Market-Priced Savings, Bank Deposit Market Power, and Monetary Policy Transmission

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Abstract

Depositors' access to stocks and bonds (market-priced savings, or MPS) shapes deposit pricing and monetary policy transmission. Using Danish administrative data linking every deposit account to each depositor's complete financial portfolio, we show that MPS holders receive 8.4 percentage points higher pass-through of policy rate changes than demographically identical non-holders at the same bank in the same year. This differential operates within existing accounts rather than through account opening or closing. Despite this higher pass-through, MPS holders reduce deposits 3.4 percentage points more per 100 basis point policy rate increase. These outflows propagate to credit supply, with high-MPS banks reducing lending 1.5 percentage points more per 100 basis points of tightening. Evidence from 175 euro area banks confirms that competition from equities and bonds constrains banks' deposit market power beyond traditional concentration measures.

Keywords: Monetary policy transmission, Deposit rates, Bank market power, Financial market participation

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1 Introduction

Central banks' policy rate changes transmit incompletely to deposit rates. When the Federal Reserve raised rates by 525 basis points between March 2022 and July 2023, deposit rates increased by only 150 basis points on average, with pass-through varying from near zero at some banks to over 60 percent at others. During this same period, money market fund assets surged by $1.5 trillion while bank deposits fell by $1 trillion, as depositors shifted toward instruments whose returns tracked policy rates more closely. This deposit flight reveals that banks face meaningful competition from outside the banking system, constraining their ability to retain deposits without raising rates.

This paper examines how depositors' access to market-priced savings shapes deposit market power and monetary policy transmission through banks. We define market-priced savings (MPS) as financial assets whose returns adjust to market conditions: stocks, bonds, mutual funds, and money market funds. Prior research emphasizes how competition among banks for deposits depends on market concentration (Drechsler et al. 2017), switching costs (Klemperer 1995), and depositor inattention (Egan et al. 2025). We establish that depositors' access to MPS operates as an additional first-order determinant of deposit market power, generating pricing heterogeneity *within* banks rather than across markets.

Our core finding is that depositors holding MPS receive 8.4 percentage points higher pass-through of policy rate changes than observationally equivalent non-holders at the same bank in the same year. When the policy rate increases by 100 basis points (bps), MPS holders experience deposit rate increases of 26 bps versus 18 bps for non-holders. Relative to baseline pass-through, MPS partic-

ipation increases monetary transmission by nearly 50 percent at the individual level. The variation in deposit rates based on MPS participation is substantial and economically significant.

We analyze administrative data from Denmark that cover the universe of bank-depositor relationships from 2003 to 2022. These records link deposit accounts with tax filings detailing each individual's complete financial portfolio, allowing us to observe MPS holdings for every depositor at every bank. This granularity enables identification strategies unavailable to studies using geographic proxies for depositor characteristics (e.g., Drechsler et al. 2017, Bisetti & Sarkar 2025). We observe actual portfolio holdings rather than area-level averages, permitting within-bank comparisons across depositors while controlling for time-varying bank policies through bank-year fixed effects. We complement this Danish analysis with evidence from 175 banks across the euro area during the 2022-2023 tightening cycle.

Our identification relies on revealed preferences from pre-existing MPS participation. While all households theoretically have access to financial markets, documented frictions including information costs (Lusardi & Mitchell 2014), financial literacy barriers (Grinblatt et al. 2011), and behavioral factors prevent universal participation. We use lagged MPS holdings to identify households with demonstrated readiness to invest in equities and bonds, capturing effective substitutability between deposits and MPS regardless of the mechanism driving participation.

Our first contribution establishes that banks provide higher policy rate pass-through to depositors with demonstrated access to market-priced savings. Using individual-bank-year observations, we compare MPS holders to non-holders at the same bank in the same year. We control for time-invariant individual het-

erogeneity using person fixed effects and for time-varying demographics through interactions of year indicators with age group, municipality, homeownership, marital status, children, and education. These controls absorb persistent differences in sophistication, as well as life-cycle and socioeconomic trends correlated with both MPS participation and deposit pricing. The 8.4 percentage point difference in pass-through survives this demanding specification, indicating that banks condition pricing on depositors' demonstrated access to market alternatives. Isolating variation within individual accounts over time, we find 90% of this differential reflects existing account relationships rather than MPS holders opening or closing accounts in response to policy changes. Banks' pricing power depends not only on competition among banks for deposits, but also on whether depositors can substitute toward stocks and bonds.

Our second contribution demonstrates that incomplete pass-through drives substitution toward market-priced savings: despite receiving higher rates, MPS participants are more responsive to policy tightening. Following a 100 basis point policy rate increase, MPS participants reduce their deposits by 3.4 percentage points more than non-participants at the same bank in the same year. This pattern reveals the limits of price discrimination; even with higher pass-through, the spread between deposit rates and market returns widens during tightening cycles, inducing MPS participants to reallocate toward market alternatives. The resulting deposit flows generate within-bank heterogeneity in monetary transmission comparable to the cross-bank differences documented in prior work.

Our third contribution establishes that deposit flows propagate to the real economy via credit supply. We link our deposit data to a credit registry covering

all unsecured loans to non-financial firms, enabling us to trace monetary policy transmission from depositors through banks to borrowers. Using firm-year fixed effects to control for credit demand following Khwaja & Mian (2008), we find that banks with one standard deviation higher MPS exposure reduce lending growth by 1.5 percentage points more per 100 bps of policy tightening. These credit supply contractions appear in both net lending growth and new credit extended within existing relationships.

To verify external validity beyond the Danish institutional setting, we analyze 175 banks across the euro area during the 2022-2023 tightening cycle. We document that MPS participation varies across Europe, from over 50 percent in the Netherlands to under 10 percent in Southern Europe. Consistent with our micro-evidence, banks in countries with higher household MPS participation rates exhibit significantly stronger deposit rate pass-through. Moving from the 10^{th} to the 90^{th} percentile of country-level MPS participation is associated with a 45 percentage point increase in pass-through, confirming that competition from market-priced savings constrains deposit market power across diverse regulatory environments.

Our findings contribute to two strands of the literature. First, we advance work on the deposit channel of monetary policy (Drechsler et al. 2017, 2021, d'Avernas et al. 2023, Basten & Juelsrud 2025, Granja & Paixao 2026, Koont et al. 2024). Pioneered by Drechsler et al. (2017), this literature draws on industrial organization to explain how market concentration, switching costs, and customer lock-in allow banks to widen spreads as rates rise (Klemperer 1995, Sharpe 1997, Kim et al. 2003). We show that competition from outside the banking system is a distinct and equally important determinant of deposit pricing, with effects that remain

significant after controlling for traditional deposit market concentration. Second, recent evidence suggests that banks offer higher deposit rates in areas with greater financial market participation (Bisetti & Sarkar 2025). Our individual-level data reveals that this pattern reflects within-bank price differences based on depositors' actual portfolio holdings, not unobserved heterogeneity across geographic markets.

Second, we contribute to the household finance literature documenting heterogeneity in financial market participation and sophistication (Lusardi & Mitchell 2014, Grinblatt et al. 2011, Deuflhard et al. 2019). We document a novel mechanism through which financial market participation benefits households. Beyond an equity premium or diversification benefits, access to financial markets forces banks to compete more aggressively for household savings. Consequently, the non-MPS households suffer a double penalty: they miss out on market returns and, as our results show, receive systematically lower deposit rates from their banks.

The remainder of this paper proceeds as follows. Section 2 develops our conceptual framework and derives testable hypotheses. Section 3 describes Denmark's administrative data, documents MPS participation patterns, and presents our identification strategy. Section 4 reports main results on deposit pricing, deposit flows, and bank lending. Section 5 provides euro area evidence. Section 6 concludes with implications for monetary policy and financial regulation.

2 Conceptual framework

We derive our conceptual framework from the model of Drechsler et al. (2017), which provides a foundation for understanding bank deposit pricing in imperfectly

competitive markets. In this framework, banks operate under monopolistic competition in local deposit markets. Depositors choose between deposits at their current bank, deposits at competing banks, cash, or market-priced alternatives (which Drechsler et al. (2017) term "bonds"). When policy rates rise, the opportunity cost of holding cash increases, making market-priced alternatives relatively more attractive. This effectively reduces depositors' elasticity of substitution away from deposits, allowing banks with market power to widen deposit spreads rather than pass through policy rate changes one-for-one.[1]

We extend this analysis by recognizing that depositors vary substantially in their MPS holdings, creating heterogeneity in the substitution elasticity banks face depending on their customer composition. Building on this insight, we derive three testable hypotheses on how MPS holdings affect deposit pricing, deposit flows, and credit supply. We present our reasoning here and provide formal derivations in the online appendix.

First, banks facing depositors with access to market alternatives incorporate the resulting price elasticity into their deposit pricing. The model shows that the optimal deposit spread is decreasing in ρ, the elasticity of substitution between deposits and MPS (Equation 6 in the appendix). Banks serving high-ρ depositors must offer more competitive rates to retain funding:

Hypothesis 1: *Banks provide higher deposit rates and higher pass-through from policy rate changes to deposit rates for clients with greater MPS holdings.*

[1] Basten & Juelsrud (2025), building on Basten & Juelsrud (2023), complementarily explain incomplete pass-through with higher policy rates reducing the net present value of future cross-selling profits banks can expect from sticky depositors and thereby reducing banks' incentives to attract or retain depositors by paying more attractive deposit rates.

Second, while banks offer higher pass-through to MPS clients (Hypothesis 1), this price adjustment need not fully neutralize flow sensitivity. The model shows that deposit elasticity with respect to spreads is increasing in ρ: MPS holders respond more strongly to any given spread because they have the means to substitute toward market instruments (Equation 7 in the appendix). Non-MPS holders, by contrast, are limited to their deposit accounts even when rates are uncompetitive. Whether this higher responsiveness dominates the better pricing MPS holders receive is an empirical question. We hypothesize that it does:

Hypothesis 2: *Higher MPS use is associated with deposit growth more responsive to monetary policy rate changes.*

Third, Hypothesis 2 implies that banks with greater MPS exposure experience larger funding outflows during tightening cycles. Because deposits provide unique financing advantages, they cannot be fully replaced by wholesale funding without cost.[2] These differential outflows therefore translate into heterogeneous constraints on credit supply:

Hypothesis 3: *Higher MPS use is associated with loan growth more responsive to monetary policy rate changes.*

[2]Deposits are on average banks' cheapest refinancing source (Drechsler et al. 2017) and, depending on the setting, their best hedge against interest rate risk (Drechsler et al. 2021, 2023) or liquidity risk (Li et al. 2023).

3 Data and empirical setup

3.1 Data Sources

Denmark's comprehensive administrative registers enable precise measurement of deposit pricing, reallocation, and credit allocation. Our analysis combines matched administrative datasets from Statistics Denmark spanning 2003-2022 and covering the universe of deposit and lending relationships at Danish banks.

Deposit data. The deposit register captures all deposit accounts through mandatory year-end reporting to the Danish tax authority (SKAT). We observe consolidated balances and annual interest payments for each individual at every bank, aggregated to the depositor-bank-year level. While we cannot distinguish between sight and term deposits, this limitation does not affect our analysis since our focus is on total deposit relationships rather than specific account types. We compute effective deposit rates as annual interest payments divided by average deposit balances, calculated as the mean of year-end balances across consecutive years. Figure 1 shows how both policy rate hikes and policy rate cuts are passed through to deposit rates incompletely, both in Denmark and in the euro area, while they are passed through almost entirely to the returns on for example safe government bonds such as 3-month German bunds.

