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Explicit Deposit Insurance Design: International Effects on Bank Lending During the Global Financial Crisis

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UMSL Department of Economics Working Paper #1019

December 2020

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We appreciate the insightful and constructive comments and suggestions from participants of the 2017 Bank of Finland Workshop and the 2017 Canadian Deposit Insurance Corporation (CDIC) 50th anniversary meeting. Gaiyan Zhang acknowledges the funding support from the International Studies and Programs of the University of Missouri-St. Louis.

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Abstract

This paper investigates how explicit deposit insurance (DI) scheme in place influence bank lending during the global financial crisis. Earlier studies reveal tightened overall corporate lending, even lesser amount to foreign borrowers (a "flight home" effect) charging higher interest rates during the 2007-2009 crisis. We report that banks in countries with DI in place are associated with smaller reductions in lending and smaller increases in corporate loan spreads and faster post-crisis recovery in lending. These effects are most pronounced for banks that heavily rely on deposit funding. Evidence also reveals that more generous or credible deposit insurance designs are associated with stronger stabilization effects on bank lending during the crisis.

Keywords: Deposit Insurance Design, Bank Lending Activities, Global Financial Crisis, Stabilization Effects

Deposit Insurance and Design:

Effects on Bank Lending during the Global Financial Crisis

1. Introduction

In the 2007-2009 global financial crisis, many banks faced challenges retaining deposits due to increasing uncertainty regarding the banking industry. Constrained by deposit funding, some banks tightened lending to corporations (e.g., Ivashina and Scharfstein, 2010) and charged higher interest rates (e.g., Kwan, 2010; Santos, 2011). Moreover, some banks rebalanced their portfolios in favor of domestic borrowers, resulting in an international "flight home" effect (e.g., Cetorelli and Goldberg, 2011; De Haas and Van Horen, 2012; Giannetti and Laeven, 2012a, 2012b).

Ten years after the financial crisis, questions remain about why certain banks withstood the crisis better than others. Along these lines, evidence in existing studies supports deposit funding's power to buffer external shocks. For example, Ivashina and Scharfstein (2010) show that U.S. banks cut lending less if they have better access to deposit financing and thus are not as reliant on short-term debt such as interbank loans. Cornett et al. (2011) find that U.S. banks that rely more heavily on core deposits and equity capital financing, which are stable sources of financing, continue to lend relative to other banks.

Though bank-specific factors clearly determine banks' financial soundness during turbulent times, difference in country-level regulation such as deposit insurance (DI) safety nets should not be ignored. The global financial crisis provides an ideal laboratory to test whether DI indeed achieved its intended purpose of stabilizing the financial system. For example, Anginer et al. (2014) and Liu et al. (2016) show that DI decreases bank risk and system fragility in turbulent times. Martin et al. (2017) show that government deposit guarantees reduced insured deposit outflows for a U.S. bank failure after the financial crisis. However, little is known about whether

and how DI affects bank lending during the crisis and bank lending recovery after the crisis across different countries.

We examine whether DI mitigated negative effects on bank lending during the 2007-2009 global financial crisis. Specifically, our paper investigates five related questions. First, how did DI and its design affect bank lending to corporations during the crisis in different countries? Second, did DI and its design mitigate the severity of the "flight home" effect? Third, did DI and its design limit increases in corporate loan rates during the crisis? Fourth, was DI more important for banks relying more on deposit funding? Fifth, did DI facilitate banks' recovery after the crisis?

Our study is based on data from various sources, including loan data from DealScan, corporate financial data from Global Compustat, bank financial data from Bankscope, and macroeconomic variables from sources including the World Bank's deposit insurance database, World Development Indicators (WDI), the Heritage Foundation, and Bloomberg. Our sample covers banks in 39 countries for the pre-crisis period (January 2000 to June 2007), the crisis period (July 2007 to December 2009), and the post-crisis period (January 2010 to December 2013).

One central feature of our paper is that we not only examine effects on lending of the presence of DI, but also examine how its design structure affected bank lending during the crisis. In particular, we investigate the impact of "generous" DI systems, which have these characteristics: (i) no coinsurance requirement, (ii) interbank deposits coverage, (iii) large scale insured deposit coverage. We also investigate the impact of "credible" DI systems, which have these characteristics: (i) government support in the case of DI reserve shortfalls, (ii) ex-ante funding of the deposit insurance agency by banks, and (iii) government funding.

Our empirical results indicate that overall DI mitigated the negative impact the financial crisis had on bank lending. Although banks' total lending and foreign lending decrease

significantly and loan rates rose during the 2007-2009 crisis, we find that banks in countries with explicit DI, particularly banks relying on deposit funding, had smaller reductions in total lending volume, smaller declines in foreign lending, and smaller increases in loan spreads after controlling for bank-, loan-, borrower-, and country-level factors. On average, banks in countries with explicit DI cut total lending by 42.2% less than banks in countries without explicit DI, had 5.9% more foreign loans in their loan portfolios, and had lending rates that are 14.3% lower than banks in countries without explicit DI. Our findings are consistent with the notion that explicit DI helps retain deposit funding, thereby sustaining bank lending and keeping loan rates from rising sharply. Moreover, the "flight home" effect is smaller for banks operating in countries that have explicit DI. Taken together, we find that explicit DI mitigates the adverse effects of the crisis, especially for banks with a greater funding reliance on deposits.

