Distortive Effects of Deposit Insurance: Administrative Evidence from Deposit and Loan Accounts [†]

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Abstract

Does deposit insurance hinder the cleansing effects of crises? We study how deposit insurance distorts allocation of deposits and credit in a crisis. For identification, we exploit changes in deposit insurance thresholds in Denmark during a crisis, in conjunction with administrative datasets. We find that individuals reallocate deposits differently based on the deposit insurance threshold. Higher deposit insurance benefits the funding of weaker banks with worse borrowers. This allows weaker banks to maintain elevated credit supply to worse firms which eventually default. Our results highlight erosion of depositor discipline and larger benefits to weaker banks from higher deposit insurance limits.

Keywords: Deposit Insurance, Deposit allocation, Deposit Rates, Credit Allocation

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1 Introduction

Bank runs have been at the center of financial crises throughout history (Reinhart and Rogoff 2009). Even in high-income countries with developed financial systems, retail depositor runs have occurred repeatedly in the 21st century—during the 2008 Global Financial Crisis (Shin 2009) and more recently during the 2023 collapses of Silicon Valley Bank and Signature Bank (White 2023). These events have reinvigorated debates on the optimal design of deposit insurance schemes (FDIC 2023).

A fundamental question in this debate is: Which banks benefit most from deposit insurance guarantees, and what are the resulting implications for financial stability and credit allocation? The longstanding theoretical literature has characterized two classes of bank runs, each with distinct implications for the design of deposit insurance schemes: Diamond and Dybvig (1983) show that runs on solvent but illiquid banks can arise from coordination failures unrelated to bank fundamentals, making deposit insurance an efficient solution. However, bank runs can be driven by banks' weaker fundamentals, either in conjunction with panic-driven scenarios (Goldstein and Pauzner 2005) or without panics solely driven by fundamental-based runs (Allen and Gale 2004). In these cases, deposit insurance might distort market dynamics by supporting weaker banks (Gorton 1988, Calomiris and Kahn 1991, Diamond and Rajan 2001, Rochet and Vives 2004, Dávila and Goldstein 2023). Understanding these effects is crucial for determining the optimal level of deposit insurance coverage (Dávila and Goldstein 2023).

We empirically analyze how changes in deposit insurance coverage affect the allocation of deposits across banks and, consequently, the supply of credit and risk-taking toward non-financial firms. Our study focuses on Denmark, which provides an ideal setting for identification as we can exploit detailed administrative matched datasets, and changes to the deposit insurance coverage limit. We exploit a reform, implemented in response to the Global Financial Crisis (GFC) in October 2008, that removed the existing deposit insurance coverage limit, thereby providing unlimited insurance.

We use administrative datasets on the universe of retail depositors (a deposit register)

matched with credit register data, and additional granular information on each bank, firm, and individual. Our deposit register data spans accounts held by over 6 million individuals across banks in Denmark from 2004 to 2015, providing deposit volumes and interest payments at the individual-bank level annually. We match this with credit register data covering term loans, credit lines, and credit cards held by approximately 100,000 non-financial firms. This is further enriched with administrative information on banks' and firms' balance sheets, income statements, and individual depositors' wealth and income from tax records.

In conjunction with our rich administrative data, we exploit a reform to deposit insurance coverage. Prior to the GFC, Danish deposits were insured up to DKK 300,000 (approximately €40,000). Following Lehman Brothers' collapse, the Danish government eliminated this ceiling in October 2008, implementing a full guarantee on all bank deposits. This policy shift is particularly instructive because Danish banks had a distinctive crisis exposure: they had funded a domestic real estate boom largely through wholesale (foreign) borrowing rather than through direct exposure to U.S. subprime assets. Consequently, when international funding markets seized in 2008:Q3, Danish banks experienced severe liquidity pressure despite minimal holdings of toxic mortgage-backed securities. The simultaneous deterioration in domestic real estate values further strained their balance sheets. The deposit insurance reform—enacted precisely amid these liquidity pressures—creates an ideal setting to examine how insurance coverage affects deposit allocation and subsequent credit supply. Our identification leverages two consecutive crisis periods with a single crucial difference: in 2008:Q3, banks faced substantial liquidity stress under limited deposit insurance, while in 2008:Q4, the same stressed conditions persisted but now under unlimited coverage—effectively creating a controlled environment to isolate the impact of deposit insurance.

To study whether banks benefit differentially from deposit guarantees, we classify institutions based on their exposure to the adverse effects of the GFC using their pre-crisis loan-to-deposit ratio. This ratio serves as a meaningful proxy for bank vulnerability, capturing both illiquidity and solvency risk. Banks with higher loan-to-deposit ratios face greater exposure to credit quality deterioration on their asset side and funding instability on their liability side.

This measure has been utilized by IMF-EU-ECB rescue programs during European banking crises after 2010 (IMF 2011), and applied in previous research analyzing credit supply to Danish households during the GFC (Jensen and Johannesen 2017).

We provide several validations that this measure effectively identifies weaker banks. First, institutions with higher pre-GFC loan-to-deposit ratios maintained demonstrably weaker loan portfolios before the crisis. Specifically, these banks lent more extensively during 2004-07 to less productive firms (those with lower total factor productivity) and directed more credit toward real-estate and construction firms. Second, this weaker ex-ante loan composition during 2004-07 translated into higher ex-post loan losses throughout the 2008-15 period. Furthermore, we find that a higher loan-to-deposit ratio strongly predicts subsequent bank failure, with our model achieving an area under the ROC curve (AUC) of 0.83—indicating that it correctly distinguishes between failed and non-failed banks 83% of the time. This predictive power confirms that the loan-to-deposit ratio is a valid proxy for banks with weaker fundamentals.[1]

Our analysis begins with quarterly supervisory data to document how the GFC's onset affected banks with elevated loan-to-deposit ratios. Examining deposit flows, interest rates, and liquidity positions during 2008:Q3—when the crisis intensified but deposit insurance remained capped at 300,000 DKK—we find consistent evidence of acute funding stress at vulnerable banks. These institutions experienced significant deposit outflows, paid higher interest rates to retain funding, and suffered deteriorating liquidity positions. Remarkably, these patterns reversed sharply in 2008:Q4 when deposit insurance became unlimited, despite continued crisis conditions. Once comprehensive protection was implemented, the same vulnerable banks with high loan-to-deposit ratios began attracting deposit inflows.

A key challenge in identifying the causal impact of deposit insurance reforms on deposit allocation is the potential sorting of depositors across banks with different loan-to-deposit ratios. Banks with higher exposure to the crisis (i.e., those with elevated loan-to-deposit ratios) might attract different types of depositors, who could differ systematically in withdrawal behavior

[1]We also find that the results in the paper are robust to using other proxies for weak banks like higher credit growth prior to the GFC.

and holdings of uninsured deposits.[2] We address this selection concern by examining deposits at the individual-bank level and exploiting within-individual variation in withdrawal patterns during the GFC. Specifically, we restrict our sample to individuals with deposits in multiple banks as of December 2007, allowing us to analyze how the same depositor reallocates funds across differently exposed banks while controlling for individual fixed effects. We find that, on average, depositors withdrew more from banks with higher loan-to-deposit ratios in 2008, with this effect being significantly more pronounced for deposits that exceeded the insurance limit. However, when the deposit insurance threshold was eliminated, we observe a striking reversal in behavior. In 2009—when deposit insurance coverage became unlimited—these same depositors began allocating more funds to banks with higher loan-to-deposit ratios.[3]

To causally identify effects from the deposit insurance change, we analyze deposit amounts in narrow ranges around the 300,000 DKK threshold. Specifically, we categorize and aggregate deposits at the bank level into 50,000 DKK ranges, allowing us to precisely compare deposit volumes just above versus just below the insurance limit. Our analysis examines two progressively tighter windows around the threshold: 200,000-400,000 DKK, and most narrowly, 250,000-350,000 DKK (representing just 7,000 USD around the insurance cutoff). Given the multiple policy interventions during the GFC, this focused approach helps isolate effects specifically attributable to deposit insurance rather than concurrent policy changes.[4] The results confirm our earlier findings: banks with higher loan-to-deposit ratios experience greater deposit outflows from bins just above the insurance threshold compared to bins just below it in 2008. By 2009, with unlimited insurance coverage, these differential effects disappear—consistent with our individual-bank analysis. Moreover, we find that high loan-to-deposit banks offered higher deposit rates in 2008 when insurance was limited, presumably to retain deposits. This rate premium vanished in 2009 when all deposits became fully insured.

[2]Banks' asset and liability sides are strategically linked (see Kashyap et al. 2002, Gatev and Strahan 2006, Ippolito et al. 2016), meaning a bank's business model and risk profile influence both its loan portfolio and depositor composition, which could create selection bias in our analysis if not addressed.

[3]These results remain robust when we expand our analysis to include all depositors, including those with accounts at only one bank in 2007, even when omitting individual fixed effects.

[4]Note also that during more than ten months of 2008, the deposit insurance limit was DKK 300,000.

Finally, we examine how deposit insurance reforms affected credit allocation using firm-bank level data from the credit register. To isolate credit supply effects, we employ granular fixed effects that compare lending by differently exposed banks to the same borrower in the same period (Khwaja and Mian 2008). This approach reveals that in 2008, when deposit insurance remained limited, banks with higher loan-to-deposit ratios—which entered the crisis with weaker loan portfolios—significantly curtailed lending to firms that would eventually default. This suggests deposit outflows constrained risky lending by vulnerable banks. However, once deposit insurance became unlimited in 2009, these same banks reversed course, increasing credit supply to soon-to-default firms without charging higher interest rates to compensate for risk. These credit patterns directly mirror our deposit findings, demonstrating how expanded guarantees affect both funding and lending behavior during crises.

To further strengthen our findings, we examine banks that ultimately failed during the 2009-2015 period as a clear-cut case of fundamentally weak institutions. The results for these failing banks mirror our previous findings on high loan-to-deposit ratio banks. Specifically, failing banks initially lost deposits above the insurance threshold relative to surviving banks when coverage was limited, but this differential effect disappeared once insurance became unlimited. Similarly, failing banks reduced credit to soon-to-default firms when deposit insurance was limited, yet increased lending to these same risky borrowers after coverage became comprehensive. Perhaps most revealing is our finding about the relationship between deposit growth and subsequent bank failure: under limited deposit insurance, banks experiencing deposit outflows were more likely to fail—consistent with market discipline identifying weaker institutions. However, after unlimited deposit insurance was introduced, this relationship inverted: banks attracting the most deposits became more likely to fail. This reversal suggests that expanded guarantees not only muted the disciplining effect of deposit outflows but actively channeled funds toward institutions that were fundamentally unsound.

Our findings demonstrate that expanded deposit insurance disproportionately benefits weaker banks through retail deposit reallocation, enabling them to maintain elevated credit supply to lower-quality firms. The fact that several of these institutions failed during 2009-2015 suggests

higher insurance thresholds primarily extended survival of fundamentally unsound banks rather than facilitating their recovery. This reveals an important policy tradeoff: while expanded deposit insurance effectively reduces immediate financial fragility during crises, it introduces distortions in deposit allocation and credit supply that may amplify long-term financial system vulnerabilities. Although we refrain from drawing welfare conclusions, our results inform ongoing debate about optimal deposit insurance design. Our findings highlight the need to calibrate coverage levels carefully—balancing short-term stability against the costs of weakened market discipline and distorted funding and lending patterns.

Our paper adds to the literature on several fronts.[5] One of the main empirical challenges has been to causally show that deposit insurance affects depositor discipline and risk taking by banks.[6] The reason being that during a crisis there are several shocks that affect bank risk and depositor behavior. In addition, the composition of the depositors across banks could be different. Using a change in the deposit insurance threshold in a crisis, along with the deposit and loan register, we find that there is a marked shift in behavior of the same depositor when the threshold changes. We find that weaker banks benefit more from the distortion in deposit flow arising from an increase in threshold. Weaker banks also increase lending to firms that ex-post default.[7] In fact, we find that many of the weaker banks eventually fail.[8] Thus, our results suggest that increasing the deposit insurance threshold distorts depositor discipline and allows longer persistence of weak banks and riskier firms in an economy.

[5]There are two strands of empirical literature. One examines the benefits of deposit insurance in terms of providing stability in a crisis (Demirgüç-Kunt et al. (2008), Iyer and Puri (2012), Iyer et al. (2016)). The other literature examines whether deposit insurance causes more financial instability via reduction in market discipline and enhanced risk taking by banks (Demirgüç-Kunt and Detragiache (2002); Demirgüç-Kunt and Huizinga (2004); Beck and Laeven (2008); Caprio and Klingebiel (1996); Laeven and Valencia (2013); Martinez Peria and Schmukler (2001); Schumacher (1998); Calomiris (1989); Calomiris (1990)).

[6]Most of the empirical literature examines bank level deposit flow and changes in bank risk during a crisis using cross-section variation in bank characteristics or alternatively examining cross-country variation in deposit insurance and its association with bank risk and financial crises. Notable exception is Calomiris and Jaremski (2019), that uses state level variation in deposit insurance adoption in the pre-fed era to study risk taking behavior of banks.

[7]Increased deposit flow to weaker banks and higher lending for firms that ex-post default could lead to misallocation of funds and can have real effects. See also Hsieh and Klenow (2009); Acharya et al. (2022).

[8]See also Correia et al. (2024) who find that most banks that fail are ex-ante weak banks.

2 Data and Institutional Background

This section introduces our data sources, presents key descriptive statistics, and outlines the institutional context of Denmark's deposit insurance reforms.

2.1 Datasets

Our analysis combines several matched administrative datasets from Statistics Denmark (Danmarks Statistik). To examine deposit reallocation effects, we use comprehensive account-level information on retail deposits reported to the Danish tax authority (SKAT). These tax records function effectively as a deposit register, covering all deposit accounts at banks in Denmark. We supplement this with supervisory information on bank balance sheets to identify institutions more exposed to the crisis. Our analysis of bank lending uses tax-reported data on non-mortgage loans to non-financial firms, which serves as a de facto credit register. We further match these with administrative records on each individual depositor's wealth, income, and other socioeconomic characteristics. Our analysis spans 2004 to 2015.

Deposit register. We obtain comprehensive information on bank deposit accounts from the Danish tax authorities. At the end of each year, financial institutions in Denmark are required to report year-end balances for all deposit accounts to the tax authorities. These mandatory reports, which facilitate tax enforcement, ensure a high degree of data accuracy.[9] Our dataset covers deposit accounts held by 6.1 million individuals. For each individual at every Danish bank, we observe the total consolidated end-of-year account balance and the total interest payments over the preceding year. Each deposit account is associated with a unique identifier linking it to both an individual and a bank.

To facilitate our analysis, we aggregate account-level data to the individual-bank level by summing deposit volumes and interest payments across all accounts held by the same individual at a given bank in a given year.[10] This aggregation aligns with the structure of deposit

[9] The dataset also contains information on contractual interest rates. However, since this information is not critical for tax purposes, its reporting is inconsistent.

[10] We do not observe the type of deposit account (e.g., whether it is a checking or savings account).

insurance, which applies at the individual-bank level rather than the individual-bank-account level. For each individual-bank-year observation, we compute the effective deposit rate as the total interest payment in year t divided by the average deposit balance in year t. We approximate the deposit balance in year t by averaging the balance at the end of year t and the balance at the end of year $t-1$. The dataset on individual-bank-level deposit holdings serves as the foundation for our individual-level analysis of deposit withdrawal behavior. Additionally, we examine changes in deposits at the bank-account range level, enabling us to assess variations across different account sizes.

Credit register. Our dataset on corporate loans closely parallels the retail deposit data outlined above. It encompasses all non-mortgage lending agreements between non-financial firms and banks in Denmark, including regular term loans, flexible credit facilities such as revolving loans and overdraft accounts, credit card debt, and commercial paper.[11] Similar to the deposit data, the credit register provides detailed information on each lending agreement, including the identity of the borrower, account number, outstanding credit balance, and total interest payments made over the year. Given our focus on credit allocation to firms that were relatively more exposed to the global financial crisis, we restrict our analysis to loans extended to non-financial firms.

