The Cost of Uninsured Deposits: Bargaining Power versus Risk*

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Abstract

Insured deposits are typically small, while uninsured deposits are often large and exposed to bank default risk. Does the uninsured deposit premium reflect default risk or the bargaining power of sophisticated depositors? We develop a methodology to estimate the gap between uninsured and insured deposit rates for U.S. banks and construct the first long-run series of this premium from 1991 to 2025. The premium rises by nearly 400 basis points over the sample and increases by 10 to 25 basis points for every 100-basis-point increase in the federal funds rate. We show that the secular rise in the premium is largely explained by corporate deposit shares and the average size of uninsured accounts, consistent with depositor bargaining power. In contrast, we find little evidence that bank-specific risk systematically explains variation in the premium. These changes imply a substantial reallocation of rents from small retail depositors to large corporate depositors.

JEL classification codes: E52, G21, G28.
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1 Introduction

The most salient feature of uninsured deposits is that they are not insured. As a consequence, the literature on their pricing tends to focus on the role of bank risk. However, uninsured deposits are not only riskier than insured deposits but also larger and tend to be held by more sophisticated investors. This raises a central question: does the uninsured deposit premium (UDP) reflect default risk, or depositor bargaining power?

To study this question, we develop a bargaining model of deposit pricing with default risk. In the model, the UDP can reflect compensation for default exposure, depositor bargaining power, or both. The model also predicts that the premium should rise with the level of the monetary policy rate.

We then develop a methodology to estimate the UDP using U.S. bank-level data from 1991Q1 to 2025Q3. The methodology uses cross-sectional variation in banks' funding composition to recover the spread between uninsured and insured deposit rates from observed average deposit costs. We validate the approach in settings where category-level deposit rates are observed and show that it closely tracks actual spreads across deposit categories, and then use it to construct the first long-run series of the UDP for U.S. banks.

Using the methodology, we document that the UDP rose by nearly 400 basis points over our sample period. This rise is largely explained by depositor characteristics, especially corporate deposit shares and the average size of uninsured accounts. By contrast, bank-specific risk does not systematically explain variation in the premium. Though riskier banks often pay higher rates on both insured and uninsured deposits, they do not systematically pay a higher UDP. Taken together, these findings imply that while market discipline may shape a bank's overall funding costs, the relative pricing of uninsured deposits is mainly

driven by depositor composition and bargaining power.

We also find that, consistent with our model, the premium is highly cyclical and co-moves strongly with monetary policy. A 100-basis-point increase in the federal funds rate is associated with a 10 to 25 basis point increase in the premium. Uninsured deposit rates respond more than twice as strongly as insured deposit rates to changes in the policy rate. These findings show that uninsured funding is substantially more sensitive to monetary policy than insured funding.

The rise in the uninsured deposit premium and its cyclical sensitivity to monetary policy appear in both equally weighted and deposit-weighted specifications. This indicates that our results are not driven solely by the largest banks. Instead, depositor characteristics—particularly depositor size and sophistication—play a central role in deposit pricing across the bank size distribution.

The upward trend in the uninsured deposit premium also carries distributional consequences. Large depositors—primarily corporations—have benefited from rising uninsured rates, while small retail depositors have seen declining insured deposit rates. Since these patterns reflect bargaining power rather than risk, they point to a reallocation of economic rents across depositor types.

The remainder of the paper is organized as follows. Section 2 reviews the related literature, and Section 3 introduces a bargaining model of the uninsured deposit premium. Section 4 describes the data, empirical methodology, and baseline estimates. Section 5 decomposes the premium using deposit and depositor characteristics. Section 6 examines the roles of monetary policy and bank-specific risk. The final section concludes.

2 Related Literature

This paper contributes to three strands of the literature: deposit pricing and market power, market discipline, and deposit franchise values. We do so by proposing a bargaining model of bank deposit pricing that takes into account depositors' outside options and deposit risk, developing a methodology to estimate the gap between rates paid on uninsured and insured deposits, constructing the first long-run series for this premium in U.S. bank-level data, and identifying its main drivers. More broadly, the paper provides new evidence on the time-series evolution and cross-sectional variation of the uninsured deposit premium.

Deposit Pricing, Market Power, and Depositor Bargaining The literature on banks' market power in lending and funding dates back to Klein (1971) and Monti (1972), who first modeled banks as firms with dual market power.[1] Because deposits are the primary funding source for most institutions, market power in deposit markets allows banks to pay depositors less than they would under fully market-based funding. This literature is extensive, with prominent contributions including Hannan and Berger (1991), Neumark and Sharpe (1992), Kim et al. (2003), and Drechsler et al. (2017).[2]

We contribute to this literature by identifying a specific mechanism through which pricing power operates: depositor bargaining power. We show that the secular rise in the uninsured deposit premium is largely explained by the growing compensation paid to corporate and large depositors, who have stronger outside options than retail households. In this sense, our paper shifts the focus from bank-side market power alone to the interaction between bank

[1] The work of Klein (1971) and Monti (1972) is commonly referred to as the *Monti–Klein* model of banking, a workhorse in applied and theoretical banking research.

[2] See also Berger and Hannan (1989); Calem and Carlino (1991); Sharpe (1997); Rosen (2007); Hannan and Adams (2011); Park and Pennacchi (2009) for additional U.S. evidence on funding-side pricing power and pass-through.

pricing and depositor composition.

Recent work has emphasized how market structure shapes deposit pricing and monetary policy transmission. Wang et al. (2022) structurally estimate that banks with greater local market power pass through less of policy-rate changes to depositors. d'Avernas et al. (2023) show that large and small banks serve different clienteles, with large banks offering lower rates but superior liquidity services. Xiao (2020) documents that when bank deposit rates lag policy rates, yield-sensitive depositors shift funds to money market funds, highlighting the role of outside options in deposit pricing. On the depositor side, Narayanan and Ratnadiwakara (2024) show that banks with more financially sophisticated depositors offer higher rates and experience larger outflows during tightening cycles, while Basten et al. (2026) show, using Danish administrative data, that depositors with access to stocks and bonds receive greater deposit-rate pass-through than otherwise similar depositors at the same bank.

Related account-level evidence also shows that size alone is not sufficient to characterize depositor responsiveness. Using household deposit accounts at U.S. credit unions, Argyle et al. (2026) show that high-balance retail accounts are relatively insensitive to interest rate changes and appear to function as medium-run liquidity stores. Independent contemporaneous work by Usenko (2026) shows that large deposits receive higher pass-through and account for the bulk of deposit outflows following monetary tightening. We complement that evidence by estimating the uninsured-insured deposit spread directly and showing that its long-run evolution is closely tied to depositor composition—especially corporate deposit shares and the average size of uninsured accounts—rather than bank-specific risk.

Market Discipline and Risk Pricing A central idea in the literature on insured and uninsured deposits is that uninsured deposits command a premium because they expose

depositors to default risk. This view, formalized in studies such as Egan et al. (2017) and Drechsler et al. (2023), has motivated a large empirical literature on market discipline. Jacewitz and Pogach (2018) document a systematic uninsured deposit premium in U.S. banks and show that large "too-big-to-fail" banks pay lower premiums than smaller banks, which they attribute to implicit government guarantees. Maechler and McDill (2006) show that deteriorating bank fundamentals lead uninsured depositors to demand higher rates or withdraw funds, consistent with market discipline.

Cross-country evidence points in a similar direction. Bartholdy et al. (2003) document higher deposit-rate spreads in countries with limited or no deposit insurance, while Martinez-Peria and Schmukler (2001) show that depositors in emerging markets demand higher rates or withdraw funds to discipline banks. In those settings, deposit insurance does not appear to weaken market discipline, likely because the guarantees are not fully credible.

Our findings qualify the primacy of this channel in normal times in the United States. Unlike much of the existing literature, which often studies crisis episodes, specific products, or cross-country settings, we find no systematic evidence over 1991–2025 that riskier banks pay a higher uninsured deposit premium. Instead, bank risk is associated with higher rates on both insured and uninsured deposits, while variation in the premium is more closely tied to depositor characteristics. Our evidence therefore suggests that uninsured deposit pricing reflects not only risk, but also the bargaining power of large and sophisticated depositors.

Deposit Franchise Values and Deposit Betas Recent work has emphasized the importance of deposit franchises for bank valuation and interest-rate risk. Egan et al. (2022) show that the deposit franchise is a primary driver of bank value in the cross section. Drechsler et al. (2021) develop a model in which the deposit franchise is valuable because deposits

provide funding at below-market rates, a benefit that grows when market rates rise because banks pass on only part of the increase to depositors. Since banks also incur rate-insensitive deposit service costs, the deposit franchise behaves like an intangible asset with negative duration and can hedge duration risk on the asset side. In related work, DeMarzo et al. (2024) extend the analysis to total bank franchise value and argue that it has positive duration overall because interest-insensitive spreads on both deposits and loans dominate the effect of service costs.

Relatedly, Lu and Wu (2026) argue that depositor inattention is an important source of banks' deposit market power. Using transaction-level data, they show that banks serving more inattentive depositors set lower rates, have weaker pass-through, and enjoy higher deposit franchise values. Our paper complements this mechanism-based view by focusing on the relative pricing of uninsured versus insured funding and on the roles of bargaining power and default risk.

More recently, Drechsler et al. (2025) incorporate uninsured deposits into the analysis of deposit franchise value. In their framework, depositor runs become more likely and more costly as market rates rise. They estimate franchise values by decomposing aggregate deposit betas into insured and uninsured components and relating these to banks' funding structure. Their finding that the uninsured deposit beta exceeds the insured deposit beta is consistent with our result that uninsured deposit rates co-move more strongly with the federal funds rate than insured deposit rates. Whereas Drechsler et al. (2025) establish this relationship at a few points in the 2020s, we show that it has held persistently over the past four decades.

Our paper contributes to this literature in two ways. First, by providing long-run estimates of the uninsured deposit premium and its sensitivity to monetary policy, we offer

new evidence on how funding composition shapes franchise values across banks. Second, by showing that the premium depends importantly on depositor composition and bargaining power, we highlight a channel through which franchise values vary not just with the share of uninsured funding, but with who supplies that funding.

3 A Bargaining Model of Deposit Pricing

Before turning to the empirical analysis, we develop a simple bargaining model of deposit pricing. The model isolates two channels through which an uninsured deposit premium can arise. The first is a risk channel: uninsured depositors require compensation for expected losses in default. The second is a bargaining channel: depositors with stronger outside options and greater bargaining power receive higher rates. The model delivers a set of testable predictions that guide the empirical analysis.