Moreover, certain DI design features have more pronounced effects on bank lending during a crisis. In general, we find more "generous" or "credible" explicit deposit insurance is associated with smaller reductions in total lending volume, less severe "flight home" effects, and smaller increases in loan rates during a crisis.

Furthermore, and importantly, we find that DI plays a stabilization role not only during the crisis, but also immediately after the crisis. In particular, it took banks in countries with explicit deposit insurance less time to recover from the crisis. On average, banks in countries with DI reverted to their pre-crisis levels of loan amounts, foreign lending, and loan spreads, respectively, eight, five, and three months faster than banks in countries without explicit DI.

The DI system is designed to promote financial stability and reduce the severity of bank runs (Diamond and Dybvig, 1983). However, since its introduction, it has been criticized for weakening market discipline and encouraging excessive bank risk-taking (e.g., Bhattacharya and

Thakor, 1993). Empirical studies largely focus on the dark side effect of DI (e.g., Grossman, 1992; Demirguc-Kunt and Detragiache, 2002; Hovakimian et al., 2003; Ioannidou and Penas, 2010). The growing emphasis of "moral hazard" issues has even raised suspicions among regulators about the necessity of maintaining DI.[1]

Our paper contributes to the research in three regards. First, our study reveals explicit DI's positive effects on bank lending to corporations during the crisis.[2] Importantly, we show that the stabilization effect is most prominent for banks highly reliant on deposit funding, suggesting that the economic channel is via stable deposit funding so that bank lending is better insulated from the crisis. Second, our paper is unique in evaluating how DI design affects bank lending during the crisis by studying both "credible" and "generous" design features. Third, our study also contributes to the literature by examining explicit DI's role in speeding up banks' recovery from the crisis. Our study has important policy implications, as it supports the necessities of maintaining explicit DI and demonstrates the comprehensive economic stability effects of various DI designs.

The remainder of the paper is organized as follows. Section 2 develops our hypotheses. Section 3 describes the data. Section 4 introduces the empirical strategy to test our hypotheses. Section 5 discusses the main empirical results. Section 6 concludes.

2. Hypotheses Development

[1] During the 2017 CDIC 50th anniversary conference at Ottawa, executives of the Canadian Deposit Insurance Corporation (CDIC) expressed concerns about banks' moral hazard behaviors associated with DI. Moreover, they shared anecdotal evidence that before the financial crisis, many participating banks doubted the usefulness of deposit insurance and complained the insurance fees, but after the crisis, they expressed reliefs because these banks experienced no runs on deposits due to DI protection.

[2] In recent years, a growing number of studies examine the dynamic effect of DI. For example, Anginer et al. (2014), Liu et al. (2016), and Martin et al. (2017) show that DI plays a different role during the financial crisis than in normal periods.

2.1. Bank credit availability during the crisis

Credit availability and economic activity suffer if banks liquidate loans in order to meet depositors' withdrawals. For example, borrowers who might otherwise receive loans in a more favorable environment may not be funded.

Due to loan losses and a dearth of market liquidity, banks experienced similar credit contractions during the 2007-2009 financial crisis, which led to a sharp decline in the supply of credit to corporations. Based on U.S. corporate loan data, Ivashina and Scharfstein (2010) find a large credit contraction during the 2007-2009 financial crisis relative to the peak of the credit boom in 2007. They also find that bank runs by short-term creditors and simultaneous runs by borrowers who draw down on credit lines lead to a spike in the costs of commercial and industrial loans reported on bank balance sheets. They further show that banks cut their lending less when they have better access to deposit financing and are not as reliant on short-term debt and thus were less vulnerable to the crisis.

Indeed, during a crisis, a bank may face runs by depositors and wholesale funding lenders. For example, its funding sources may be constrained due to contractions in the short-term commercial paper market. However, if banks are financed largely by insured deposits, they are less likely to be affected by liquidity shocks (Cornett et al., 2011). Similarly, Gatev et al. (2009) find that deposits help banks hedge liquidity risk from unused loan commitments, and this deposit-lending risk-management synergy becomes more powerful during periods of tight liquidity such as in a crisis period.

Accordingly, we predict that banks in countries with explicit DI schemes cut lending less during the 2007-2009 financial crisis than those without explicit DI schemes. This leads to our hypotheses:

H1: During the 2007-2009 financial crisis, the decline in lending volume to corporations was smaller for banks in countries with explicit DI.

H1b: During the 2007-2009 financial crisis, the relationship between explicit DI and bank lending volume strengthened when banks' reliance on deposit funding increased.

2.2. The "flight home" effect during the crisis

Banks can transmit negative shocks domestically and internationally. In particular, researchers have observed contractions in cross-border lending following the global financial crisis as funding constraints forced banks to reduce their foreign exposures (Cetorelli and Goldberg, 2011; De Haas and Van Horen, 2012; Giannetti and Laeven, 2012a and 2012b).

For example, Giannetti and Laeven (2012a and 2012b) find that lenders reverted away from international markets to the advantage of domestic lenders during crises (the "flight home" effect), thereby, somewhat insulating domestic borrowers. Specifically, they find that if the bank's country of origin experiences a banking crisis, "home bias" in loan origination increases by roughly 20%. Their cross-sectional analysis indicates that banks with less stable funding sources and thus, being more vulnerable to negative liquidity shocks, exhibit a stronger "flight home" lending effect.