We aggregate the account-level data to the bank-firm-year level by summing credit balances and interest payments across all accounts held by the same firm at a given bank. To construct our baseline sample, we impose several restrictions. First, we include only active firms from 2004 to 2015, excluding those with equity below 1,000 USD to ensure financial substance. Additionally, we exclude cooperatives, NGOs, and other non-profit entities, primarily to omit housing cooperatives from our analysis. We further exclude loans granted by municipalities and any loans in arrears or subject to debt forgiveness. Lastly, we drop loans issued by mortgage banks, governmental institutions, and the Danish central bank. Our final loan-level dataset comprises 81,000 unique firms borrowing from 92 banks.

[11] In Denmark, mortgages are issued by specialized mortgage institutions that operate under distinct regulations. Consequently, we exclude these institutions from our analysis.

Person-level data. In addition to financial records, our study incorporates a comprehensive set of demographic data obtained from tax records, covering all Danish taxpayers. This dataset provides detailed information on individual balance sheets, including sources of income and wealth components. It also includes demographic attributes such as age, educational background, and geographic location. These annual data points, collected at the end of each year, offer a granular view of each individual's socio-economic characteristics.

Lender and borrower characteristics. We enrich our corporate loan data with detailed information on both borrowers and lenders using databases compiled by Statistics Denmark and the financial supervisory authority. For corporate borrowers, we leverage the Danish firm register, which provides data on firms' legal status, founding year, location, number of employees, and financial statements, including balance sheets and income statements. Bank-specific information, covering balance sheets, income statements, and key regulatory metrics such as capital adequacy ratios, is obtained from the financial supervisory authority.

Identifying exposed banks. The GFC revealed significant vulnerabilities in banking sector funding structures. We classify banks based on their exposure to the crisis using their pre-GFC loan-to-deposit ratio, which serves as a proxy for both illiquidity and solvency risk. Banks with higher loan-to-deposit ratios face greater exposure to credit quality deterioration on their asset side and funding instability on their liability side. This dual vulnerability made them particularly susceptible during the GFC when funding markets seized up. The loan-to-deposit ratio has been recognized as a key indicator in financial stability assessments, serving as a target metric in IMF-EU-ECB rescue programs during European banking crises post-2010 (see, e.g., IMF 2011) and as an analytical tool for examining credit supply to Danish households during the GFC (see Jensen and Johannesen 2017). The following sections show that this measure effectively identifies banks with weaker pre-crisis loan portfolios and predicts subsequent loan losses and bank failures, confirming its validity as a proxy for bank vulnerability.

2.2 Descriptive Statistics

Table 1 presents descriptive statistics for the main variables in our analysis as of December 2007, providing a snapshot of the banking sector and firm characteristics immediately before the crisis.

Banks. Panel A of Table 1 characterizes the Danish banking landscape, revealing substantial heterogeneity among financial institutions. The average bank holds total assets of approximately 57.4 billion DKK, though this figure masks considerable variation (standard deviation of 344 billion DKK), reflecting a banking system comprising both small community banks and large national institutions. Total deposits average 18.4 billion DKK, with retail deposits constituting about 5.7 billion DKK of this funding base. The mean interest rate on retail deposits is 2%, consistent with the prevailing monetary policy stance before the crisis.

Critically for our analysis, the share of uninsured retail deposits—balances exceeding the pre-crisis insurance threshold of 300,000 DKK—averages 37% of all retail deposits. However, only 6% of depositors held uninsured balances, indicating that while most depositors were fully covered, a significant portion of deposit value remained uninsured. The loan-to-deposit ratio—our key measure of bank vulnerability—averages 1.17 (117%), with substantial dispersion (standard deviation of 39 percentage points). The distribution spans from 0.64 (10th percentile) to 1.76 (90th percentile), providing rich cross-sectional variation in exposure to funding risks. This variation reflects diverse business models, with some banks relying heavily on deposit funding while others depended more on wholesale markets. Capital positions appear generally strong, with the average Tier 1 capital ratio standing at 12.9%, well above regulatory minimums. Prior to the crisis, banks expanded their loan portfolios rapidly, with average annual credit growth of 25% during 2004-2007.

Firms. Panel B presents the characteristics of borrowing firms in our sample. The average loan size is 3.13 million DKK, though the large standard deviation (24 million DKK) indicates substantial variation in credit exposures. The median loan size of 330,000 DKK suggests a predominance of smaller borrowers. Firms pay an average interest rate of 7% on their loans,

with rates spanning from 2% at the 10th percentile to 12% at the 90th percentile, reflecting differences in firm risk profiles and loan characteristics. The borrower base is diverse in size: annual sales average 52 million DKK, ranging from 1.88 million DKK (10th percentile) to 62.83 million DKK (90th percentile). Similarly, the average firm employs 28.6 workers, though the median of 8 employees indicates that smaller enterprises dominate our sample. This firm heterogeneity provides valuable variation for identifying differential effects of credit supply shocks across borrower types.

2.3 Deposit Insurance Reforms in Denmark

Leading up to the GFC of 2008, the Danish economy experienced robust growth, driving a significant expansion in domestic banks' lending activities, particularly to real estate firms. This period was also characterized by a booming housing market. The rapid expansion in credit outpaced deposit growth, increasing Danish banks' reliance on wholesale market funding. As a result, leverage ratios rose sharply while liquidity ratios declined. Despite these developments, banks remained profitable, and none failed during the pre-crisis boom (Rangvid et al. 2013).

Although the Danish banking sector had minimal direct exposure to the U.S. mortgage-backed securities central to the GFC, it nevertheless felt the impact of the 2007–2008 credit crunch (Shin 2009, IMF 2011, Jensen and Johannesen 2017). The situation deteriorated following the collapse of Lehman Brothers in September 2008, which led to a freeze in international credit markets and triggered a funding crisis for many Danish banks. Between 2008 and 2010, approximately 30 small to medium-sized Danish banks either failed to meet regulatory capital requirements or ceased operations.

In response to the escalating crisis, the Danish government introduced a series of measures in October 2008 under the so-called "Bank Rescue Package I." Most notably, it temporarily guaranteed all bank deposits in Denmark, effectively lifting the previous deposit insurance limit of DKK 300,000 to provide unlimited coverage. This measure was initially set to expire

in September 2010. Additionally, the Danish central bank launched temporary credit facilities to enhance liquidity in the banking sector. While these facilities bolstered confidence, banks made little use of them (Dam and Risbjerg 2009).[12]

In the aftermath of the GFC, the European Commission sought to harmonize deposit insurance schemes across European Union member states, motivated by concerns over cross-country deposit flight. Effective 1 October 2010, Denmark aligned with the new EU regulations by setting the deposit insurance limit at DKK 750,000. This threshold—standardized by the European Union at approximately 100,000 euros—was external to the Danish banking system and left a considerable share of bank deposits uninsured (Iyer et al. 2019). Media coverage at the time highlighted strategies for depositors to safeguard their savings, such as diversifying their holdings across multiple banks (Rangvid et al. 2013).[13]

3 Bank Vulnerability During the Global Financial Crisis

A key premise of our analysis is that banks with a higher loan-to-deposit (L/D) ratio in 2007 entered the Global Financial Crisis (GFC) with weaker fundamentals. We define banks with higher L/D ratios as more exposed to the adverse effects of the crisis due to their greater reliance on wholesale funding and higher potential loan losses. In this section, we first analyze pre-crisis lending portfolios of these exposed banks, then document how these vulnerabilities led to subsequent loan losses during and after the crisis. Next, we examine how the L/D ratio correlates with other bank characteristics. Finally, we investigate how banks with different pre-crisis L/D ratios responded to liquidity stress in 2008:Q3 and the subsequent shift to unlimited deposit insurance in 2008:Q4.

[12]For further details on Denmark's policy response to the GFC, including the establishment of the Financial Stability Company ("Finansiel Stabilitet") to oversee struggling banks, see Abildgren and Thomsen (2011) and Rangvid et al. (2013).

[13]As in the U.S., Denmark's deposit insurance scheme applies separately to accounts held by the same individual at different banks, meaning depositors can effectively increase their coverage by spreading their funds across multiple institutions.

3.1 Loan-to-Deposit Ratio as a Measure of Bank Vulnerability

We begin by examining whether banks with a higher L/D ratio in 2007 exhibited systematically weaker pre-crisis loan portfolios. Utilizing the credit register matched with firm-level data, we compute total factor productivity (TFP) at the firm level and aggregate it at the bank level, weighting each firm's TFP by loan volume (Blattner et al. 2023). Additionally, we measure each bank's exposure to the real estate and construction sectors by computing the share of loans allocated to these industries.

We estimate the following panel regression for the pre-crisis period (2004–2007):

$$y_{b,t} = \alpha_t + \beta_t \text{Loan/Deposits}_{b,2007} + \gamma X_b + \epsilon_{b,t}, \tag{1}$$

where $y_{b,t}$ denotes the productivity or real estate exposure of a bank's loan portfolio, α_t are year fixed effects, and X_b includes bank controls such as the tier-1 capital ratio, log assets, and an indicator for the six largest banks based on total assets in 2007.

Table A.1 in the appendix presents the results. Banks with a higher L/D ratio in 2007 systematically lent to firms with lower TFP in the pre-crisis period. A one standard deviation increase in the L/D ratio corresponds to a 0.6 unit decline in borrower TFP. Additionally, these banks allocated a greater share of credit to real estate firms, with a one standard deviation increase in the L/D ratio linked to a 5-7 percentage point rise in lending to this sector. Since the real estate sector was severely impacted during the GFC, banks with higher L/D ratios had ex-ante weaker loan portfolios, characterized by lower borrower productivity and greater exposure to sectors highly sensitive to economic downturns.

Loan Losses During and After the GFC. Having established that banks with higher L/D ratios maintained weaker loan portfolios before the crisis, we now examine whether these vulnerabilities translated into higher loan losses once the crisis materialized. Figure 1 presents coefficient estimates with 95% confidence intervals from bank-level panel regressions of loan losses (scaled by total assets) on banks' L/D ratios measured in 2007, interacted with year indicators. The specification includes the following control variables measured in 2007: the

tier-1 capital ratio, log assets, and an indicator for the six largest banks based on total assets, each interacted with year indicators. The regression includes bank and year fixed effects, with standard errors clustered at the bank level.

The figure illustrates that prior to 2008, there was no significant difference in loan losses between banks with high and low L/D ratios, with point estimates close to zero. However, once the crisis began, banks with a higher L/D ratio in 2007 experienced significantly larger loan losses from 2008 to 2015. This pattern confirms that the weaker pre-crisis lending practices identified earlier translated into deteriorating asset quality during the crisis period, with effects persisting well beyond the acute phase of the GFC. The timing and magnitude of these losses validate our use of the L/D ratio as an indicator of bank vulnerability entering the crisis.

Characteristics of High Loan-to-Deposit Banks. While the above findings highlight vulnerabilities in lending portfolios and their consequences, we next examine whether high L/D banks exhibited broader structural differences before the crisis. Specifically, we examine how the pre-crisis L/D ratio correlates with various bank fundamentals, including balance sheet composition, pre-crisis growth, and ex-post performance. Table 2 presents cross-sectional regression results where the dependent variable is the L/D ratio in 2007, regressed on bank size, capitalization, credit growth, interbank borrowing, real estate lending, cumulative loan losses from 2008-2015, and an indicator for bank failure between 2009-2015.

Columns 1-8 sequentially introduce bank characteristics, highlighting their individual correlations with the L/D ratio. Larger banks (Column 1) and those with lower capital ratios (Column 2) had significantly higher L/D ratios. Banks with more aggressive pre-crisis credit growth (Column 3) and greater reliance on interbank funding (Column 4) also maintained higher L/D ratios. The relationship with real estate lending share (Column 5) is positive but not statistically significant. Importantly, banks with higher L/D ratios experienced greater loan losses post-crisis (Column 6) and were more likely to fail (Column 7), validating our use of this ratio as a measure of vulnerability. When all variables are included in Column 9, only credit growth and interbank debt remain significant, suggesting that these factors were the

primary drivers of high L/D ratios before the GFC. This pattern aligns with the interpretation that banks with high L/D ratios were primarily characterized by rapid loan expansion financed through wholesale funding, making them particularly vulnerable when these funding markets deteriorated during the crisis.

3.2 Bank Liquidity Dynamics Around the DI Reform

Having established that banks with higher L/D ratios entered the crisis with weaker fundamentals and experienced greater loan losses, we now examine how they responded to evolving funding conditions during the GFC. Using quarterly supervisory data, we conduct cross-sectional regressions to analyze how banks with different L/D ratios experienced funding stress in 2008:Q3 (before the deposit insurance expansion) and how these patterns changed following the introduction of unlimited deposit insurance in 2008:Q4. Importantly, the GFC was in full force throughout both quarters, with the key distinction being the implementation of unlimited deposit insurance in October 2008, allowing us to analyze how this policy intervention affected funding dynamics while crisis conditions remained intense.

Table 3 examines quarterly changes in total liquidity (Columns 1-2), total deposits (Columns 3-4), and deposit rates (Columns 5-6) for banks with higher L/D ratios in 2007. In 2008:Q3, while deposit insurance was still capped at DKK 300,000, banks with higher L/D ratios faced significant funding pressure. To provide economic intuition, moving from the median to the 90th percentile of the L/D ratio distribution (an increase from 1.17 to 1.76, as shown in Table 1) would be associated with approximately 7.7% decline in total liquidity (-0.13 × 0.59) and a 5.9% reduction in total deposits (-0.10 × 0.59). Simultaneously, deposit rates increased as shown by the positive coefficient in Column 5, indicating that these banks attempted to retain funding by offering higher interest rates.

In October 2008, Denmark implemented an unlimited deposit insurance scheme, significantly altering depositor incentives and banking sector stability. This policy shift reversed the liquidity dynamics observed in 2008:Q3. In 2008:Q4, banks with higher L/D ratios experienced substantial funding improvements. To quantify this effect, moving from the median to

the 90th percentile of the L/D ratio distribution (an increase from 1.17 to 1.76) was associated with approximately 16.5% increase in total liquidity (0.28×0.59) and a 13.6% increase in total deposits (0.23×0.59). Simultaneously, these banks were able to reduce their deposit rates, as indicated by the negative coefficient in Column 6. These results indicate that the removal of the deposit insurance cap alleviated funding pressures on previously vulnerable banks and reduced the need for rate-based competition for deposits.

Overall, the introduction of unlimited deposit insurance appears to have relieved funding pressures on weaker banks, allowing those with higher L/D ratios to retain and attract deposits despite their riskier lending behavior and greater exposure to the crisis. While these patterns provide suggestive evidence of the deposit insurance reform's effects, we do not claim causality based solely on these bank-level correlations. To establish causal relationships and understand the specific mechanisms at work, we turn to micro-data on deposit accounts in the following sections, where we can more precisely identify how depositors responded to changes in insurance coverage across different banks.

4 Deposit Insurance and Depositor Behavior

This section examines how depositors adjusted their allocations across banks during the Global Financial Crisis (GFC), focusing on the role of deposit insurance in shaping withdrawal behavior. To isolate the impact of insurance coverage, we employ two complementary identification strategies. First, we exploit within-individual variation in withdrawals by analyzing depositors with accounts at multiple banks. This allows us to assess whether the same individual withdrew more from banks with higher loan-to-deposit (L/D) ratios, particularly when their balances exceeded the 300,000 DKK insurance limit. Second, we implement a threshold-based approach, examining how deposit flows around the insurance limit varied across banks with different pre-crisis fundamentals. By aggregating deposits into discrete account-size bins at the bank-year level, we isolate shifts in deposit allocation around the coverage threshold, mitigating concerns that factors other than the deposit insurance reform drive our results.