Setup A bank raises one unit of deposits, of which a fraction ϕ^i is insured and a fraction $\phi^u = 1 - \phi^i$ is uninsured. The bank invests these deposits and can alternatively borrow on wholesale markets at the federal funds rate, r^{FFR}, which we take as the bank's outside option. Let r^i and r^u denote the rates paid on insured and uninsured deposits.

Depositors also have outside options. Let $out^i(r^{FFR})$ and $out^u(r^{FFR})$ denote the outside options of insured and uninsured depositors, respectively. To capture default risk, we assume that uninsured depositors face an expected loss rate $\delta \geq 0$, while insured depositors do not.

Deposit rates are determined through Nash bargaining between the bank and its two depositor groups. Let β^i, β^u, and $\beta^b = 1 - \beta^i - \beta^u$ denote the bargaining weights of insured

depositors, uninsured depositors, and the bank. The resulting equilibrium deposit rates are:

$$r^i = out^i(r^{FFR}) + \frac{\beta^i}{\phi^i}\Big(r^{FFR} - O(r^{FFR}) - \phi^u\delta\Big), \tag{1}$$

$$r^u = out^u(r^{FFR}) + \delta + \frac{\beta^u}{\phi^u}\Big(r^{FFR} - O(r^{FFR}) - \phi^u\delta\Big), \tag{2}$$

where

$$O(r^{FFR}) = \phi^i out^i(r^{FFR}) + \phi^u out^u(r^{FFR})$$

is the weighted average depositor outside option.

The Uninsured Deposit Premium Subtracting the insured rate from the uninsured rate yields the uninsured deposit premium, $UDP = r^u - r^i$:

$$UDP = \underbrace{out^u(r^{FFR}) - out^i(r^{FFR})}_{\text{outside-option gap}} + \underbrace{\delta}_{\text{risk premium}} + \underbrace{\Big(r^{FFR} - O(r^{FFR}) - \phi^u\delta\Big)\left(\frac{\beta^u}{\phi^u} - \frac{\beta^i}{\phi^i}\right)}_{\text{bargaining component}}. \tag{3}$$

This decomposition highlights the three forces that determine the uninsured deposit premium: differences in outside options across depositor types, compensation for expected default losses, and differences in normalized bargaining power. If the premium is primarily driven by risk, it should rise with bank-level risk. If it is primarily driven by bargaining, it should be higher when uninsured depositors have greater bargaining power or better outside options.

Monetary Policy and the Premium The model also links the uninsured deposit premium to monetary policy. Differentiating (3) with respect to r^{FFR} implies that the premium

rises with the federal funds rate when uninsured depositors have stronger bargaining power, more interest-sensitive outside options, or both. A sufficient condition is that uninsured depositors have a larger normalized bargaining weight than insured depositors and that their outside option co-moves at least as strongly with the federal funds rate.

Testable Predictions These dynamics map directly into our empirical analysis, yielding three testable predictions. First, if the uninsured deposit premium primarily reflects default risk, it should increase with bank-level measures of risk. Second, if the premium primarily reflects depositor bargaining power, it should be higher at banks whose uninsured depositor base has greater bargaining power or better outside options; in the empirical analysis, we proxy these features using corporate deposit shares and the average size of uninsured accounts. Third, the premium should rise with the federal funds rate when uninsured depositors have stronger bargaining power, more interest-sensitive outside options, or both.

4 Data and Empirical Methodology

4.1 Data

Our empirical analysis uses quarterly bank-level balance-sheet data from the Call Reports (formally, the *Consolidated Reports of Condition and Income*). We focus on domestic deposits at U.S. banks because only these deposits are eligible for FDIC insurance. For each institution and quarter from 1991Q1 to 2025Q3, the data report total deposits, time-deposit balances, transaction-account balances, and total interest expenses for each deposit category.

From these data, we construct average deposit rates and deposit shares at the bank-

quarter level:

$$DR_{it}^{j} = 400 \cdot \frac{\text{Interest Expenses}_{it}^{j}}{\text{Deposits}_{it}^{j}}, \tag{4}$$

with $j \in \{\text{Total, Time, Demand, Transactional, Non-Transactional}\}$, and

$$\alpha_{it}^{k} = 100 \cdot \frac{\text{Deposits}_{it}^{k}}{\text{Deposits}_{it}^{\text{Total}}}, \tag{5}$$

with $k \in \{\text{Uninsured, Time, Non-Transactional}\}$.

A central variable in our analysis is the share of uninsured deposits. Because reported uninsured-deposit data are not available consistently over our full sample, we use a single imputation method to construct insured and uninsured deposits for all banks and quarters based on detailed Call Report data on deposit size categories. Reported uninsured-deposit data are available only in parts of the sample: before 2002 they were not reported, between 2002 and 2005 all banks reported them, and outside that window reporting applies only to banks above the relevant asset threshold. For the subset of banks and periods in which both reported and imputed values are available, the differences are small, and our core results are qualitatively and quantitatively similar using either measure. Moreover, evidence from the Transaction Account Guarantee Program suggests that reported uninsured deposits adjusted with a lag during that period, implying that the imputed series may better capture true uninsured-deposit dynamics around the Global Financial Crisis.

To distinguish between retail-leaning and corporate-leaning funding, we construct proxies from Call Report product categories. We define *Retail Deposits* as the sum of non-demand transaction accounts (NOW/ATS), savings and money market deposit accounts (MMDAs),

and small time deposits. This grouping is intended to capture products more likely to be held by households, although it is not a pure household measure. We define *Corporate Deposits* as total domestic deposits net of Retail Deposits, which mechanically corresponds to demand deposits plus large time deposits. This residual also contains some household balances, but it is designed to capture the part of the deposit base where balances are most concentrated among larger and more sophisticated accounts.

Finally, we construct several additional variables used in the empirical analysis, including the natural logarithm of the average size of large uninsured deposits, the delinquency rate, tangible common equity (TCE), and a market-adjusted TCE (MATCE) that incorporates fair-value losses on both held-to-maturity (HTM) and available-for-sale (AFS) securities.

Why not use RateWatch? An alternative data source for deposit pricing is RateWatch. RateWatch is useful for studying posted pricing on specific deposit products and for analyzing how advertised offered rates adjust across observable deposit categories.[3] In our setting, however, it is not well suited to measuring banks' aggregate funding costs. RateWatch primarily records advertised retail deposit rates rather than realized, balance-weighted interest expenses on bank balance sheets. It also does not report the size of the deposits associated with quoted rates, making it impossible to map those quotes into actual funding costs. Most importantly for our purposes, it does not capture negotiated rates or bespoke compensation structures offered to large, rate-sensitive depositors, and its coverage of higher-balance and nonstandard products is limited and uneven. These limitations make it ill suited to measuring the pricing of the large uninsured deposits that are central to our analysis.

[3]For established applications using RateWatch offered-rate data, see, for example, Driscoll and Judson (2013) and Jacewitz and Pogach (2018).

4.2 Empirical Methodology

4.2.1 Conceptual Approach

Estimating the uninsured deposit premium poses a basic measurement problem. Banks report interest expenses on total deposits, but they do not report interest expenses separately for insured and uninsured deposits. To recover the gap between these unobserved rates, we use cross-sectional variation in banks' funding composition.

Consider a bank whose deposits are split into two mutually exclusive groups, A and B (for example, insured and uninsured). The bank's average deposit rate can be written as

$$DR_{it} = \alpha_{it}^{A} DR_{it}^{A} + (1 - \alpha_{it}^{A}) DR_{it}^{B}, \qquad \alpha_{it}^{A} + \alpha_{it}^{B} = 1. \tag{6}$$

Rearranging gives

$$DR_{it} = DR_{it}^{A} + \alpha_{it}^{B} \left(DR_{it}^{B} - DR_{it}^{A} \right). \tag{7}$$

Let $\overline{DR}_t^A$ and $\overline{DR}_t^B$ denote the cross-sectional average rates on deposit types A and B in quarter t. Adding and subtracting the corresponding average terms yields

$$DR_{it} = \underbrace{\overline{DR}_t^A}_{\theta_t} + \underbrace{\left(\overline{DR}_t^B - \overline{DR}_t^A \right)}_{\beta_t} \alpha_{it}^{B} + \epsilon_{it}, \tag{8}$$

where the residual captures bank-specific deviations from the average rates of each deposit type. In this representation, β_t is the average premium paid on deposit type B relative to type A. Since both DR_{it} and α_{it}^{B} are observed, we can estimate β_t using OLS.

A potential concern is that α_{it}^{B} may be correlated with the residual, biasing the OLS estimate. In principle, one would like an instrument for funding composition, but in our

setting a credible instrument is difficult to obtain over a long quarterly panel. We therefore address this concern in two ways. First, Appendix A derives analytical bias approximations that clarify the main sources of endogeneity and suggest that some important bias components may offset each other. Second, we validate the estimator directly in Section 4.3 by applying it to deposit categories for which the true rate spreads are observable. In those cases, the procedure recovers the actual premia closely. Taken together, the approximation and validation exercises suggest that bias may be limited, although the insured-uninsured split remains latent and therefore still relies on a maintained identification assumption.

4.2.2 Empirical Models

Guided by this framework, we estimate three sets of regressions.

Our baseline specification extends equation (8) by adding bank fixed effects:

$$DR_{it} = \lambda_i + \theta_t + \beta_t^j \alpha_{it}^j + \epsilon_{it}, \qquad j \in \{\text{uninsured, time, non-transactional}\}. \tag{9}$$

Here, λ_i absorbs time-invariant differences in bank funding costs across institutions, while θ_t captures aggregate shocks. The time-varying coefficients β_t^j trace out the evolution of the premium for each deposit type over time. This specification yields our baseline estimates of the uninsured deposit premium and, in observable cases, the corresponding premia for time versus demand deposits and for non-transactional versus transactional deposits.

Because uninsured status may be correlated with other deposit characteristics, we next augment the baseline model with controls for the shares of time and non-transactional de-

posits:

$$DR_{it} = \lambda_i + \theta_t + \beta_t^U \alpha_{it}^U + \beta_t^T \alpha_{it}^T + \beta_t^{NT} \alpha_{it}^{NT} + \epsilon_{it}. \tag{10}$$

This specification helps separate the uninsured-insured spread from differences driven by maturity or liquidity characteristics of the deposit base.