If explicit DI helps banks retain deposit funding during turbulent periods, liquidity shortages are less likely to constrain them. In turn, lenders may not feel obligated to rebalance their lending portfolios in favor of domestic borrowers. The "flight home" effect should therefore be less severe in explicit DI systems. Accordingly, our next hypotheses are as follows:

H2: During the 2007-2009 financial crisis, the decline in foreign lending was smaller for banks in countries with explicit DI.

H2b: During the 2007-2009 financial crisis, the relationship between explicit DI and bank foreign lending strengthened when banks' reliance on deposit funding increased.

2.3. Bank corporate loan pricing during the crisis

During the financial crisis, banks not only raised lending standards and reduced loan amounts, but they also tightened loan terms. In a study of pricing in the U.S. syndicated loan market, Santos (2011) shows that firms got smaller loans and paid higher loan spreads, especially when they borrowed from banks that incurred large losses. Kwan (2010) estimates that the average loan spread increased by about 1% between 2007 and 2010 based on U.S. bank commercial and industrial (C&I) loan rates. Both studies provide evidence consistent with a deposit supply-side effect on loan pricing.

However, if explicit DI mitigated funding-side shocks during a crisis, we expect that the negative impact on lending amounts and terms should be less severe. Thus, the increase in loan rates should be smaller for banks in countries with explicit DI, especially for banks that are more reliant on deposit-funding sources. Therefore, we formulate a third set of hypotheses as follows:

H3: During the 2007-2009 financial crisis, the rise in corporate loan spreads was smaller for banks in countries with explicit DI.

H3b: During the 2007-2009 financial crisis, the relationship between explicit DI and loan prices was enhanced when a bank's reliance on deposit funding increased.

2.4. The impact of DI design

DI has two offsetting effects. On the positive side, it removes depositors' incentives to run. On the negative side, it reduces depositors' incentives to monitor banks' risk-taking behavior (the "moral hazard" effect). Well-designed DI systems seek to maximize depositor protection while

minimizing the undesirable moral hazard effect. We thus examine how DI designs affect three aspects of global banks' lending behavior: overall lending, foreign lending, and loan pricing.

We follow the existing literature and categorize various DI design features using variables that reflect either generosity or credibility (see Demirguc-Kunt and Detragiache, 2002; Cull et al., 2005). A system is generous if it doesn't require coinsurance by depositors *(No coinsurance)*, if it doesn't exclude a particular type of deposits (*Interbank deposits coverage)*, or if it has extensive coverage *(Coverage limit)*. A system is credible if it has government support in case of fund shortfalls *(Government backstop)*, if it is funded ex-ante *(Ex-ante funding)*, or if it is funded by government *(Government funding)*.

A. Generosity of deposit insurance

Deposit coinsurance arrangements typically provide full protection up to a certain ceiling, beyond which depositors bear part of the cost of a bank failure. Thus, the system encourages depositors to make more prudent bank choices and increases their incentive to monitor banks. On the other hand, coinsurance with depositors bearing part of the risk limits the DI system's role of fully instilling confidence, and depositors still have an incentive to run on banks during a crisis. We expect the positive effects of DI during the crisis (higher credit availability, weaker "flight home" effect, and lower loan prices) are more prevalent for banks in countries without a coinsurance DI design feature.

Furthermore, DI typically does not extend to all deposit types. Accordingly, Bergbrant et al. (2016) categorize the coverage of interbank lending as generous deposit insurance. In times of financial panics, the relative security of interbank deposits may encourage spreading of liquidity

flows across banks. We therefore expect that DI that insures interbank deposits reduces the adverse impact of a crisis on bank lending.

Determining the optimal DI coverage limit has been a matter of debate for years. In theory, having too little coverage may undermine confidence among depositors and jeopardize the credibility of the DI system. More extensive coverage would be a better guarantee against depositor runs, but it could reduce market discipline and worsen moral hazard problems.

During the financial crisis, restoring confidence in the financial system is the primary concern for policymakers and market participants. If higher coverage calms the financial markets, as theory suggests, bank lending should respond to such policies favorably. We thus expect that more extensive coverage helps banks maintain depositors' trust, thereby retaining overall credit availability and foreign lending, as well as limiting the increase of loan spreads during the crisis. Accordingly:

H4: During the 2007-2009 financial crisis, DI's beneficial effects on credit availability, foreign lending, and loan rates strengthened when DI generosity increased.

B. Credibility of deposit insurance

DI with an explicit government backstop is credible because it has government support in case of funding shortfalls. Such backstop funding could take the form of pre-approved credit lines from the Treasury Department or government-guaranteed bonds or loans. The existence of potential government support reinforces DI's promise to pay depositors in the event of bank failures. Thus, we expect that government backstop funding should ease the adverse impact of a crisis on credit availability, foreign lending, and the cost of bank loans.

When DI funding occurs on an ex-ante basis, member banks contribute to build and maintain a safe and liquid funding pool. Ex-post funding requires member banks to pay only when failures occur; however, ex-ante funding offers a more credible guarantee and ensures that money will be available when needed. In addition, banks have an incentive to scrutinize DI operations and maintain self-discipline and financial health. Also, there may be political and financial obstacles to obtaining funds during a crisis. Thus, we expect more credit availability, a less severe "flight home" effect, and lower loan spreads if banks are in countries with ex-ante funded DI.

