or reserves held, and real estate lending (including commercial and residential)) relative to contemporaneous changes in corporate, retail, or NBFI deposits during the COVID quarters (2020q2 to 2021q3). Columns (5) -(8) include bank fixed effects and interactions with the share of a bank's balance sheet the corresponding depositor-type represents. Standard errors are heteroskedasticity robust while *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Our dependent variables of interest are firm size and firm profitability. Our regressions are run at the firm*year level. We account for a firm size as well the industry in which it operates, which accounts for aggregate changes in demand industries may have faced during COVID. We ultimately want to ascertain whether firms were able to grow – in any capacity – or increase their profitability by investing in high NPV projects during a time of aggregate turmoil. Table 11 shows that corporate deposit inflows are either uncorrelated or negatively correlated with firm outcomes such as asset growth and profitability. In contrast, retail deposit inflows are weakly associated with increases in borrower assets and significantly associated with increases in profitability. This divergence suggests that the nature of the funding shock is meaningful for firm performance. We can see that retail deposits are associated with better loan terms, a fact that may translate to more aggressive borrowing and more (risky) investment decisions. Interestingly, NBFI deposits are somewhat linked to firm profitability as

well.

Table 11: *Lending Changes on Deposit Changes during COVID*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Δ Assets				EBITDA/Assets			
Δ Reatil Dep.	0.069			0.118	1.044***			1.025***
	[0.204]			[0.214]	[0.128]			[0.130]
Δ Corp. Dep.		-0.162*		-0.163		-0.155**		-0.378***
		[0.092]		[0.108]		[0.065]		[0.069]
Δ NBFI Dep.			-0.043	-0.010			0.203***	0.175
			[0.068]	[0.078]			[0.039]	[0.165]
Fixed Effects	4-digit Industry, Year							
Controls	Firm Size							
R^2	0.089	0.089	0.089	0.089	0.16	0.15	0.16	0.17
N	6,559	6,559	6,559	6,559	6,448	6,448	6,448	6,448

Notes: This table shows the log changes in assets (columns (1)-(4) or firm profitability (columns (5) - (8)) in COMPUSTAT firms related to the change in the deposits of the lender associated with the given borrower. If a borrower has multiple lenders, we use the average change of all al borrower's lenders. We include controls for total firm borrowing/size as well as time and 4-digit industry fixed effects. Standard errors are clustered at the industry time level while *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

However, Table 12 once again makes clear that the nature of the funding shock *and* the nature of the bank matter. In columns (1) and (4) our independent variable of interest is growth in retail deposits, which we interact with the degree to which a bank's deposits are comprised of retail depositors. Columns (2) and (5) make use of corporate deposit changes and an interaction term for a bank's corporate deposit funding share. Columns (3) and (6) include both at the same time.

We can see that firms borrowing from retail deposit oriented banks are not as likely to grow their assets or their profitability. Conversely, corporate-depositor specialized banks convert corporate deposit inflows into new C&I lending, which allows their customers to grow profitably (columns (2) and (5)). When including both in the same regression, we can see that the interaction term of corporate deposit specialization and corporate deposit growth remains significant for borrower asset growth. Both terms remain significant when looking at profitability growth. NBFI-deposit oriented banks do not lend to C&I customers during COVID and their borrowers do not experience asset or profitability growth (not reported for brevity).

Table 12: *Lending Changes on Deposit Changes during COVID*

	(1)	(2)	(3)	(4)	(5)	(6)
		Δ Assets			EBITDA/Assets	
Share Retail Deposits	0.114***		0.099**	0.321***		0.001
	[0.030]		[0.050]	[0.021]		[0.035]
Interaction: Δ Ret. * Share Ret. Dep	-1.200*		-0.491	-6.624***		-3.734***
	[0.722]		[0.846]	[0.490]		[0.568]
Δ Retail Dep.	0.550		0.277	4.033***		2.406***
	[0.404]		[0.463]	[0.279]		[0.315]
Share Corp. Deposits		-0.132***	-0.030		-0.563***	-0.510***
		[0.039]	[0.065]		[0.026]	[0.045]
Interaction: Δ Corp. * Share Corp. Dep		1.766**	1.576**		2.153***	1.291**
		[0.691]	[0.739]		[0.476]	[0.506]
Δ Corp. Dep.		-0.631***	-0.588**		-0.639***	-0.368**
		[0.213]	[0.231]		[0.148]	[0.160]
Fixed Effects			4-digit Industry, Year			
Controls			Firm Size			
R^2	0.091	0.091	0.092	0.21	0.21	0.22
N	6,576	6,576	6,576	6,465	6,465	6,465

Notes: This table shows the log changes in assets (columns (1)-(4) or firm profitability (columns (5) - (8)) in COMPUSTAT firms related to the change in the deposits of the lender associated with the given borrower. If a borrower has multiple lenders, we use the average change of all al borrower's lenders. We interact our variables of interest with the share of a bank's balance sheet that is comprised of retail or corporate depositors. We again aggregate to the average of a firm's lenders if it has multiple. We include controls for total firm borrowing/size as well as time and 4-digit industry fixed effects. Standard errors are clustered at the industry time level while *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

7 Conclusion

This paper establishes a link between banks' depositor composition and their lending behavior, asset allocation, and response to liquidity shocks. Using granular supervisory data, we show that banks specialize not only in what they lend but also in whom they fund themselves with—and this depositor specialization is persistent and shapes bank business models in economically meaningful ways. Retail-funded banks, supported by more stable and cheaper deposits, offer larger and longer-term loans at lower rates and allocate more to real estate. Corporate- and NBFI-funded banks, facing more volatile funding, lend shorter, charge higher rates, and hold more liquid securities.