We then test the bargaining interpretation of the model by adding our proxies for depositor composition and bargaining power:

$$DR_{it} = \lambda_i + \theta_t + \beta_t^U \alpha_{it}^U + \beta_t^T \alpha_{it}^T + \beta_t^{NT} \alpha_{it}^{NT} + \beta_t^C \alpha_{it}^C + \beta_t^L \ln(\text{avg. unins. size})_{it} + \epsilon_{it}. \tag{11}$$

If bargaining power is central to the uninsured deposit premium, controlling for corporate deposit shares and the average size of uninsured accounts should substantially reduce the residual explanatory power of the uninsured-deposit share.

Finally, we test whether bank-specific risk affects average deposit rates and the uninsured deposit premium. Because we do not directly observe bank-specific uninsured premia, we interact the uninsured-deposit share with bank-level risk measures. In each quarter, we sort banks into terciles based on either the delinquency rate or the MATCE ratio. Let d_{it}^{m1} and d_{it}^{m2} denote indicators for the bottom and middle terciles of risk measure m, with the top tercile omitted. We estimate

$$\begin{aligned} DR_{it} = {} & \lambda_i + \theta_t + \beta_t^U \alpha_{it}^U + \beta_t^T \alpha_{it}^T + \beta_t^{NT} \alpha_{it}^{NT} \\ & + \gamma_t^{m1} d_{it}^{m1} + \gamma_t^{m2} d_{it}^{m2} + \beta_t^{U,m1} (d_{it}^{m1} \times \alpha_{it}^U) + \beta_t^{U,m2} (d_{it}^{m2} \times \alpha_{it}^U) + \epsilon_{it}. \end{aligned} \tag{12}$$

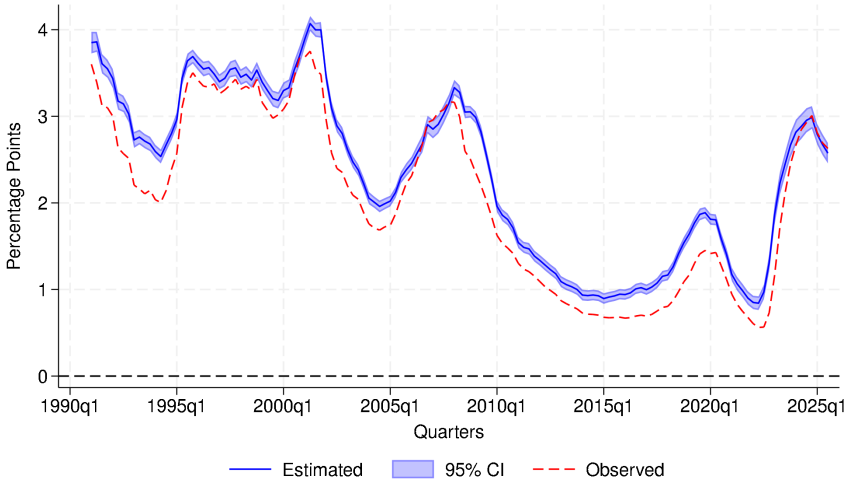
In this specification, the γ coefficients capture differences in average deposit rates across risk terciles, while the interaction terms capture differences in the uninsured premium across those same terciles. If bank risk is an important driver of the uninsured deposit premium, these interaction terms should be economically meaningful and statistically significant.

4.3 Validating the Empirical Methodology

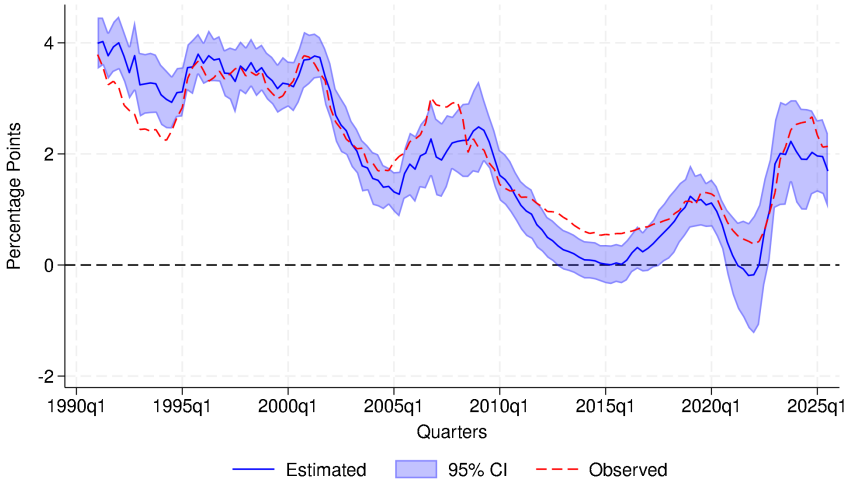
Before turning to the main estimates of the uninsured deposit premium, we assess the accuracy of the methodology in settings where the true rate spreads are directly observable. Specifically, we compare the estimated coefficients from equation (9) with the actual spreads between time and demand deposit rates and between non-transactional and transactional deposit rates. Figures 1 and 2 report the results for equally weighted and deposit-weighted specifications.

Figure 1: Time Deposit Rate Premium – Estimated vs Observed

(a) Equally-weighted observations



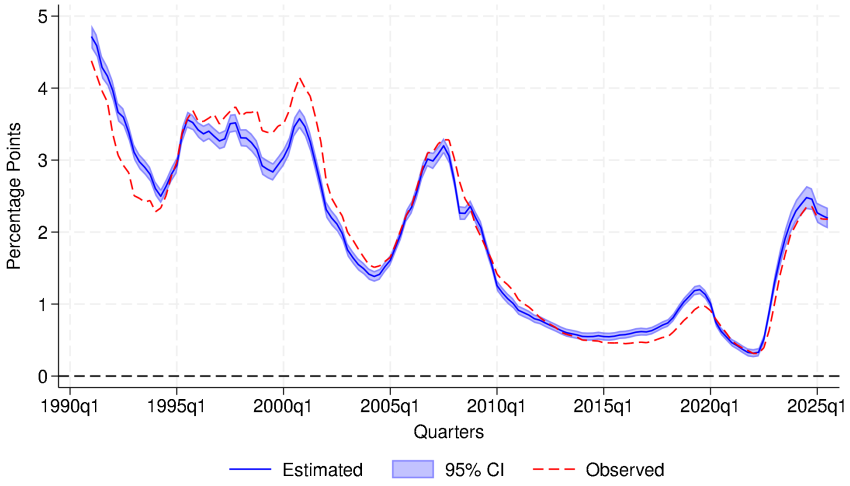
(b) Deposit-weighted observations



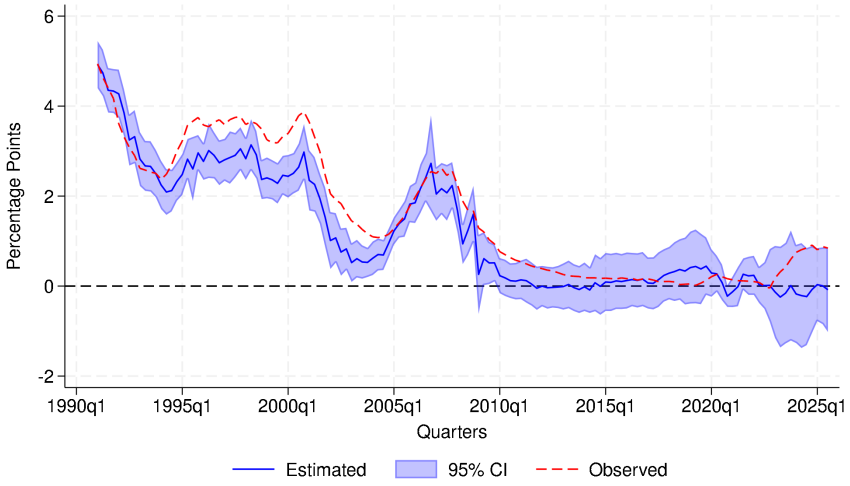
Note: Confidence intervals in shaded blue were constructed with standard errors clustered by bank.

Figure 2: Non-Transactional Deposit Rate Premium – Estimated vs Observed

(a) Equally-weighted observations



(b) Deposit-weighted observations



Note: Confidence intervals in shaded blue were constructed with standard errors clustered by bank.

The validation exercise is reassuring. In both cases, the estimated premia track the observed premia very closely, and they do so in both the equally weighted and deposit-

weighted specifications. This close alignment suggests that bias is limited in settings where the truth is observable. While the insured-uninsured split is latent and may therefore be more susceptible to bias, the strong performance of the methodology in these observable categories supports the interpretation of the main estimates that follow.

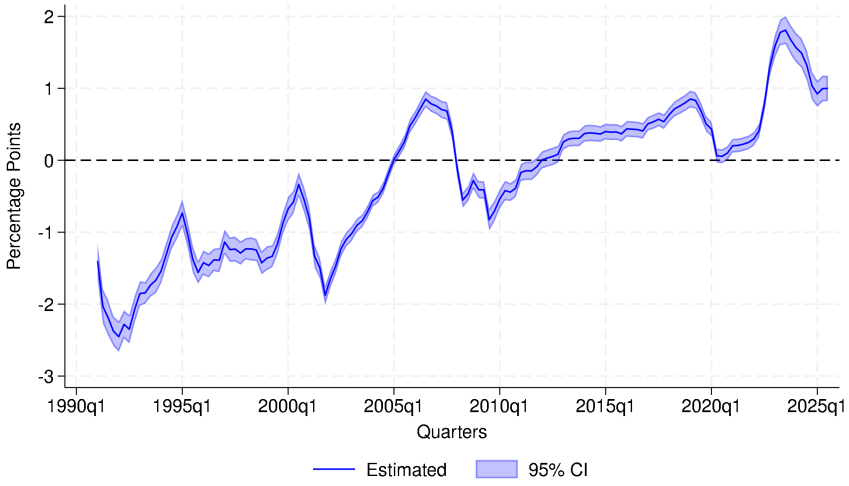
This section presents our baseline estimates of the uninsured deposit premium (UDP) without controlling for deposit or depositor characteristics. We first document the evolution of the premium itself and then decompose it into its insured and uninsured deposit rate components.