Finally, government-funded DI makes deposit insurers' ability to pay claims more credible than privately funded DI does. This could generate enough public confidence concerning the safety of deposits, especially during the financial crisis. On the other hand, the main benefit of privately funded DI is that private insurers encourage efficiency and effectiveness by removing member banks from the tangles of government bureaucracy (Ely, 1986; England, 1985). Given that credibility is more important than efficiency during the crisis, we postulate that government-funded DI mitigated the negative effects of the crisis on bank loans. Accordingly:

H5: During the 2007-2009 financial crisis, DI's beneficial effects on credit availability, foreign lending, and loan rates strengthened when DI credibility increased.

C. Recovery of bank lending after the crisis

Finally, we examine whether explicit DI systems facilitated bank recovery after the crisis. An examination of the evolution of real per capita GDP around 100 systemic banking crises by Reinhart and Rogoff (2014) reveals that a significant part of the costs of these crises lies in the protracted and halting nature of the recovery. On average it takes about eight years to reach the pre-crisis level of GDP. Banks' recovery after the crisis is crucial for banks to survive, grow, and

maintain their competitive edge. The recovery could manifest in a variety of aspects, including lending capacity at home and abroad, as well as in the costs of lending.

If banks in countries with explicit deposit insurance systems suffer less adverse effects from external shocks, it will take less time for these banks to revert to pre-crisis levels. They will be more resilient, flexible, and financially able to recover and compete in the industry after the crisis. This leads to our last hypothesis:

H6: Banks in DI countries recovered faster in terms of credit availability, foreign lending, and loan rates than banks in countries without DI.

3. Data and Summary Statistics

3.1. Data

Our information on DI is from the World Bank's Deposit Insurance Database compiled by Demirgüç-Kunt et al. (2013). This version of the data builds upon earlier work by Demirgüç-Kunt et al. (2005) and extends to later years based on various official sources, such as the World Bank's comprehensive survey of financial sector regulations in 2010; International Association of Deposit Insurers (IADI) DI surveys in 2008, 2010, and 2011; and the European Commission (2011).

We collect global bank loan data from Thomson Reuters' DealScan, which provides detailed information about individual loan facilities, such as loan spread, maturity, size, collateral, covenants, loan types, and loan purposes. Borrowing firms' financial characteristics are from Global Compustat. We carefully match the names of lending banks with Bankscope, a dataset that provides detailed financial information about banks across a wide range of countries, using a matching algorithm; we manually check the matching outcomes to ensure accuracy. Country variables are from various sources, such as the World Development Indicators database (WDI),

the Heritage Foundation, Barth et al. (2006, 2008), and Bloomberg. We drop countries for which key country factors are not available.

3.2. Sample

Our main samples consist of the crisis period from July 2007 to December 2009, the pre-crisis period from January 2000 to June 2007 (the period leading up to the global financial crisis), as well as the post-crisis period from January 2010 to December 2013. To examine how DI affects credit availability and the "flight home" effect, we aggregate loans from a given lead bank each year following Ivashina and Scharfstein (2010) and Giannetti and Laeven (2012b).[3] We add the lending banks' financial information, the lending countries' DI, and other country factors to the sample. We aggregate the borrowers' accounting information in the banks' annual loan portfolio levels. With all accounting information available, this bank portfolio sample has 4,307 bank-year observations from 379 banks in 39 countries.[4] This allows us to investigate how a lending country's DI affects banks' total and foreign lending during the crisis, pre-crisis, and post-crisis periods.

To examine how DI affects loan prices, we start with the individual loan-level data from DealScan. Because banking and utility industries are regulated differently, we exclude borrowers in the financial services (SIC codes 6000–6900) and regulated utilities (SIC codes 4900–4999) industries, following existing studies (e.g., Qian and Strahan, 2007; Bae and Goyal, 2009). We compute banks' and borrowers' financial information for the fiscal year immediately prior to the loan origination year. We add the lender country's DI and other country factors to the sample. These procedures leave us with a sample (with all needed information for further estimations) of

[3] If there are multiple lead banks in the same syndicate, we allocate the loan amount across the lead banks pro rata.
[4] Australia and Thailand adopted explicit deposit insurance in 2008. We exclude these two countries in our analysis to rule out the possible endogeneity issue.

32,765 loan facilities from 2000 to 2009. In the analysis of banks' recovery from the crisis, we include the post-crisis period (January 2010 to December 2013) as well.

3.3. Summary statistics

Table 1 shows the summary statistics for the key variables. Variable definitions are summarized in Appendix A. Panel A is based on the annual bank loan portfolio sample, and panel B is based on the individual loan sample. According to panel A, 84% of 4,307 sample observations are from banks in countries with explicit DI systems before the crisis.

Among the observations in explicit DI countries, DI design varies. Appendix B shows the details for DI adoption and design in place before the global financial crisis by country. The three variables reflecting generosity are *No coinsurance, Interbank deposit coverage, and Coverage limit*. *No coinsurance* is a dummy that equals 1 if the country has no coinsurance arrangements, and zero otherwise. *Interbank deposit coverage* is a dummy that equals 1 if the DI system covers interbank deposits, and zero otherwise. We transform the coverage limit per capita into a percent rank to incorporate the non-numerical information about full coverage recorded in the data source. *Coverage limit* is within a range of [0, 1], where a higher value represents higher coverage ratio; a value of 1 indicates that DI covers all depositor losses.