Funding shocks amplify these differences. Deposit inflows translate into distinct lending responses depending on the receiving bank's deposit specialization: retail banks channel new funds mainly to real estate or cash, whereas corporate banks expand C&I lending. Using the quasi-exogenous surge in

deposits during COVID-19, we show that these heterogeneous responses have real effects for borrowers, influencing firm growth and profitability.

Our findings imply that banks are not interchangeable conduits for credit or monetary policy. Asset and liability choices are jointly determined, and depositor composition is a defining dimension of bank heterogeneity. As a result, the impact of liquidity interventions—such as those during QE—depends critically on which banks receive the inflows. Recognizing this heterogeneity is key for theory, policy design, and prudential regulation.

References

Arvanis, I., M. Giannetti, and L. Laeven (2022). Bank runs and deposit insurance: Evidence from greece. *Journal of Financial Intermediation 52*, 100986.

Benmelech, E., J. Yang, and M. Zator (2023). Bank branch density and bank runs. *NBER Working Paper Series 31462*.

Berger, A. B. and G. Udell (1995). Relationship lending and lines of credit in small firm finance. *Journal of Business 68*, 351–381.

Blickle, K., M. Brunnermeier, and S. Luck (2024). Who can tell which banks will fail? *Review of Financial Studies*.

Blickle, K., Z. He, J. Huang, and C. Parlatore (2025). Information-Based Pricing in Specialized Lending. *Journal of Financial Economics Forthcoming*.

Blickle, K., Y. Ma, J. Li, and X. Lu (2025). The dynamics of deposit flightiness and its impact on financial stability. *NBER Working Paper*.

Blickle, K., C. Parlatore, and A. Saunders (2024). Specialization in Banking. *Journal of Finance Forthcoming*.

Caglio, C., J. Dlugosz, and M. Rezende (2025, February). Flight to Safety in the Regional Bank Stress of 2023.

Canals-Cerdá, J. J. (2022). Depositor sensitivity to bank risk: Deposit insurance and capital regulation. *Journal of Financial Services Research 61*(1), 1–35.

Carletti, E., F. De Marco, V. Ioannidou, and E. Sette (2024, October). Corporate Runs and Credit Reallocation.

Carletti, E., P. Hartmann, and S. Ongena (2023). Bank runs and financial stability: The role of deposit insurance. *Journal of Financial Stability 64*, 100724.

Chen, B. S., I. Goldstein, N. Jiang, and R. M. Vashishtha (2022). Bank transparency and deposit flows. *Journal of Financial Economics*. Include volume, pages, and DOI if desired.

Chen, Q., I. Goldstein, Z. Huang, and R. Vashishtha (2024). Liquidity transformation and fragility in the us banking sector. *Journal of Finance 52*.

Chodorow-Reich, G., O. Darmouni, S. Luck, and M. Plosser (2022). The transmission of monetary policy and the sophistication of money market fund investors. Technical Report 29594, NBER Working Paper.

Cipriani, M. and T. M. Eisenbach (2023). Bank runs and deposit insurance: Evidence from the 2007-2008 financial crisis. *Journal of Financial Intermediation 53*, 100993.

Craig, B. and M. Koepke (2019). The relationship between deposit rates and money market fund returns. Technical Report 19-12, Federal Reserve Bank of Cleveland Working Paper.

d'Avernas, A., A. L. Eisfeldt, C. Huang, R. Stanton, and N. Wallace (2023, November). The deposit business at large vs. small banks. Working Paper 31865, National Bureau of Economic Research.

Degryse, H. and S. Ongena (2005). Distance, lending relationships, and competition. *Journal of Finance 60*, 231–266.

Diamond, D. W. and P. H. Dybvig (1983). Bank runs, deposit insurance, and liquidity. *Journal of Political Economy 91*(3), 401–419.

Dräger, L., L. Norden, and M. Weber (2021). Local deposit market concentration and bank lending behavior. *Journal of Banking & Finance 126*, 106114.

Drechsler, I., A. Savov, and P. Schnabl (2017). The deposits channel of monetary policy. *Quarterly Journal of Economics 132*(4), 1819–1876.

Drechsler, I., A. Savov, and P. Schnabl (2021). Banking on deposits: Maturity transformation without interest rate risk. *Journal of Finance 76*, 751–7811091–1143.

Drechsler, I., A. Savov, P. Schnabl, and Q. Wang (2023). Banking on uninsured deposits. Working Paper 31138, National Bureau of Economic Research.