Wealth data. We augment deposit records with individual wealth information that decomposes each person's holdings into real estate, deposits, stocks, and bonds, with values observed at year-end. Money market funds appear within the stocks category due to Danish reporting conventions, while investment funds are classified as either stocks or bonds based on their primary asset class. This

classification means our measure of market-priced savings (MPS) captures all non-deposit financial assets available as substitutes for bank deposits.

Credit data. We link deposit records to comprehensive credit registry information covering all loans from Danish banks to non-financial firms at year-end from 2003 to 2022. The registry identifies borrowers, lenders, and outstanding loan amounts for each relationship, enabling construction of bank-firm-year panel data. We compute credit growth as the percentage change in outstanding credit relative to the previous year. New lending volume measures the logged amount of credit extended in relationships where positive new credit occurs. The sample contains approximately 330,000 bank-firm-year observations, with 78,000 involving firms that borrow from multiple banks simultaneously. This structure enables within-firm comparisons across lenders to isolate credit supply responses following Khwaja & Mian (2008).

Sample definition. We focus on the adult population (age 20+) and banks supervised by the Danish Financial Supervisory Authority. The sample covers 140 unique banks.

MPS measures. We construct two measures of MPS exposure. MPS participation equals one if an individual holds any stocks or bonds, zero otherwise. MPS wealth share measures the fraction of total wealth (including real estate) held in market-priced savings. For bank-level analysis, we compute deposit-weighted averages across each bank's customers, ensuring that larger depositors who drive aggregate deposit flows receive appropriate weight. The administrative nature of these data eliminates sample selection and reporting bias concerns while mandatory reporting requirements ensure data accuracy across the universe of Danish

banking relationships.

3.2 MPS Participation and Bank Heterogeneity

Table 1 reveals three patterns central to our identification strategy. First, substantial heterogeneity exists in MPS participation despite universal access to financial markets. Only 30 percent of Danish adults hold any market-priced savings, with the median individual holding zero MPS (Panel A). Among participants, MPS represents 11 percent of total wealth on average, split between stocks (8 percentage points) and bonds (3 percentage points). This limited participation, despite Denmark's developed financial markets, creates the variation necessary to identify how outside options affect bank pricing power.

Second, banks differ markedly in their exposure to MPS-holding depositors, generating within-country variation comparable to cross-country differences. Deposit-weighted MPS participation ranges from 31 percent at the 10^{th} percentile bank to 69 percent at the 90^{th} percentile (Panel B). The deposit-weighted share of wealth held in MPS varies similarly from 8 to 21 percent across this range. These differences in customer composition persist over our sample period, suggesting that depositor sorting into banks reflects stable preferences rather than temporary market conditions.

Third, customer composition translates into heterogeneous monetary transmission. Deposit rate pass-through ranges from 0.02 to 0.36 across banks, while deposit flow sensitivity varies from -1.1 to +0.7 percent following a 25 basis point policy rate increase. These patterns suggest that customer composition fundamentally shapes monetary policy transmission through individual banks.

MPS participation correlates with standard demographics documented in Table 2. Participants are older (average 56 versus 47 years), wealthier (DKK 2 million versus DKK 750,000 total wealth), more educated, and more likely to be male or married. Importantly, MPS participants hold larger deposits (DKK 257,000 versus 97,000), giving their behavior substantial weight in aggregate deposit flows. Table **??** in the Online Appendix reports regression estimates.

Figure 2 documents time-series patterns in MPS holdings across Danish adults. Panel A shows that approximately 30 percent of adults participate in MPS, with limited variation over time in the aggregate participation share. Panel B reveals three patterns in MPS wealth shares. First, a secular decline from 8 percent in 2003 to 6 percent by 2019 reflects households unwinding pre-crisis stock positions. Second, the distribution exhibits substantial skewness: the 25th and 50th percentiles equal zero, while even the 75th percentile remains below 2 percent, indicating that the mean is driven by the top quartile of wealth holders. Third, meaningful cyclical variation appears around this declining path, suggesting that the intensive margin responds to policy rate changes even when the extensive margin remains stable.

Figure 3 translates individual-level heterogeneity into bank-level exposure measures. The top panels display MPS participation rates using equal-weighted and deposit-weighted averages. Equal-weighted participation exhibits an interquartile range from 25 to 45 percentage points across banks. Deposit-weighting both raises the level and widens the range to 40-67 percentage points, reflecting that larger depositors participate in MPS at higher rates. The bottom panels show analogous patterns for MPS wealth shares, ranging from 5 to 9 percentage points (equal-weighted) across banks. This cross-sectional variation in bank-level MPS exposure

persists throughout our sample period, providing the identifying variation for our analysis.

3.3 Empirical setup

Our empirical strategy exploits the unique granularity of Danish administrative data to identify how depositors' access to market-priced savings affects deposit pricing and flows. We present three complementary specifications, beginning with individual-level analysis that provides the cleanest identification, then demonstrating how individual-level effects aggregate to bank-municipality and bank-level patterns.

Individual-bank-year analysis. Our primary specification uses individual-bank-year observations to identify how MPS access affects both deposit pricing and deposit flows:

$$y_{ibt} = \alpha_i + \gamma_{bt} + \beta_1 \text{MPS}_{i,t-1} + \beta_2(\Delta PR_t \times \text{MPS}_{i,t-1}) + \epsilon_{ibt} \tag{1}$$

where y_{ibt} denotes either the change in effective deposit rate or log deposits of individual i at bank b in year t. Person fixed effects α_i absorb all time-invariant individual characteristics including financial literacy, risk preferences, and demographic attributes that correlate with both MPS participation and deposit behavior. Bank-year fixed effects γ_{bt} control for time-varying institutional policies, funding conditions, and strategic choices. In separate regressions $\text{MPS}_{i,t-1}$ denotes either the MPS participation indicator measured in year $t-1$. We cluster standard errors at the individual and bank level.

The coefficient β_2 identifies differential responses to monetary policy: how much more pass-through MPS holders receive when the outcome is deposit rate changes, or how much more deposits decline when the outcome is log deposits, following policy rate increases. This specification compares individuals with different MPS exposure at the same bank in the same year, asking whether holding market-priced savings changes the deposit pricing a person receives or the deposit behavior they exhibit in response to monetary policy.

The main methodological challenge is the possibility that unobserved individual characteristics correlate with both MPS holdings and deposit outcomes. For instance, individuals who hold MPS may have educational backgrounds, geographic locations, or demographic profiles that make them respond differently to monetary policy through channels unrelated to their outside options. Alternatively, they may have different unobserved characteristics such as financial sophistication or risk attitudes that drive both MPS participation and deposit behavior. In either case, comparing MPS holders to non-holders, even at the same bank in the same year, may capture systematic differences in deposit demand rather than the causal effect of outside options on bank pricing power.

We address this identification challenge by estimating specifications with progressively demanding fixed effect that control for a rich set of individual characteristics. Our preferred specifications include both individual and bank-year fixed effects, thereby comparing individuals with different MPS exposure at the same bank in the same year. The most demanding specification augments bank-year and person fixed effects with a full set of individual characteristics, which we control for both in levels and in interactions with year indicators ("covariates-year" fixed effects).

With this procedure we effectively identify the effect from a comparison of individuals with the same observed characteristics, of which some hold MPS and others do not, in the same bank in the same year. The individual characteristics include: age group, municipality of residence, homeownership status, marital status, presence of children, and university education. This structure absorbs time-varying shocks that differentially affect demographic groups, isolating variation in MPS holdings from potentially confounding life-cycle, location-specific, or socioeconomic trends.

Bank-municipality-year analysis. Next, we aggregate individual responses to examine within-bank variation across local markets:

$$\Delta DR_{bmt} = \beta_1 \text{MPS}_{b,m,t-1} + \beta_2(\Delta PR_t \times \text{MPS}_{b,m,t-1}) + \gamma_{bt} + \mu_{mt} + \epsilon_{bmt} \quad (2)$$

where $\text{MPS}_{b,m,t-1}$ measures deposit-weighted MPS exposure among bank b's depositors residing in municipality m in the previous year. We aggregate individual deposit rates to the bank-municipality level by computing the arithmetic mean across all depositors at bank b who reside in municipality m. Municipalities are defined by individuals' residential addresses at each point in time, which adjust dynamically as individuals relocate, a feature that distinguishes our data from U.S. studies where deposit markets are typically defined by account opening locations.

Bank-year fixed effects γ_{bt} absorb all time-varying institutional policies including funding strategies, risk management approaches, and corporate decision-making. Municipality-year fixed effects μ_{mt} control for local economic conditions including employment trends, housing market dynamics, and demographic shifts. This double-fixed-effects structure isolates variation in customer MPS holdings across

geographic markets served by the same bank at the same time. We report two-way clustered standard errors at the bank level and municipality-year level to address correlation within banks over time and across municipalities, while accounting for time-varying local economic shocks.

The coefficient β_2 identifies whether the individual-level differential pass-through we document aggregates to geographic variation in bank pricing within institutions. Consistency between individual-level and bank-municipality-level estimates would confirm that individual depositor characteristics, rather than unobserved local factors, drive the relationship.

Bank-year analysis. We further aggregate to examine cross-bank variation in monetary policy transmission:

$$\Delta DR_{bt} = \alpha_b + \beta_t + \beta_1 \text{MPS}_{b,t-1} + \beta_2(\Delta PR_t \times \text{MPS}_{b,t-1}) + \epsilon_{bt} \tag{3}$$

where ΔDR_{bt} denotes the year-on-year change in bank b's average deposit rate in year t, ΔPR_t is the policy rate change, and $\text{MPS}_{b,t-1}$ measures the deposit-weighted MPS participation among bank b's depositors in the previous year. We aggregate individual deposit rates to the bank level by computing the arithmetic mean across all depositors at bank b. Bank fixed effects α_b control for time-invariant institutional characteristics, while year fixed effects β_t absorb common shocks. We normalize MPS measures to mean zero and standard deviation one, allowing coefficients to represent effects of one-standard-deviation changes in customer composition. We cluster standard errors at the bank level to account for serial correlation within banks over time.

This specification connects our findings to prior literature examining cross-bank heterogeneity in deposit pricing. The coefficient β_2 captures aggregate differences in pass-through across banks with different customer compositions. Comparing magnitudes across the three specifications reveals how much of the cross-bank relationship reflects causal effects of depositor MPS access versus sorting of depositors into particular institutions.

Credit supply analysis. We trace deposit responses through to bank lending using bank-firm-year observations:

$$y_{fbt} = \alpha_{ft} + \alpha_b + \beta_1 \text{MPS}_{b,t-1} + \beta_2(\Delta PR_t \times \text{MPS}_{b,t-1}) + \epsilon_{fbt} \tag{4}$$

where y_{fbt} measures either credit growth or logged new lending volume from bank b to firm f in year t. Firm-year fixed effects α_{ft} control for credit demand by comparing lending to the same firm by different banks in the same year, following Khwaja & Mian (2008). This demanding specification requires firms borrowing from multiple banks simultaneously, reducing the sample from 330,000 to 78,000 bank-firm-year observations. We complement this with industry-location-size-time (ILST) fixed effects that retain single-bank firms while controlling for observable demand determinants (Degryse et al. 2019). Bank fixed effects α_b absorb time-invariant institutional characteristics. Standard errors are two-way clustered at the bank and firm level.

The coefficient β_2 identifies how credit supply responds to monetary policy differentially across banks with varying depositor MPS exposure, holding constant loan demand. This specification completes the transmission chain from depositor

characteristics through deposit flows to credit allocation.