The three variables reflecting credibility are *Government backstop, Ex-ante funding,* and *Government funding*. *Government backstop* equals 1 if there is explicit government support for shortfalls of funds to cover deposits, and zero otherwise. *Ex-ante funding* equals 1 if the country's banks fund potential payouts ex-ante, and zero otherwise. *Government funding* equals 1 if the DI is funded by the government, and zero otherwise.

In terms of generosity in DI designs, on average, 75% of the sample has no coinsurance. Only 32% of the sample covers interbank deposits. The coverage limit percentile rank is 0.46. Regarding credibility in DI designs, on average, 43% of the sample has government backstop, 76% of the sample has ex-ante funding, and 7% of the sample has government-funded DI. For example, US adopted DI in 1933. The generosity is high with no coinsurance, coverage of interbank deposits, and the coverage limit of 262% relative to GDP per capital. The credibility is mixed in that it has government backstop, ex-ante funding, but no government funding.

The main dependent variables to test H1 and H2 are total lending amount in million dollars and share of lending to foreign country, respectively. The average lending amount is 2.29 billion per bank-year portfolio with a big variation. The average percentage of foreign lending is 58%, with a median of 63%. These figures show that foreign lending constitutes an important share of bank lending portfolio.

In the analysis, we control for country factors, including creditor rights, index of economic freedom, GDP per capita, capital adequacy regulation, and limitation on bank entry.

In terms of bank features, we note that the average of bank size is $535.09 billion, ranging from smaller banks with total assets of $924 million to large banks with total assets over 2601.19 billion. The loan loss provision ratio is 2.6%. Deposit ratio, defined as all short-term and long-term deposit funding to total assets, has an average of 69% and the median of 70%. It shows that, on average, banks in our sample rely heavily on deposit funding, rather than wholesale funding. The ratio varies from 20% at the P1 level to 97% at the P99 level. The variation allows us to test the impact of deposit funding on negative effects of financial crisis on bank lending behaviors (H1b, H2b, H3b).

In panel B, the average loan spread is 213 basis points, the average loan maturity is 48 months, and the average loan amount is $428 million. The average syndicate has eight lenders, and 35% of the loans are from relationship lenders. To control for borrowers' characteristics, we find that borrowers have mean (median) revenues of $5,415 million (median is $940.95 million). On average, borrowers have leverage ratios of 0.34 and return on assets of 0.12. In sum, there are great variations in DI, country factors, bank features, loan characteristics, and borrower attributes.

[Insert Table 1 here]

4. Empirical Methodology

4.1 The impact of DI adoption and design on bank lending during the crisis

To examine how DI affects bank lending and borrowers' loan cost during the crisis period, we estimate the following specification and its variations:

$$Y = \alpha + \beta_1 DI + \beta_2 DI \times Crisis + \beta_3 Crisis + \lambda_1 BankFeatures + \lambda_2 LoanFeatures + \lambda_3 BorrowerFeatures + \lambda_4 CountryFactors + \varepsilon_{i,t} \quad (1)$$

The dependent variable Y includes a measure of bank credit supply (*Total lending*), a measure of the "flight home" effect (*Share to foreign country*), and a measure of loan price (*Log(Loan spread*)). Specifically, *Log (Total lending)* is the natural logarithm of the total dollar amount of lending that a bank conducts in a given year. *Share to foreign country* is the fraction of loans in a bank's portfolio allocated to foreign borrowers in a given year. *Log (Loan spread*) is the natural logarithm of the basis points the borrower pays over LIBOR for each dollar drawn.

Following Acharya et al. (2011), *Crisis* is a dummy variable that equals 1 if the period starts with the collapse of the subprime market in July 2007 and ends in December 2009; it equals zero otherwise.

DI in equation (1) is a vector of variables that represents deposit insurance adoption and design variables in the country where the bank operates.[5] We measure the status of a country's DI system that was in place before the 2007-2009 financial crisis to capture the true stabilizing effect of DI, if any, during the crisis. *Explicit* measures a country's DI status before the global financial crisis. It equals 1 for the adoption year and later, and zero otherwise. We further test the impact of DI design by replacing *Explicit* with six design variables (*No coinsurance, Interbank deposit coverage, and Coverage limit*, *Government backstop, Ex-ante funding,* and *Government funding),* respectively.

The main explanatory variable of interest is the interaction term between the DI variable and *Crisis,* the coefficient of which corresponds to the difference during the crisis and noncrisis period of the differences in the dependent variables for banks in countries with DI features and those without (i.e., a difference-in-differences specification). We lag all explanatory variables (except for loan characteristics) by one year to alleviate any reverse causality concerns.[6] We control for the year effect that captures the time-specific factors.

We account for a variety of bank features and loan characteristics. Bank features consist of bank size, loan loss provision ratio, and deposit ratio. Loan characteristics include loan facility amount, loan maturity, syndicate size, relationship lending, loan purpose, and loan type. In addition to the OLS model, we use a regression model controlling for bank fixed effects. Bank fixed effects control for unobservable bank-specific factors such as lending strategy and local market competition (Puri, Rocholl and Steffen, 2011).