Egan, M., K. Pence, et al. (2023). Funding liquidity, market liquidity, and lending: Evidence from the covid-19 crisis. *Review of Financial Studies 36*(2), 571–613.

English, W. B., S. J. Van den Heuvel, and E. Zakrajšek (2018). Interest rate risk and bank equity valuations. *Journal of Monetary Economics 98*, 80–97.

Erel, I., S. Ongena, and E. van der Kraaij (2023). Bank runs and deposit insurance: Evidence from germany. *Journal of Financial Stability 68*, 100997.

Gatev, E. and P. E. Strahan (2006). Banks' advantage in hedging liquidity risk: Theory and evidence from the commercial paper market. *The Journal of Finance 61*(2), 867–892.

Greenwood, R., S. G. Hanson, G. Y. Liao, and J. C. Stein (2016). The impact of quantitative easing on bank lending. *Brookings Papers on Economic Activity 2016*(2), 135–204.

Hannan, T. H. and A. N. Berger (1991). The rigidity of prices: Evidence from the banking industry. *American Economic Review 81*(4), 938–945.

Iyer, R. and M. Puri (2012). Understanding bank runs: The importance of depositor-bank relationships and networks. *American Economic Review 102*(4), 1414–45.

Iyer, R., M. Puri, and N. Ryan (2016). A tale of two runs: Depositor responses to bank solvency risk. *Journal of Finance 71*(6), 2687–2726.

Jiang, E. X., G. Matvos, T. Piskorski, and A. Seru (2023). Monetary policy and bank runs. *NBER Working Paper* (31194).

Jiang, E. X., G. Matvos, T. Piskorski, and A. Seru (2024). Monetary tightening and U.S. bank fragility in 2023. *Journal of Financial Economics*. Forthcoming/Published 2024; include volume, pages, and DOI if available.

Kashyap, A. K., R. G. Rajan, and J. C. Stein (2002). Banks as liquidity providers: An explanation for the coexistence of lending and deposit-taking. *The Journal of Finance 57*(1), 33–73.

Koont, N., T. Santos, and L. Zingales (2024, June). Destabilizing digital bank walks. Working Paper 32601, National Bureau of Economic Research.

Kundu, S. muir, T. and J. Zhang (2024). Diverging banking sector: New facts and macro implications. *Mimeo*.

Lu, X., Y. Song, and Y. Zeng (2025, March). Tracing the impact of payment convenience on deposits: Evidence from depositor activeness. Working paper, Jacobs Levy Equity Management Center for Quantitative Financial Research Paper.

Martin, C., M. Puri, and A. Ufier (forthcoming). Deposit inflows and outflows in failing banks: The role of deposit insurance. *Journal of Finance* (Forthcoming).

Narayanan, R. P., D. Ratnadiwakara, and P. Strahan (2025, May). The decline of bank branching. Working Paper 33773, National Bureau of Economic Research.

Neumark, D. and S. A. Sharpe (1992). Market structure and the nature of price rigidity: Evidence from the market for consumer deposits. *Quarterly Journal of Economics 107*(2), 657–680.

Paravisini, D., V. Rappaport, and P. Schnabl (2023). Specialization in Bank Lending: Evidence from Exporting Firms. *Journal of Finance 78*(4), 2049–2085.

Petersen, M. and R. Rajan (1995). The effect of credit market competition on lending relationships. *Quarterly Journal of Economics 5*, 407–443.

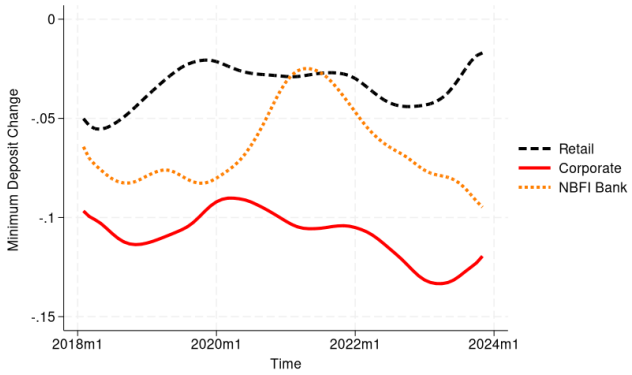
Ritz, R. A. and A. Walther (2020). Banks' funding costs and lending rates. *Journal of Money, Credit and Banking 52*(S2), 733–764.

Rodda, A. et al. (2022). Quantitative easing and bank funding. *Bank of England Staff Working Paper* (1000).