Identification threats. Two potential concerns beyond those addressed by our fixed effects structure warrant discussion. First, reverse causality. Could higher deposit rates cause greater MPS participation rather than the reverse? This concern applies to our deposit rate specifications. Economically, attractive deposit rates should reduce incentives to seek market alternatives, working against our hypothesized positive relationship between MPS holdings and pass-through. Empirically, we use lagged values of MPS measures in all specifications, ensuring that MPS holdings pre-date the deposit rate changes and deposit flows we analyze.

Second, selection into MPS participation. Even with person fixed effects and covariates-year fixed effects, individuals who acquire MPS over time may differ from those who do not along unobservable dimensions that also affect their deposit behavior. We note that our most demanding specifications with covariates-year fixed effects compare individuals with identical observable characteristics, substantially narrowing the scope for selection on unobservables to explain our results.

4 Empirical results

4.1 Individual-Level Evidence: MPS and Deposit Rate Pass-Through

Depositors with access to market-priced savings receive substantially higher pass-through of policy rate changes to their deposit rates. Table 3 reports estimates from Equation (1) using individual-bank-year observations spanning 2003 to 2022. The dependent variable measures year-on-year changes in each individual's effective deposit rate at each bank, expressed in percentage points.

The baseline specification without fixed effects yields an interaction coefficient of 0.072, indicating that MPS participants receive 7.2 percentage points higher pass-through than non-participants. Successively adding bank fixed effects (column 2) and individual fixed effects (columns 3-4) leaves this estimate essentially unchanged, ranging from 6.9 to 7.4 percentage points across specifications. This stability indicates that neither time-invariant institutional characteristics nor permanent individual attributes drive the relationship.

Columns 5 and 6 present our preferred specifications, which include both individual and bank-year fixed effects. Bank-year fixed effects absorb all time-varying institutional policies, comparing MPS participants to non-participants at the same bank in the same year. Column 6 further adds covariates-year fixed effects, constructed by interacting year dummies separately with age group, municipality of residence, homeownership status, marital status, presence of children, and university education. This specification compares individuals with identical observable demographic characteristics, of which some hold MPS and others do not, isolating variation in deposit pricing from potentially confounding life-cycle or socioeconomic trends.

The interaction coefficient of 0.084 in column 6 indicates that MPS participants receive 8.4 percentage points higher pass-through than observationally equivalent non-participants at the same bank in the same year. When the policy rate increases by 100 basis points, MPS participants experience deposit rate increases of approximately 26 basis points compared to 18 basis points for non-participants. Relative to baseline pass-through of 18 percent, MPS participation increases the transmission of policy rate changes by nearly 50 percent.

The magnitudes imply economically meaningful heterogeneity in monetary policy transmission at the individual level. Evaluated at the sample standard deviation of policy rate changes of 1.68 percentage points, MPS participants receive approximately 14 basis points more in deposit rate adjustments than observationally equivalent non-participants (0.084×1.68). This indirect benefit of financial market participation accrues separately from any direct returns on MPS investments themselves. The within-bank, within-demographic-group variation in pass-through demonstrates that banks price-discriminate based on depositors' outside options, a finding that granular administrative data uniquely enables.

As a robustness check, we also examine the intensive margin of MPS participation, measuring the share of wealth allocated to market-priced savings. While pointing in the same direction as the participation results, Table C.2 in the Appendix shows weaker intensive margin effects, suggesting that the decision to participate in financial markets matters more for deposit pricing than the share of wealth allocated to such investments. This pattern is consistent with the idea that banks primarily price-discriminate based on whether a depositor has demonstrated access to market alternatives, rather than the exact magnitude of that exposure.

4.2 Deposit Flow Responses to Monetary Policy

The differential pass-through documented above reflects banks' response to a credible threat: MPS holders can reallocate deposits toward market alternatives when deposit rates lag policy rates. We test this mechanism by examining whether MPS holders reduce deposits more than non-MPS holders following policy rate increases. Table 4 reports estimates from Equation (1) using individual-bank-year

observations from 2003 to 2022, with log deposits as the dependent variable.

The baseline specification without fixed effects in Column 1 of Table 4 yields an interaction coefficient of -0.062, indicating that MPS participants reduce deposits by 6.2 percent more than non-participants following a 100 basis point policy rate increase. Adding bank and individual fixed effects (columns 2-3) attenuates but does not eliminate this differential response. Column 4 presents our specification with individual and bank-year fixed effects, comparing the deposit responses of MPS participants and non-participants at the same bank in the same year. The interaction coefficient of -0.034 indicates that MPS participants reduce their deposit balances by 3.4 percentage points more than non-participants at the same institution following a 100 basis point policy rate increase.

Column 5 adds covariates-year fixed effects, comparing individuals with identical observable demographic characteristics. The interaction coefficient attenuates to -0.005, indicating that demographic factors correlated with MPS participation explain a substantial portion of the deposit flow differential. This attenuation contrasts with the deposit rate results, where the coefficient remained stable with covariates-year fixed effects. The pattern suggests that banks price-discriminate based on MPS holdings directly, while depositors' reallocation behavior reflects broader characteristics associated with financial market participation.

The deposit flow results illustrate the competitive pressure MPS participants exert on bank pricing. Under the specification with individual and bank-year fixed effects, MPS participants reduce deposits by 3.4 percentage points more than non-participants following rate increases, despite receiving 8.4 percentage points higher pass-through. Banks partially accommodate rate-sensitive depositors but do not

fully neutralize their outside options. That demographic controls attenuate the deposit flow differential while leaving the pricing differential intact suggests that banks respond to MPS participation as a signal of rate sensitivity, even when the underlying reallocation behavior reflects correlated depositor characteristics.[3]

The deposit outflows from high-MPS depositors aggregate to bank-level funding pressures. Banks with greater MPS participation among their customer base experience larger deposit outflows following policy tightening, potentially constraining their ability to maintain lending. We trace this transmission to credit supply in the following section.

Account-level robustness. Our individual-level analysis aggregates all accounts each depositor holds at each bank. Differential pass-through could reflect either higher pass-through on existing accounts or MPS holders dynamically adjusting their account portfolios in response to policy rate changes. We distinguish these channels by re-estimating specification (1) at the account level with account fixed effects, isolating within-account variation. Results appear in Appendix B.

MPS holders receive 7.6 percentage points higher pass-through on existing accounts (Appendix Table B.1.a, column 4) compared to 8.4 percentage points at the individual level (Table 3, column 5). Higher pass-through on existing accounts therefore explains 90% of the individual-level differential (= 7.6/8.4), while account opening and closing decisions contribute the remaining 10%. The dominant role of the within-account channel indicates that MPS holders obtain systemat-

[3]Consistent with our results on rate pass-through, Table C.3 in the Appendix shows that using MPS wealth share instead of our participation dummy leads to somewhat weaker results. This is consistent with the idea that what matters is having exposure to the outside options that are available, and not necessarily the size of the share of wealth invested in this outside option.

ically higher pass-through on their existing deposit contracts, whether through differential contract terms or through banks adjusting rates on existing accounts.

Account-level volume responses separate intensive and extensive margins. MPS holders increase balances by 1.0 percentage point more than non-holders per 100 basis point rate increase in the average surviving account (Appendix Table B.1.b, column 4). Individual-level estimates show 0.5 percentage point outflows (Table 4, column 5). The net effect of account openings and closures therefore generates -1.5 percentage points of outflows ($= -0.5 - 1.0$). MPS holders respond through account-level reallocation rather than proportional withdrawal: they increase balances in surviving accounts while account closures generate larger offsetting outflows.

4.3 Aggregation to Bank-Municipality and Bank-Year Levels

The individual-level results establish that MPS participation affects deposit pricing within bank-year cells. We now examine whether these effects aggregate consistently to patterns observable at coarser levels of analysis, connecting our findings to prior literature that operates at the bank or bank-branch level.

Table 5 aggregates to bank-municipality-year observations, exploiting within-bank variation across local markets. Bank-year fixed effects absorb all time-varying institutional policies, while municipality-year fixed effects control for local economic conditions. This structure compares how the same bank prices deposits differently across municipalities where its depositors exhibit varying MPS participation. In our preferred specification with both bank-year and municipality-year fixed effects, a one-standard-deviation increase in municipal-level MPS participation raises pass-

through by 1.3 percentage points. Importantly, this effect remains stable when controlling for deposit market concentration measured at the municipality level, confirming that MPS participation operates independently of traditional market structure channels emphasized in prior work.

Table 6 further aggregates to bank-year observations, examining cross-bank variation in monetary policy transmission. Banks transmit 19 percent of policy rate changes to deposit rates on average. In our preferred specification with bank and year fixed effects, a one-standard-deviation increase in deposit-weighted MPS participation raises pass-through by 4.2 percentage points. Column 4 adds bank-level deposit market concentration. The MPS participation coefficient declines modestly but remains highly significant, while the HHI interaction is itself significant and positive. This indicates that both competition from outside the banking system (measured by MPS participation) and traditional within-sector concentration shape deposit pricing, consistent with Drechsler et al. (2017). Moving from the 10th to 90th percentile of deposit-weighted MPS participation raises pass-through by approximately 10 percentage points, representing more than a 50 percent increase relative to baseline transmission.

Across all levels of aggregation–individual, bank-municipality, and bank–depositors' MPS participation predicts deposit rate pass-through, and these effects operate independently of traditional concentration measures. Results using the intensive margin of MPS wealth share (presented in Table A.3 and A.4 in the Appendix) point in the same direction but are somewhat weaker, confirming that whether a depositor *participates* in financial markets matters far more than the intensity of that participation. We next examine whether the deposit flows implied by

incomplete pass-through propagate to credit supply.

4.4 Credit Supply Responses

We trace deposit responses through to bank lending using credit registry data covering all loans to non-financial firms. Tables 7 and 8 examine credit growth and new lending volumes at the bank-firm-year level from 2003 to 2022. Credit growth measures the percentage change in outstanding credit relative to the previous year, capturing net changes in existing relationships. New lending volume measures the logged amount of credit extended in relationships where positive new credit occurs.

Our identification exploits within-firm variation across lenders. Firm-year fixed effects compare lending by different banks to the same firm in the same year, holding constant credit demand. This approach follows Khwaja & Mian (2008), isolating supply-side responses to deposit shocks from demand-side factors. The specification requires restricting the sample to firms borrowing from multiple banks simultaneously, reducing observations from 330,000 to 78,000 bank-firm-year observations. We complement this demanding specification with industry-location-size-time (ILST) fixed effects that retain single-bank firms while controlling for observable demand determinants (Degryse et al. 2019).

Table 7 shows banks with one standard deviation higher MPS participation reduce credit growth by 0.7 to 1.6 percentage points more per 100 basis point policy rate increase, depending on weighting and fixed effects (columns 1-4). These supply-side responses indicate banks do not fully replace lost deposits with alternative funding. Results using MPS wealth share (columns 5-8) are substantially weaker, confirming that the participation decision drives credit supply responses.

Table 8 examines new lending volumes. One standard deviation higher MPS participation reduces new lending by 3 to 25 percentage points per 100 basis point increase (columns 1-4). These magnitudes substantially exceed credit growth effects, indicating banks protect existing relationships while curtailing new credit when deposits decline. The weaker effects with MPS wealth share (presented in the full table) suggest that credit supply transmission operates primarily through the binary participation decision.