4.1 Individual-Level Analysis of Deposit Reallocation

To investigate how depositors adjust their allocations across banks during periods of financial stress, we exploit within-individual variation in withdrawals, thereby controlling for unobserved heterogeneity in depositor characteristics. A fundamental challenge in identifying the causal impact of deposit insurance on deposit allocation is the potential sorting of depositors across heterogeneous banks. Banks with higher loan-to-deposit (L/D) ratios may systematically attract depositors with different risk preferences, liquidity needs, or socioeconomic characteristics, potentially confounding the relationship between bank fundamentals and depositor behavior during crises (Kashyap et al. 2002, Gatev and Strahan 2006, Ippolito et al. 2016).

To address this concern, we analyze changes in deposits at the individual-bank level, leveraging within-individual variation in withdrawals across banks with differing pre-crisis L/D ratios. We restrict our sample to individuals who held deposits at multiple banks as of December 2007, enabling us to isolate depositor responses to bank-specific characteristics. Our empirical specification includes individual fixed effects, which control for all time-invariant depositor characteristics that might influence withdrawal behavior.

We estimate the following individual-bank-time level regression:

$$\begin{aligned}\Delta \log(\text{Deposits})_{hbt} = \alpha_h + \alpha_b + \beta_1 \text{Loan/Deposits}_{b,2007} \times \text{Above 300K}_{h,2007} \\ + \beta_2 \text{Loan/Deposits}_{b,2007} + \beta_3 \text{Above 300K}_{h,2007} + \gamma X_b + \epsilon_{hbt} \ , \end{aligned} \tag{2}$$

where $\Delta \log(\text{Deposits})_{hbt}$ denotes the change in the logarithm of deposits for individual h at bank b over two periods: 2007–2008 (when deposit insurance remained limited) and 2008–2009 (when coverage became unlimited). The key explanatory variables are $\text{Loan/Deposits}_{b,2007}$, which measures bank b's L/D ratio at the end of 2007, and $\text{Above 300K}_{h,2007}$ an indicator equal to one if the individual's deposits in bank b at the end of 2007 exceeded the deposit insurance limit of 300,000 DKK. We cluster standard errors at the individual level.

The interaction term $\text{Loan/Deposits}_{b,2007} \times \text{Above 300K}_{h,2007}$ tests whether depositors with balances above the insurance threshold were more or less likely to withdraw from banks with

higher pre-crisis L/D ratios. A negative coefficient on this interaction term (β_1) would indicate that uninsured depositors disproportionately withdrew from banks with higher pre-crisis L/D ratios, consistent with enhanced market discipline. X_b represents bank-level controls including (log) total assets, tier-1 capital ratio, and an indicator for the six largest banks by total assets, all measured in 2007. The model includes individual fixed effects β_h to focus on within-individual variation in deposit changes and bank fixed effects α_b, and the error term ϵ_{hbt}.

Table 4 presents our regression results. Columns (1) and (2) analyze deposit changes from 2007 to 2008, when deposit insurance remained limited to 300,000 DKK. The negative and significant coefficient on Above 300K(0.287) indicates depositors withdrew more from accounts exceeding the insurance threshold. The interaction term Loan/Deposits$_{b,2007}$ $\times$ Above 300K carries a negative and significant coefficient (0.188), revealing that uninsured depositors disproportionately reduced their exposure to banks with higher L/D ratios. To illustrate the economic magnitude, consider a depositor with uninsured funds at multiple banks. When this depositor has accounts at a bank with the 90th percentile L/D ratio (1.76) and another with the median L/D ratio (1.17), our estimates indicate the depositor would reduce funds at the higher L/D bank by approximately 11.1 percentage points more than at the median bank $(-0.188 \times 0.59 = -0.111)$. This substantial difference in withdrawal behavior demonstrates how depositors actively disciplined weaker banks during the limited insurance period.

This pattern reverses in the 2008-2009 period (columns 3-4), when deposit insurance became unlimited. While the baseline effect of the L/D ratio remains negative (-0.054), the interaction term Loan/Deposits$_{b,2007}$ $\times$ Above 300K becomes positive and significant (0.063). For depositors who had uninsured balances in 2007, deposit growth is now approximately 3.7 percentage points higher at high L/D banks (90th percentile) relative to median L/D banks $(0.063 \times 0.59 = 0.037)$. This reversal demonstrates how unlimited deposit insurance disrupted the market discipline mechanisms that had previously led depositors to withdraw from banks with weaker fundamentals.

A potential concern with our analysis of depositors with multiple banking relationships is that they represent a selected sample of the population, which may introduce selection bias.

These depositors might differ systematically in terms of financial sophistication, wealth, or risk aversion compared to the average depositor. To address this concern, we extend our analysis to include all depositors, including those with accounts at only one bank in 2007. This substantially increases our sample size from approximately 1.6 million to 5.5 million observations. Columns (5) and (6) present these results, which omit individual fixed effects but remain qualitatively similar to our baseline findings. The coefficient on the interaction term is negative in 2008 (-0.091) and positive in 2009 (0.060), confirming that the pattern of withdrawal and subsequent redepositing at higher L/D banks was a broader phenomenon, not limited to individuals with diversified banking relationships. To ensure that our results are not influenced by correlated deposit decisions within banks or across individuals, we re-estimate our specifications using double-clustered standard errors at both the bank and individual level. Appendix Table A.4 confirms that our findings remain robust.

These findings highlight a crucial mechanism through which deposit insurance affects financial stability: by altering depositor incentives, expanded coverage weakens market discipline and directs funds toward banks with weaker fundamentals. The evidence suggests that in the absence of unlimited deposit insurance, depositors—particularly those with uninsured balances—actively monitor bank risk and withdraw from institutions with higher exposure to liquidity and solvency concerns. However, once comprehensive deposit protection is implemented, this disciplining effect dissipates, potentially allowing weaker banks to maintain or even expand their deposit base despite underlying vulnerabilities.

Depositor Sophistication and Market Discipline. Table 5 extends our baseline analysis by incorporating depositor wealth—standardized to have mean zero and standard deviation one—as a proxy for financial sophistication. This allows us to assess whether wealthier individuals exhibit different sensitivity to bank risk in their deposit allocation decisions. In Columns (1) and (2), the baseline results remain consistent: the coefficient on Above 300K is negative and significant, and the interaction $\text{Loan/Deposits}_{b,2007} \times \text{Above 300K}$ is negative in 2008 but positive in 2009, confirming our previous findings.

The triple interaction term reveals how depositor sophistication influences market discipline. In 2008, this coefficient is negative and significant (-0.007), indicating that wealthier uninsured depositors were more responsive to bank risk. To interpret the economic magnitude, consider depositors at a high L/D ratio bank (90th percentile, 1.76). An uninsured depositor with wealth one standard deviation above the mean would withdraw approximately 0.41 percentage points more ($-0.007 \times 0.59 = -0.0041$) than an uninsured depositor with average wealth. For an uninsured depositor with wealth two standard deviations above the mean, this effect doubles to 0.83 percentage points. This heightened sensitivity among wealthier depositors suggests they play a particularly important role in imposing market discipline.

By 2009, when deposit insurance became unlimited, this pattern reverses. The triple interaction coefficient becomes positive (0.006), suggesting that wealthier depositors who previously had uninsured balances were quicker to respond to the policy change. At the same high L/D ratio bank, an uninsured depositor with wealth one standard deviation above the mean would increase deposits by approximately 0.35 percentage points more ($0.006 \times 0.59 = 0.0035$) than an uninsured depositor with average wealth. This reversal indicates that sophisticated depositors not only withdraw more aggressively when perceiving risk but also return more quickly when protection is enhanced.

These patterns hold when we examine the full sample of depositors in Columns (3) and (4), suggesting that depositor sophistication plays an important role in both imposing market discipline during periods of limited deposit insurance and responding to insurance expansions. The consistent results across both samples and when using double-clustered standard errors (Appendix Table A.5) indicate that wealthier depositors are both more vigilant monitors of bank risk and more responsive to changes in government guarantees.

Banks' Uninsured Deposit Exposure and Withdrawal Patterns. Table 6 examines how a bank's reliance on uninsured deposits influenced withdrawal decisions during the crisis. While our previous analysis considered individual depositor characteristics, here we introduce additional bank-level heterogeneity by examining a bank's share of uninsured retail de-

posits—a critical indicator of funding vulnerability. Banks with a higher proportion of uninsured deposits face greater run risk during financial stress, as these depositors lack government protection and are typically more responsive to perceived risk. Columns (1) and (2) confirm our baseline results: the coefficient on Above 300K remains negative and significant, and the interaction Loan/Deposits$_{b,2007}$ $\times$ Above 300K follows the previously established pattern of being negative in 2008 and positive in 2009.

The triple interaction reveals how bank funding structure affects depositor discipline. In 2008, this coefficient is negative and significant (-0.224), indicating uninsured depositors were particularly likely to withdraw from banks that combined two risk factors: high L/D ratios and greater reliance on uninsured funding. To illustrate the economic magnitude, consider a high L/D bank (90th percentile, 1.76) with an uninsured deposit share one standard deviation above the mean. An uninsured depositor at this bank would withdraw approximately 13.2 percentage points more ($-0.224 \times 0.59 = -0.132$) than from a similar bank with an average uninsured deposit share. This amplification effect suggests that banks facing dual vulnerabilities—high asset risk and unstable funding—experienced the most severe liquidity pressures.

By 2009, following the expansion of deposit insurance, this pattern reverses. The triple interaction coefficient becomes positive (0.074), indicating previously vulnerable banks benefited disproportionately from the policy change. For the same high L/D bank with an above-average uninsured deposit share, an uninsured depositor would now increase deposits by approximately 4.4 percentage points more ($0.074 \times 0.59 = 0.044$) compared to a similar bank with an average uninsured deposit share. This reversal shows the deposit insurance expansion provided the greatest relief to banks previously most constrained by market discipline.

These findings, which remain consistent when examining the full sample of depositors (Columns 3-4) and when using double-clustered standard errors (Appendix Table A.6), highlight the interaction between depositor incentives and bank vulnerabilities in driving funding flows. Banks with both high loan-to-deposit ratios and substantial uninsured deposit bases experienced the most volatile funding conditions—facing severe outflows when insurance was limited but significant inflows once comprehensive protection was implemented. This result

underscores how deposit insurance can disproportionately benefit the most vulnerable financial institutions by neutralizing the disciplinary effects of uninsured depositor withdrawals.

4.2 Deposit Reallocation Around Insurance Thresholds

To causally identify effects from the deposit insurance change, we analyze deposit amounts in narrow ranges around the 300,000 DKK threshold. Specifically, we categorize and aggregate deposits at the bank level into 50,000 DKK ranges, allowing us to precisely compare deposit volumes just above versus just below the insurance limit. Our analysis examines two progressively tighter windows around the threshold: 200,000-400,000 DKK, and most narrowly, 250,000-350,000 DKK (representing just 7,000 USD above and below the insurance cutoff). Given the multiple policy interventions during the GFC, this focused approach helps isolate effects specifically attributable to deposit insurance rather than concurrent policy changes.

Following Iyer et al. (2019), we implement this approach by first decomposing each deposit account into standardized 50,000 DKK range bins. For example, an account with a balance of 230,000 DKK contributes 50,000 DKK to each of the first four bins (0-50K, 50K-100K, 100K-150K, 150K-200K) and 30,000 DKK to the fifth bin (200K-250K). We then aggregate these decomposed deposits for each bin across all accounts at each bank-year, creating a panel dataset at the bank-bin-year level. This methodology enables us to isolate deposit movements specifically attributable to the insurance threshold, as other concurrent economic shocks or policy interventions during the GFC would be unlikely to generate differential effects precisely at this regulatory boundary.

We estimate the following regression model:

$$\begin{aligned}\log(\text{Deposits})_{btk} = \alpha_{bk} + \alpha_{bt} + \sum_t \beta_t(\eta_t \times \text{Above 300K}_k \times \text{Loan/Deposits}_{b,2007}) \\ + \sum_t \gamma_t(\eta_t \times \text{Above 300K}_k) + \epsilon_{btk}\end{aligned} \tag{3}$$

The dependent variable $\log(\text{Deposits})_{btk}$ represents the logarithm of total deposits at bank b in year t for bin k. The indicator Above 300K_k equals one for bins above the insurance threshold.

The key coefficients of interest, β_t, capture the differential effect of a bank's loan-to-deposit ratio on deposit volumes in bins above versus below the threshold in each year. A negative coefficient indicates that banks with higher loan-to-deposit ratios experienced relatively larger outflows (or smaller inflows) in bins above the threshold compared to bins below it. Our specification includes bank-bin fixed effects (α_{bk}), which absorb all time-invariant heterogeneity in deposit volumes across bins within each bank, and bank-year fixed effects (α_{bt}), which control for all bank-level shocks affecting deposit growth uniformly across bins. This demanding fixed effects structure ensures that our estimates are identified solely from within-bank differences in deposit growth between bins above and below the threshold.

Figure 2 shows a dynamic specification for the differential response of deposits just above and just below the 300K threshold. Before 2008, deposit levels above and below the threshold limits evolved similarly. The coefficients on the triple interaction terms for 2004, 2005, and 2007 are very close to zero and statistically insignificant, indicating no differential deposit flows around the threshold for banks with different loan-to-deposit ratios. This parallel pre-trend supports our identification assumption.

However, in 2008, deposits just above 300K DKK fell sharply relative to those just below. The coefficient on the triple interaction term becomes large and negative. To provide economic intuition, consider a comparison between a bank at the 90th percentile of the loan-to-deposit ratio distribution and a bank at the median. In 2008, the difference in deposit growth above versus below the threshold between these two banks would be approximately 5.9 percentage points (-0.10 × 0.59) in the narrower range. This substantial difference indicates that depositors actively withdrew uninsured funds from banks with higher loan-to-deposit ratios during the crisis period when deposit insurance remained limited.

By 2009, when unlimited deposit insurance took effect, this differential effect diminished considerably. The coefficient for the 250,000-350,000 DKK range is negative, but close to zero, and became only marginally significant at the 10% level. The economic magnitude also declined, with the difference between high and median loan-to-deposit banks reducing to just 2.4 percentage points (-0.04 × 0.59). Table A.2 in the Appendix presents the full set of esti-

mated coefficients from the time-varying specification, complementing Figure 2. These findings confirm that deposit insurance limits played a key role in shaping withdrawal behavior. In 2008, uninsured depositors actively withdrew from higher L/D banks, but after unlimited insurance was introduced, this effect substantially weakened, demonstrating the policy's role in stabilizing liquidity conditions. These results at the bank-bin level corroborate our findings from the individual-bank analysis, providing additional causal evidence through a different identification strategy.

Additional Robustness Checks. A key concern in our individual-bank-year level analysis from Section 4.1 is whether our results might be driven by extreme values—a few depositors with unusually large deposit increases or decreases. To address this possibility, we estimate models with binary outcome variables that treat all deposit changes equally regardless of their magnitude. Table A.3 presents results where the dependent variable simply indicates whether a depositor decreased (Columns 1–4) or increased (Columns 5–8) their deposits at a given bank, conditional on maintaining a relationship with that bank across both periods. The results confirm our main findings: in 2008, uninsured depositors at high L/D banks were significantly more likely to reduce their deposits, regardless of the reduction amount. By 2009, this pattern reversed, with previously uninsured depositors becoming more likely to increase their balances at these same banks.

To ensure our results are not driven by mechanical effects from bank failures, we re-estimate our main specifications after excluding all banks that defaulted between 2007 and 2009. As shown in Table A.7, the results remain qualitatively similar. This confirms that deposit reallocations reflect active depositor responses to perceived bank risk rather than being artifacts of bank closures during the crisis period.

We also verify that our findings are not specific to our choice of the loan-to-deposit ratio as the measure of bank vulnerability. Table A.8 replaces the L/D ratio with pre-GFC credit growth (2004–2007) as an alternative proxy for banks with weaker fundamentals. The results mirror our baseline findings: uninsured depositors withdrew more from banks with higher pre-crisis

credit growth in 2008, and this effect substantially diminished in 2009 following the expansion of deposit insurance. Figure A.2 further confirms this pattern in our bank-bin-year level analysis, showing similar deposit movements around the 300K threshold when bank exposure is measured by pre-crisis credit growth rather than the L/D ratio. The consistency across different measures of bank vulnerability strengthens the interpretation that deposit insurance affects the allocation of deposits based on bank fundamentals.