Appendix

Figure A.1: ***Minimum Deposit Drop***

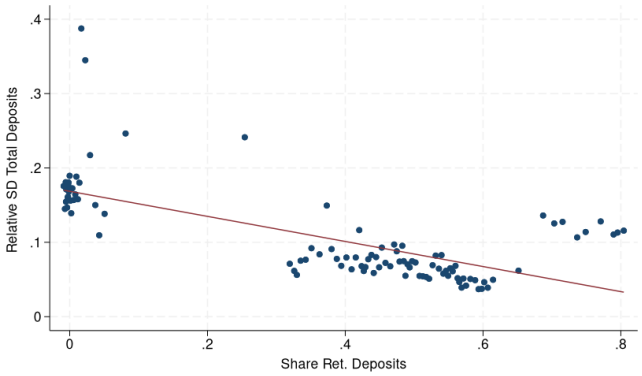
(a) *Minimums of monthly deposit changes*



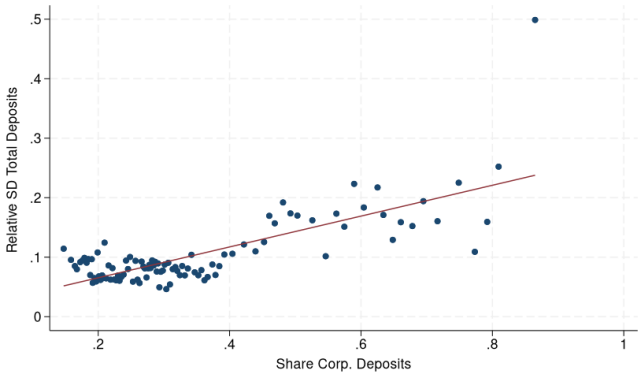
Notes: This figure shows the maximum drawdown any bank in our sample experienced from one quarter to the next. We split depositors into three types" Corporate, NBFI, or retail. We smooth our data for ease of viewing.

Figure A.2: ***Binscatter Deposit Types***

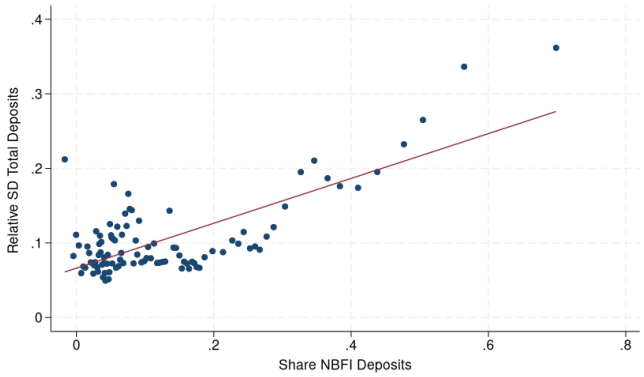
(a) *Retail Share and Deposit Volatility*



(b) *Corporate Share and Deposit Volatility*



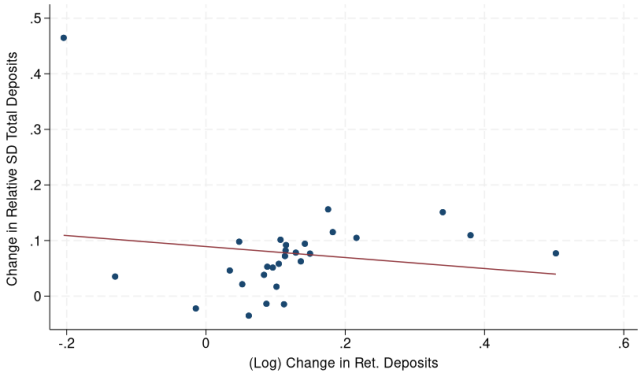
(c) *NBFI Share and Deposit Volatility*



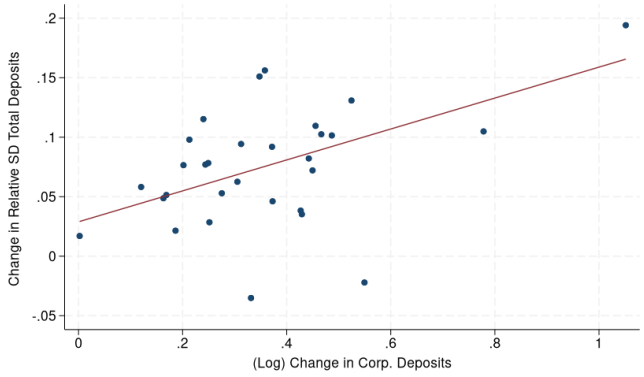
Notes: This figure shows binscatter plots relating the share of a bank's deposits originating form either NBFI, Corporate, or retail depositors to the relative standard deviation (12-month rolling standard deviation/ 12-month mean deposit base) of their total deposit base. We make use of bank*month data and each bin contains at least 5 observations.