These results complete the transmission chain from monetary policy through deposit markets to credit supply. Banks with high-MPS participants face larger deposit outflows following rate increases, forcing lending contractions concentrated in new credit provision. A one standard deviation increase in bank-level MPS participation reduces lending growth by approximately 1 percentage point per 100 basis points of tightening, representing economically meaningful heterogeneity in monetary policy transmission across institutions serving different depositor bases.

5 External Validity: euro area evidence

The Danish analysis establishes that depositor MPS access shapes deposit pricing and monetary policy transmission within a single country's banking system. We examine whether these mechanisms operate more broadly using data from 175 banks across the euro area during the 2022-2023 monetary tightening cycle.

5.1 Data and measurement

We use monthly bank-level data on household deposit rates and volumes from the ECB's Individual Balance Sheet Item (IBSI) and Individual MFI Interest Rate (IMIR) databases covering January 2022 through December 2023. We measure country-level MPS participation using the Securities Holdings Statistics (SHS), which reports household holdings of stocks and bonds quarterly. MPS participation share equals the ratio of households with stock and bond holdings to the total household population, calculated at the country level in December 2021. This country-level measure sacrifices the individual-level granularity available in Denmark but enables assessment across diverse regulatory and institutional environments.

Table 9 shows substantial cross-country variation. The ECB's Deposit Facility Rate increased from -0.5 to 4.0 percentage points over the sample period, with year-on-year changes averaging 1.92 percentage points. Deposit rates increased much less, averaging 0.33 percentage points year-on-year and ranging from -0.26 to 1.72 percentage points, reflecting incomplete pass-through. MPS participation varies dramatically across countries, averaging 16 percent but ranging from 5 to 41 percent. This heterogeneity provides cross-country variation comparable to the cross-bank variation documented in Denmark.

5.2 Empirical strategy for the euro area

We estimate bank-level regressions with bank and month fixed effects:

$$\begin{aligned}\Delta \text{DR}_{bct} = \alpha_t + \alpha_b + \beta_1 \Delta \text{PR}_t + \beta_2 \text{MPS\_participation}_{c,12/21} \\ + \beta_3 (\Delta \text{PR}_t \times \text{MPS\_participation}_{c,12/21}) + \epsilon_{bct}\end{aligned} \tag{5}$$

where ΔDR_{bct} denotes year-on-year changes in the deposit rate at bank b in country c at month t, and ΔPR_t measures year-on-year changes in the ECB's Deposit Facility Rate. Bank fixed effects α_b control for time-invariant institutional characteristics, while month fixed effects α_t absorb common shocks across the euro area. Standard errors are clustered at the bank level. We examine both deposit rate changes and deposit growth as dependent variables.

Figure 5 provides visual evidence of the relationship between pass-through and MPS exposure. Panel A plots bank-level pass-through coefficients (obtained from regressing deposit rate changes on policy rate changes for each bank) against country-level MPS shares. Panel B aggregates to the country level. Both panels show clear positive relationships: banks and countries with higher MPS exposure exhibit stronger pass-through from policy to deposit rates.

5.3 Deposit pricing results

Table 10 examines deposit rate changes. Column 1 establishes baseline pass-through of 20 percent, similar to Denmark's 19 percent. Column 2 shows pass-through varies from 11 percent when MPS participation equals zero to 66 percent when MPS participation equals one. Adding bank and month fixed effects (col-

umn 3) leaves the interaction coefficient virtually unchanged at 0.55. Column 4 adds the Herfindahl-Hirschmann Index of deposit market concentration, the key explanatory variable in Drechsler et al. (2017). The MPS participation interaction remains significant (0.48) while the concentration interaction enters negatively (-0.38), indicating both within-banking-sector competition and competition from outside the banking system shape deposit pricing power. These results confirm that the extensive margin of financial market participation is the primary driver of heterogeneous deposit rate pass-through.

5.4 Deposit flow results

Table 11 examines deposit growth. Column 1 shows policy rate increases associate with deposit growth declines, consistent with substitution toward market alternatives despite incomplete pass-through. Columns 2 through 4 show this decline is substantially larger in high-MPS-participation countries: moving from zero to one in MPS participation makes deposit growth 17 to 21 percentage points more negative per percentage point policy rate increase, depending on specification. These magnitudes align with the individual-level substitution documented in Denmark, confirming that incomplete transmission drives reallocation toward market-priced alternatives across diverse institutional settings.

The euro area evidence establishes external validity. Despite measuring MPS participation at the country rather than individual level, despite covering only the 2022-2023 tightening cycle rather than multiple cycles, and despite operating in a currency union with diverse regulatory environments, the core mechanisms persist. Banks facing depositors with greater MPS participation provide higher pass-

through yet experience larger deposit outflows following rate increases. These patterns confirm that competition from outside the banking system shapes deposit market power and monetary policy transmission broadly, not just within Denmark's specific institutional context.

6 Conclusion

This paper shows that depositors' participation in market-priced savings shapes deposit pricing and monetary policy transmission at the individual level. Using comprehensive Danish administrative data covering all bank-depositor relationships from 2003 to 2022, we establish three findings. First, depositors holding stocks and bonds receive 8.4 percentage points higher pass-through of policy rate changes than demographically identical non-holders at the same bank in the same year. Isolating variation within individual accounts over time, we find 90% of this differential operates within existing accounts rather than through account opening or closing in response to policy changes. MPS holders obtain higher pass-through on their existing deposit relationships. Second, incomplete pass-through drives substitution: MPS participants reduce deposits by 3.4 percentage points more per 100 basis point policy rate increase, with the extensive margin of participation primarily driving these responses. Third, these deposit outflows propagate to credit supply, with high-MPS-participation banks reducing lending growth by 1.5 percentage points more per 100 basis points of tightening. External validation across 175 euro area banks confirms that these mechanisms operate broadly.

These findings advance our understanding of monetary policy transmission by demonstrating that competition from market-priced savings constrains deposit

market power comparably to traditional concentration measures (Drechsler et al. 2017). Prior work uses geographic proxies to measure depositor characteristics and documents that banks in areas with higher market participation offer better deposit rates (Bisetti & Sarkar 2025). Our individual-level data reveals that this variation reflects within-bank pricing differences based on actual portfolio holdings rather than unobserved differences across local markets. We also document an indirect benefit of financial market participation: depositors holding MPS earn higher deposit rates, separate from any direct returns on their market investments.

Our findings carry three implications for monetary policy and financial regulation. First, monetary policy transmission operates heterogeneously depending on financial market participation rates across population segments, banks, and countries. Central banks should anticipate stronger deposit outflows and credit contractions at institutions serving depositors with greater demonstrated access to market alternatives. Second, policies encouraging broader market participation may unintentionally strengthen monetary policy transmission by providing more households with outside options. Third, cross-country variation in MPS participation generates heterogeneous monetary policy transmission within currency unions, complicating unified policy implementation across member states.

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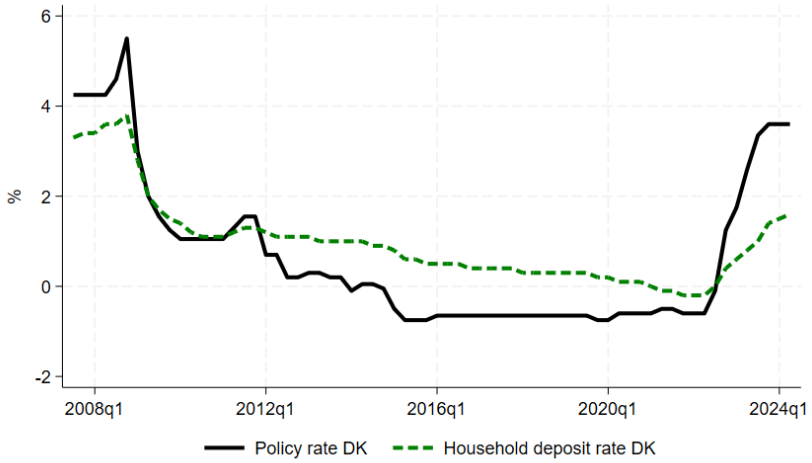
7 Figures and Tables

Figure 1: Policy and Deposit Rates in Denmark and the Euro Area

Notes: This figure displays the evolution of policy rates and average deposit rates over time. Panel (a) shows Denmark's Nationalbankens Certificates of Deposit rate and average household deposit rates from 2003 to 2022. Panel (b) shows the ECB's Deposit Facility Rate and average household deposit rates across the euro area from 2003 to 2023. Deposit rates are weighted averages across overnight and term deposits.

(a) Denmark



(b) Euro area

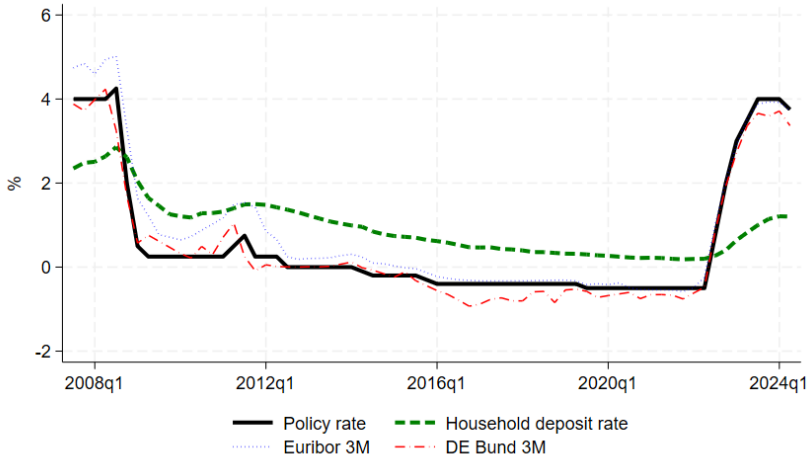
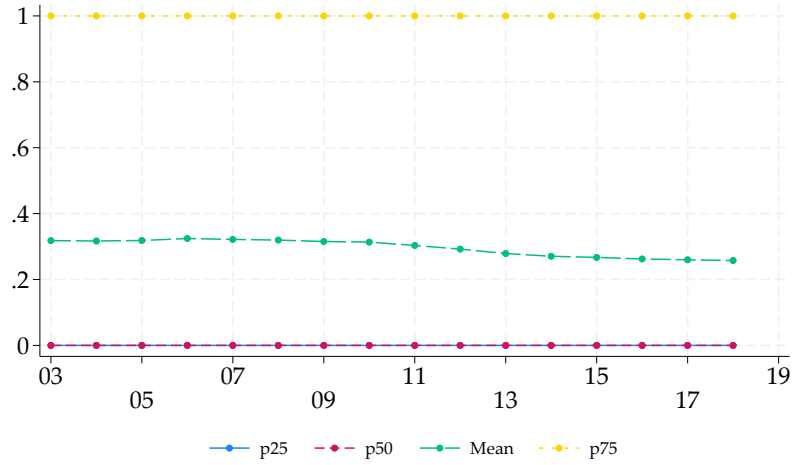


Figure 2: Distribution of Market-Priced Savings Among Danish Depositors

Notes: This figure displays the distribution of market-priced savings (MPS) holdings across Danish depositors from 2003 to 2022. Panel (a) shows the fraction of individuals holding any MPS (stocks or bonds), with lines indicating the mean, median (P50), 75th percentile (P75), and 90th percentile (P90). Panel (b) shows the MPS wealth share, defined as MPS holdings divided by total financial wealth. In both panels, the 25th and 50th percentiles equal zero throughout the sample period, reflecting that fewer than half of depositors hold any MPS in most years. MPS includes directly held stocks and bonds, equity and bond mutual funds, and money market funds.