Finally, we assess whether depositor responses to insurance limits observed at the 300K threshold generalize to a higher coverage cap. In October 2010, Denmark replaced the unlimited deposit guarantee with a new framework that reinstated a coverage limit at 750K DKK. Figure A.1 applies our bank-bin-year level analysis to this higher threshold, examining deposit volumes in progressively narrower ranges around 750K DKK. The results show that following this reform, deposits just above the new threshold declined relative to those just below at banks with higher loan-to-deposit ratios. Media coverage at the time highlighted strategies for depositors to safeguard their savings by diversifying holdings across multiple banks to remain below the insurance threshold at each institution (Rangvid et al. 2013). Our findings indicate that this reform indeed triggered substantial deposit reallocation specifically around the insurance threshold. Interestingly, banks with higher L/D ratios disproportionately benefited from these reallocations, attracting more insured deposits just below the threshold. This pattern, observed across both the 2008 unlimited insurance implementation and the 2010 reintroduction of limits, suggests that depositors' sensitivity to insurance thresholds consistently benefits banks with weaker fundamentals—a key insight for understanding how insurance coverage affects funding stability and risk allocation within the banking system.

4.3 Deposit Rates and Bank Competition for Funding

Having established that depositors withdrew funds from banks with higher loan-to-deposit ratios when deposit insurance was limited, we now examine how these banks responded through deposit pricing to mitigate these outflows. Our findings in Section 3.2 using quarterly supervisory data revealed that banks with higher loan-to-deposit (L/D) ratios offered

elevated deposit rates during 2008:Q3 when insurance remained limited. We explore whether these rate adjustments were a systematic response to funding pressures and how deposit insurance expansion affected this pricing behavior.

Figure A.3 illustrates the evolution of retail deposit rates for banks with high versus low L/D ratios (classified based on whether their 2007 ratio was above or below the median). Prior to 2007, both groups offered similar rates, but a clear divergence emerges beginning in 2007 and intensifying in 2008. Banks with high L/D ratios substantially increased their rates relative to their more stable counterparts, with this divergence peaking when withdrawal pressures were most acute. After the introduction of unlimited deposit insurance in October 2008, this rate differential begins to narrow in 2009, suggesting that expanded coverage reduced the need for risk-based rate competition.

To formally quantify this relationship, we estimate a panel regression that captures the time-varying association between pre-crisis L/D ratios and subsequent deposit rates:

$$\text{Rate}_{bt} = \alpha_b + \alpha_t + \sum_t \beta_t(\eta_t \times \text{Loan/Deposit}_{b,2007}) + \sum_t \gamma_t(X_b \times \eta_t) + \epsilon_{bt} \tag{4}$$

where Rate_{bt} represents the average interest rate on retail deposits at bank b in year t, α_b and α_t are bank and year fixed effects, and X_b includes bank controls (tier-1 capital ratio, log assets, and an indicator for the six largest banks) measured in 2007 and interacted with year indicators. We cluster standard errors at the bank level.

Figure 3 presents the estimated β_t coefficients with 95% confidence intervals, confirming our descriptive findings. Before 2007, coefficients are close to zero, indicating no systematic pricing differences. The relationship becomes positive and increasingly significant from 2007, peaking in 2008. Moving from the median bank to a bank at the 90th percentile (a difference in L/D ratio of 0.59) would be associated with approximately 16.4 basis points higher deposit rates in 2008 (0.028×0.59). By 2009, after the implementation of unlimited deposit insurance, this premium decreases substantially, indicating that pricing differentials normalized once de-

posit guarantees were expanded.[14]

These results reveal how deposit insurance affects bank competition for funding. When insurance was limited, vulnerable banks offered significant rate premiums to stabilize their deposit base. Once comprehensive guarantees were implemented, this pricing channel became less necessary. Together with our evidence on deposit flows, these findings demonstrate that expanded deposit insurance not only redirected retail funding toward weaker banks but also reduced their funding costs by eliminating the need for rate premiums—representing an additional benefit to vulnerable banks beyond the direct stabilization of their funding base.

5 Bank Lending After the Deposit Insurance Reforms

The previous sections documented how banks with high L/D ratios faced significant deposit withdrawals during the financial crisis and responded by increasing deposit rates to stabilize funding. We now examine how these funding dynamics affected credit allocation, with particular focus on lending to firms that would eventually default. This analysis explores a potentially important distortion stemming from deposit insurance expansion: whether weaker banks channeled funds toward lower-quality borrowers once their funding constraints eased (Hsieh and Klenow 2009, Acharya et al. 2022). Such credit misallocation constitutes a significant economic cost of expanded deposit guarantees beyond their direct impact on financial stability.

To identify causal effects, we exploit the granularity of our credit register data at the firm-bank level. Our empirical strategy compares lending by banks with different pre-crisis L/D ratios to the same borrower within the same period, effectively controlling for credit demand through firm fixed effects (Khwaja and Mian 2008). This approach isolates supply-side factors

[14]These findings remain robust when using pre-crisis credit growth (2004-2007) as an alternative measure of banks with weaker fundamentals. Figure A.4 shows that banks with higher pre-crisis credit growth similarly offered elevated deposit rates during the crisis.

governing lending decisions. Specifically, we estimate:

$$\Delta \log(\text{Credit})_{bf} = \alpha_f + \beta_1 \text{Loan/Deposit}_{b,2007} + \beta_2 (\text{Loan/Deposit}_{b,2007} \times \text{Defaulting Firm}_f) + \gamma X_b + \epsilon_{bf} \ . \tag{5}$$

The dependent variable represents the change in credit granted by bank b to firm f from 2007 to 2008 (during limited deposit insurance) or from 2008 to 2009 (after insurance became unlimited). Our key explanatory variable is the bank's loan-to-deposit ratio measured in 2007. The interaction term with the defaulting firm indicator tests whether banks with higher L/D ratios adjusted credit differently to firms that eventually defaulted between 2009 and 2015—firms that, ex-post, proved to be unviable and thus represented inefficient credit allocation. Since the firm fixed effects specification restricts the sample to multi-bank firms, we also estimate an alternative specification that replaces firm fixed effects with industry-location-size fixed effects, following Degryse et al. (2019). This approach retains both single- and multi-bank firms while controlling for systematic differences in credit demand. Bank controls include log total assets, tier-1 capital ratio, and an indicator for the six largest banks, all measured in 2007. Standard errors are double-clustered at the bank and firm levels.

Table 7 presents the regression results. Columns (1) and (2) show that banks with higher pre-crisis L/D ratios significantly reduced overall lending in both periods. To provide economic intuition, moving from the median to the 90th percentile of the L/D ratio distribution would be associated with approximately 15 percentage points lower credit growth in 2008 (-0.25×0.59). This finding aligns with our earlier results that these banks experienced substantial deposit outflows when deposit insurance remained limited.

The more revealing pattern emerges in Columns (3) and (4), which examine lending specifically to firms that would eventually default. In 2008, when high L/D banks faced deposit withdrawals under limited deposit insurance, they significantly contracted credit to these soon-to-default firms, as shown by the negative and significant interaction coefficient. This suggests that funding pressures from deposit outflows forced these banks to curtail lending to riskier

segments. However, once deposit insurance became unlimited in 2009 and these same banks began attracting deposit inflows, they reversed course—the interaction term turns positive, indicating they now directed credit specifically toward firms that would ultimately fail. This pattern becomes even stronger in Columns (5) and (6) with bank fixed effects, where the interaction coefficient grows in magnitude and becomes statistically significant in 2009.

These lending patterns directly mirror our deposit reallocation findings: the very banks that initially lost deposits and restricted credit to risky firms when deposit insurance was limited subsequently received deposit inflows and channeled this funding toward lower-quality borrowers once insurance became unlimited. The results remain consistent when including single-bank relationships in Columns (7) and (8), though with more modest coefficients. Our findings suggest that deposit insurance expansion not only stabilized bank funding but also affected the efficiency of credit allocation. When market discipline existed through the threat of deposit outflows, banks with weaker fundamentals constrained lending to firms that would eventually prove unviable. Once deposit insurance eliminated this disciplining mechanism, these same banks directed more credit toward ultimately failing firms, suggesting that expanded guarantees may have facilitated misallocation of resources within the economy.

5.1 Risk Pricing in Bank Lending

Beyond changes in credit volumes, we investigate whether banks with higher L/D ratios adjusted their loan pricing in response to funding pressures. Table A.9 presents results from regressions with loan interest rates as the dependent variable. Columns (1) and (2) show that banks with higher L/D ratios charged significantly higher loan rates in 2008, consistent with their elevated funding costs during the period of deposit outflows. This premium substantially weakened in 2009 after deposit insurance expansion stabilized their funding base.

Columns (3) and (4) examine whether these banks priced risk differently across borrowers by interacting the L/D ratio with the defaulting firm indicator. While there is no significant difference in risk pricing in 2008, by 2009 banks with higher L/D ratios charged significantly lower rates to firms that would eventually default, as indicated by the negative and signifi-

cant interaction coefficient. This suggests that once deposit insurance stabilized their funding, these banks not only increased lending to riskier firms but did so without appropriate risk premiums.

These pricing patterns remain robust when including bank fixed effects in Columns (5) and (6), and when replacing firm fixed effects with industry-location-size fixed effects in Columns (7) and (8) to include single-bank relationships.

Robustness. To ensure our results on changes in credit supply and pricing are not driven by bank failures, we re-estimate our specifications excluding banks that defaulted between 2007 and 2009. The results in Table A.10 remain consistent with our baseline findings. As a further robustness check, Table A.11 shows similar patterns when using pre-crisis credit growth as an alternative measure of bank vulnerability.

Overall, these results reveal how banks with higher L/D ratios adjusted both credit supply and pricing in response to changing funding conditions. During the limited deposit insurance period, these banks contracted lending and charged higher rates. Once deposit insurance expanded, they not only increased lending to riskier borrowers but did so without incorporating appropriate risk premiums, potentially exacerbating resource misallocation in the economy.

6 Deposit Insurance and Bank Failure

Our previous sections documented how expanded deposit insurance altered funding patterns during the crisis. We now extend this analysis by examining banks that ultimately failed between 2009 and 2015. This allows us to assess whether deposit insurance temporarily stabilized weaker institutions or facilitated their recovery. By comparing deposit flows and lending behavior between failing and surviving banks, we provide a broader perspective on the effects of deposit insurance beyond its immediate impact on financial stability (Correia et al. 2024).

Individual-bank analysis. To study whether withdrawals were larger at banks with weaker fundamentals, particularly those that eventually failed, we apply the same individual-bank-

level specification as in equation (2), but instead of the loan-to-deposit (L/D) ratio, we now include an indicator for banks that defaulted between 2009 and 2015:

$$\begin{aligned}\Delta \log(\text{Deposits})_{hbt} = \alpha_h + \alpha_b + \beta_1 \text{Defaulting Bank}_b \times \text{Above 300K}_{h,2007} \\ + \beta_2 \text{Defaulting Bank}_b + \beta_3 \text{Above 300K}_{h,2007} + \gamma X_b + \epsilon_{hbt} \ , \end{aligned} \tag{6}$$

where Defaulting Bank$_b$ equals one if bank b failed between 2009 and 2015.

Table 8 presents regression results examining how depositors responded to ex-post failing banks before and after the deposit insurance expansion. By including individual fixed effects in Columns 1-4, we exploit within-individual variation in deposit withdrawals across failing and surviving banks, mirroring our approach in Section 4.1. Columns 1 and 3 show that depositors withdrew significantly more from failing banks in both 2008 and 2009, with relative reductions of 3.0 and 6.4 percentage points, respectively. This suggests depositors identified latent weaknesses in these institutions well before their formal default. Columns 2 and 4 distinguish between insured and uninsured depositors, revealing that in 2008, uninsured depositors (Above 300K) withdrew 24.1 percentage points more from failing banks than from surviving institutions—evidence of substantial market discipline targeting weaker banks. Notably, this differential effect disappears in 2009 when deposit insurance became unlimited, with the interaction coefficient becoming statistically insignificant. This pattern remains consistent in the full sample (Columns 5 and 6), confirming that expanded insurance coverage neutralized the disciplining mechanism that had previously directed funds away from weaker institutions.

We further examine whether depositor responses to failing banks varied with both deposit insurance coverage and banks' pre-crisis fundamentals. Table 9 presents regression results that introduce a triple interaction between the L/D ratio, failing bank status, and deposits above the insurance threshold. This specification tests whether banks' pre-crisis vulnerability (proxied by the L/D ratio) amplified deposit withdrawals from banks that eventually failed and whether these patterns changed following deposit insurance expansion.

Before the insurance expansion, depositors withdrew more from banks that were both fail-

ing and had high L/D ratios (Column 1). In 2008, uninsured depositors (*Above 300K*) were particularly likely to withdraw from failing banks (Column 2), with this effect intensifying for banks with higher L/D ratios. The large negative coefficient on the triple interaction term (-0.808) indicates that uninsured depositors were especially sensitive to the combination of high L/D ratios and eventual failure—consistent with heightened market discipline targeting the weakest institutions. However, after deposit insurance became unlimited in 2009, this pattern reversed dramatically. The coefficient on *L/D* × *Failing Bank* × *Above 300K* turns positive and significant (0.142 in Column 4), indicating that failing banks with high L/D ratios actually retained more deposits from previously uninsured accounts once comprehensive guarantees were implemented. This reversal persists in the full sample (Columns 5 and 6), confirming that expanded deposit insurance eliminated market discipline even at institutions that would ultimately prove unviable.

Firm-Bank-level credit analysis. Having shown that deposit insurance expansion stabilized deposits at failing banks, we next assess how these banks adjusted their credit supply. We follow the same firm-bank-level specification as in equation (5), replacing the loan-to-deposit (L/D) ratio with an indicator for banks that eventually failed between 2009 and 2015. This allows us to assess whether failing banks responded differently to funding pressures before and after the deposit insurance expansion. Table 10 presents the results. Columns 1 and 2 show that failing banks significantly reduced lending in both 2008 and 2009, with estimates suggesting that failing banks reduced credit by 16% relative to non-failing banks (Column 1). This indicates that tighter funding constraints led to a broad contraction in credit supply. Columns 3 and 4 introduce an interaction between Defaulting Bank and Defaulting Firm to test whether weaker banks adjusted lending differently for weaker firms. In 2008, the interaction is negative but not statistically significant, suggesting that failing banks did not disproportionately restrict credit to firms that later defaulted. However, by 2009, the interaction becomes positive and significant, indicating that after deposit insurance expanded, failing banks increased lending to riskier firms. This indicates that deposit stabilization enabled failing banks to sustain lending, especially to firms that eventually defaulted. Columns 5 and 6 introduce

bank fixed effects to ensure that the results are not driven by time-invariant bank characteristics, with key patterns remaining unchanged. Finally, Columns 7 and 8 replace firm fixed effects with industry-location-size fixed effects, reinforcing that deposit insurance expansion mitigated funding constraints, enabling failing banks to sustain lending to weaker borrowers.

Next, we assess whether failing banks adjusted their loan pricing following the stabilization of their deposit funding. Table 11 follows the same structure as the credit volume analysis but with loan rates as the dependent variable. The results complement the previous findings by assessing whether failing banks, once their deposits stabilized, priced loans differently for riskier borrowers. Columns 1 and 2 show that failing banks charged slightly higher rates in 2008, consistent with increased funding costs. However, the interaction between *Defaulting Bank* and *Defaulting Firm* in Columns 3 and 4 is negative in both years, indicating that failing banks offered lower rates to firms that ultimately defaulted. This suggests that weaker banks continued extending credit to weaker firms at more favorable terms, despite broader financial distress. This pattern is robust to controlling for bank fixed effects (Columns 5 and 6) and remains consistent when replacing firm fixed effects with industry-location-size fixed effects (Columns 7 and 8).

Deposit insurance expansion stabilized failing banks' funding, allowing them to sustain lending, particularly to riskier firms. While this reduced short-term fragility, it also prolonged weaker banks' activity and amplified risk-taking.