Figure A.3: ***Binscatter Deposit Types (Changes)***

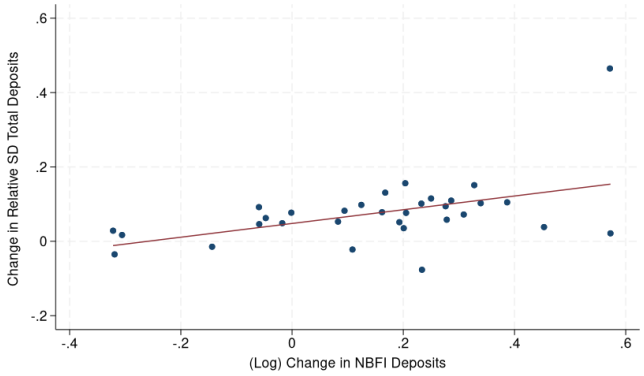
(a) *Change in Retail Share and Change Deposit Volatility*



(b) *Change in Corporate Share and Change Deposit Volatility*

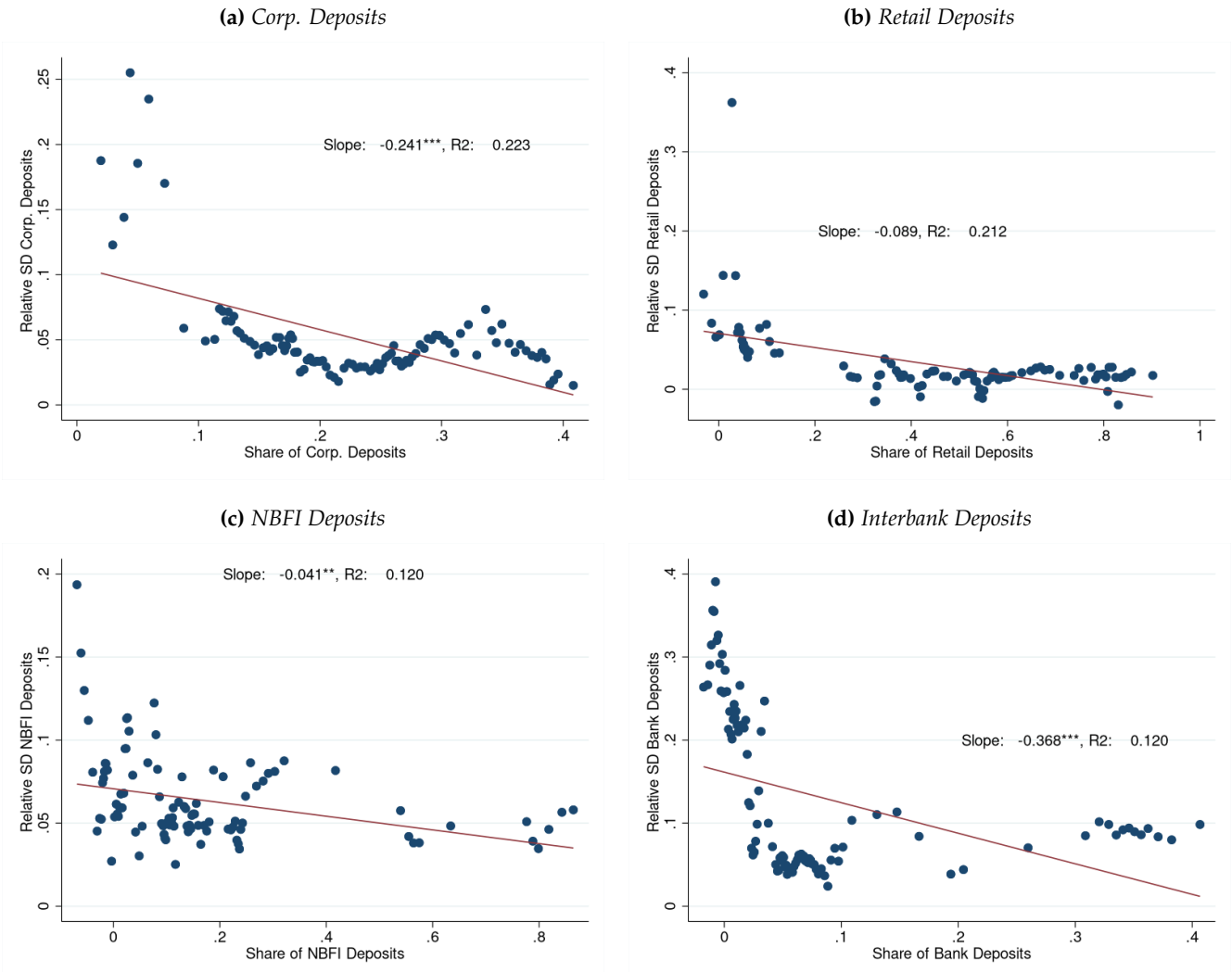


(c) *Change in NBFI Share and Change Deposit Volatility*



Notes: Notes: This figure shows binscatter plots relating the change in the share of a bank's deposits originating form either NBFI, Corporate, or retail depositors to the change in relative standard deviation (12-month rolling standard deviation/ 12-month mean deposit base) of their total deposit base. We make use of bank*month data and each bin contains at least 5 observations.

Figure A.4: ***Share of Deposits on Std. Dev. of Deposits – By Deposit Type***



Notes: This figure shows binscatter plots relating the share of a bank's deposits originating form either NBFI, Corporate, or retail depositors to the relative standard deviation (12-month rolling standard deviation/ 12-month mean deposit base) of their respective deposit base. We make use of bank*month data and each bin contains at least 5 observations.