(a) Indicator: MPS participation



(b) MPS wealth share

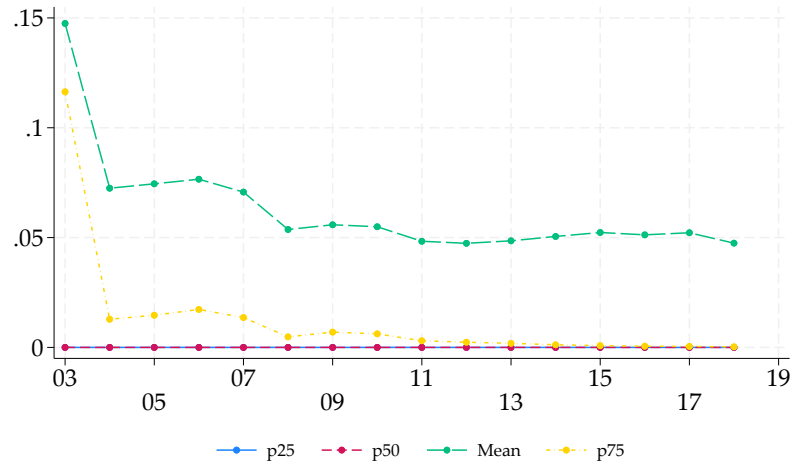
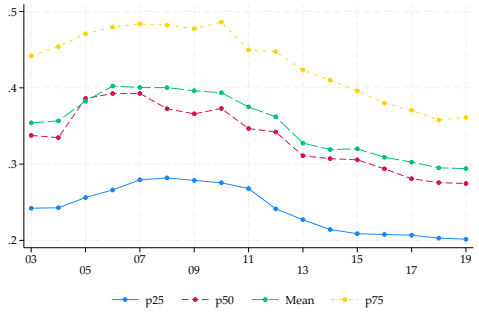


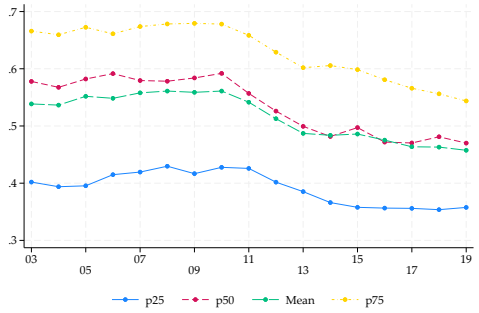
Figure 3: Distribution of Depositor MPS Exposure Across Danish Banks

Notes: This figure displays variation in depositor MPS holdings across banks. For each bank-year, we compute the average MPS participation rate (Panels a and b) and MPS wealth share (Panels c and d) across depositors. Panels (a) and (c) use simple (unweighted) averages across depositors. Panels (b) and (d) use deposit-weighted averages, giving greater weight to depositors with larger balances. Each panel shows the distribution of these bank-level averages, with lines indicating the mean, median, 75th percentile, and 90th percentile across banks. Sample includes all Danish banks with at least 100 depositors per year.

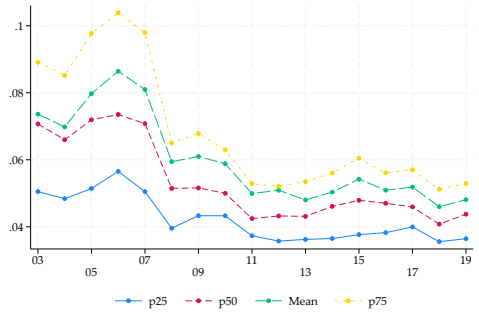
(a) Indicator: MPS participation



(b) Indicator: MPS participation - Deposit wgt



(c) MPS wealth share



(d) MPS wealth share - Deposit wgt

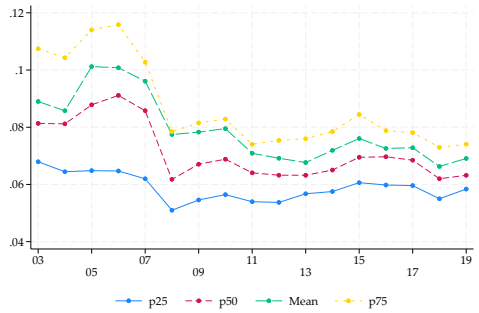
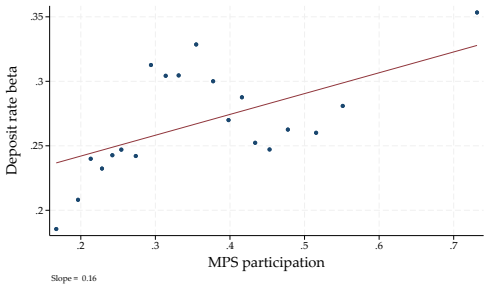


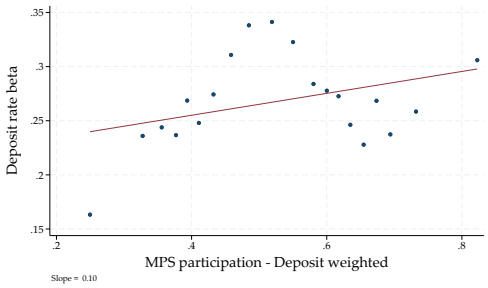
Figure 4: Deposit Rate Pass-Through and MPS Exposure: Bank-Level Evidence

Notes: This figure displays binned scatterplots relating bank-level deposit rate pass-through (vertical axis) to depositor MPS exposure (horizontal axis) using bank-year observations from 2003 to 2022. Pass-through is estimated for each bank by regressing annual deposit rate changes on concurrent policy rate changes. Panel (a) uses arithmetic-average MPS participation across depositors. Panel (b) uses deposit-weighted average MPS participation. Panel (c) uses arithmetic-average MPS wealth share. Panel (d) uses deposit-weighted average MPS wealth share. Each point represents one ventile (5 percent bin) of the MPS exposure distribution. Fitted lines display OLS relationships; slope coefficients appear in each panel.

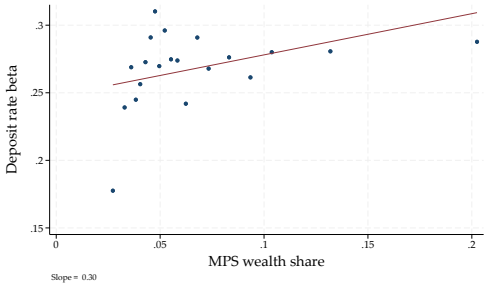
(a) Indicator: MPS participation



(b) Indicator: MPS participation (deposit-weighted)



(c) MPS wealth share



(d) MPS wealth share (deposit-weighted)

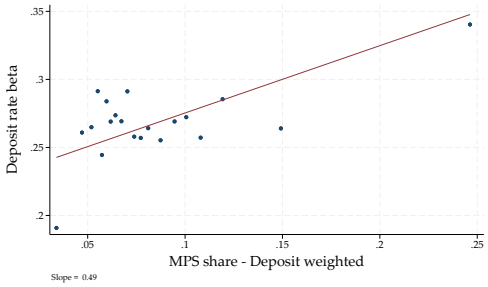


Figure 5: Deposit Rate Pass-Through and MPS Exposure Across the Euro Area

Notes: This figure displays the relationship between deposit rate pass-through and country-level MPS exposure across the euro area during the 2022–2023 monetary tightening cycle. Pass-through is estimated for each bank by regressing year-on-year deposit rate changes on year-on-year policy rate changes. MPS share equals the ratio of household stock and bond holdings to the sum of household deposits plus stock and bond holdings, measured at the country level in December 2021. Panel (a) plots bank-level pass-through coefficients against country-level MPS share, with each point representing one bank. Panel (b) aggregates to the country level, with each point representing one country's average pass-through and MPS share. Data cover 175 banks from January 2022 through December 2023.

(a) Bank level

(b) Country level

Table 1: Summary Statistics: Danish Depositors and Banks

Notes: This table reports summary statistics for Denmark from 2003 to 2022. Panel A reports depositor-year level statistics. Panel B reports bank-year level statistics. Market-priced savings (MPS) include directly held stocks and bonds, equity and bond mutual funds, and money market funds. MPS wealth share equals MPS holdings divided by total financial wealth (deposits plus MPS). MPS participation is an indicator equal to one if the depositor holds any MPS (Panel A) or the fraction of depositors holding MPS (Panel B). Deposit balances and wealth measures are in thousands of Danish kroner. Sample includes all individuals aged 18 and above with positive deposit balances.

	N	Mean	SD	p10	p50	p90
Panel A. Depositor-year level						
Gross wealth (10K kr)	76,263,310	113.89	1086.47	0.75	55.00	253.98
Real estate wealth (10K kr)	76,263,310	86.84	306.72	0.00	36.30	207.90
Financial wealth (MPS + deposits, 10K kr)	76,263,310	26.80	1030.61	0.42	4.36	52.60
Total deposits (10K kr)	76,263,310	14.48	175.37	0.34	3.50	32.44
Market-priced savings (10K kr)	76,263,310	12.31	1007.47	0.00	0.00	13.22
Stocks (10K kr)	76,263,310	9.43	996.72	0.00	0.00	7.55
Bonds (10K kr)	76,263,310	2.87	92.50	0.00	0.00	0.00
Disposable income (10K kr)	76,263,310	22.35	52.63	9.06	19.29	36.47
Total income (10K kr)	76,263,310	32.00	85.53	11.44	26.90	53.28
Mortgage debt (10K kr)	76,263,310	39.06	171.36	0.00	0.00	105.25
Deposit rate (percent)	65,914,679	0.38	0.81	0.00	0.03	1.33
Average deposit growth	67,350,452	20.22	79.29	-67.63	2.46	163.75
MPS participation	76,263,310	0.30	0.46	0.00	0.00	1.00
MPS wealth share	75,551,832	12.23	26.05	0.00	0.00	59.34
Stock market participation	76,263,310	0.28	0.45	0.00	0.00	1.00
Stock wealth share	75,551,832	9.38	22.23	0.00	0.00	40.05
Age	76,263,310	49.83	17.93	26.00	49.00	75.00
Male	76,263,310	0.49	0.50	0.00	0.00	1.00
University degree	62,122,775	0.23	0.42	0.00	0.00	1.00
Married or in partnership	76,263,310	0.50	0.50	0.00	1.00	1.00
Has children	76,263,310	0.34	0.47	0.00	0.00	1.00
Panel B. Bank-year level						
MPS participation	1,879	0.34	0.15	0.20	0.30	0.52
MPS participation (deposit weighted)	1,879	0.49	0.16	0.31	0.45	0.69
MPS wealth share (deposit weighted, std)	1,879	0.00	0.99	-0.79	-0.22	0.82
MPS wealth share	1,879	13.49	8.63	7.30	11.15	21.39
MPS wealth share (deposit weighted)	1,879	14.13	7.81	8.25	12.30	20.68
MPS wealth share (deposit weighted, std)	1,879	0.00	0.99	-0.79	-0.22	0.82
MP rate	1,879	1.39	1.68	-0.65	1.20	3.75
Deposit rate (avg. across depositors)	1,732	0.61	0.63	0.01	0.45	1.46
Total assets (log)	1,879	21.24	2.28	18.46	21.22	23.93
Equity ratio	1,879	0.15	0.09	0.07	0.13	0.22
Loan-to-deposit ratio	1,867	0.98	2.27	0.41	0.77	1.23
Deposit rate beta	1,879	0.16	0.28	0.02	0.16	0.36
Deposit spread beta	1,879	0.84	0.28	0.64	0.84	0.98
Deposit flow beta	1,879	-0.27	3.70	-4.34	0.01	2.94