7 Conclusions

This paper studies how deposit insurance affects retail depositor behavior and bank risk-taking by exploiting Denmark's transition from limited to unlimited deposit insurance during the Global Financial Crisis. Using comprehensive administrative data, we establish a causal relationship between deposit insurance coverage and the allocation of retail deposits and credit to non-financial firms during this crisis period. We proxy for banks with weaker fundamentals using their loan-to-deposit ratio, which reflects both liquidity risk on their liability side and

credit risk on their asset side. This measure effectively predicts ex-post loan losses and bank failures, confirming its validity as an indicator of bank health. During the peak of the crisis when deposit insurance was limited, retail depositors imposed discipline on weaker banks through withdrawals, particularly for deposits exceeding the insurance threshold. When insurance became unlimited later in the crisis, this discipline mechanism broke down as deposits flowed toward fundamentally weaker banks. The credit effects mirrored these patterns: weaker banks initially contracted credit to risky non-financial borrowers when facing deposit withdrawals during the limited insurance phase of the crisis but expanded such lending once deposit insurance became unlimited. Importantly, many of the high loan-to-deposit banks that benefited most from the expanded deposit insurance guarantees eventually failed.

Our analysis provides empirical support for theoretical models emphasizing how deposit insurance affects market discipline. This trade-off has significant implications for financial stability and resource allocation. While higher coverage effectively prevents short-term bank fragility, it simultaneously allows weaker banks to persist and continue financing firms with much higher ex-post default rates. These findings contribute to our understanding of optimal deposit insurance design, particularly regarding the appropriate coverage limits as highlighted in the recent work of Dávila and Goldstein (2023). By demonstrating how coverage limits affect depositor discipline on weaker banks and the subsequent allocation of credit to riskier firms, our work informs the ongoing policy debate on deposit insurance scheme design. Policymakers must carefully calibrate coverage limits to balance financial stability with maintaining effective market discipline.

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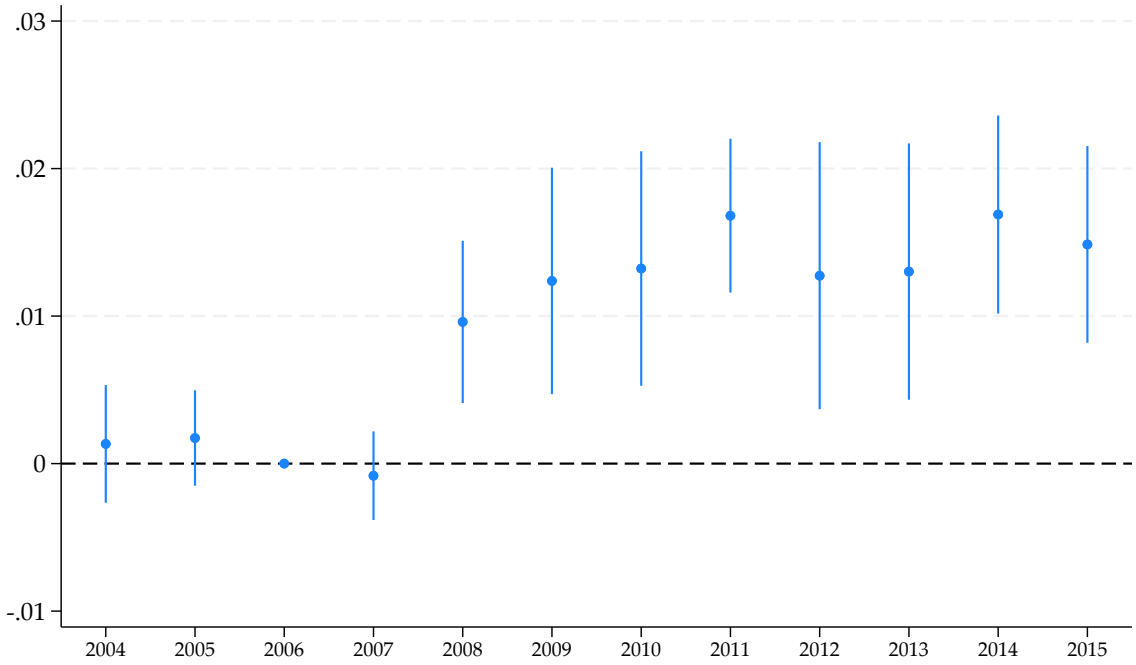
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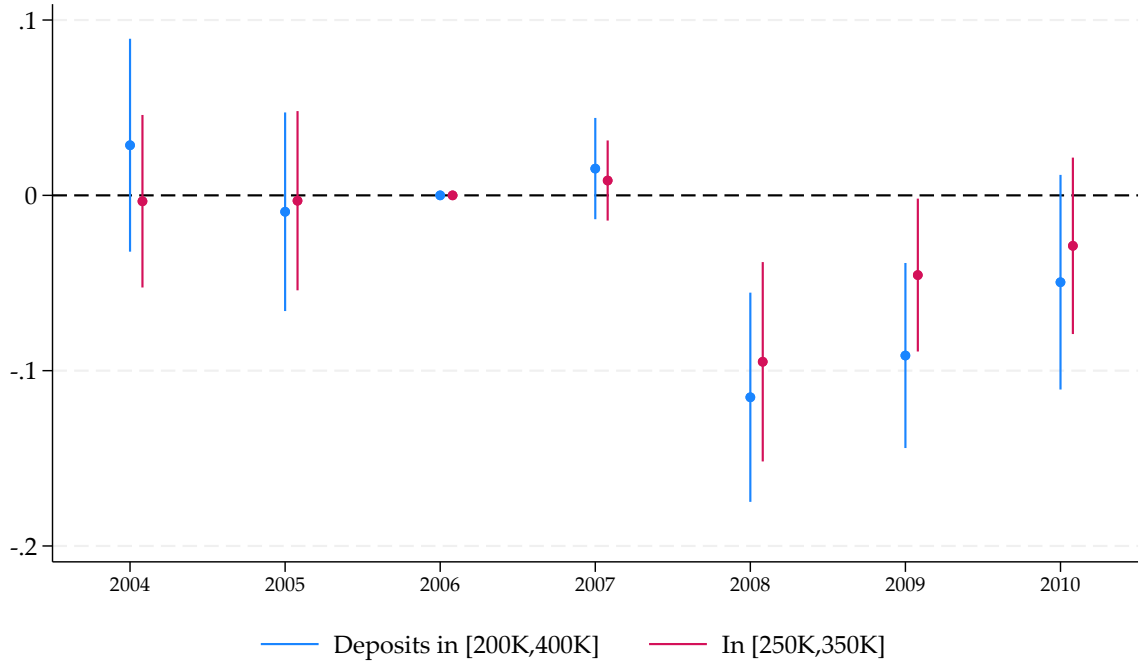
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Figure 1: Loan Losses and Pre-Crisis Loan-to-Deposit Ratios



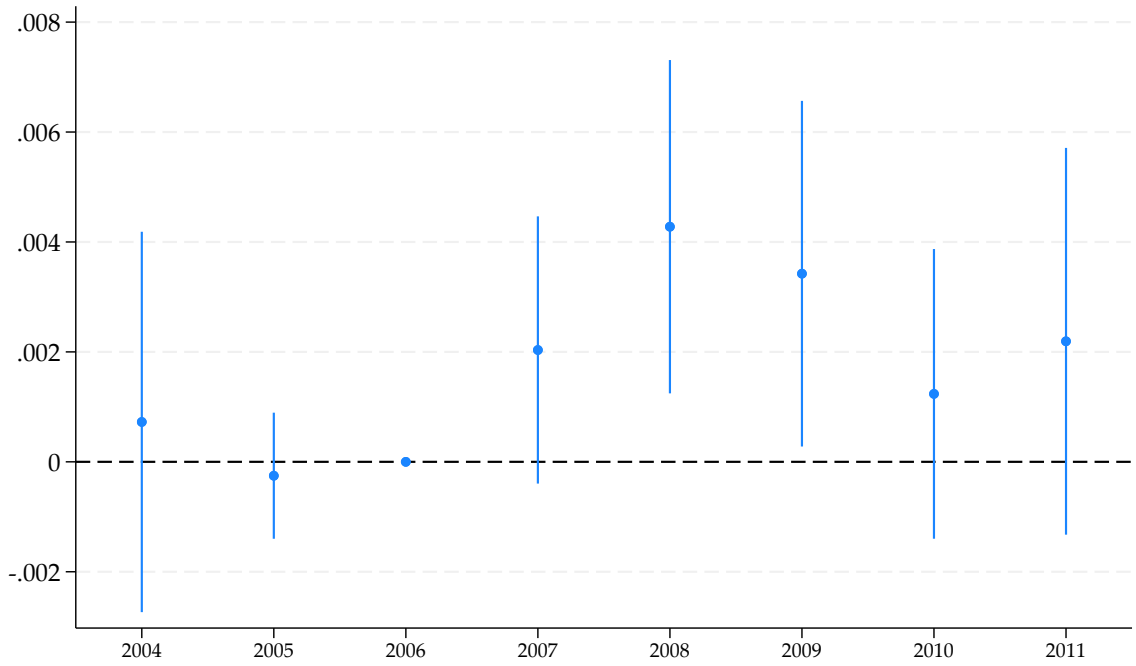
Notes: This figure presents coefficient estimates and 95% confidence intervals from bank-level panel regressions of loan losses (scaled by total assets) on banks' loan-to-deposit ratios measured in 2007, interacted with year indicators. The specification includes control variables measured in 2007 (tier-1 capital ratio, log assets, and an indicator for the six largest banks), each interacted with year indicators. The regression includes bank and year fixed effects. Standard errors are clustered at the bank level.

Figure 2: Deposit Growth Around the Insurance Threshold



Notes: This figure presents coefficient estimates and 95% confidence intervals from the triple interaction terms ($\eta_t \times \text{Above300}_{kt} \times \text{Loan/Deposit}_{b,2007}$) in bank-account level regressions. The dependent variable is the logarithm of deposit amounts in 50,000 DKK bins. Above300K is an indicator equal to one for deposit bins exceeding the 300,000 DKK insurance threshold. The analysis focuses on narrow deposit ranges around the threshold (200,000-400,000 DKK, and 250,000-350,000 DKK) to isolate the causal effect of deposit insurance changes. The regression includes bank-by-year and bin-by-year fixed effects. Standard errors are clustered at the bank-account range bin level.

Figure 3: Loan-to-Deposit Ratios and Deposit Rates



Notes: This figure presents coefficient estimates and 95% confidence intervals from the double interaction terms ($\eta_t \times \text{Loan/Deposit}_{b,2007}$) in bank-level regressions. The dependent variable is banks' average interest rate on retail deposits. Control variables measured in 2007 (tier-1 capital ratio, log assets, and an indicator for the six largest banks) are interacted with year indicators. The regression includes bank and year fixed effects. Standard errors are clustered at the bank level.

Table 1: Descriptive Statistics

	Mean	SD	p10	p50	p90
Panel A. Banks					
Total assets (bn DKK)	57.40	343.97	0.59	4.19	32.47
Total deposits (bn DKK)	18.38	100.34	0.34	1.94	14.64
Total retail deposits (bn DKK)	5.69	21.75	0.23	1.12	6.03
Interest rate on retail deposits	0.02	0.01	0.01	0.01	0.03
Share of uninsured retail deposits	0.37	0.15	0.25	0.34	0.46
Share of uninsured retail depositors	0.06	0.05	0.03	0.05	0.07
Loan/deposit ratio	1.17	0.39	0.64	1.14	1.76
T1 capital ratio (%)	12.91	4.99	7.85	11.65	19.25
Avg credit growth '04-'07	0.25	0.09	0.13	0.26	0.39
Panel B. Firms					
Average loan size (m DKK)	3.13	23.98	0.00	0.33	4.89
Average loan rate	0.07	0.04	0.02	0.06	0.12
Sales (m DKK)	52.02	716.87	1.88	7.86	62.83
Number of employees	28.62	252.82	2.00	8.00	42.00

Notes: This table provides descriptive statistics measured in December 2007. Panel A and Panel B report the characteristics of banks and firms, respectively.

Table 2: Loan-to-Deposit Ratios and Bank Characteristics

Outcome: Loan/deposit 2007	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Total assets (log)	0.122***								0.008
	(0.0217)								(0.0454)
T1 capital ratio		-0.030**							-0.016
		(0.0122)							(0.0151)
Avg credit growth '04-'07			1.875***						1.221***
			(0.4587)						(0.4321)
Interbank debt (log)				0.072***					0.049**
				(0.0089)					(0.0201)
Real-estate credit share					0.325				0.179
					(0.2128)				(0.1727)
Loan losses '08-'15/Capital '07						0.265***			0.037
						(0.0581)			(0.0732)
Bank defaults b/t '09-'15							0.189*		0.129
							(0.1119)		(0.0802)
Top-6 bank								0.196	0.004
								(0.1215)	(0.1804)
Observations	89	89	86	84	86	85	89	89	76
R2	0.25	0.16	0.21	0.37	0.04	0.21	0.05	0.02	0.58

Notes: This table presents regression coefficients from cross-sectional regressions of banks' loan-to-deposit ratios in 2007 on various bank characteristics. Explanatory variables include: the logarithm of bank assets; the Tier 1 capital divided by risk-weighted assets; the average annual growth rate in loans from 2004 to 2007; the logarithm of interbank debt; the proportion of the loan portfolio allocated to firms in the real estate and construction industries; cumulative loan losses during 2008-2015 scaled by 2007 capital; an indicator for banks that defaulted between 2009 and 2015; and an indicator for the six largest banks by total assets. All explanatory variables are measured as of 2007 unless otherwise noted. Robust standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 3: Liquidity Stress and Loan-to-Deposit Ratios in 2008Q3 and 2008Q4

Outcome: Quarterly change in logs	Total liquidity		Total deposits		Deposit rate	
	(1)	(2)	(3)	(4)	(5)	(6)
	2008-q3	2008-q4	2008-q3	2008-q4	2008-q3	2008-q4
Loan/deposit 2007	-0.13**	0.28***	-0.10**	0.23***	0.00**	-0.02***
	(0.05)	(0.10)	(0.05)	(0.06)	(0.00)	(0.00)
Observations	86	84	75	83	67	70
R2	0.18	0.20	0.22	0.41	0.30	0.36
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table presents the results from estimating a cross-sectional regression of quarterly changes in bank-level outcomes on loan-to-deposit ratios measured in 2007. Bank controls include banks' total assets and tier-1 capital ratio measured in 2007. Robust standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Individual Withdrawal Behavior: Insurance Status and Bank Exposure

Outcome: Δ (log) Deposits	Individuals with 2+ banks in 2007				All individuals	
	2008		2009		2008	2009
	(1)	(2)	(3)	(4)	(5)	(6)
Loan/deposit 2007	-0.045***		-0.054***			
	(0.005)		(0.005)			
Above 300K		-0.287***		-0.358***	-0.330***	-0.413***
		(0.021)		(0.019)	(0.008)	(0.007)
Loan/deposit 2007 X Above 300K		-0.188***		0.063***	-0.091***	0.060***
		(0.017)		(0.015)	(0.007)	(0.006)
Observations	1,776,698	1,776,698	1,618,945	1,618,945	5,521,087	5,582,778
R2	0.46	0.47	0.45	0.46	0.01	0.01
Bank controls	Yes		Yes			
Individual FE	Yes	Yes	Yes	Yes		
Bank FE		Yes		Yes	Yes	Yes

Notes: This table presents regression results where the dependent variable is the change in the logarithm of deposits at the individual-bank level from 2007 to 2008 (columns 1, 2, 5) or from 2008 to 2009 (columns 3, 4, 6). Loan/deposit 2007 is the bank's loan-to-deposit ratio measured at the end of 2007. Above 300K is an indicator equal to one if the individual's deposits at the bank exceeded the deposit insurance limit of DKK 300,000 in 2007. Columns (1-4) restrict the sample to individuals with deposits at multiple banks in 2007, while columns (5-6) include all individuals. Columns (1-4) include individual fixed effects to exploit within-individual variation in deposit changes. Columns (2, 4, 5, 6) include bank fixed effects. Specifications without bank fixed effects (columns 1 and 3) include controls for bank characteristics measured in 2007: bank size (log assets), tier-1 capital ratio, and an indicator for the six largest banks. Standard errors in parentheses are clustered at the individual level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 5: Depositor Wealth, Insurance Coverage, and Withdrawal Behavior