4.4 Uninsured Deposit Premium: Baseline Results

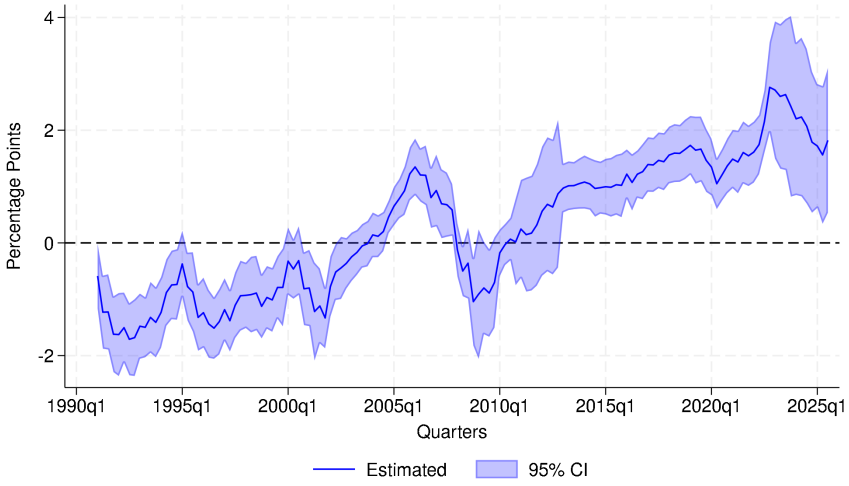
Figure 3 plots the estimated time-varying coefficients, β_t^U, from the baseline specification in equation (9). Panel (a) reports estimates using equally weighted observations, which capture the premium paid by the average bank regardless of size. Panel (b) reports deposit-weighted estimates, which capture the aggregate premium in the banking system.

Figure 3: Uninsured Deposit Premium: Baseline

(a) Equally-weighted observations



(b) Deposit-weighted observations



Note: Confidence intervals in shaded blue were constructed with standard errors clustered by bank.

Two patterns stand out. First, the uninsured deposit premium displays a large secular increase over the sample period. In the equally weighted specification, the premium rises

from below −200 basis points in the early 1990s to nearly +200 basis points in 2023, following the failure of Silicon Valley Bank (SVB). The deposit-weighted series shows an even larger aggregate shift, increasing from about −170 basis points in 1992 to nearly +280 basis points in late 2022. Across both measures, the relative cost of uninsured deposits rises by more than 400 basis points over the sample.

Second, the premium also exhibits substantial cyclicality. In both specifications, movements in the UDP appear closely related to the monetary policy cycle, a relationship that we quantify formally in Section 6.

4.5 Implied Insured and Uninsured Deposit Rates: Baseline

The increase in the UDP can arise from rising uninsured deposit rates, falling insured deposit rates, or both. To decompose these movements, we use the estimated time fixed effects, $\hat{\theta}_t$, and period-specific premium coefficients, $\hat{\beta}_t^U$, from equation (9) to construct implied insured and uninsured deposit rates under the fixed-effects normalization:

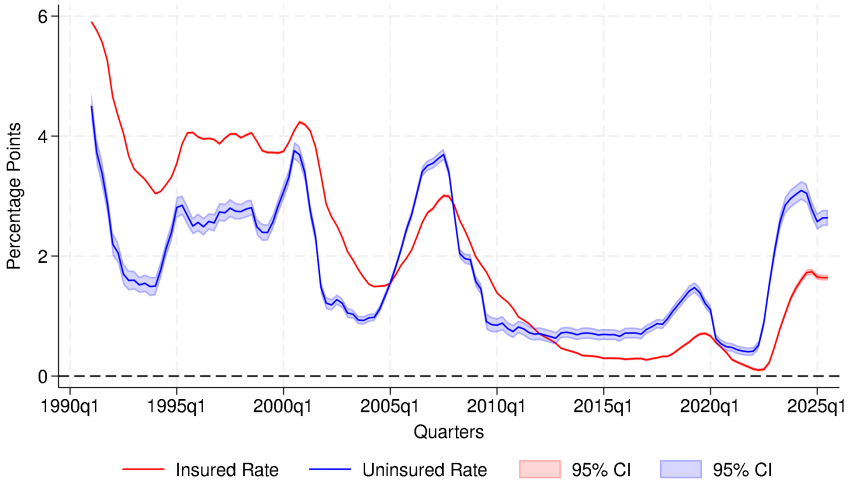
$$\widehat{r}_t^I = \hat{\theta}_t \quad \text{and} \quad \widehat{r}_t^U = \hat{\theta}_t + \hat{\beta}_t^U,$$

where $\widehat{r}_t^I$ and $\widehat{r}_t^U$ denote the implied insured and uninsured deposit rates, respectively.[4] Figure 4 plots these implied series.

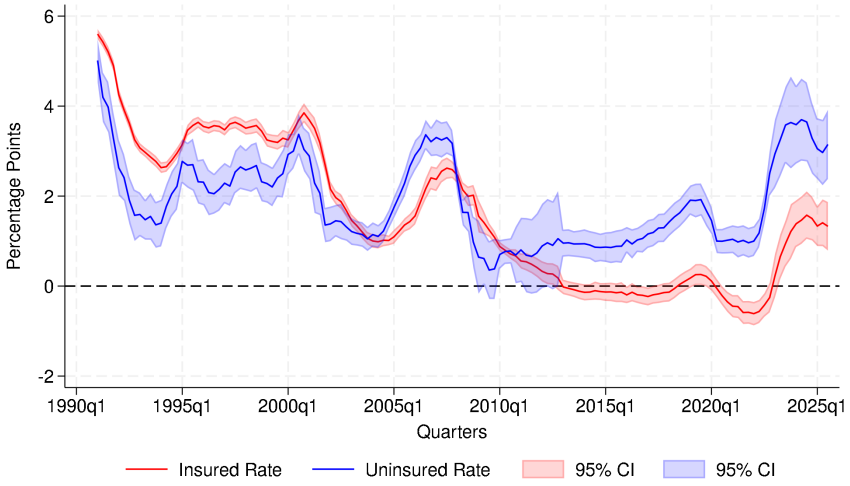
[4]More precisely, these series are the insured and uninsured rate paths implied by the fixed-effects specification under the normalization used to identify the time effects. Thus, the decomposition is exact for the fitted values of the model. In a balanced panel with mean-zero bank fixed effects, these fitted series coincide with period-specific average insured and uninsured rates. In an unbalanced panel, they need not coincide exactly with cross-sectional averages in each period, because the average bank fixed effect among banks observed in a given quarter may vary over time. Accordingly, the figure is best read as a decomposition of the estimated premium into model-implied insured and uninsured rate series.

Figure 4: Implied Deposit Rates: Baseline

(a) Equally-weighted observations



(b) Deposit-weighted observations



Note: The blue line depicts the implied uninsured deposit rate and the red line the implied insured deposit rate. Shaded areas represent 95% confidence intervals constructed with standard errors clustered by bank.

In both specifications, the rise in the UDP is driven primarily by a long-run decline in the insured deposit rate, combined with a more modest increase in the uninsured deposit rate.

Using the trough and peak of the UDP series in Figure 3, the equally weighted estimates imply that the insured rate fell by more than 350 basis points, while the uninsured rate rose by about 65 basis points. The deposit-weighted estimates show a very similar pattern: a decline of more than 375 basis points in the insured rate and an increase of about 60 basis points in the uninsured rate.

These divergent trends account for the sharp increase in the uninsured deposit premium over the past three decades. In the next section, we examine whether this baseline premium reflects differences in deposit characteristics, depositor characteristics, or both.

5 Decomposing the UDP

The baseline estimates document a large and rising uninsured deposit premium. However, this secular increase may reflect changes in deposit composition rather than uninsured status per se. In this section, we progressively add controls—first for deposit product characteristics (time and non-transaction accounts), and then for depositor characteristics (corporate deposit shares and the average size of uninsured accounts)—to isolate the sources of the premium. The key result is that once we account for proxies for depositor bargaining power, the long-run trend in the UDP largely disappears. This suggests that the secular rise in the premium reflects compensation for corporate and large depositors rather than insurance status alone.

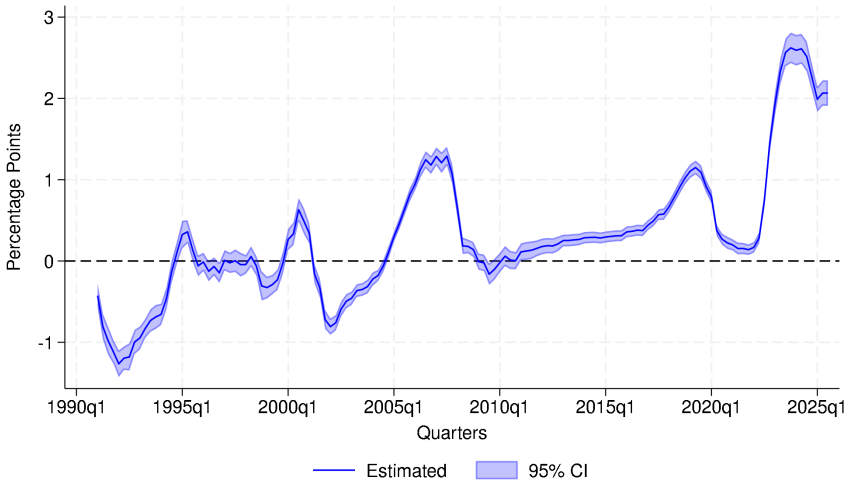
5.1 Controlling for Time and Non-transaction Accounts

Because uninsured deposits are disproportionately concentrated in time and non-transaction accounts, shifts in product composition could mechanically contribute to the baseline pre-

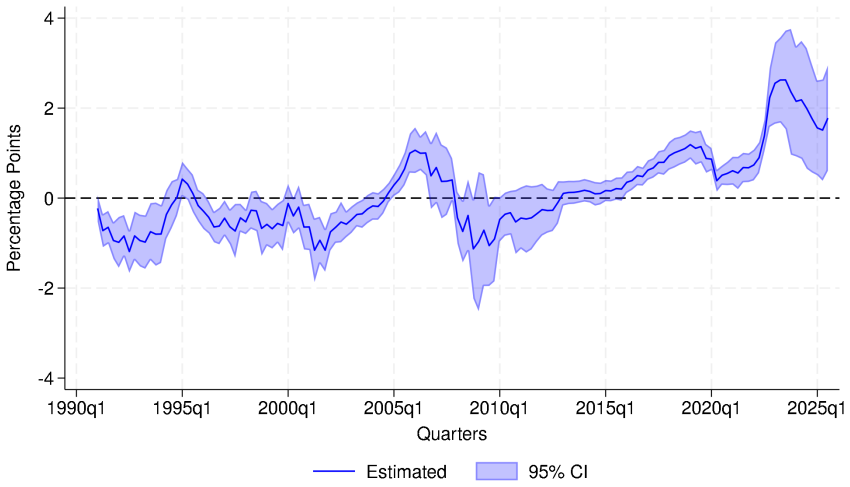
mium. To address this possibility, we estimate equation (10), which controls for the bank-level shares of time deposits and non-transaction deposits. As before, Panel (a) presents equally weighted estimates and Panel (b) presents deposit-weighted estimates.