Table 2: Depositor Characteristics by MPS Participation Status

Notes: This table compares depositor-year level characteristics between MPS participants (Column 1) and non-participants (Column 2) from 2003 to 2022. MPS participants are individuals holding any equities or bonds. Column 3 reports the difference in means. Market-priced savings include directly held stocks and bonds, equity and bond mutual funds, and money market funds. Wealth and income variables are measured in 10,000 Danish kroner (approximately 1,350 euros or 1,500 U.S. dollars). Statistical significance of mean differences: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	MPS owners			No MPS			Difference
	(1)			(2)			(3)
	Mean	Std. Dev.	Median	Mean	Std. Dev.	Median	
Gross wealth (10K kr)	206.29	1,967.24	116.97	75.02	209.03	22.47	-131.27***
Real estate wealth (10K kr)	138.56	473.34	82.58	65.07	194.41	0.00	-73.49***
Financial wealth (MPS + deposits, 10K kr)	67.29	1,884.39	20.54	9.76	118.53	2.43	-57.54***
Total deposits (10K kr)	25.71	265.12	8.63	9.76	118.53	2.43	-15.95***
Market-priced savings (10K kr)	41.58	1,850.99	4.46	0.00	0.00	0.00	-41.58***
Stocks (10K kr)	31.86	1,831.38	2.49	0.00	0.00	0.00	-31.86***
Bonds (10K kr)	9.68	169.79	0.00	0.00	0.00	0.00	-9.68***
Disposable income (10K kr)	26.96	86.03	22.08	20.42	28.44	18.34	-6.54***
Total income (10K kr)	38.45	133.60	30.20	29.29	53.47	25.71	-9.16***
Mortgage debt (10K kr)	51.84	249.71	0.00	33.68	124.03	0.00	-18.16***
Deposit rate (percent)	0.55	0.94	0.12	0.31	0.73	0.01	-0.24***
Average deposit growth	17.72	73.15	2.36	21.32	81.81	2.51	3.60***
MPS participation	1.00	0.00	1.00	0.00	0.00	0.00	-1.00
MPS wealth share	40.90	33.13	34.83	0.00	0.00	0.00	-40.90***
Stock market participation	0.94	0.24	1.00	0.00	0.00	0.00	-0.94***
Stock wealth share	31.37	31.05	19.70	0.00	0.00	0.00	-31.37***
Age	55.50	17.81	57.00	47.44	17.44	46.00	-8.06***
Male	0.53	0.50	1.00	0.48	0.50	0.00	-0.05***
University degree	0.28	0.45	0.00	0.22	0.41	0.00	-0.06***
Married or in partnership	0.56	0.50	1.00	0.48	0.50	0.00	-0.08***
Has children	0.28	0.45	0.00	0.37	0.48	0.00	0.09***
N	22,584,740			53,678,570			76,263,310

Table 3: Deposit Rate Pass-Through by MPS Participation at the Depositor Level

Notes: This table reports estimates of how deposit rate pass-through varies with depositors' MPS participation using individual-bank-year observations from 2003 to 2022. The dependent variable is the year-on-year change in the depositor's effective deposit rate at each bank (in percentage points). The lagged MPS participation indicator equals one if the depositor holds any stocks or bonds. Bank controls include lagged log total assets, tier-1 capital ratio, and loan-to-deposit ratio. Demographic controls interacted with year indicators ("Covariates-Year FE") include age group, municipality of residence, homeownership status, marital status, presence of children, and university education. Standard errors two-way clustered at the individual and bank levels appear in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	(1)	(2)	(3)	(4)	(5)
MPS participation (t-1)	-0.018***	-0.016***	-0.029***	-0.015***	-0.003
	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)
Δ MP rate	0.182***	0.180***	0.179***		
	(0.019)	(0.016)	(0.016)		
MPS participation (t-1) $\times$ Δ MP rate	0.072***	0.069***	0.072***	0.074***	0.084***
	(0.008)	(0.007)	(0.008)	(0.008)	(0.004)
Observations	65,280,769	65,280,769	65,054,341	65,054,338	53,518,266
R2	0.09	0.10	0.13	0.23	0.24
Bank controls	Yes	Yes	Yes	Yes	Yes
Bank FE		Yes	Yes		
Individual FE			Yes	Yes	Yes
Bank-Year FE				Yes	Yes
Covariates-Year FE					Yes

Table 4: Deposit Flow Responses by MPS Participation at the Depositor Level

Notes: This table reports estimates of how deposit balances respond to monetary policy rate changes, by depositors' MPS participation, using individual-bank-year observations from 2003 to 2022. The dependent variable is log deposit balances held by individual i at bank b in year t. The lagged MPS participation indicator equals one if the depositor holds any stocks or bonds. Bank controls include lagged log total assets, tier-1 capital ratio, and loan-to-deposit ratio. Demographic controls interacted with year indicators ("Covariates-Year FE") include age group, municipality of residence, homeownership status, marital status, presence of children, and university education. Standard errors two-way clustered at the individual and bank levels appear in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	(1)	(2)	(3)	(4)	(5)
MPS participation (t-1)	0.695***	0.743***	-0.061***	-0.064***	-0.075***
	(0.061)	(0.040)	(0.015)	(0.014)	(0.017)
Δ MP rate	0.049	0.037**	0.035*		
	(0.031)	(0.017)	(0.019)		
MPS participation (t-1) $\times$ Δ MP rate	-0.062	-0.020*	-0.025***	-0.034***	-0.005***
	(0.038)	(0.012)	(0.007)	(0.004)	(0.002)
Observations	78,308,873	78,308,873	78,068,651	78,068,651	64,674,838
R2	0.03	0.06	0.47	0.47	0.48
Bank controls	Yes	Yes	Yes	Yes	Yes
Bank FE		Yes	Yes		
Individual FE			Yes	Yes	Yes
Bank-Year FE				Yes	Yes
Covariates-Year FE					Yes

Table 5: Within-Bank Deposit Rate Pass-Through Heterogeneity: Bank-Municipality-Year Level

Notes: This table reports estimates of how deposit rate pass-through varies within banks across municipalities with different depositor MPS participation, using bank-municipality-year observations from 2003 to 2022. The dependent variable is the year-on-year change in the bank's arithmetic mean deposit rate among depositors residing in each municipality. MPS participation equals the deposit-weighted fraction of municipal depositors holding any MPS. The specification is standardized to mean zero and unit standard deviation within each municipality-year. Municipal deposit concentration is measured via the HHI index at the municipality-year level. Bank controls include lagged log total assets, tier-1 capital ratio, and loan-to-deposit ratio. Standard errors two-way clustered at the bank and municipality-year levels appear in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	(1)	(2)	(3)	(4)	(5)	(6)
MPS participation (t-1, std.)	0.000	-0.002	-0.002	-0.003**	-0.003**	-0.003**
	(0.003)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
Δ MP rate	0.189***	0.190***	0.190***			
	(0.012)	(0.012)	(0.012)			
MPS participation (t-1, std.) $\times$ Δ MP rate	0.025***	0.024***	0.024***	0.013***	0.013***	0.013***
	(0.005)	(0.005)	(0.005)	(0.002)	(0.002)	(0.002)
Municipal deposit concentration (HHI, t-1)						0.009
						(0.027)
Municipal deposit concentration (HHI, t-1) $\times$ Δ MP rate						0.038
						(0.025)
Observations	120,767	120,767	120,767	120,765	120,765	120,765
R2	0.14	0.16	0.16	0.43	0.44	0.43
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE		Yes	Yes			
Municipality FE			Yes	Yes		Yes
Bank-Year FE				Yes	Yes	Yes
Municipality-Year FE					Yes	

Table 6: Deposit Rate Pass-Through by Bank-Level MPS Participation: Bank-Year Level

Notes: This table reports estimates of how deposit rate pass-through varies across banks with different depositor MPS participation, using bank-year observations from 2003 to 2022. The dependent variable is the year-on-year change in the bank's arithmetic mean deposit rate across all depositors. MPS participation equals the deposit-weighted fraction of depositors holding any MPS. The specification is standardized to mean zero and unit standard deviation within each year. Bank controls include lagged log total assets, tier-1 capital ratio, and loan-to-deposit ratio. Standard errors clustered at the bank level appear in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	(1)	(2)	(3)	(4)
MPS participation (t-1, std.)	0.006	0.039**	0.020	0.013
	(0.007)	(0.017)	(0.019)	(0.019)
Δ MP rate	0.190***	0.190***		
	(0.010)	(0.010)		
MPS participation (t-1, std.) $\times$ Δ MP rate	0.041***	0.042***	0.042***	0.036***
	(0.012)	(0.012)	(0.011)	(0.011)
Bank-level deposit concentration (HHI, t-1)				0.028
				(0.204)
Bank-level deposit concentration (HHI, t-1) $\times$ Δ MP rate				0.572**
				(0.224)
Observations	1,578	1,578	1,578	1,578
R2	0.30	0.36	0.71	0.72
Bank controls	Yes	Yes	Yes	Yes
Bank FE		Yes	Yes	Yes
Year FE			Yes	Yes

Table 7: Credit Growth Responses by Bank MPS Participation: Bank-Firm-Year Level

Notes: This table reports estimates of how bank lending to non-financial firms responds to monetary policy rate changes, by bank-level depositor MPS participation, using bank-firm-year observations from 2003 to 2022. The dependent variable is year-on-year credit growth (percentage change in outstanding credit). Bank-level MPS participation is computed using either arithmetic or deposit-weighted averages across depositors, then standardized to mean zero and unit standard deviation. ILST fixed effects denote industry × location × size × year controls (Degryse et al. 2019). Bank controls include lagged log total assets, tier-1 capital ratio, and loan-to-deposit ratio. Standard errors two-way clustered at the bank and firm levels appear in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	(1)	(2)	(3)	(4)
MPS participation (t-1, std)	0.091*	0.059*		
	(0.048)	(0.035)		
MPS participation (t-1, std) × Δ MP rate (t-1)	-1.550**	-0.867**		
	(0.681)	(0.400)		
MPS participation (t-1, wgt, std)			0.057**	0.051**
			(0.023)	(0.024)
MPS participation (t-1, wgt, std) × Δ MP rate (t-1)			-0.757	-0.674*
			(0.772)	(0.376)
Observations	80,121	331,414	80,121	331,414
R2	0.46	0.17	0.46	0.17
Bank controls	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Firm-Year FE	Yes		Yes	
ILST FE		Yes		Yes

Table 8: New Lending Responses by Bank MPS Participation: Bank-Firm-Year Level

Notes: This table reports estimates of how new bank lending to non-financial firms responds to monetary policy rate changes, by bank-level depositor MPS participation, using bank-firm-year observations from 2003 to 2022. The dependent variable is the log volume of new credit extended within each bank-firm relationship. Bank-level MPS participation is computed using either arithmetic or deposit-weighted averages across depositors, then standardized to mean zero and unit standard deviation. ILST fixed effects denote industry × location × size × year controls (Degryse et al. 2019). Bank controls include lagged log total assets, tier-1 capital ratio, and loan-to-deposit ratio. Standard errors two-way clustered at the bank and firm levels appear in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	(1)	(2)	(3)	(4)
MPS participation (t-1, std)	0.440	0.000		
	(0.367)	(0.159)		
MPS participation (t-1, std) × Δ MP rate (t-1)	-24.969***	-3.168**		
	(6.129)	(1.378)		
MPS participation (t-1, wgt, std)			0.126	-0.053
			(0.210)	(0.139)
MPS participation (t-1, wgt, std) × Δ MP rate (t-1)			-22.026***	-3.323**
			(6.928)	(1.538)
Observations	16,618	144,263	16,618	144,263
R2	0.61	0.35	0.61	0.35
Bank controls	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Firm-Year FE	Yes		Yes	
ILST FE		Yes		Yes

Table 9: Summary Statistics: Euro Area Bank-Month Panel

Notes: This table reports summary statistics for 175 euro area banks from January 2022 through December 2023. Δ denotes year-on-year changes. Deposit rates are weighted averages of overnight and agreed maturity household deposit rates. MPS share equals the ratio of household stock and bond holdings to the sum of household deposits plus stock and bond holdings, calculated at the country level in December 2021 using Securities Holdings Statistics. HHI denotes the Herfindahl-Hirschman Index of deposit market concentration at the country level. Data sources include the ECB's Individual Balance Sheet Item (IBSI) and Individual MFI Interest Rate (IMIR) databases.