Outcome: Δ (log) Deposits	Individuals with 2+ banks in 2007		All individuals	
	Year: 2008	Year: 2009	Year: 2008	Year: 2009
	(1)	(2)	(3)	(4)
Loan/deposit 2007 X Wealth	0.004**	-0.006**	0.004	-0.007***
	(0.002)	(0.003)	(0.005)	(0.002)
Above 300K	-0.294***	-0.348***	-0.311***	-0.388***
	(0.022)	(0.020)	(0.009)	(0.008)
Loan/deposit 2007 X Above 300K	-0.179***	0.061***	-0.087***	0.043***
	(0.017)	(0.015)	(0.007)	(0.006)
Above 300K X Wealth	0.005	-0.017**	-0.010	-0.022***
	(0.004)	(0.007)	(0.012)	(0.006)
Loan/deposit 2007 X Wealth X Above 300K	-0.007***	0.006*	-0.004	0.009***
	(0.002)	(0.004)	(0.007)	(0.004)
Wealth (standardized)			0.009	0.016***
			(0.008)	(0.004)
Observations	1,404,822	1,271,805	4,281,056	4,254,076
R2	0.47	0.46	0.01	0.01
Bank FE	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes		

Note: This table presents regression results where the dependent variable is the change in the logarithm of deposits at the individual-bank level from 2007 to 2008 (columns 1, 3) or from 2008 to 2009 (columns 2, 4). Loan/deposit 2007 is the bank's loan-to-deposit ratio measured at the end of 2007. Above 300K is an indicator equal to one if the individual's deposits at the bank exceeded the deposit insurance limit of DKK 300,000 in 2007. Wealth is the standardized (mean 0, standard deviation 1) gross wealth of the individual depositor measured in 2007. Columns (1-2) restrict the sample to individuals with deposits at multiple banks in 2007 and include individual fixed effects, while columns (3-4) include all individuals. All specifications include bank fixed effects. Standard errors in parentheses are clustered at the individual level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 6: Uninsured Deposit Concentrations, Bank Risk, and Withdrawal Dynamics

Outcome: Δ (log) Deposits	Individuals with 2+ banks in 2007		All individuals	
	Year: 2008	Year: 2009	Year: 2008	Year: 2009
	(1)	(2)	(3)	(4)
Above 300K	-0.429***	-0.364***	-0.442***	-0.420***
	(0.025)	(0.022)	(0.011)	(0.009)
Loan/deposit 2007 X Above 300K	-0.038*	0.073***	0.025***	0.071***
	(0.021)	(0.018)	(0.009)	(0.007)
Above 300K X Bank's uninsured share	0.179***	-0.127***	0.159***	-0.075***
	(0.032)	(0.021)	(0.016)	(0.011)
Loan/deposit 2007 X Bank's uninsured share X Above 300K	-0.224***	0.074***	-0.183***	0.038***
	(0.027)	(0.016)	(0.014)	(0.009)
Observations	1,766,963	1,612,609	5,513,601	5,580,454
R2	0.47	0.46	0.01	0.01
Bank FE	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes		

Notes: This table presents regression results where the dependent variable is the change in the logarithm of deposits at the individual-bank level from 2007 to 2008 (columns 1, 3) or from 2008 to 2009 (columns 2, 4). Loan/deposit 2007 is the bank's loan-to-deposit ratio measured at the end of 2007. Above 300K is an indicator equal to one if the individual's deposits at the bank exceeded the deposit insurance limit of DKK 300,000 in 2007. Bank's uninsured share is the standardized (mean 0, standard deviation 1) proportion of uninsured deposits in the bank's total retail deposits measured in 2007. Columns (1-2) restrict the sample to individuals with deposits at multiple banks in 2007 and include individual fixed effects, while columns (3-4) include all individuals. All specifications include bank fixed effects. Standard errors in parentheses are clustered at the individual level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 7: Risk-Taking in Lending and Borrower Default Risk

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable: Δ log credit	2008	2009	2008	2009	2008	2009	2008	2009
Loan/deposit 2007	-0.25***	-0.18***	-0.24***	-0.20***				
	(0.06)	(0.04)	(0.06)	(0.04)				
Loan/deposit 2007 X Defaulting firm			-0.29*	0.35	-0.29*	0.42*	0.13*	-0.07
			(0.16)	(0.21)	(0.17)	(0.21)	(0.07)	(0.05)
Defaulting firm (2009-2015)							-0.01	-0.02
							(0.34)	(0.32)
Observations	5,575	4,993	5,575	4,993	5,567	4,980	24,511	23,926
R2	0.48	0.48	0.48	0.49	0.49	0.50	0.03	0.03
Bank controls	Y	Y	Y	Y	Y	Y	Y	Y
Bank FE					Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y		
Industry-location-size FE							Y	Y

Notes: This table presents regression results where the dependent variable is the change in the logarithm of credit granted by bank b to firm f from 2007 to 2008 (odd columns) or from 2008 to 2009 (even columns). Loan/deposit 2007 is the bank's loan-to-deposit ratio measured at the end of 2007. Defaulting firm is an indicator equal to one if the firm defaults between 2009 and 2015. In columns (1-2), the specification includes Loan/deposit 2007 and bank controls. In columns (3-8), the specification includes Loan/deposit 2007, the Defaulting firm indicator, and their interaction. Columns (1-4) include firm fixed effects and bank controls; columns (5-6) replace bank controls with bank fixed effects while maintaining firm fixed effects, and columns (7-8) replace firm fixed effects with industry-location-size fixed effects. Bank controls include bank size (log assets), tier-1 capital ratio, and an indicator for the six largest banks, all measured in 2007. Standard errors in parentheses are double clustered at the bank and firm level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 8: Individual Withdrawal Behavior: Insurance Status and Bank Default Risk

Outcome: Δ (log) Deposits	Individuals with 2+ banks in 2007				All individuals	
	2008		2009		2008	2009
	(1)	(2)	(3)	(4)	(5)	(6)
Defaulting bank (2009-2015)	-0.030***		-0.064***			
	(0.004)		(0.004)			
Above 300K		-0.501***		-0.280***	-0.433***	-0.336***
		(0.004)		(0.004)	(0.002)	(0.001)
Defaulting bank X Above 300K		-0.241***		0.018	-0.179***	-0.010*
		(0.014)		(0.013)	(0.006)	(0.006)
Observations	1,776,698	1,776,698	1,622,053	1,622,053	5,521,087	5,588,505
R2	0.46	0.47	0.45	0.46	0.01	0.01
Bank controls	Yes		Yes			
Individual FE	Yes	Yes	Yes	Yes		
Bank FE		Yes		Yes	Yes	Yes

Notes: This table presents regression results where the dependent variable is the change in the logarithm of deposits at the individual-bank level from 2007 to 2008 (columns 1, 2, 5) or from 2008 to 2009 (columns 3, 4, 6). Defaulting bank (2009-2015) is an indicator equal to one if the bank defaults at any point between 2009 and 2015. Above 300K is an indicator equal to one if the individual's deposits at the bank exceeded the deposit insurance limit of DKK 300,000 in 2007. Columns (1-4) restrict the sample to individuals with deposits at multiple banks in 2007, while columns (5-6) include all individuals. Columns (1-4) include individual fixed effects to exploit within-individual variation in deposit changes. Specifications without bank fixed effects (columns 1 and 3) include controls for bank characteristics measured in 2007: bank size (log assets), tier-1 capital ratio, and an indicator for the six largest banks. Columns (2, 4, 5, 6) include bank fixed effects. Standard errors in parentheses are clustered at the individual level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 9: Bank Financial Fragility, Default Risk, and Depositor Discipline

Outcome: Δ (log) Deposits	Individuals with 2+ banks in 2007				All individuals	
	2008		2009		2008	2009
	(1)	(2)	(3)	(4)	(5)	(6)
Defaulting bank ('09-'15)	-0.021***		-0.054***			
	(0.004)		(0.004)			
Loan/deposit 2007	-0.037***		-0.042***			
	(0.005)		(0.005)			
Above 300K		-0.524***		-0.325***	-0.452***	-0.407***
		(0.023)		(0.020)	(0.009)	(0.007)
Failing bank X Above 300K		0.987***		-0.207***	0.647***	-0.104***
		(0.078)		(0.069)	(0.036)	(0.034)
Loan/deposit 2007 X Above 300K		0.018		0.036**	0.015**	0.056***
		(0.018)		(0.016)	(0.007)	(0.006)
Loan/deposit 2007 X Failing X Above 300K		-0.808***		0.142***	-0.553***	0.056**
		(0.052)		(0.047)	(0.024)	(0.024)
Observations	1,776,698	1,776,698	1,622,053	1,622,053	5,521,087	5,588,505
R2	0.46	0.47	0.45	0.46	0.01	0.01
Bank controls	Yes		Yes			
Individual FE	Yes	Yes	Yes	Yes		
Bank FE		Yes		Yes	Yes	Yes

Notes: This table presents regression results where the dependent variable is the change in the logarithm of deposits at the individual-bank level from 2007 to 2008 (columns 1, 2, 5) or from 2008 to 2009 (columns 3, 4, 6). Defaulting bank ('09-'15) is an indicator equal to one if the bank defaults at any point between 2009 and 2015. Loan/deposit 2007 is the bank's loan-to-deposit ratio measured at the end of 2007. Above 300K is an indicator equal to one if the individual's deposits at the bank exceeded the deposit insurance limit of DKK 300,000 in 2007. Columns (1-4) restrict the sample to individuals with deposits at multiple banks in 2007, while columns (5-6) include all individuals. Columns (1-4) include individual fixed effects to exploit within-individual variation in deposit changes. Specifications without bank fixed effects (columns 1 and 3) include controls for bank characteristics measured in 2007: bank size (log assets), tier-1 capital ratio, and an indicator for the six largest banks. Columns (2, 4, 5, 6) include bank fixed effects. Standard errors in parentheses are clustered at the individual level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 10: Bank Failure, Credit Supply, and Borrower Default Risk

Dependent Variable: Δ log credit	(1) 2008	(2) 2009	(3) 2008	(4) 2009	(5) 2008	(6) 2009	(7) 2008	(8) 2009
Defaulting bank (2009-2015)	-0.16***	-0.12***	-0.16***	-0.13***				
	(0.03)	(0.03)	(0.03)	(0.03)				
Defaulting firm X Defaulting bank			-0.13	0.26**	-0.14	0.31**	-0.05	-0.03
			(0.10)	(0.12)	(0.10)	(0.12)	(0.05)	(0.04)
Defaulting firm (2009-2015)							0.16	-0.08
							(0.33)	(0.30)
Observations	5,575	4,993	5,575	4,993	5,567	4,980	24,511	23,926
R2	0.48	0.48	0.48	0.49	0.49	0.50	0.03	0.03
Bank controls	Y	Y	Y	Y	Y	Y	Y	Y
Bank FE					Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y		
Industry-location-size FE							Y	Y

Notes: This table presents regression results where the dependent variable is the change in the logarithm of credit granted by bank b to firm f from 2007 to 2008 (odd columns) or from 2008 to 2009 (even columns). Defaulting bank (2009-2015) is an indicator equal to one if the bank defaults at any point between 2009 and 2015. Defaulting firm is an indicator equal to one if the firm defaults between 2009 and 2015. In columns (1-2), the specification includes Defaulting bank and bank controls. In columns (3-8), the specification includes Defaulting bank, the Defaulting firm indicator, and their interaction. Columns (1-4) include firm fixed effects and bank controls; columns (5-6) replace bank controls with bank fixed effects while maintaining firm fixed effects, and columns (7-8) replace firm fixed effects with industry-location-size fixed effects. Bank controls include bank size (log assets), tier-1 capital ratio, and an indicator for the six largest banks, all measured in 2007. Standard errors in parentheses are double clustered at the bank and firm level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

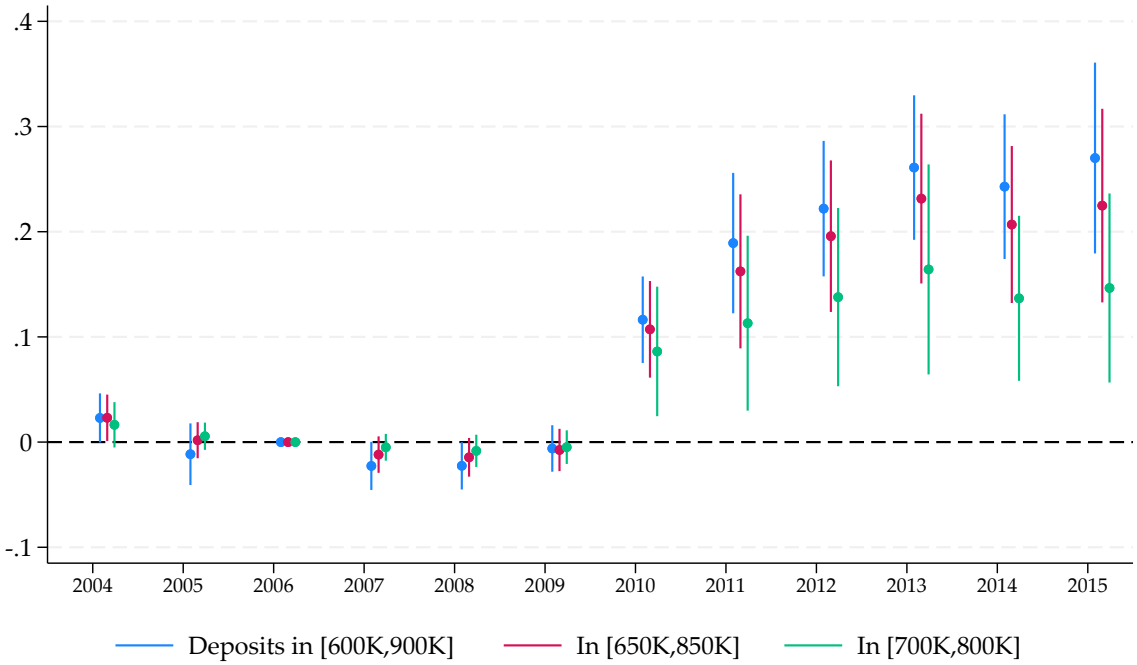
Table 11: Bank Failure, Loan Pricing, and Borrower Default Risk

Dependent Variable: Loan rate	(1) 2008	(2) 2009	(3) 2008	(4) 2009	(5) 2008	(6) 2009	(7) 2008	(8) 2009
Defaulting bank (2009-2015)	0.00**	0.00	0.00***	0.00				
	(0.00)	(0.00)	(0.00)	(0.00)				
Defaulting firm X Defaulting bank			-0.01*	-0.01**	-0.01	-0.01*	-0.01**	-0.00
			(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Defaulting firm (2009-2015)							-0.00	0.01
							(0.01)	(0.02)
Observations	7,866	7,152	7,866	7,152	7,857	7,146	29,306	28,436
R2	0.51	0.54	0.51	0.54	0.52	0.55	0.10	0.13
Bank controls	Y	Y	Y	Y	Y	Y	Y	Y
Bank FE					Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y		
Industry-location-size FE							Y	Y

Notes: This table presents regression results where the dependent variable is the loan interest rate charged by bank b to firm f in 2008 (odd columns) or in 2009 (even columns). Defaulting bank (2009-2015) is an indicator equal to one if the bank defaults at any point between 2009 and 2015. Defaulting firm is an indicator equal to one if the firm defaults between 2009 and 2015. In columns (1-2), the specification includes Defaulting bank and bank controls. In columns (3-8), the specification includes Defaulting bank, the Defaulting firm indicator, and their interaction. Columns (1-4) include firm fixed effects and bank controls; columns (5-6) replace bank controls with bank fixed effects while maintaining firm fixed effects, and columns (7-8) replace firm fixed effects with industry-location-size fixed effects. Bank controls include bank size (log assets), tier-1 capital ratio, and an indicator for the six largest banks, all measured in 2007. Standard errors in parentheses are double clustered at the bank and firm level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