Figure 5: Uninsured Deposit Premium: Controlling for Deposit Characteristics

(a) Equally-weighted observations



(b) Deposit-weighted observations



Note: Confidence intervals in shaded blue were constructed with standard errors clustered by bank.

Figure 5 shows that controlling for deposit characteristics attenuates, but does not eliminate, the secular rise in the premium. In this specification, the gap between the equally weighted and deposit-weighted estimates narrows substantially. Both series reach troughs of roughly -100 basis points in the early 1990s and peak at about $+260$ basis points in 2023. Thus, even after accounting for product composition, the estimated premium still rises by more than 350 basis points over the sample.

Relative to the baseline results, controlling for deposit characteristics yields two differences. First, the estimated premium is less negative early in the sample. Second, the post-SVB increase appears somewhat more pronounced relative to the historical trend. At the same time, the cyclical behavior of the series remains strong and still appears closely related to the monetary policy cycle.

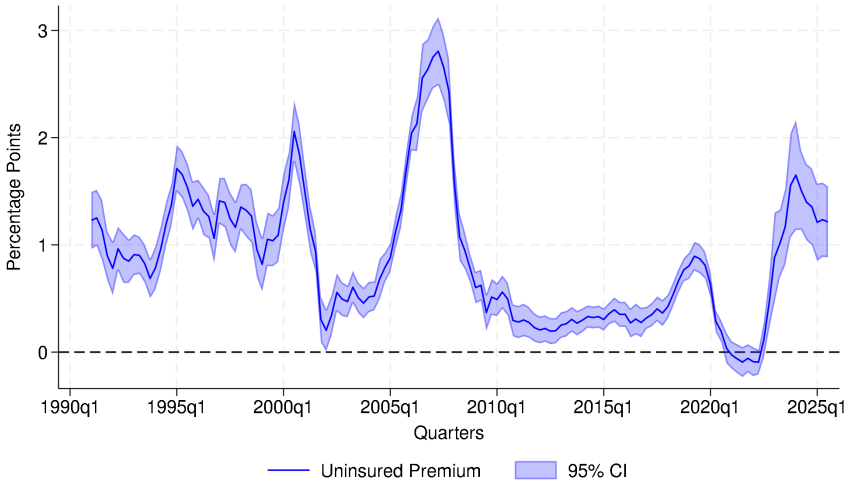
5.2 Controlling for Depositor Bargaining Power

Since product composition does not explain the long-run increase in the UDP, we next turn to the bargaining channel. As discussed in Section 3, the premium may reflect the stronger outside options and bargaining power of large, sophisticated depositors. Corporate depositors, for example, actively manage cash balances and can reallocate funds across banks and money-market instruments, giving them greater leverage in deposit-rate negotiations.

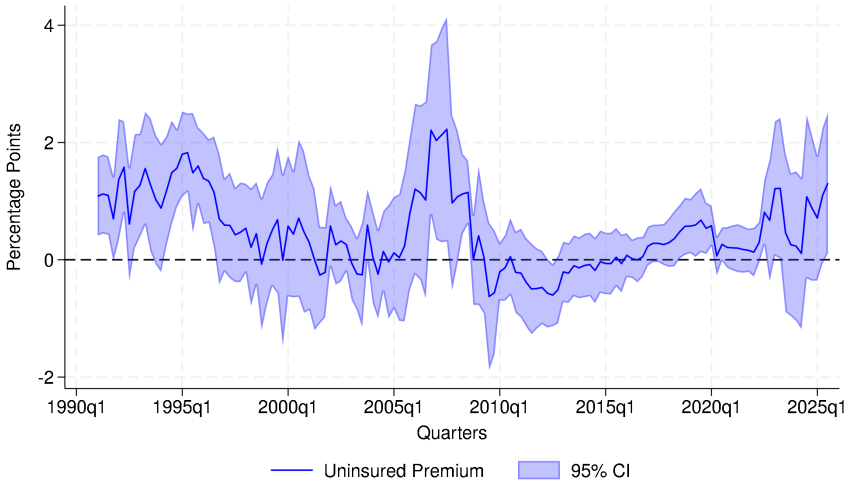
To evaluate this mechanism, we estimate equation (11), which augments the specification with two proxies for depositor bargaining power: the share of corporate deposits and the log of the average uninsured deposit size.

Figure 6: Uninsured Deposit Premium: Controlling for Deposit and Depositor Characteristics

(a) Equally-weighted observations



(b) Deposit-weighted observations



Note: Confidence intervals in shaded blue were constructed with standard errors clustered by bank.

Figure 6 yields the central result of the paper. Once we control for depositor characteristics, the secular rise in the uninsured deposit premium largely disappears, while its

cyclical component remains. In other words, the long-run increase in the UDP is largely absorbed by the rising compensation paid to corporate and large depositors, consistent with a bargaining-power interpretation.

To quantify this result, Table 1 reports regressions of the UDP on a linear time trend and the federal funds rate. Across specifications, the estimated time trend is small and statistically indistinguishable from zero. At the same time, the sensitivity of the UDP to the federal funds rate remains strong and is, in several specifications, larger than in the baseline case.

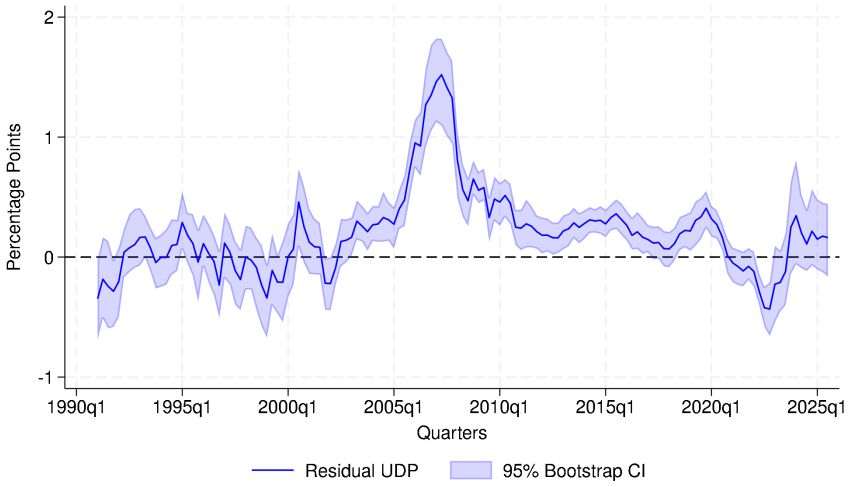
Table 1: Uninsured Deposit Premium and Monetary Policy: Controlling for Deposit and Depositor Characteristics

	Equal Weighted				Deposit Weighted			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fed Funds Rate	0.237***	0.245***			0.196***	0.193***		
	(0.032)	(0.034)			(0.044)	(0.048)		
Time Trend (dt)		0.001		-0.000		-0.000		0.000
		(0.002)		(0.000)		(0.002)		(0.000)
Δ Fed Funds Rate			0.320***	0.325***			0.231***	0.230***
			(0.039)	(0.040)			(0.047)	(0.047)
Constant	0.225***	0.025	0.005	0.067	-0.050	0.026	0.005	-0.008
	(0.057)	(0.362)	(0.010)	(0.048)	(0.095)	(0.557)	(0.015)	(0.086)
Observations	139	139	138	138	139	139	138	138
R^2	0.686	0.689	0.566	0.571	0.454	0.454	0.089	0.089

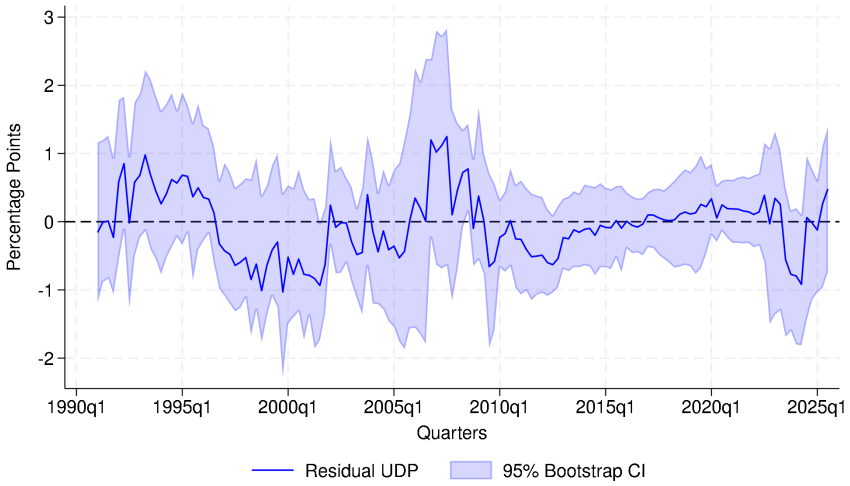
Note: Standard errors robust to serial correlation and heteroskedasticity are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level.

Figure 7: Residual Uninsured Deposit Premium: Controlling for Deposit and Depositor Characteristics

(a) Equally-weighted observations



(b) Deposit-weighted observations



Note: The blue line depicts the residual uninsured premium, defined as the estimated premium net of the portion predicted by the federal funds rate. The shaded bands represent 95% bootstrapped confidence intervals (clustered by bank), which account for estimation error in both the generated regressors and the time-series pass-through regressions.

Consistent with Table 1, Figure 7 shows that the residual UDP, after removing the component explained by the federal funds rate, is largely trendless and economically modest over most of the sample. The main exception is a temporary spike around the Global Financial Crisis, likely reflecting unusual deposit-market dynamics during that period, including uncertainty over deposit insurance and the introduction of the Transaction Account Guarantee Program.