[5] DI adoption and design variables are presented in Appendix B.

[6] Loan attributes for the loan spread regressions are the same year as the dependent variable because loan contract terms are jointly determined at the origination.

Throughout the estimations, we also control for country factors of lending banks, such as creditor rights, index of economic freedom, the natural logarithm of GDP per capita, capital adequacy regulation, and the limitation on bank entry.[7]

One may question that the demand-side effect could also lead to changes in banking lending. To address this demand-side concern, we control for borrower characteristics, including firm size, leverage, profitability, and credit rating. Prior studies show that these variables are closely related to changes in demand conditions (e.g., Ivashina and Scharfstein, 2010; Cornett et al., 2011). In the credit availability and "flight home" estimations, we aggregate the average loan characteristics and borrower characteristics in the bank's annual portfolio. In the bank loan cost estimation, we include the borrower characteristics at loan level to account for the demand-side effect.

Moreover, our model includes bank fixed effects and time indicators, and our focus is on the interaction between lender countries' DI and the crisis. It is important to note that demand-side explanations could drive our interaction effects only if the change in loan demand among banks in countries with high DI when the economy moves from boom to bust is different from that among banks in countries with low DI (Cornett et al., 2011).

4.2 The impact of deposit funding on the effects of DI on bank lending during the crisis

Typically, deposits are viewed to be stable funding for banks. We expect that banks relying more on deposit funding benefit from DI protection on deposits and could better withstand external

[7] We exclude sovereign ratings from the regressions because they are highly correlated with other country-level variables.

liquidity shocks during the crisis. In contrast, banks with more wholesale funding are more exposed to the crisis.

To provide evidence on the mechanism how DI may affect bank lending, we test whether the effect of DI on bank lending is more pronounced for banks depending more on deposit funding (H1b, H2b, and H3b). We create a dummy variable, *High deposit ratio,* that equals 1 if the bank's deposits-to-total-liabilities ratio is above the sample median; it equals zero otherwise. We construct the three-way interactions by interacting *High deposit ratio* with *Crisis* and *Explicit*, and estimate the following regression:

$$Y = \alpha + \beta_1 Explicit + \beta_2 Explicit \times Crisis + \beta_3 Crisis + \beta_4 Explicit \times Crisis \times HighDepositRatio + \beta_5 HighDepositRatio + \beta_6 Crisis \times HighDepositRatio + \beta_7 Explicit \times HighDepositRatio + \lambda_1 BankFeatures + \lambda_2 LoanFeatures + \lambda_3 BorrowerFeatures + \lambda_4 CountryFactors + \varepsilon_{i,t} \quad (2)$$

The other control variables are the same as those in equation (1). We expect a positive sign on $Explicit \times Crisis \times HighDepositRatio$, the variable of concern.

5. Empirical Results

5.1 Deposit insurance and credit availability

We investigate how explicit deposit insurance design affects credit availability from banks during the financial crisis. We investigate how *Explicit* affects bank lending in table 2. We start with ordinary least squares (OLS) regression in column 1. We find that the coefficient of *Crisis* is negatively and statistically significant at the 1% level (-0.529, *t*=-7.106). This is consistent with prior studies (e.g., Ivashina and Scharfstein, 2010) and shows that the crisis leads to less total lending.

Our variable of concern, the interaction term between *Explicit* and *Crisis,* is positive and statistically significant at the 5% level (0.422, *t*=2.346), which suggests that explicit deposit insurance alleviates bank credit contractions during the crisis and supports hypothesis (*H1a*). Specifically, during the crisis, banks in countries with no explicit DI on average cut lending by 52.9% (i.e., -0.529+0.422×0), but banks in countries with explicit DI only cut lending by 9.7% (i.e., -0.529+0.422×1). Other control variables have the expected signs in general.

To mitigate the concern that omitted bank factors drive the results, in column 2 of table 2 we estimate the bank fixed-effect model. With bank fixed effects included, the magnitude of coefficients on *Crisis* and the interaction term increase slightly and remain statistically significant, suggesting that omitted-variable bias does not affect our findings. The coefficient of *Explicit* is negative and statistically significant in the OLS model, but the bank fixed-effect model appears to absorb the significance, indicating that adopting explicit DI does not directly affect bank lending in the normal period after controlling for the bank-side fixed-effect.

In column 3 of table 2, we examine whether the effect of *Explicit* on bank lending is contingent on banks' funding source (Equation 2). The coefficient on the interaction term between *Explicit* and *Crisis* remains positive and statistically significant, supporting our previous finding (0.159, *t*=1.917). Moreover, the coefficient on the interaction term *Explicit* × *Crisis* × *High deposit ratio* is 0.302 and statistically significant at the 10% level. These results suggest that the positive effect of explicit deposit insurance on credit availability during the crisis is more pronounced for banks that rely heavily on deposit funding. It in turn supports our hypothesis (*H1b*) that explicit deposit insurance ensures stable funding sources for banks and allows banks to hedge unexpected liquidity shocks during the crisis.