	N	mean	sd	p1	p5	p50	p95	p99
Δ Rates - Household deposits	4100	0.33	0.53	-0.26	-0.10	0.05	1.70	1.72
Δ PR	4100	1.92	1.46	0.00	0.00	2.00	3.75	4.00
Market-Priced Savings share (Dec. 21)	4100	0.16	0.08	0.05	0.05	0.17	0.30	0.41
HHI - Household deposits (Dec. 21)	4100	0.17	0.07	0.05	0.09	0.16	0.31	0.33

Table 10: Deposit Rate Pass-Through by Country MPS Exposure: Euro Area Banks

Notes: This table reports estimates of how deposit rate pass-through varies with country-level MPS exposure, using monthly bank-level observations from January 2022 through December 2023 covering 175 euro area banks. The dependent variable is the year-on-year change in the bank's household deposit rate (weighted average of overnight and agreed maturity rates). MPS share equals the ratio of household stock and bond holdings to household deposits plus stock and bond holdings, calculated at the country level in December 2021. HHI denotes the Herfindahl-Hirschman Index of deposit market concentration at the country level. Standard errors clustered at the bank level appear in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	ΔDeposit rate			
	(1)	(2)	(3)	(4)
Δ MPrate	0.197***	0.108***		
	(0.0130)	(0.0277)		
Δ MPrate x Market-Priced Savings share		0.547***	0.550***	0.478***
		(0.173)	(0.173)	(0.178)
Market-Priced Savings share		-0.0447		
		(0.0928)		
Δ MPrate x HHI - Household deposits				-0.384**
				(0.167)
Observations	4,100	4,100	4,100	4,100
R-squared	0.295	0.330	0.698	0.704
Bank FE	N	N	Y	Y
Month FE	N	N	Y	Y

Table 11: Deposit Growth Responses by Country MPS Exposure: Euro Area Banks

Notes: This table reports estimates of how deposit growth varies with country-level MPS exposure following monetary policy rate changes, using monthly bank-level observations from January 2022 through December 2023 covering euro area banks. The dependent variable is the year-on-year change in log household deposit volumes. MPS share equals the ratio of household stock and bond holdings to household deposits plus stock and bond holdings, calculated at the country level in December 2021. HHI denotes the Herfindahl-Hirschman Index of deposit market concentration at the country level. Standard errors clustered at the bank level appear in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	Δ Log(deposits)			
	(1)	(2)	(3)	(4)
Δ MPrate	-0.0120***	0.0262**		
	(0.00258)	(0.0113)		
Market-Priced Savings share		0.446***		
		(0.140)		
Δ MPrate x Market-Priced Savings share		-0.212***	-0.171***	-0.165***
		(0.0569)	(0.0555)	(0.0529)
Δ MPrate x HHI - Household deposits				0.0177
				(0.0406)
Observations	31,743	31,556	31,547	31,547
R-squared	0.004	0.007	0.484	0.484
Bank FE	N	N	Y	Y
Month FE	N	N	Y	Y

Appendices

A Formal derivation of our hypotheses

An influential and useful framework for thinking about how deposit pricing and growth relate to monetary policy is the Deposits Channel model (Drechsler et al. 2017). It shows that under plausible assumptions, the optimal deposit spread of banks s between deposit rates r_d and policy rates f can be written as follows.

$$s = \left[\delta^{\frac{\epsilon}{\epsilon-1}} \left(\frac{M-\rho}{\epsilon - M} \right)^{\frac{1}{\epsilon-1}} \right] f \tag{6}$$

where δ is the liquidity of deposits relative to that of cash, ϵ is the elasticity of substitution of the clients between deposits and cash, M is the market power of the deposit market of banks, and ρ is the elasticity of substitution between deposits and what (Drechsler et al. 2017) call "bonds" and we call MPS. From this equation follows our first hypothesis.

Hypothesis 1: *A higher deposit-MPS elasticity ρ is associated with higher deposit rates or lower deposit spreads s, and with higher pass-through from policy to deposit rates.*

Furthermore, taking banks' deposit pricing (which, of course, already anticipates clients' responsiveness) as given, the elasticity of client-chosen deposit volumes to bank-chosen deposit spreads can be written as follows:

$$-\frac{\partial D}{\partial s}\frac{s}{D} = \left[\frac{1}{1+\delta^{\epsilon}\left(\frac{f}{s}\right)^{\epsilon-1}} \right] \epsilon + \left[\frac{\delta^{\epsilon}\left(\frac{f}{s}\right)^{\epsilon-1}}{1+\delta^{\epsilon}\left(\frac{f}{s}\right)^{\epsilon-1}} \right] \rho \tag{7}$$

Put differently, the elasticity of deposits to deposit prices is a weighted average of persons' propensity to move into cash ϵ and their propensity to move into MPS ρ, and in particular is in the latter. But if a higher ρ implies both greater deposit spread increases and greater client responsiveness to such increases following policy rate hikes, it also implies our second hypothesis.

Hypothesis 2: *A higher deposit-MPS elasticity ρ is associated with a more policy rate sensitive deposit growth.*

Finally, since deposits have been shown to be on average over time banks' cheapest way to refinance lending (Drechsler et al. 2017) and depending on the setup, also their best way to hedge interest rate risk (Drechsler et al. 2021 and Drechsler et al. 2023) or liquidity risk (Li et al. 2023), this implies also that, following deposit growth reductions in response to policy rate hikes, banks will more strongly reduce their loan supply. This suggests our third hypothesis.

Hypothesis 3: *A higher deposit-MPS elasticity ρ is associated with more policy rate sensitive loan growth.*

B Account-Level Robustness Analysis

Our main specifications aggregate deposit account balances and interest payments to the individual-bank-year level to compute effective deposit rates from these aggregated values. Differential pass-through of policy rates to deposit rates could reflect either higher pass-through on existing accounts, or MPS holders dynamically adjusting their account portfolios in response to policy rate changes. We distinguish these channels using account-level data.

Empirical Specification. We extend equation (1) to the account level:

$$y_{aibt} = \alpha_i + \eta_a + \chi_{it} + \gamma_{bt} + \beta_1 \text{MPS}_{i,t-1} + \beta_2(\Delta PR_t \times \text{MPS}_{i,t-1}) + \epsilon_{aibt}, \quad (8)$$

where a indexes accounts, i indexes individuals, b indexes banks, and t indexes years. Account fixed effects η_a isolate within-account variation, restricting the sample to accounts existing in both year $t-1$ and t. Covariates-year fixed effects χ_{it} interact year indicators with age group, municipality, homeownership, marital status, children, and education. Individual and bank-year fixed effects (α_i and γ_{bt}) remain orthogonal to account fixed effects because individuals hold multiple accounts and accounts occasionally have multiple owners (joint accounts).

Table B.1 presents results. Panel (a) examines deposit rate pass-through using year-on-year changes in deposit rates as the dependent variable. Panel (b) examines deposit volumes using log deposits. Columns (1)-(3) progressively add individual fixed effects, bank-year fixed effects, and covariates-year fixed effects. Column (4) adds account fixed effects to this most demanding specification.

Deposit Rate Pass-Through. MPS holders receive 7.6 percentage points higher pass-through on existing accounts (Panel (a), column 4) compared to 8.4 percentage points at the individual level (Table 3, column 5). Higher pass-through on existing accounts explains 90% of the individual-level differential (= 7.6/8.4). The interaction coefficient is stable across specifications, ranging from 0.076 to 0.083.

The account-level results establish that differential pass-through operates primarily within existing accounts rather than through MPS holders dynamically adjusting their account portfolios in response to policy rate changes. This within-account differential could reflect either differential contract terms established when accounts were opened or banks adjusting rates on existing accounts based on depositor characteristics. Both mechanisms are consistent with banks responding to depositors' outside options: either by offering better initial terms to attract MPS holders or by adjusting rates on existing contracts to retain them. The 90% share attributed to within-account variation indicates that account opening and closing decisions contribute only marginally to differential pass-through.

Deposit Volume Decomposition. MPS holders increase balances by 1.0 percentage point more than non-holders per 100 basis point rate increase in the average surviving account (Panel (b), column 4). This positive response contrasts with individual-level outflows of 0.5 percentage points (Table 4, column 5). Account fixed effects capture only the intensive margin: balance changes within surviving accounts. Individual-level estimates capture both intensive and extensive margins: all accounts that survive, close, or open. The extensive margin therefore equals -1.5 percentage points ($= -0.5 - 1.0$).

MPS holders increase balances in surviving accounts while account closures generate larger offsetting outflows. The extensive margin (-1.5 pp) exceeds the intensive margin ($+1.0$ pp), indicating that account closures dominate account-level adjustments. MPS holders respond through selective account closure rather than proportional withdrawal from all accounts. This pattern reflects portfolio reallocation: maintaining or expanding positions in some accounts while closing others.

The account-level decomposition provides two insights. First, higher deposit rate pass-through for MPS holders operates primarily within existing accounts rather than through dynamic account portfolio adjustments, establishing that banks differentiate pricing at the depositor level even for identical account types. Second, deposit outflows occur primarily through account closures rather than proportional reductions across all accounts, indicating that MPS holders exercise outside options selectively rather than uniformly across their banking relationships.

Table B.1: Account-Individual-Bank Level: Deposit Rates and Volumes

Notes: This table extends the individual-level analysis from equation (1) to the account-individual-bank-year level. Account fixed effects in column (4) restrict the sample to accounts existing in both year $t-1$ and year t, isolating within-account variation and excluding accounts that close or open during year t. Demographic controls interacted with year indicators (Covariates-Year FE) include age group, municipality of residence, homeownership status, marital status, presence of children, and university education. Bank controls include lagged log total assets, tier-1 capital ratio, and loan-to-deposit ratio. Standard errors two-way clustered at the individual and bank levels appear in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

(a) Deposit Rate Pass-Through

	(1)	(2)	(3)	(4)
MPS participation (t-1)	-0.004	0.009***	0.008***	0.011***
	(0.005)	(0.001)	(0.002)	(0.002)
Δ MP rate	0.239***			
	(0.024)			
MPS participation (t-1) × Δ MP rate	0.082***	0.083***	0.078***	0.076***
	(0.006)	(0.004)	(0.004)	(0.004)
Observations	96,134,286	96,249,776	96,249,776	90,123,504
R2	0.12	0.23	0.23	0.32
Bank controls	Yes			
Individual FE		Yes	Yes	Yes
Bank-Year FE		Yes	Yes	Yes
Covariates-Year FE			Yes	Yes
Account FE				Yes

(b) Deposit Volumes

	(1)	(2)	(3)	(4)
MPS participation (t-1)	0.505***	-0.120***	-0.120***	-0.011***
	(0.051)	(0.024)	(0.025)	(0.003)
Δ MP rate	-0.010			
	(0.009)			
MPS participation (t-1) × Δ MP rate	0.003	-0.010**	-0.005	0.010**
	(0.008)	(0.004)	(0.005)	(0.005)
Observations	121,257,634	165,435,309	165,435,309	157,216,304
R2	0.01	0.26	0.26	0.74
Bank controls	Yes			
Individual FE		Yes	Yes	Yes
Bank-Year FE		Yes	Yes	Yes
Covariates-Year FE			Yes	Yes
Account FE				Yes

C Intensive Margin Analysis: MPS Wealth Share

Our main analysis uses an extensive margin measure of MPS exposure: whether depositors hold any market-priced savings. This section examines the intensive margin: the share of financial wealth allocated to MPS among those who participate. Comparing extensive and intensive margins reveals whether banks respond primarily to depositors' demonstrated access to outside options (the participation decision) or to the magnitude of that exposure (the wealth allocation).