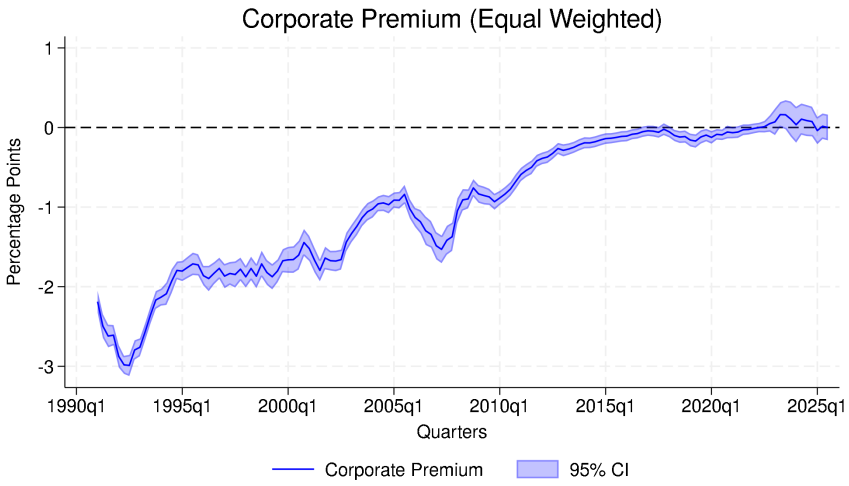
5.3 Corporate and Large Deposit Premia

To better understand the source of this result, we next examine the premia associated with our two bargaining proxies: the corporate deposit share and the average size of uninsured accounts.

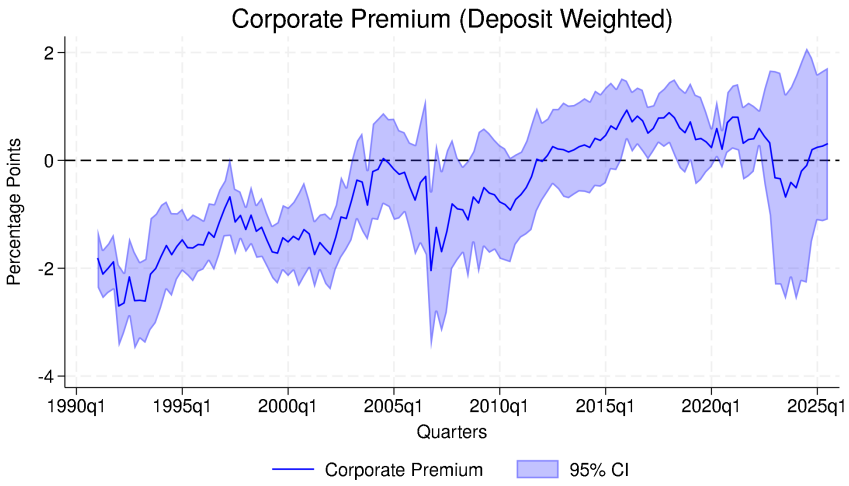
As shown in Figure 8, the corporate deposit premium is strongly negative in the early 1990s but rises steadily over time, approaching zero around the final repeal of Regulation Q in 2011. By contrast, Figure 9 illustrates that the relative compensation associated with very large uninsured accounts increases mainly over the last two decades. Taken together, these two series account for most of the long-run shift in the uninsured deposit premium. These patterns are consistent with the bargaining interpretation of the model: as the outside options and bargaining power of corporate and large depositors increased over time, so did the compensation they received.

Figure 8: Corporate Deposit Premium

(a) Equally-weighted observations



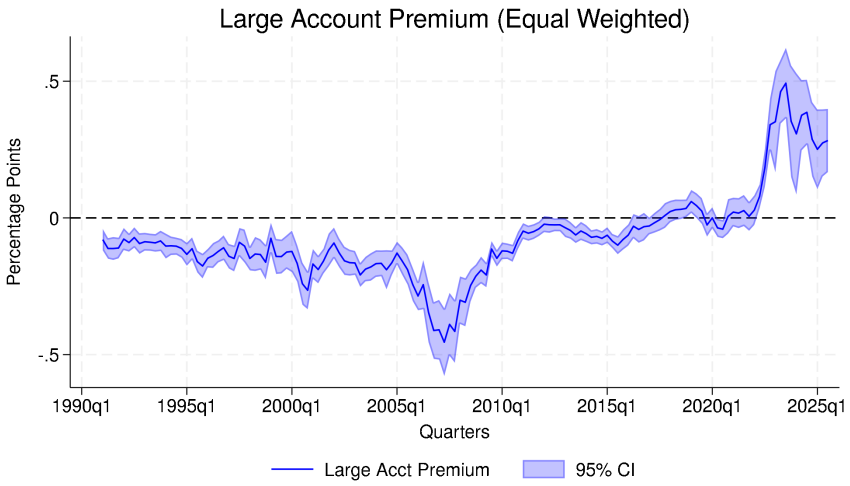
(b) Deposit-weighted observations



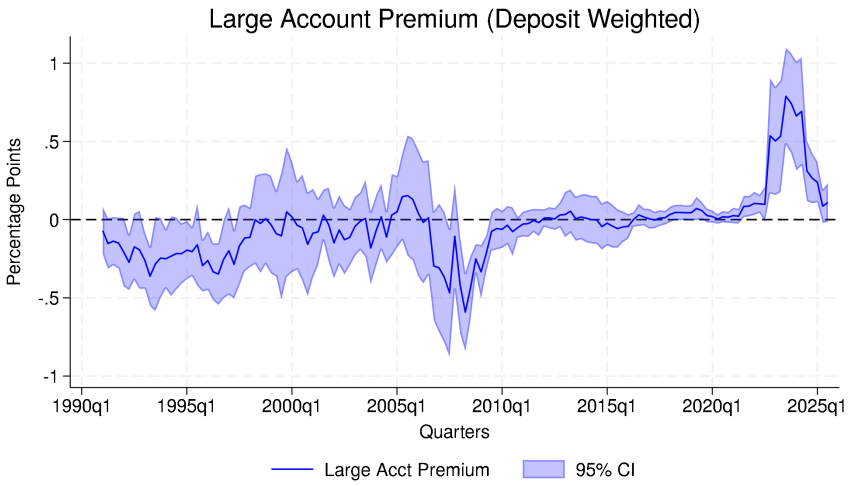
Note: Confidence intervals in shaded blue were constructed with standard errors clustered by bank.

Figure 9: Large Uninsured Account Premium

(a) Equally-weighted observations



(b) Deposit-weighted observations



Note: Confidence intervals in shaded blue were constructed with standard errors clustered by bank.

Having identified the sources of the secular trend in the uninsured deposit premium, we next turn to its cyclical relationship with monetary policy and to the role of bank-specific

risk.

6 Testing the Model Predictions: Monetary Policy and Risk

Having shown that depositor composition explains the secular rise in the uninsured deposit premium, we now turn to the model's remaining empirical predictions. We first examine the relationship between the UDP and monetary policy. We then test whether bank-specific risk affects the premium in the cross section, as a risk-based interpretation would imply. The evidence points in the same direction: the UDP co-moves strongly with the federal funds rate, while bank-specific risk does not systematically explain variation in the premium.

6.1 The Role of Monetary Policy

To quantify the cyclical relationship between the UDP and monetary policy, we regress our baseline UDP estimates on the federal funds rate (FFR). Table 2 reports the results for both the equally weighted and deposit-weighted series across four specifications: a levels regression, a levels regression with a linear time trend, and first-difference regressions with and without a trend.

In the simple levels specification, the unconditional correlation between the UDP and the FFR is negative and statistically insignificant. Once we include a linear time trend, however, a strong positive relationship emerges. The same pattern appears even more clearly in first differences. Across these specifications, the evidence indicates that the UDP rises as monetary policy tightens, consistent with the bargaining interpretation of the model.

Table 2: Uninsured Deposit Premium and Monetary Policy

	Equal Weighted				Deposit Weighted			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fed Funds Rate	-0.105	0.115***			-0.166	0.094*		
	(0.105)	(0.038)			(0.124)	(0.050)		
Time Trend (dt)		0.025***		-0.000		0.030***		-0.000
		(0.002)		(0.000)		(0.002)		(0.000)
Δ Fed Funds Rate			0.275***	0.281***			0.276***	0.280***
			(0.020)	(0.024)			(0.045)	(0.045)
Constant	0.006	-5.448***	0.022*	0.103*	0.727**	-5.726***	0.022	0.071
	(0.237)	(0.398)	(0.012)	(0.058)	(0.356)	(0.432)	(0.019)	(0.075)
Observations	139	139	138	138	139	139	138	138
R^2	0.053	0.842	0.469	0.478	0.093	0.859	0.315	0.317

Note: Standard errors robust to serial correlation and heteroskedasticity are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level.

The results also suggest that pass-through from the policy rate to the UDP is relatively strong. In the first-difference specifications, the estimated relationship is both economically meaningful and statistically precise, and the corresponding R^2 values are relatively high. This stands in contrast to the broader deposit-pricing literature, which often emphasizes gradual pass-through in average deposit rates.

To understand the source of this co-movement, we next examine whether the cyclicality of the UDP is driven primarily by insured or uninsured deposit rates. Table 3 reports regressions of the estimated insured and uninsured deposit rates on the FFR.