[Insert Table 2 here]

We examine how DI generosity affects credit availability in table 3. It is important to note that all the DI design variables are fixed at the time of adoption and rarely change in the aftermath (Berghrant et al., 2016). Therefore, we use the OLS in our main model. In column 1, the effect of *No coinsurance* is statistically insignificant. This indicates that neither banks nor depositors are sensitive to the coinsurance arrangement in the normal period. However, the coefficient of the interaction term between *No coinsurance* and *Crisis* is 0.377 and statistically significant at the 5% level. It suggests that banks in a DI system that does not require depositors to bear part of the bank losses, on average, have 38% higher lending volumes during the crisis compared with those in systems where depositors bear some liability when banks fail.

We observe in column 2 that interbank deposits coverage has no effect on credit availability during normal times or crisis periods. In column 3, we examine how coverage limits affect banks' total lending volume. The coefficient of the interaction term, *Coverage limit* × *Crisis*, is positive and statistically significant at the 5% level. This suggests that a higher coverage is associated with a higher degree of credit availability during the crisis, consistent with the view that higher coverage provides confidence and plays a stabilization role during the crisis period.

Across all models, the coefficients on *Crisis* are consistently negative and statistically significant. The results in table 3 suggest that, in general, bank lending volume declines during the crisis period; however, the two deposit insurance designs that are more generous (i.e., no coinsurance and high coverage limit) have a stabilizing effect and mitigate adverse effects.

[Insert Table 3 here]

Next, we examine how DI credibility affects bank lending volume in table 4. The positive and significant coefficients for three interaction terms in models 1, 2, and 3 suggest that, during the crisis, banks in countries with DI that have government backstop funding, that is ex-ante funded,

and that is funded by the government lend 24%, 26%, and 45% more than banks in countries without such a design, respectively.

[Insert Table 4 here]

Overall, the results in tables 2, 3, and 4 suggest that in general banks cut credit during the crisis. However, explicit DI mitigates this negative effect, especially for banks that rely on deposit funding and experience unexpected liquidity shocks. Furthermore, DI designs that are more generous and more credible tend to have better stabilization effects.

5.2. Deposit insurance and the "flight home" effect

Next, we investigate how explicit DI and DI designs affect the "flight home" effect during the financial crisis. The dependent variable, *Share to foreign country,* captures the fraction of loans in a bank's portfolio that go to foreign borrowers in a given year. Following Mian (2006) and Giannetti and Laeven (2011b), a loan is foreign if the borrower's nationality is different from the nationality of the lending bank and its parent bank. We measure the proportion based on the dollar amount of loans in the bank's (annual) portfolio.

The results are in table 5. In column 1, the coefficient of *Crisis* is negative and statistically significant at the 5% level, which demonstrates that when a crisis hits, banks reduce the proportion of foreign lending in their portfolios in favor of domestic borrowers, confirming the "flight home" effect. The interaction term *Explicit*× *Crisis* captures differential foreign lending behavior when the host country has explicit DI. The coefficient is 0.059 and is positive and statistically significant at the 5% level, which indicates that during the crisis period banks in countries with explicit DI on average have 5.9% more foreign loans in their loan portfolios than banks in countries without explicit DI. The bank fixed-effect model in column 2 confirms the findings, though the magnitude

of the coefficient on the interaction term slightly increases to 0.07.

In column 3, the coefficients on *Explicit* × *Crisis* and the three-way interaction term, *Explicit* × *Crisis* × *High deposit ratio*, are both positive and significant at the 5% level. The results suggest that explicit deposit insurance lessens the severity of the "flight home" effect in general during the crisis, and even more so if the lending bank relies heavily on deposits funding. This supports our hypothesis H2b.

[Insert Table 5 here]

Next we examine how DI designs affect the "flight home" effect. For all three columns in table 6, the coefficients of *Crisis* are negative and statistically significant at the 1% level. For DI with no coinsurance, in column 1 of table 6 we find that the coefficient of the interaction term *No coinsurance*× *Crisis* is not statistically significant. In column 2 of table 6, we find that interbank deposits coverage is associated with higher home bias during the normal period. However, such effect is much weaker during the crisis, as shown by the positive coefficient of *Interbank deposits coverage* × *Crisis* (0.073, t=2.338).

In column 3 of table 6, we find that the coefficient of *Coverage limit* is negative and statistically significant, indicating a very strong home bias during normal times for banks in countries with higher coverage limits. However, the coefficient of the interaction between *Coverage limit* and *Crisis* is positive and statistically significant. This suggests that higher deposit coverage lessens the "flight home" effect during the crisis. DI with high coverage enables banks to retain funding during turbulent periods; hence, lenders are not as concerned about rebalancing their portfolios in favor of domestic borrowers.

[Insert Table 6 here]

In Table 7, we find that the coefficients of *Government backstop* × *Crisis* and of *Ex-ante funding* × *Crisis* are both positive and statistically significant. DI with more credible design features appears to provide more stable funding sources, making banks less vulnerable to external funding or liquidity shocks. Therefore, the banks in these countries demonstrate less of a "flight home" effect.

[Insert Table 7 here]

Overall, our results show that a bank's "flight home" effect is less severe during the crisis if its host country has explicit DI, if the bank has a greater percentage of deposit funding, and if the DI design is more generous or more credible.

5.3. Deposit insurance and corporate loan rates

Next, we explore how explicit DI and DI designs affect the cost of borrowing during the financial crisis. The dependent variable is the natural logarithm of the amount the borrower pays, in basis points, over LIBOR for each dollar drawn (i.e., the all-in spread drawn, or AISD).