The intensive margin generates effects in the same direction as the extensive margin but with occasionally smaller magnitudes and weaker statistical significance. This pattern holds across all outcomes: deposit rate pass-through (Table C.2), deposit flows (Table C.3), bank-municipality heterogeneity (Table C.4), cross-bank variation (Table C.5), and credit supply (Tables C.6 and C.7). This indicates that the decisive margin for deposit rate pass-through is whether depositors can substitute toward market alternatives rather than how much wealth they have already allocated to those alternatives.

The finding aligns with models where the threat of reallocation drives pricing power. A depositor holding even modest MPS demonstrates the capability and willingness to access market alternatives, credibly signaling responsiveness to deposit rate spreads. Additional wealth allocated to MPS beyond this threshold provides limited additional pricing leverage. Banks may find the binary participation decision more observable and verifiable than continuous wealth shares when setting account-specific pricing.

These intensive margin results serve two purposes. First, they provide robust-

ness. The consistent directional effects across both margins confirm that MPS exposure broadly constrains deposit market power. Second, they sharpen interpretation. Monetary policy transmission operates primarily through the participation threshold rather than through gradual increases in market exposure among existing participants.

Table C.2: Deposit Rate Pass-Through by MPS Wealth Share at the Depositor Level

Notes: This table replicates the analysis in Table 3 using MPS wealth share (intensive margin) rather than MPS participation (extensive margin). The dependent variable is the year-on-year change in the depositor's effective deposit rate at each bank (in percentage points). MPS wealth share equals MPS holdings divided by total financial wealth (deposits plus MPS). Bank controls include lagged log total assets, tier-1 capital ratio, and loan-to-deposit ratio. Demographic controls interacted with year indicators include age group, municipality of residence, homeownership status, marital status, presence of children, and university education. Standard errors two-way clustered at the individual and bank levels appear in parentheses. See Table 3 for the main results using MPS participation and Section A.2 for interpretation. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

(a) MPS wealth share

	(1)	(2)	(3)	(4)	(5)	(6)
MPS wealth share (t-1)	-0.000	-0.000	0.000***	0.000**	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Δ MP rate	0.196***	0.195***	0.200***	0.194***		
	(0.019)	(0.017)	(0.019)	(0.016)		
MPS wealth share (t-1) × Δ MP rate	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	65,111,201	65,111,201	64,883,775	64,883,775	64,883,772	53,369,597
R2	0.08	0.10	0.12	0.13	0.23	0.24
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE		Yes		Yes		
Individual FE			Yes	Yes	Yes	Yes
Bank-Year FE					Yes	Yes
Covariates-Year FE						Yes

Table C.3: Deposit Flow Responses by MPS Wealth Share at the Depositor Level

Notes: This table replicates the analysis in Table 4 using MPS wealth share (intensive margin) rather than MPS participation (extensive margin). The dependent variable is log deposit balances held by individual i at bank b in year t. MPS wealth share equals MPS holdings divided by total financial wealth (deposits plus MPS). Bank controls include lagged log total assets, tier-1 capital ratio, and loan-to-deposit ratio. Demographic controls interacted with year indicators include age group, municipality of residence, homeownership status, marital status, presence of children, and university education. Standard errors two-way clustered at the individual and bank levels appear in parentheses. See Table 4 for the main results using MPS participation and Section A.2 for interpretation. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

(a) MPS wealth share

	(1)	(2)	(3)	(4)	(5)
MPS wealth share (t-1)	0.005***	0.005***	-0.008***	-0.008***	-0.008***
	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Δ MP rate	0.031	0.021	0.033*		
	(0.027)	(0.015)	(0.018)		
MPS wealth share (t-1) × Δ MP rate	-0.000	0.000***	0.000	-0.000*	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	77,990,696	77,990,696	77,750,171	77,750,171	64,399,546
R2	0.01	0.04	0.47	0.48	0.48
Bank controls	Yes	Yes	Yes	Yes	Yes
Bank FE		Yes	Yes		
Individual FE			Yes	Yes	Yes
Bank-Year FE				Yes	Yes
Covariates-Year FE					Yes

Table C.4: Within-Bank Deposit Rate Pass-Through by MPS Wealth Share: Bank-Municipality-Year Level

Notes: This table replicates the analysis in Table 5 using MPS wealth share (intensive margin) rather than MPS participation (extensive margin). The dependent variable is the year-on-year change in the bank's arithmetic mean deposit rate among depositors residing in each municipality. MPS wealth share equals the deposit-weighted mean MPS share among municipal depositors, standardized to mean zero and unit standard deviation within each municipality-year. Municipal deposit concentration is measured via the HHI index at the municipality-year level. Bank controls include lagged log total assets, tier-1 capital ratio, and loan-to-deposit ratio. Standard errors two-way clustered at the bank and municipality-year levels appear in parentheses. See Table 5 for the main results using MPS participation and Section A.2 for interpretation. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

(a) MPS wealth share

	(1)	(2)	(3)	(4)	(5)	(6)
MPS wealth share (t-1, std.)	-0.000	-0.001	-0.001	-0.002	-0.002	-0.002
	(0.003)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
Δ MP rate	0.189***	0.190***	0.190***			
	(0.013)	(0.012)	(0.012)			
MPS wealth share (t-1, std.) × Δ MP rate	0.013**	0.014**	0.014**	0.007***	0.008***	0.007***
	(0.006)	(0.005)	(0.005)	(0.002)	(0.002)	(0.002)
Municipal deposit concentration (HHI, t-1)						0.010
						(0.027)
Municipal deposit concentration (HHI, t-1) × Δ MP rate						0.037
						(0.026)
Observations	120,767	120,767	120,767	120,765	120,765	120,765
R2	0.14	0.16	0.16	0.43	0.43	0.43
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE		Yes	Yes			
Municipality FE			Yes	Yes		Yes
Bank-Year FE				Yes	Yes	Yes
Municipality-Year FE					Yes	

Table C.5: Deposit Rate Pass-Through by MPS Wealth Share: Bank-Year Level

Notes: This table replicates the analysis in Table 6 using MPS wealth share (intensive margin) rather than MPS participation (extensive margin). The dependent variable is the year-on-year change in the bank's arithmetic mean deposit rate across all depositors. MPS wealth share equals the deposit-weighted mean MPS share across depositors, standardized to mean zero and unit standard deviation within each year. Bank controls include lagged log total assets, tier-1 capital ratio, and loan-to-deposit ratio. Standard errors clustered at the bank level appear in parentheses. See Table 6 for the main results using MPS participation and Section A.2 for interpretation. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

(a) MPS wealth share

	(1)	(2)	(3)	(4)
MPS wealth share (t-1, std.)	0.008	0.065*	0.058**	0.057**
	(0.010)	(0.033)	(0.024)	(0.024)
Δ MP rate	0.190***	0.190***		
	(0.010)	(0.009)		
MPS wealth share (t-1, std.) × Δ MP rate	0.042***	0.048***	0.047***	0.040***
	(0.015)	(0.014)	(0.012)	(0.013)
Bank-level deposit concentration (HHI, t-1)				-0.115
				(0.183)
Bank-level deposit concentration (HHI, t-1) × Δ MP rate				0.406*
				(0.237)
Observations	1,578	1,578	1,578	1,578
R2	0.31	0.37	0.72	0.72
Bank controls	Yes	Yes	Yes	Yes
Bank FE		Yes	Yes	Yes
Year FE			Yes	Yes

Table C.6: Credit Growth Responses by Bank MPS Wealth Share: Bank-Firm-Year Level

Notes: This table replicates the analysis in Table 7 using MPS wealth share (intensive margin) rather than MPS participation (extensive margin). The dependent variable is year-on-year credit growth (percentage change in outstanding credit). Bank-level MPS wealth share is computed using either arithmetic or deposit-weighted averages across depositors, then standardized to mean zero and unit standard deviation. Firm-year fixed effects compare lending to the same firm by different banks in the same year, controlling for credit demand (Khwaja & Mian 2008). ILST fixed effects denote industry × location × size × year controls (Degryse et al. 2019). Bank controls include lagged log total assets, tier-1 capital ratio, and loan-to-deposit ratio. Standard errors two-way clustered at the bank and firm levels appear in parentheses. See Table 7 for the main results using MPS participation and Section A.2 for interpretation. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	(1)	(2)	(3)	(4)
MPS wealth share (t-1, std)	0.034	0.054		
	(0.035)	(0.041)		
MPS wealth share (t-1, std) × Δ MP rate (t-1)	-0.849	-1.129**		
	(0.771)	(0.510)		
MPS wealth share (t-1, wgt, std)			0.018	0.030***
			(0.017)	(0.011)
MPS wealth share (t-1, wgt, std) × Δ MP rate (t-1)			-0.009	-0.932
			(1.272)	(0.823)
Observations	80,121	331,414	80,121	331,414
R2	0.46	0.17	0.46	0.17
Bank controls	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Firm-Year FE	Yes		Yes	
ILST FE		Yes		Yes

Table C.7: New Lending Responses by Bank MPS Wealth Share: Bank-Firm-Year Level

Notes: This table replicates the analysis in Table 8 using MPS wealth share (intensive margin) rather than MPS participation (extensive margin). The dependent variable is the log volume of new credit extended within each bank-firm relationship. Bank-level MPS wealth share is computed using either arithmetic or deposit-weighted averages across depositors, then standardized to mean zero and unit standard deviation. Firm-year fixed effects compare lending to the same firm by different banks in the same year, controlling for credit demand (Khwaja & Mian 2008). ILST fixed effects denote industry × location × size × year controls (Degryse et al. 2019). Bank controls include lagged log total assets, tier-1 capital ratio, and loan-to-deposit ratio. Standard errors two-way clustered at the bank and firm levels appear in parentheses. See Table 8 for the main results using MPS participation and Section A.2 for interpretation. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	(1)	(2)	(3)	(4)
MPS wealth share (t-1, std)	-0.074	-0.056		
	(0.274)	(0.291)		
MPS wealth share (t-1, std) × Δ MP rate (t-1)	-15.164*	-3.664*		
	(7.954)	(2.163)		
MPS wealth share (t-1, wgt, std)			-0.106	-0.115
			(0.137)	(0.104)
MPS wealth share (t-1, wgt, std) × Δ MP rate (t-1)			-13.007	-9.661*
			(12.819)	(5.252)
Observations	16,618	144,263	16,618	144,263
R2	0.61	0.35	0.61	0.35
Bank controls	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Firm-Year FE	Yes		Yes	
ILST FE		Yes		Yes