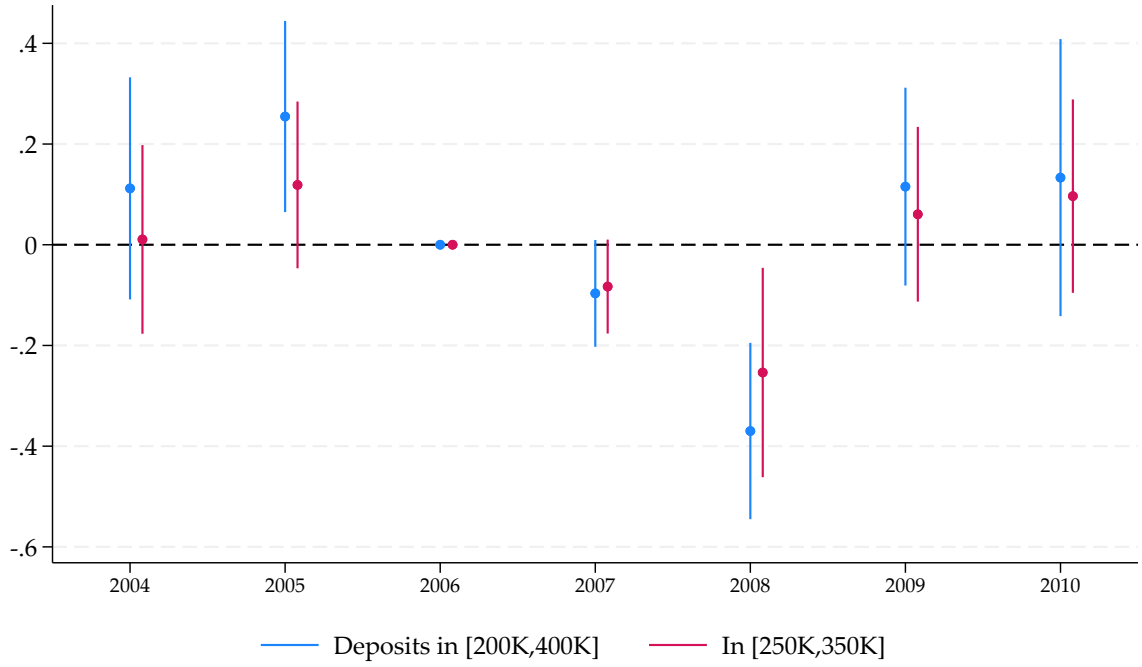
Appendix A Additional Figures and Tables

Figure A.1: Deposit Growth Around the 750,000 DKK Insurance Threshold



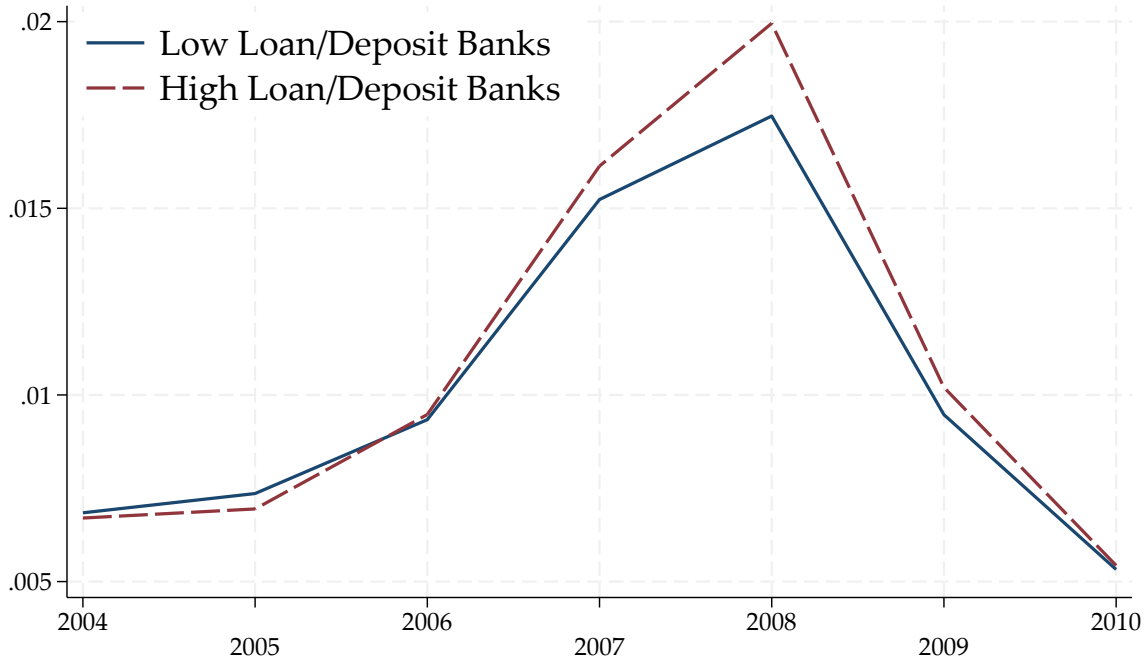
Notes: This figure presents coefficient estimates and 95% confidence intervals from the triple interaction terms ($\eta_t \times \text{Above750}_{kt} \times \text{Loan/Deposit}_{b,2007}$) in bank-account level regressions. The dependent variable is the logarithm of deposit amounts in 50,000 DKK bins. Above750K is an indicator equal to one for deposit bins exceeding the 750,000 DKK insurance threshold introduced in October 2010. The analysis focuses on narrow deposit ranges around the threshold (600,000-900,000 DKK, 650,000-850,000 DKK, and 700,000-800,000 DKK) to isolate the causal effect of deposit insurance changes. Control variables measured in 2007 (tier-1 capital ratio, log assets, and an indicator for the six largest banks) are included. The regression includes bank-by-year and bin-by-year fixed effects. Standard errors are clustered at the bank-account range bin level.

Figure A.2: Deposit Growth, Insurance Threshold, and Pre-Crisis Credit Growth



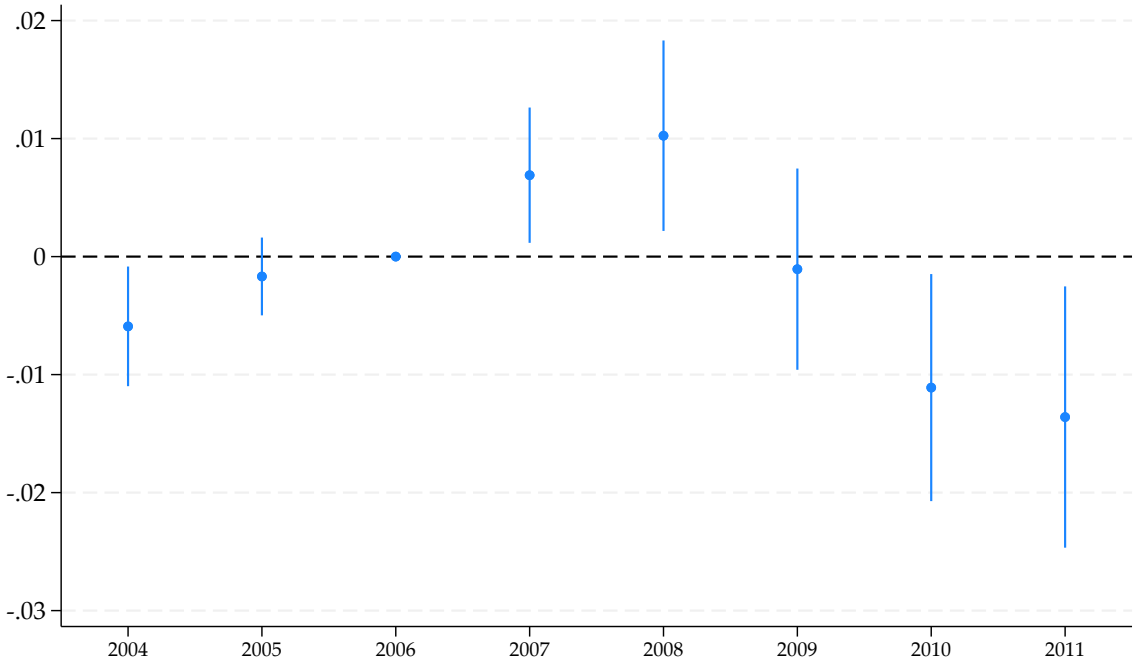
Notes: This figure presents coefficient estimates and 95% confidence intervals from the triple interaction terms ($\eta_t \times \text{Above300}_{kt} \times \text{Credit Growth}_{b,2004-2007}$) in bank-account level regressions. The dependent variable is the logarithm of deposit amounts in 50,000 DKK bins. Above300K is an indicator equal to one for deposit bins exceeding the 300,000 DKK insurance threshold. Credit Growth refers to banks' average annual credit growth between 2004-2007. The analysis focuses on narrow deposit ranges around the threshold (200,000-400,000 DKK, and 250,000-350,000 DKK) to isolate the causal effect of deposit insurance changes. Control variables measured in 2007 (tier-1 capital ratio, log assets, and an indicator for the six largest banks) are included. The regression includes bank-by-year and bin-by-year fixed effects. Standard errors are clustered at the bank-account range bin level.

Figure A.3: Retail Deposit Rates: High vs. Low Loan-to-Deposit Banks



This figure plots the average interest rates on retail deposits for banks with high and low loan-to-deposit ratios over time. Banks are classified based on their 2007 loan-to-deposit ratios, with "High Loan/Deposit Banks" representing banks above the median and "Low Loan/Deposit Banks" representing banks below the median.

Figure A.4: Bank's Pre-Crisis Credit Growth and Retail Deposit Rates



Notes: This figure presents coefficient estimates and 95% confidence intervals from the double interaction terms ($\eta_t \times$ Credit Growth$_{b,2004-2007}$) in bank-level regressions. The dependent variable is banks' average interest rate on retail deposits. Credit Growth refers to banks' average annual credit growth between 2004-2007. Control variables measured in 2007 (tier-1 capital ratio, log assets, and an indicator for the six largest banks) are interacted with year indicators. The regression includes bank and year fixed effects. Standard errors are clustered at the bank level.

Table A.1: Pre-Crisis Loan Portfolio Quality and Bank Loan-to-Deposit Ratio

Outcome:	Period: 2004-2007					
	TFP			**Real-estate firm**		
	(1)	(2)	(3)	(4)	(5)	(6)
Loan / deposit 2007	-0.64**	-0.57***	-0.59***	0.05***	0.07***	0.07***
	(0.27)	(0.22)	(0.22)	(0.02)	(0.02)	(0.01)
Observations	330	330	330	330	330	330
R2	0.02	0.03	0.04	0.06	0.11	0.15
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Bank controls		Yes	Yes		Yes	Yes
Control: Top-6 bank			Yes			Yes

Notes: This table presents the results from regressing bank-level TFP (columns 1-3) and bank-level share of lending to the real-estate sector (columns 4-6) on loan to deposits over 2004-2007. Bank controls include banks' total assets and tier-1 capital ratio measured in 2007. We also include a control for the top-6 banks, which are the six banks with largest total assets in 2007. We report robust standard errors in parenthesis. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.2: Deposit Growth Around the Insurance Threshold: Regression Coefficients

	(1) Deposits in [200K-400K]	(2) Deposits in [250K-350K]
Above 300K x Loan/deposit 2007	0.08***	0.04*
	(0.03)	(0.02)
2004 X Above 300K X Loan/deposit 2007	0.03	0.01
	(0.03)	(0.02)
2005 X Above 300K X Loan/deposit 2007	-0.02	-0.00
	(0.02)	(0.02)
2007 X Above 300K X Loan/deposit 2007	0.01	0.01
	(0.01)	(0.01)
2008 X Above 300K X Loan/deposit 2007	-0.13***	-0.10***
	(0.03)	(0.03)
2009 X Above 300K X Loan/deposit 2007	-0.08***	-0.04*
	(0.03)	(0.02)
2010 X Above 300K X Loan/deposit 2007	-0.09**	-0.04*
	(0.04)	(0.02)
Observations	2,312	1,156
R2	1.00	1.00
Bank FEs	Yes	Yes
Year FEs	Yes	Yes
Bank-year FE	Yes	Yes
Range-year FE	Yes	Yes

Notes: This table presents the complete set of coefficient estimates from the triple interaction terms ($\eta_t \times$ Above300$_{kt} \times$ Loan/Deposit$_{b,2007}$) in bank-account level regressions illustrated graphically in Figure 2. The dependent variable is the logarithm of deposit amounts in 50,000 DKK bins. Above300K is an indicator equal to one for deposit bins exceeding the 300,000 DKK insurance threshold. Column (1) focuses on deposits in the 200,000-400,000 DKK range, while column (2) restricts the sample to deposits in the 250,000-350,000 DKK range. The regression includes bank-by-year and bin-by-year fixed effects. Standard errors in parentheses are clustered at the bank-account range bin level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A.3: Binary Deposit Adjustments, Insurance Coverage, and Bank Risk

	Outcome: Decreased deposits (1/0)				Outcome: Increased deposits (1/0)			
	Indiv. with 2+ banks in '07		All individuals		Indiv. with 2+ banks in '07		All individuals	
	2008	2009	2008	2009	2008	2009	2008	2009
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Above 300K	0.232***	0.270***	0.199***	0.270***	-0.157***	-0.190***	-0.161***	-0.244***
	(0.010)	(0.010)	(0.005)	(0.005)	(0.010)	(0.010)	(0.005)	(0.005)
Loan/deposit 2007 X Above 300K	0.051***	-0.061***	0.017***	-0.068***	-0.052***	0.083***	-0.017***	0.088***
	(0.007)	(0.007)	(0.004)	(0.003)	(0.008)	(0.008)	(0.004)	(0.003)
Observations	1,966,371	1,774,462	5,816,082	5,859,579	1,966,371	1,774,462	5,816,082	5,859,579
R2	0.49	0.49	0.01	0.03	0.49	0.49	0.01	0.02
Individual FE	Yes	Yes			Yes	Yes		
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table presents regression results where the dependent variable is an indicator for whether an individual decreased (columns 1-4) or increased (columns 5-8) their deposits at the bank between the specified years. The analysis focuses on the intensive margin, including only individuals who maintained an account at the bank across both years. Loan/deposit 2007 is the bank's loan-to-deposit ratio measured at the end of 2007. Above 300K is an indicator equal to one if the individual's deposits at the bank exceeded the deposit insurance limit of DKK 300,000 in 2007. Columns (1-2, 5-6) restrict the sample to individuals with deposits at multiple banks in 2007, while columns (3-4, 7-8) include all individuals. Columns (1-2, 5-6) include individual fixed effects to exploit within-individual variation in deposit changes. All specifications include bank fixed effects. Standard errors in parentheses are clustered at the individual level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A.4: Individual Withdrawal Behavior: Double Clustered Standard Errors

Outcome: Δ (log) Deposits	Individuals with 2+ banks in 2007				All individuals	
	2008		2009		2008	2009
	(1)	(2)	(3)	(4)	(5)	(6)
Loan/deposit 2007	-0.045**		-0.054			
	(0.018)		(0.043)			
Above 300K		-0.287***		-0.358***	-0.330***	-0.413***
		(0.087)		(0.031)	(0.124)	(0.070)
Loan/deposit 2007 X Above 300K		-0.188**		0.063**	-0.091	0.060
		(0.073)		(0.026)	(0.110)	(0.061)
Observations	1,776,698	1,776,698	1,618,945	1,618,945	5,521,087	5,582,778
R2	0.46	0.47	0.45	0.46	0.01	0.01
Individual FE	Yes	Yes	Yes	Yes		
Bank FE		Yes		Yes	Yes	Yes