The results show that uninsured deposit rates are substantially more sensitive to the federal funds rate than insured deposit rates. In the levels regressions with a trend, the coefficients on the FFR are roughly 25 to 35 percent larger for uninsured deposits than for insured deposits. In first differences, the contrast is sharper: changes in the FFR have more than twice the effect on uninsured rates as on insured rates. The corresponding R^2 values

Table 3: Insured and Uninsured Deposit Rates and Monetary Policy

	Equal Weighted				Deposit Weighted			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Insured	Insured	Uninsured	Uninsured	Insured	Insured	Uninsured	Uninsured
Fed Funds Rate	0.325***		0.440***		0.360***		0.454***	
	(0.035)		(0.025)		(0.040)		(0.022)	
Time Trend (dt)	-0.025***		0.001		-0.023***		0.006***	
	(0.002)		(0.002)		(0.002)		(0.002)	
Δ Fed Funds Rate		0.198***		0.473***		0.238***		0.514***
		(0.035)		(0.045)		(0.037)		(0.030)
Constant	5.899***	-0.028	0.451	-0.006	5.146***	-0.027**	-0.580*	-0.006
	(0.420)	(0.020)	(0.360)	(0.012)	(0.497)	(0.011)	(0.326)	(0.010)
Observations	139	138	139	138	139	138	139	138
R^2	0.916	0.342	0.891	0.736	0.918	0.378	0.885	0.754

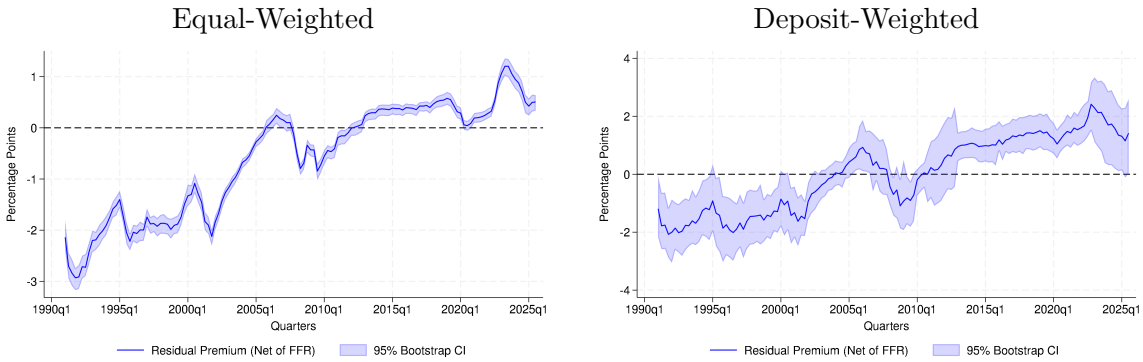
Note: Standard errors robust to serial correlation and heteroskedasticity are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level.

are also higher for uninsured rates, indicating a tighter empirical link between uninsured funding costs and monetary policy. Thus, the cyclicality of the UDP is primarily driven by the greater policy sensitivity of uninsured deposit rates.

Finally, we examine the component of the UDP that is not explained by monetary policy. Figure 10 plots the residual UDP, constructed by subtracting the FFR-predicted component—using the coefficients from columns 2 and 6 of Table 2—from the baseline estimates.

The residual series highlights two points. First, removing the component predicted by the FFR leaves substantial cyclical variation in the UDP, indicating that the premium contains cyclical variation beyond the component directly explained by monetary policy. Second, the secular rise in the residual remains visible in the baseline specification. As shown in Section 5, however, this remaining long-run component largely disappears once we control for depositor characteristics.

Figure 10: Residual Uninsured Deposit Premium



Note: The blue line depicts the residual uninsured premium, defined as the estimated premium net of the portion predicted by the federal funds rate. The shaded bands represent 95% bootstrapped confidence intervals (clustered by bank), which account for estimation error in both the generated regressors and the time-series pass-through regressions.

6.2 Bank Risk

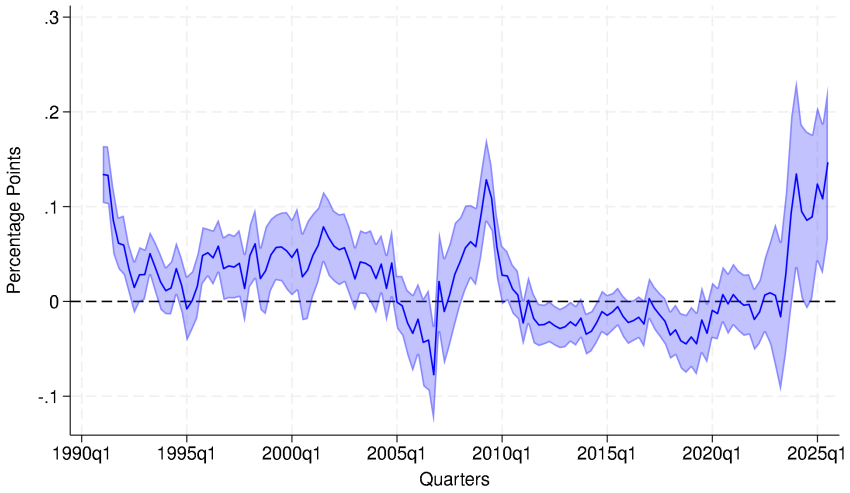
We next evaluate the risk channel. If the uninsured deposit premium compensates depositors for expected default losses, riskier banks should pay a systematically higher premium. To test this implication, we estimate equation (12), sorting banks into terciles based on either their delinquency rate or their MATCE ratio.

Figures 11 and 12 plot the estimated coefficients for the highest-risk terciles—those with the highest delinquency rates and the lowest MATCE ratios, respectively—relative to the lowest-risk group.[5]

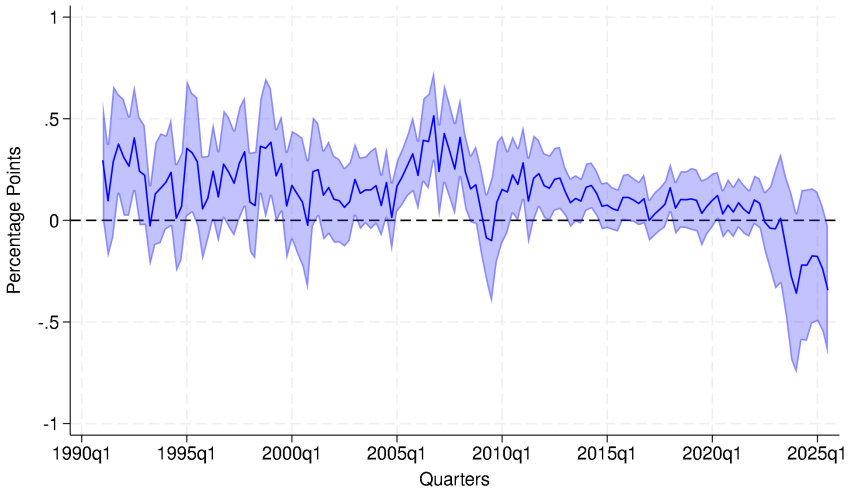
[5]The results in Figures 11 and 12 are based on equally weighted regressions. Deposit-weighted results, omitted for brevity, are qualitatively similar but less precisely estimated.

Figure 11: Effect of Delinquency Rates on Insured Deposit Rates and the Uninsured Deposit Premium

(a) Effect on insured deposit rate



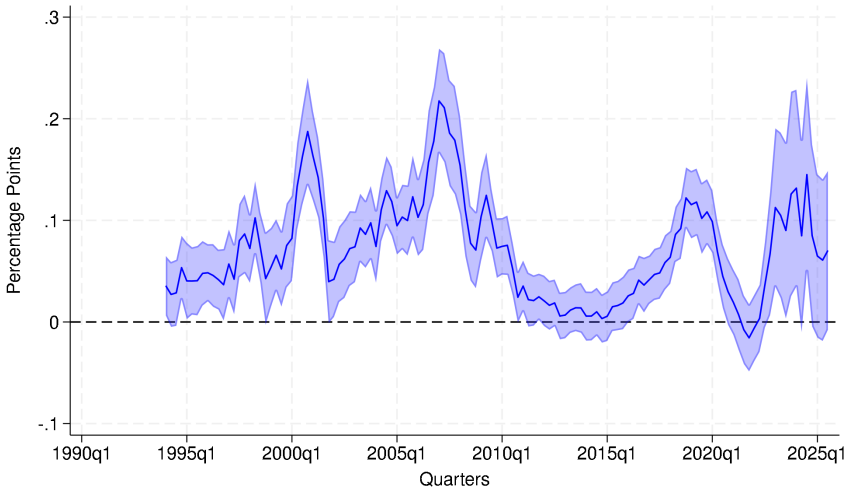
(b) Effect on uninsured deposit premium



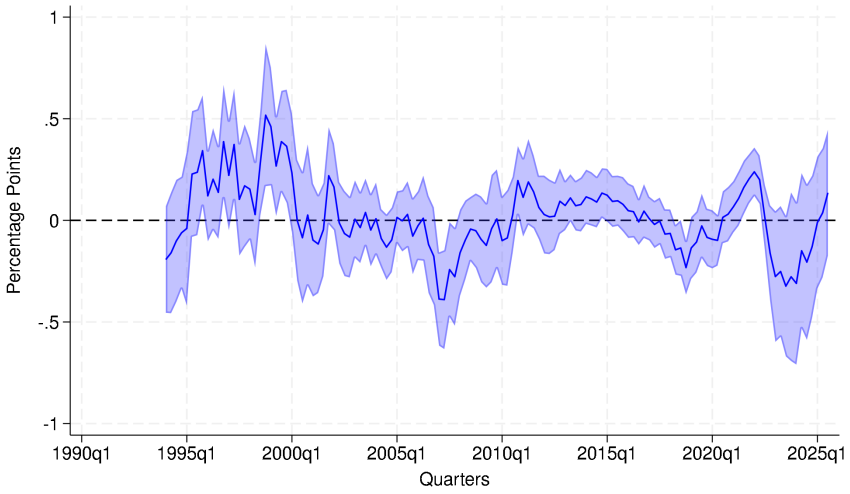
Note: Confidence intervals in shaded blue were constructed with standard errors clustered by bank.

Figure 12: Effect of Bank Capitalization on Insured Deposit Rates and the Uninsured Deposit Premium

(a) Effect on insured deposit rate



(b) Effect on uninsured deposit premium



Note: Confidence intervals in shaded blue were constructed with standard errors clustered by bank.

For both risk measures, Panel (a) shows that riskier banks often pay higher average rates on insured deposits than safer banks. By contrast, Panel (b) shows little systematic

relationship between bank risk and the uninsured deposit premium itself. Taken together, these results imply that while bank risk may raise a bank's overall funding costs, it does not reliably widen the spread between uninsured and insured deposit rates. This pattern is difficult to reconcile with a pure market-discipline interpretation, but it is consistent with the bargaining-based explanation developed in the paper.