Table A.1: *RoA Shock on Deposit Changes*

	(1) Δ Retail	(2) Δ Corp.	(3) Δ NBFI	(4) Δ Retail	(5) Δ Corp.	(6) Δ NBFI	(7) Δ Retail	(8) Δ Corp.	(9) Δ NBFI
RoA Shock	-0.006	-0.032*	-0.056*	-0.006	-0.034*	-0.057*	-0.004	-0.037*	-0.059*
	[0.013]	[0.019]	[0.031]	[0.013]	[0.020]	[0.032]	[0.013]	[0.021]	[0.033]
Tier-1 to Assets	-0.899	-1.203	-1.772	-0.901	-1.229	-1.781	-0.904	-1.211	-1.680
	[0.568]	[0.913]	[1.416]	[0.570]	[0.912]	[1.420]	[0.570]	[0.915]	[1.418]
RWA to Assets	0.025	0.004	-0.414*	0.026	0.031	-0.408*	0.023	0.004	-0.401*
	[0.090]	[0.140]	[0.217]	[0.090]	[0.141]	[0.219]	[0.090]	[0.141]	[0.218]
Total Assets	0.000	0.000	-0.000	0.000	0.000	-0.000	0.000	0.000	-0.000
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Interaction: Corporate Bank * RoA Shock				0.005	0.020	0.015			
				[0.034]	[0.052]	[0.081]			
Corporate Bank				-0.000	0.098	0.012			
				[0.040]	[0.062]	[0.096]			
Interaction: NBFI Bank * RoA Shock							-0.015	0.041	0.006
							[0.027]	[0.042]	[0.065]
NBFI Bank							0.004	0.011	-0.100
							[0.031]	[0.048]	[0.075]
Fixed Effects				Bank and Year*Quarter					
R^2	0.22	0.32	0.15	0.22	0.33	0.15	0.22	0.32	0.15
N	475	475	475	475	475	475	500	475	475

Notes: This Table shows the relationship between a drop in RoA that is larger than two standard deviations of a 2 year window (RoA shock) and depositor responses. Our dependent variable is log deposit changes for different depositor types. We account for bank capital and risk weighted assets as well as bank and time fixed effects. Standard errors are heteroskedasticity robust while *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table A.2: *Loan Risk and Deposit Shares*

	(1) Rating	(2) Non-Accrual	(3) Rating	(4) Non-Accrual	(5) Rating	(6) Non-Accrual	(7) Rating	(8) Non-Accrual	
Share Retail Dep.	0.864***	0.004***					0.293***	0.003***	
	[0.005]	[0.000]					[0.014]	[0.001]	
Share Corp. Dep.			-0.891***	0.002***			-0.840***	0.003***	
			[0.010]	[0.001]			[0.016]	[0.001]	
Share NBFI Dep.					-0.824***	-0.007***	-0.623***	-0.004***	
					[0.006]	[0.000]	[0.016]	[0.001]	
Fixed Effects	Collateral type, industry*year*quarter, loan purpose, loan type								
Controls	Total interest paid, bank assets, bank expenses, loan terms (other than the dep. var), loan rating								
R^2	0.26	0.32	0.28	0.26	0.32	0.28	0.26	0.32	0.28
N	3,339,792	3,339,792	3,339,792	3,339,792	3,339,792	3,339,792	3,339,792	3,339,792	3,339,792

Notes: This Table shows the relationship between loan ratings and loan performance and depositor compositions. Our dependent variable rating takes a value between 1-10, where larger numbers imply a lower rating. This is standardized across banks in our sample. our dependent variable non-accrual takes the value of 1 if a loan becomes non-accruing. Our independent variables are the share (between 0 and 10 of a bank's depositor based comprised of a certain type of depositor. We account for a host of loan characteristics, including loan rating where the dependent variable is whether a loan becomes non-accruing. Standard errors are heteroskedasticity robust while *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table A.3: *Balance Sheet Composition on Deposit Shares*

	(1) C&I Lending Share	(2) Securities Share	(3) Cash/Reserves Share	(4) Real Estate Share	(5) C&I Lending Share	(6) Securities Share	(7) Cash/Reserves Share	(8) Real Estate Share
				Panel A				
Share of Retail Deposits	0.010	-0.180***	-0.147***	0.323***	0.040**	0.029	-0.275***	0.201***
	[0.015]	[0.011]	[0.012]	[0.018]	[0.020]	[0.032]	[0.039]	[0.038]
				Panel B				
Share of Corp. Deposits	0.248***	0.037	-0.208***	-0.116***	-0.122***	0.176***	0.504***	-0.548***
	[0.025]	[0.024]	[0.022]	[0.039]	[0.027]	[0.043]	[0.051]	[0.049]
				Panel C				
Share of NBFI Deposits	-0.179***	0.198***	0.308***	-0.326***	0.036	-0.094**	0.128***	-0.069
	[0.016]	[0.013]	[0.009]	[0.022]	[0.024]	[0.039]	[0.048]	[0.047]
R2	.097	.54	.46	.51	.97	.92	.88	.96
N	652	652	652	652	652	652	652	652
Controls	Common Equity to Assets, RWA to Assets							
Fixed Effects	-	-	-	-			Bank	