Notes: This table replicates Table 4 but reports standard errors double clustered at the individual and bank level. Specifically, the dependent variable is the change in the logarithm of deposits at the individual-bank level from 2007 to 2008 (columns 1, 2, 5) or from 2008 to 2009 (columns 3, 4, 6). Loan/deposit 2007 is the bank's loan-to-deposit ratio measured at the end of 2007. Above 300K is an indicator equal to one if the individual's deposits at the bank exceeded the deposit insurance limit of DKK 300,000 in 2007. Columns (1-4) restrict the sample to individuals with deposits at multiple banks in 2007, while columns (5-6) include all individuals. Columns (1-4) include individual fixed effects to exploit within-individual variation in deposit changes. Columns (2, 4, 5, 6) include bank fixed effects. Specifications without bank fixed effects (columns 1 and 3) include controls for bank characteristics measured in 2007: bank size (log assets), tier-1 capital ratio, and an indicator for the six largest banks. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A.5: Depositor Wealth and Withdrawal Behavior: Double Clustered Standard Errors

Outcome: Δ (log) Deposits	Individuals with 2+ banks in 2007		All individuals	
	Year: 2008	Year: 2009	Year: 2008	Year: 2009
	(1)	(2)	(3)	(4)
Loan/deposit 2007 X Wealth	0.004**	-0.006*	0.004	-0.007*
	(0.002)	(0.003)	(0.005)	(0.004)
Above 300K	-0.294***	-0.348***	-0.311**	-0.388***
	(0.082)	(0.030)	(0.118)	(0.064)
Loan/deposit 2007 X Above 300K	-0.179**	0.061**	-0.087	0.043
	(0.069)	(0.024)	(0.104)	(0.056)
Above 300K X Wealth	0.005	-0.017**	-0.010	-0.022***
	(0.004)	(0.007)	(0.013)	(0.005)
Loan/deposit 2007 X Wealth X Above 300K	-0.007***	0.006	-0.004	0.009***
	(0.002)	(0.004)	(0.007)	(0.003)
Wealth (standardized)			0.009	0.016**
			(0.009)	(0.007)
Observations	1,404,822	1,271,805	4,281,056	4,254,076
R2	0.47	0.46	0.01	0.01
Bank FE	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes		

Notes: This table replicates Table 5 but reports standard errors double clustered at the individual and bank level. Specifically, the dependent variable is the change in the logarithm of deposits at the individual-bank level from 2007 to 2008 (columns 1, 3) or from 2008 to 2009 (columns 2, 4). Loan/deposit 2007 is the bank's loan-to-deposit ratio measured at the end of 2007. Above 300K is an indicator equal to one if the individual's deposits at the bank exceeded the deposit insurance limit of DKK 300,000 in 2007. Wealth is the standardized (mean 0, standard deviation 1) gross wealth of the individual depositor measured in 2007. Columns (1-2) restrict the sample to individuals with deposits at multiple banks in 2007 and include individual fixed effects, while columns (3-4) include all individuals. All specifications include bank fixed effects. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A.6: Uninsured Deposits and Withdrawal Dynamics: Double Clustered Standard Errors

Outcome: Δ (log) Deposits	Individuals with 2+ banks in 2007		All individuals	
	Year: 2008	Year: 2009	Year: 2008	Year: 2009
	(1)	(2)	(3)	(4)
Above 300K	-0.429***	-0.364***	-0.442***	-0.420***
	(0.091)	(0.033)	(0.123)	(0.086)
Loan/deposit 2007 X Above 300K	-0.038	0.073**	0.025	0.071
	(0.074)	(0.028)	(0.108)	(0.072)
Above 300K X Bank's uninsured share	0.179*	-0.127***	0.159	-0.075
	(0.104)	(0.043)	(0.119)	(0.052)
Loan/deposit 2007 X Bank's uninsured share X Above 300K	-0.224**	0.074***	-0.183*	0.038
	(0.086)	(0.027)	(0.107)	(0.031)
Observations	1,766,963	1,612,609	5,513,601	5,580,454
R2	0.47	0.46	0.01	0.01
Bank FE	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes		

Notes: This table replicates Table 6 but reports standard errors double clustered at the individual and bank level. Specifically, the dependent variable is the change in the logarithm of deposits at the individual-bank level from 2007 to 2008 (columns 1, 3) or from 2008 to 2009 (columns 2, 4). Loan/deposit 2007 is the bank's loan-to-deposit ratio measured at the end of 2007. Above 300K is an indicator equal to one if the individual's deposits at the bank exceeded the deposit insurance limit of DKK 300,000 in 2007. Bank's uninsured share is the standardized (mean 0, standard deviation 1) proportion of uninsured deposits in the bank's total retail deposits measured in 2007. Columns (1-2) restrict the sample to individuals with deposits at multiple banks in 2007 and include individual fixed effects, while columns (3-4) include all individuals. All specifications include bank fixed effects. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A.7: Individual Withdrawal Behavior: Excluding Banks Defaulting Between 2007-2009

Outcome: Δ (log) Deposits	Individuals with 2+ banks in 2007				All individuals	
	2008		2009		2008	2009
	(1)	(2)	(3)	(4)	(5)	(6)
Loan/deposit 2007	-0.045***		-0.057***			
	(0.005)		(0.005)			
Above 300K		-0.303***		-0.364***	-0.338***	-0.412***
		(0.022)		(0.019)	(0.008)	(0.007)
Loan/deposit 2007 X Above 300K		-0.169***		0.069***	-0.082***	0.059***
		(0.017)		(0.015)	(0.007)	(0.006)
Observations	1,706,613	1,706,613	1,585,262	1,585,262	5,425,916	5,534,645
R2	0.47	0.47	0.45	0.46	0.01	0.01
Individual FE	Yes	Yes	Yes	Yes		
Bank FE		Yes		Yes	Yes	Yes

Notes: This table replicates Table 4 but excludes all banks defaulting between 2007-2009. Specifically, the dependent variable is the change in the logarithm of deposits at the individual-bank level from 2007 to 2008 (columns 1, 2, 5) or from 2008 to 2009 (columns 3, 4, 6). Loan/deposit 2007 is the bank's loan-to-deposit ratio measured at the end of 2007. Above 300K is an indicator equal to one if the individual's deposits at the bank exceeded the deposit insurance limit of DKK 300,000 in 2007. Columns (1-4) restrict the sample to individuals with deposits at multiple banks in 2007, while columns (5-6) include all individuals. Columns (1-4) include individual fixed effects to exploit within-individual variation in deposit changes. Columns (2, 4, 5, 6) include bank fixed effects. Specifications without bank fixed effects (columns 1 and 3) include controls for bank characteristics measured in 2007: bank size (log assets), tier-1 capital ratio, and an indicator for the six largest banks. Standard errors in parentheses are clustered at the individual level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A.8: Individual Withdrawal Behavior: Banks' Pre-GFC Credit Growth

Outcome: Δ (log) Deposits	Individuals with 2+ banks in 2007				All individuals	
	2008		2009		2008	2009
	(1)	(2)	(3)	(4)	(5)	(6)
Avg. credit growth 2004-2007	-0.060***		-0.784***			
	(0.019)		(0.020)			
Above 300K		-0.300***		-0.260***	-0.299***	-0.285***
		(0.010)		(0.009)	(0.004)	(0.003)
Credit growth 04-07 X Above 300K		-1.173***		-0.077*	-0.837***	-0.299***
		(0.049)		(0.045)	(0.020)	(0.018)
Observations	1,758,954	1,758,954	1,605,052	1,605,052	5,507,523	5,574,303
R2	0.46	0.47	0.45	0.46	0.01	0.01
Individual FE	Yes	Yes	Yes	Yes		
Bank FE		Yes		Yes	Yes	Yes

Notes: This table replicates Table 4 but replaces banks' loan-to-deposit ratio in 2007 with banks' average annual credit growth between 2004 and 2007. Specifically, the dependent variable is the change in the logarithm of deposits at the individual-bank level from 2007 to 2008 (columns 1, 2, 5) or from 2008 to 2009 (columns 3, 4, 6). Above 300K is an indicator equal to one if the individual's deposits at the bank exceeded the deposit insurance limit of DKK 300,000 in 2007. Columns (1-4) restrict the sample to individuals with deposits at multiple banks in 2007, while columns (5-6) include all individuals. Columns (1-4) include individual fixed effects to exploit within-individual variation in deposit changes. Columns (2, 4, 5, 6) include bank fixed effects. Specifications without bank fixed effects (columns 1 and 3) include controls for bank characteristics measured in 2007: bank size (log assets), tier-1 capital ratio, and an indicator for the six largest banks. Standard errors in parentheses are clustered at the individual level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A.9: Risk-Taking in Lending and Borrower Default Risk: Loan Pricing

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable: Loan rate	2008	2009	2008	2009	2008	2009	2008	2009
Loan/deposit 2007	0.01***	0.00*	0.01***	0.00**				
	(0.00)	(0.00)	(0.00)	(0.00)				
Loan/deposit 2007 X Defaulting firm			-0.00	-0.02**	-0.00	-0.02**	-0.01***	-0.01
			(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
Defaulting firm (2009-2015)							0.01	0.01
							(0.01)	(0.02)
Observations	7,866	7,152	7,866	7,152	7,857	7,146	29,306	28,436
R2	0.51	0.54	0.51	0.54	0.52	0.55	0.10	0.13
Bank controls	Y	Y	Y	Y	Y	Y	Y	Y
Bank FE					Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y		
Industry-location-size FE							Y	Y

Notes: This table presents regression results where the dependent variable is the interest rate on credit granted by bank b to firm f in 2008 (odd columns) or in 2009 (even columns). Loan/deposit 2007 is the bank's loan-to-deposit ratio measured at the end of 2007. Defaulting firm is an indicator equal to one if the firm defaults between 2009 and 2015. In columns (1-2), the specification includes Loan/deposit 2007 and bank controls. In columns (3-8), the specification includes Loan/deposit 2007, the Defaulting firm indicator, and their interaction. Columns (1-4) include firm fixed effects and bank controls; columns (5-6) replace bank controls with bank fixed effects while maintaining firm fixed effects, and columns (7-8) replace firm fixed effects with industry-location-size fixed effects. Bank controls include bank size (log assets), tier-1 capital ratio, and an indicator for the six largest banks, all measured in 2007. Standard errors in parentheses are double clustered at the bank and firm level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A.10: Risk-Taking in Lending: Excluding Banks Defaulting Between 2007-2009

Dependent Variable: Δ log credit	(1) 2008	(2) 2009	(3) 2008	(4) 2009	(5) 2008	(6) 2009	(7) 2008	(8) 2009
Loan/deposit 2007	-0.26***	-0.18***	-0.25***	-0.20***				
	(0.06)	(0.04)	(0.06)	(0.04)				
Loan/deposit 2007 X Defaulting firm			-0.26	0.36*	-0.26	0.44**	0.13*	-0.06
			(0.17)	(0.22)	(0.18)	(0.22)	(0.07)	(0.05)
Defaulting firm (2009-2015)							-0.05	-0.12
							(0.37)	(0.34)
Observations	5,189	4,747	5,189	4,747	5,181	4,734	23,465	23,197
R2	0.47	0.49	0.48	0.49	0.49	0.50	0.03	0.03
Bank controls	Y	Y	Y	Y	Y	Y	Y	Y
Bank FE					Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y		
Industry-location-size FE							Y	Y

Notes: This table replicates Table 7 but excludes all banks defaulting between 2007-2009. Specifically, the dependent variable is the change in the logarithm of credit granted by bank b to firm f from 2007 to 2008 (odd columns) or from 2008 to 2009 (even columns). Loan/deposit 2007 is the bank's loan-to-deposit ratio measured at the end of 2007. Defaulting firm is an indicator equal to one if the firm defaults between 2009 and 2015. In columns (1-2), the specification includes Loan/deposit 2007 and bank controls. In columns (3-8), the specification includes Loan/deposit 2007, the Defaulting firm indicator, and their interaction. Columns (1-4) include firm fixed effects and bank controls; columns (5-6) replace bank controls with bank fixed effects while maintaining firm fixed effects, and columns (7-8) replace firm fixed effects with industry-location-size fixed effects. Bank controls include bank size (log assets), tier-1 capital ratio, and an indicator for the six largest banks, all measured in 2007. Standard errors in parentheses are double clustered at the bank and firm level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A.11: Risk-Taking in Lending: Banks' Pre-GFC Credit Growth

Dependent Variable: Δ log credit	(1) 2008	(2) 2009	(3) 2008	(4) 2009	(5) 2008	(6) 2009	(7) 2008	(8) 2009
Avg. credit growth '04-'07	0.82***	-0.20	0.85***	-0.17				
	(0.31)	(0.34)	(0.31)	(0.33)				
Avg. credit growth '04-'07 X Defaulting firm			-0.49	-0.48	-0.40	-0.64	0.54*	0.08
			(1.18)	(1.38)	(1.18)	(1.32)	(0.31)	(0.29)
Defaulting firm (2009-2015)							0.04	-0.11
							(0.36)	(0.32)
Observations	5,564	4,983	5,564	4,983	5,556	4,972	24,494	23,913
R2	0.47	0.48	0.47	0.48	0.49	0.50	0.03	0.03
Bank controls	Y	Y	Y	Y	Y	Y	Y	Y
Bank FE					Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y		
Industry-location-size FE							Y	Y

Notes: This table replicates Table 7 but replaces banks' loan-to-deposit ratio in 2007 with their average annual credit growth between 2004 and 2007. Specifically, the dependent variable is the change in the logarithm of credit granted by bank b to firm f from 2007 to 2008 (odd columns) or from 2008 to 2009 (even columns). Defaulting firm is an indicator equal to one if the firm defaults between 2009 and 2015. In columns (1-2), the specification includes Loan/deposit 2007 and bank controls. In columns (3-8), the specification includes Loan/deposit 2007, the Defaulting firm indicator, and their interaction. Columns (1-4) include firm fixed effects and bank controls; columns (5-6) replace bank controls with bank fixed effects while maintaining firm fixed effects, and columns (7-8) replace firm fixed effects with industry-location-size fixed effects. Bank controls include bank size (log assets), tier-1 capital ratio, and an indicator for the six largest banks, all measured in 2007. Standard errors in parentheses are double clustered at the bank and firm level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A.12: Risk-Taking in Lending: Loan Pricing and Banks' Pre-GFC Credit Growth

Dependent Variable: Loan rate	(1) 2008	(2) 2009	(3) 2008	(4) 2009	(5) 2008	(6) 2009	(7) 2008	(8) 2009
Avg. credit growth '04-'07	0.02*	0.01	0.02	0.01				
	(0.01)	(0.02)	(0.01)	(0.02)				
Avg. credit growth '04-'07 X Defaulting firm			0.03	-0.06	0.02	-0.05	-0.03**	-0.03
			(0.05)	(0.05)	(0.05)	(0.04)	(0.01)	(0.02)
Defaulting firm (2009-2015)							0.01	0.01
							(0.01)	(0.02)
Observations	7,841	7,124	7,841	7,124	7,832	7,120	29,276	28,412
R2	0.51	0.54	0.51	0.54	0.52	0.55	0.10	0.13
Bank controls	Y	Y	Y	Y	Y	Y	Y	Y
Bank FE					Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y		
Industry-location-size FE							Y	Y

Notes: This table replicates Table A.9 but replaces banks' loan-to-deposit ratio in 2007 with their average annual credit growth between 2004 and 2007. Specifically, the dependent variable is the interest rate on credit granted by bank b to firm f. Defaulting firm is an indicator equal to one if the firm defaults between 2009 and 2015. In columns (1-2), the specification includes Loan/deposit 2007 and bank controls. In columns (3-8), the specification includes Loan/deposit 2007, the Defaulting firm indicator, and their interaction. Columns (1-4) include firm fixed effects and bank controls; columns (5-6) replace bank controls with bank fixed effects while maintaining firm fixed effects, and columns (7-8) replace firm fixed effects with industry-location-size fixed effects. Bank controls include bank size (log assets), tier-1 capital ratio, and an indicator for the six largest banks, all measured in 2007. Standard errors in parentheses are double clustered at the bank and firm level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.