The limited empirical role of bank risk is also plausible in light of the historically low incidence and severity of bank default losses in the United States. According to Federal Deposit Insurance Corporation (2023), the average annual bank failure rate since 1991 is approximately 0.3 percent. Conditional on failure, uninsured depositors do not always incur losses, and the unconditional loss rate for uninsured depositors is only about 6 percent.[6]

Under risk neutrality, a 0.3 percent annual failure probability combined with a 6 percent loss rate implies an expected risk premium of less than 2 basis points. Even under more conservative assumptions—for example, a 1 percent annual failure probability and a 10 percent loss-given-default—expected credit losses would amount to only 10 basis points. Risk aversion could increase these numbers somewhat, but the implied magnitudes remain small relative to the movements in the UDP documented in the data.

Overall, we find little evidence that bank-specific risk explains the large and persistent movements in the uninsured deposit premium. Instead, the results in this section reinforce the interpretation from the previous section: the secular component of the UDP is tied to depositor composition, while its cyclical component reflects the greater sensitivity of uninsured depositors' outside options to monetary policy.

[6]The unconditional loss rate declined from roughly 10 percent in the pre-GFC period (1992–2007) to about 3 percent in the post-GFC period (2008–2022). Conditional on experiencing losses at a failed bank—which occurs in roughly 20 percent of failures—the average conditional loss rate is about 28 percent.

7 Conclusion

Insured deposits are typically small, while uninsured deposits are often large and exposed to bank default risk. This paper studies whether differences in uninsured and insured deposit rates reflect compensation for default risk or the bargaining power of large depositors. The evidence points strongly to bargaining power as the main driver of those differences.

Because banks do not separately report the interest paid on insured and uninsured accounts, the gap between these rates has remained largely unobserved. To address this, we develop and validate a methodology that uses cross-sectional variation in bank funding composition to estimate the uninsured deposit premium. Applying this approach to U.S. bank-level data from 1991 to 2025, we construct the first long-run series of the premium. We document a secular increase of nearly 400 basis points over our sample and a strong cyclical relationship between monetary policy and deposit pricing: a 100-basis-point increase in the federal funds rate is associated with a 10 to 25 basis point increase in the premium.

Our central finding is that variation in this premium is more closely tied to depositor composition than to default risk. When we control for the share of corporate deposits and the average size of uninsured accounts—both proxies for depositor bargaining power—the secular trend in the premium largely disappears. Contrary to standard market-discipline predictions, we find no systematic evidence that bank-specific risk drives the premium. While riskier banks pay higher deposit rates overall, they do not pay a wider spread between uninsured and insured deposits. A simple bargaining model, in which the premium reflects the stronger outside options of large depositors, rationalizes these empirical patterns.

These findings reshape our understanding of bank funding costs and carry important distributional consequences. Over the past three decades, large depositors—primarily corporations—

have benefited from rising uninsured rates, while retail households have faced declining insured rates. Because these diverging trends reflect shifts in bargaining leverage rather than compensation for default risk, they point to a reallocation of economic rents across depositor types. Understanding the macroeconomic and welfare implications of this reallocation, as well as its interaction with the design of deposit insurance, remains an important direction for future research.

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A Appendix: Approximate OLS Bias

This appendix derives approximate expressions for the OLS bias in the simple and extended specifications used in the main text. We compare the pooled specification, which includes only time fixed effects, with the bank fixed-effects specification. While the main analysis relies on the latter, the pooled case is useful for building intuition about the sources of endogeneity. The derivations below are exact for the pooled time-fixed-effects case and become approximate when we linearize interaction terms around average deposit shares. In the bank fixed-effects case with time-varying coefficients (Section A.2), the exact estimator is obtained from the full interacted panel regression. The expressions in Sections A.2 and A.3 should therefore be interpreted as heuristic approximations that clarify the sources of bias rather than as exact quarter-by-quarter regression identities.

For simplicity, we present the results for unweighted OLS. The logic extends naturally to weighted least squares, provided the weights are exogenous with respect to the within-period rate deviations and share fluctuations that generate the bias.

A.1 Simple Regression

Let DR_{it}^I and DR_{it}^U denote the rates paid on insured and uninsured deposits by bank i in period t, and let α_{it}^U denote the uninsured deposit share. The bank's average deposit rate satisfies the exact identity:

$$DR_{it} = (1 - \alpha_{it}^U) DR_{it}^I + \alpha_{it}^U DR_{it}^U = DR_{it}^I + \alpha_{it}^U \big(DR_{it}^U - DR_{it}^I\big).$$

Let $\overline{DR}_t^I$ and $\overline{DR}_t^U$ denote the cross-sectional means of DR_{it}^I and DR_{it}^U in period t. We

can then write the average rate as:

$$DR_{it} = \underbrace{\overline{DR}_t^I}_{\theta_t} + \underbrace{\left(\overline{DR}_t^U - \overline{DR}_t^I\right)}_{\beta_t} \alpha_{it}^U + \epsilon_{it}^{pool},$$

where the pooled error term is:

$$\epsilon_{it}^{pool} = \underbrace{\left(DR_{it}^I - \overline{DR}_t^I\right)}_{\text{insured-rate deviation}} + \underbrace{\alpha_{it}^U \left[\left(DR_{it}^U - DR_{it}^I\right) - \left(\overline{DR}_t^U - \overline{DR}_t^I\right)\right]}_{\text{share} \times \text{spread-deviation term}}.$$

In the pooled regression with time fixed effects,

$$DR_{it} = \theta_t + \beta_t \alpha_{it}^U + \epsilon_{it}^{pool},$$

the OLS slope satisfies:

$$\widehat{\beta}_t^{OLS} = \beta_t + \frac{\mathrm{Cov}_i(\alpha_{it}^U, \epsilon_{it}^{pool})}{\mathrm{Var}_i(\alpha_{it}^U)}.$$

To obtain an interpretable approximation, we linearize the interaction term around the cross-sectional average uninsured share,

$$\overline{\alpha}_t^U \equiv \frac{1}{N} \sum_{i=1}^{N} \alpha_{it}^U.$$

This yields:

$$\epsilon_{it}^{pool} \approx (1 - \overline{\alpha}_t^U)(DR_{it}^I - \overline{DR}_t^I) + \overline{\alpha}_t^U (DR_{it}^U - \overline{DR}_t^U),$$

and therefore:

$$\widehat{\beta}_t^{OLS} - \beta_t \approx \frac{(1-\overline{\alpha}_t^U)\,\mathrm{Cov}_i(\alpha_{it}^U, DR_{it}^I) + \overline{\alpha}_t^U\,\mathrm{Cov}_i(\alpha_{it}^U, DR_{it}^U)}{\mathrm{Var}_i(\alpha_{it}^U)}.$$

This approximation shows that the bias is a weighted average of two cross-sectional relationships: the covariance between the uninsured share and insured deposit rates, and the covariance between the uninsured share and uninsured deposit rates.

A.2 Bank Fixed Effects

Now consider the specification with both time and bank fixed effects:

$$DR_{it} = \lambda_i + \theta_t + \beta_t \alpha_{it}^U + u_{it}.$$

With bank fixed effects and time-varying coefficients, the exact estimator is obtained from the full interacted panel regression, so the quarter-t coefficient is estimated jointly with the coefficients for all other quarters. As a result, the fixed-effects estimator does not generally reduce to a separate quarter-by-quarter regression on bank-demeaned variables. The expression that follows should therefore be interpreted as a heuristic approximation rather than as an exact regression identity.[7]

[7]Once bank fixed effects are applied to a model with time-varying coefficients, the within-transformed regressors $D_t\alpha_{it}^U$ are no longer orthogonal across quarters. The exact fixed-effects estimator can still be written using the Frisch–Waugh–Lovell as $(X'M_ZX)^{-1}X'M_Zy$, where X stacks the quarter-specific interactions and M_Z residualizes with respect to bank and time fixed effects. Each quarter-specific coefficient is therefore part of a jointly estimated system rather than a separate within-bank regression. The heuristic expression is still useful because it preserves the main economic intuition: relative to pooled OLS, bank fixed effects shift the relevant source of bias from cross-sectional covariance to within-bank comovement between funding shares and underlying deposit rates.

Applying the same first-order linearization as above suggests the approximation

$$\widehat{\beta}_t^{FE} - \beta_t \approx \frac{(1-\overline{\alpha}_t^U)\,\mathrm{Cov}_i\big(\alpha_{it}^U - \overline{\alpha}_i^U,\ DR_{it}^I - \overline{DR}_i^I\big) + \overline{\alpha}_t^U\,\mathrm{Cov}_i\big(\alpha_{it}^U - \overline{\alpha}_i^U,\ DR_{it}^U - \overline{DR}_i^U\big)}{\mathrm{Var}_i\big(\alpha_{it}^U - \overline{\alpha}_i^U\big)}.$$

This approximation suggests that, relative to pooled OLS, the relevant source of bias under bank fixed effects is within-bank comovement between the uninsured share and deposit rates. Time-invariant cross-sectional heterogeneity is removed by the bank fixed effects, although the quarter-specific coefficients remain jointly estimated in the full panel regression.

A.3 Extension to the Multivariate Specification

The logic extends naturally to the multivariate specification in equation (10). Once additional deposit shares are included as controls, the identifying variation is the component of the uninsured share that remains after partialling out the other included shares.

Let $\tilde{\alpha}_{it}^U$ denote the residual from regressing α_{it}^U on the other included deposit shares in period t. The pooled-OLS bias in the coefficient on the uninsured share is approximately:

$$\widehat{\beta}_t^{U,OLS} - \beta_t^U \approx \frac{\mathrm{Cov}_i\big(\tilde{\alpha}_{it}^U, \varepsilon_{it}\big)}{\mathrm{Var}_i(\tilde{\alpha}_{it}^U)},$$

where ε_{it} collects omitted variation in underlying deposit rates not absorbed by the additive specification. With bank fixed effects and time-varying coefficients, the exact estimator is again obtained from the full interacted panel regression. A heuristic analogue of the fixed-effects bias expression is:

$$\widehat{\beta}_t^{U,FE} - \beta_t^U \approx \frac{\mathrm{Cov}_i\big(\tilde{\alpha}_{it}^{U,w}, \varepsilon_{it}^w\big)}{\mathrm{Var}_i(\tilde{\alpha}_{it}^{U,w})},$$

where $\tilde{\alpha}_{it}^{U,w}$ and ε_{it}^w denote the within-bank residualized uninsured share and the within-bank

regression error, respectively.

The economic interpretation remains consistent: bias arises when the identifying variation in the uninsured share is correlated with omitted variation in underlying deposit rates. Under bank fixed effects, this approximation highlights the role of within-bank correlations rather than persistent structural differences across institutions.