Notes: This Table shows the relationship between a bank's asset-side composition (the share of a balance sheet invested in C&I lending (including commitments), value of securities held relative to all assets, the cash or reserves held relative to all assets and real estate lending (including commercial and residential) relative to all assets) and depositor composition (the share of depositors that are insured, the share that are short termist or demandable, the share that are corporations and the share that are retail). We include controls for bank equity and its risk weighted assets. Each cell represents an individual and independent regression. Standard errors are heteroskedasticity robust while *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

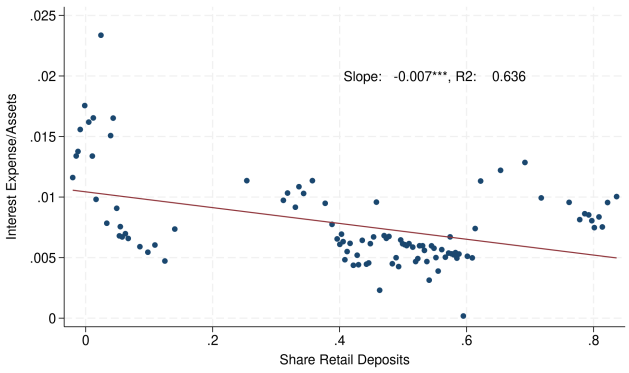
Table A.4: *Lending Changes on Deposit Changes*

	(1) Δ C&I Lending	(2) Δ Securities	(3) Δ Cash/Reserves	(4) Δ Real Estate	(5) Δ C&I Lending	(6) Δ Securities	(7) Δ Cash/Reserves	(8) Δ Real Estate
					Panel A			
Δ Corp. Dep.	-0.001	0.182***	0.612***	0.254***	0.053	0.088	0.103	0.219***
	[0.070]	[0.047]	[0.132]	[0.046]	[0.120]	[0.080]	[0.223]	[0.078]
Share Corp. Dep.					-0.050	-0.255	-0.222	0.033
					[0.270]	[0.181]	[0.504]	[0.176]
Δ Corp. Dep. * Share Corp. Dep.					-0.318	0.671*	3.218***	0.203
					[0.607]	[0.407]	[1.133]	[0.395]
					Panel B			
Δ Retail Dep.	0.235***	0.105***	0.095	0.104***	0.215***	-0.040	-0.023	-0.018
	[0.043]	[0.030]	[0.088]	[0.030]	[0.048]	[0.030]	[0.098]	[0.031]
Share of Retail Deposits					0.016	0.022	-0.180	-0.521***
					[0.211]	[0.132]	[0.426]	[0.134]
Δ Retail Dep. * Share of Retail Deposits					0.229	1.655***	1.367***	1.430***
					[0.252]	[0.157]	[0.507]	[0.159]
					Panel C			
Δ NBFI Dep.	0.071**	0.091***	0.097	0.049**	0.067*	0.094***	0.003	0.067***
	[0.035]	[0.024]	[0.069]	[0.024]	[0.039]	[0.026]	[0.073]	[0.026]
Share of NBFI Deposits					0.035	-0.157	-1.289**	-0.696***
					[0.319]	[0.216]	[0.604]	[0.212]
Δ NBFI Dep. * Share of NBFI Deposits					0.064	-0.002	1.902***	-0.120
					[0.254]	[0.172]	[0.482]	[0.169]
N	475	475	475	475	475	475	475	475
Controls	Common Equity/Assets , RWA/Assets, Assets							Fixed Effects
	Time, Bank							

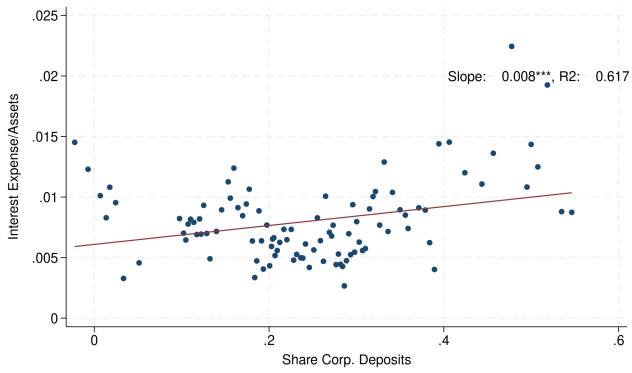
Notes: This table shows quarterly log changes in a bank's investments (the amount invested in C&I lending (including commitments), the value of securities held, the cash or reserves held, and real estate lending (including commercial and residential)) relative to contemporaneous changes in corporate, retail, or NBFI deposits. Columns (5) -(8) include bank fixed effects and interactions with the share of a bank's balance sheet the corresponding depositor-type represents. We include controls for bank equity and its risk weighted assets. Standard errors are heteroskedasticity robust while *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Figure A.5: *Share of Deposits on Rate and Avg. Loan Rating*

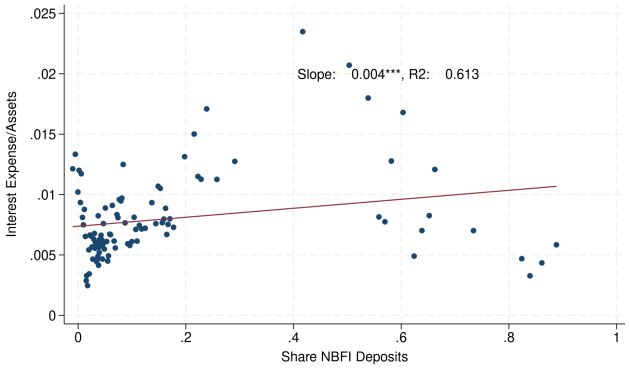
(a) *Rate on Retail Share*



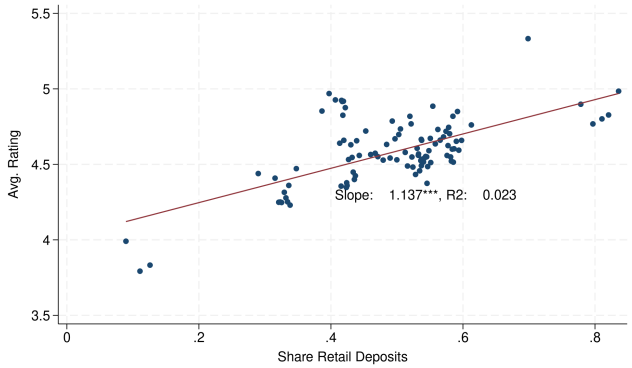
(b) *Rate on Corporate Share*



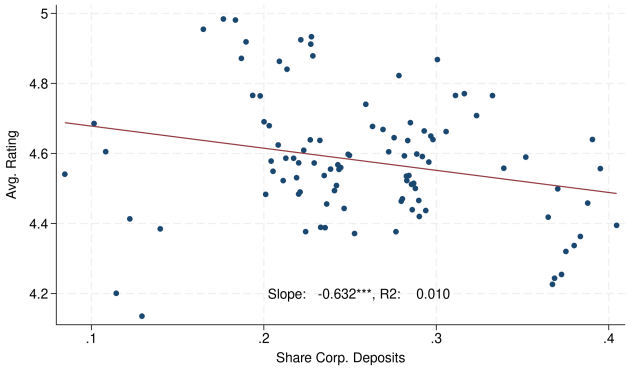
(c) *Rate on NBFI Share*



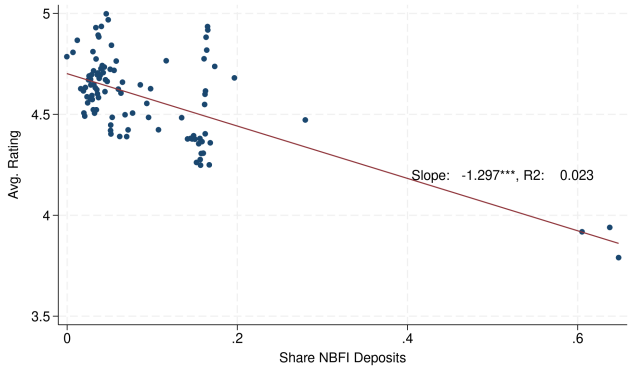
(d) *Rating on Retail Share*



(e) *Rating on Corporate Share*



(f) *Rating on NBFI Share*



This figure relates the share of a bank's deposits made up of a certain depositor type to the interest expenses to assets paid by the bank (Panels (a)-(c)) or the average rating received by loans of that bank (Panels (d)-(f)). Ratings are from 1-10 where larger ratings imply riskier loans.

Table A.5: *Securities Changes on Deposit Changes*

	(1) Δ Treas.	(2) Δ MBS	(3) Δ Other	(4) Δ CLO	(5) Δ Treas.	(6) Δ MBS	(7) Δ Other	(8) Δ CLO
				Panel A				
Δ Corporate Deposits	0.057	0.026	0.101	0.412	0.050	0.029	0.100	0.463
	[0.084]	[0.019]	[0.151]	[0.724]	[0.085]	[0.019]	[0.154]	[0.744]
				Panel B				
Δ Retail Deposits	0.172	0.087***	0.084	-0.125	0.173	0.095***	0.097	-0.129
	[0.121]	[0.027]	[0.215]	[0.484]	[0.125]	[0.028]	[0.225]	[0.507]
				Panel C				
Δ NBFI Deposits	0.277**	0.100***	0.114	0.049	0.273**	0.103***	0.087	0.036
	[0.107]	[0.024]	[0.212]	[0.426]	[0.109]	[0.024]	[0.219]	[0.433]
N	500	500	500	500	500	500	500	500
Fixed Effects	-	-	-	-	Bank			

Notes: This Table relates changes to individual security types held by banks to changes in deposits. Each panel represents a separate set of regressions focused on an alternate independent variable. Columns (5) -(8) include bank fixed effects. Standard errors are heteroskedasticity robust while *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.