In table 8, the coefficients of *Explicit* are positive, indicating that banks in countries with DI charge higher loan cost than banks in countries without DI, reflecting the "moral hazard" issue. The coefficients of *Crisis* across all models are positive and both statistically and economically significant, confirming that bank loan costs are much higher during the crisis. In column 1, the negative sign on the coefficients of the interaction term *Explicit* × *Crisis* suggests that the increase in borrowing costs during the crisis is less pronounced for banks in countries with explicit DI. When hit by a crisis, banks in countries with explicit DI, on average, charge lending rates that are 14.3% lower than those of banks in countries without explicit DI.

Given the average syndicated loan spread of 213.46 basis points, the average loan size of $428.25 million, and the average loan maturity of four years (47.86 months/12), this translates into 30.5 more basis points (=14.3% ×213.46) or an extra $5.22 million in interest expense (=0.00305×428.25 ×4) for banks in countries with no DI. The results are robust when we conduct the estimation using the bank fixed-effect model in column 2.

In column 3, the coefficient on *Explicit*× *Crisis* remains negative and significant. Moreover, the coefficient on *Explicit* × *Crisis* × *High deposit ratio* is negative and statistically significant at the 5% level, suggesting that the effect of explicit DI in preventing loan rate hikes is more pronounced when banks rely more on deposit funding, supporting H3b.

[Insert Table 8 here]

In tables 9 and 10, we examine how DI design affects bank loan rates. Table 9 shows that more generous DI design features mitigate rising loan costs during the crisis. To be specific, in column 1, DI without coinsurance is associated with lower loan costs than DI with coinsurance during the crisis (-0.191, *t*=-7.893). The coefficient on the interaction term in the interbank coverage model (column 2 of table 9) is negative and significant at the 1% level (-0.135, *t*=-7.101), indicating that insuring interbank deposits helps steady or reduce loan rates during the crisis despite higher loan costs during the normal period. In column 3, the coefficient of the interaction term between *Coverage limit* and *Crisis* is negative (-0.087, *t*=-2.298). Higher coverage is likely to reduce panic and uncertainty during a crisis, thereby sustaining deposit funding and competitive loan rates for borrowers. In sum, banks in countries with generous DI designs charge relatively lower loan rates during the crisis than banks in countries with less generous DI designs.

[Insert Table 9 here]

In table 10, we find that, for DI with government-backstop funding (column 1), ex-ante funding (column 2), and government funding (column 3) the adverse effects on loan rates during the crisis are less severe. The findings highlight that credible DI systems have more stabilizing effects and reduce financial contagion from the banking sector to the corporate sector during the crisis period.

[Insert Table 10 here]

5.4. Deposit insurance and bank recovery

Deposit insurance plays a positive role on bank stability during the financial crisis. It is interesting and important to examine whether banks in countries with DI recover faster than banks in countries without DI after the crisis. As Reinhart and Rogoff (2014) reveals, "a significant part of the costs of the banking crises in the history lies in the protracted and halting nature of the recovery." In the spirit of Reinhart and Rogoff (2014), we define bank recovery speed as the number of years it takes for banks to revert to 2006 levels of credit availability, proportions of lending to foreign borrowers, and loan spreads. Then we conduct multivariate regressions with the dependent variable as the natural logarithm of 1 plus the number of recovery years for each bank in our sample, and the control variables are the mean values of bank, country, loan, borrower characteristics during the crisis period.

As Table 11 shows, the coefficients of *Explicit* in three columns are all negative and statistically significant, indicating that for banks in countries with deposit insurance, the recovery from crisis is faster than for banks in countries without deposit insurance. The average recovery speed is 2.47 years for credit availability, 2.28 years for foreign lending, and 2.02 years for loan spreads. Specifically, it takes banks in DI countries 8.24 fewer months (=27.8%×2.47×12) to go back to 2006 lending levels. With regard to the share of foreign lending, banks in DI countries

recover about 5.22 months (=19.1%×2.28×12) earlier than banks outside DI countries. Finally, loan spreads among banks in DI countries return to pre-crisis levels about 2.74 months (11.3%×2.02×12) faster than other banks. The coefficients on *Deposit ratio* are also negative and significant, consistent with the explanation that firms with higher deposit funding can recover faster. Overall, this test shows that deposit insurance not only plays a stabilization role on bank lending during the financial crisis, but also it speeds up bank recovery after the crisis.[8]

[Insert Table 11 here]

6. Conclusion

The adoption and design of DI is important work for bank regulators and for the financial safety net. However, empirical evidence is mixed regarding DI's effects on banking sectors. Although some studies find that DI has unintended consequences for banks' risk-taking behaviors due to the moral hazard problem, few studies examine DI's intended positive role in sustaining credit availability and financial stability during turmoil.

Our study fills this gap. We find that during the 2007-2009 financial crisis, explicit DI helps maintain lending volume. It also has positive externalities, in that borrowers experience smaller increases in loan spreads among banks in countries with explicit DI. Both help alleviate risk contagion from the financial sector to the industry sectors. Reductions in foreign lending, dubbed the "flight home" effect, are smaller in countries that have explicit DI. Therefore, DI also helps reduce risk contagion from one country's financial system to another.

The positive effects of DI are more prevalent among banks that rely more on deposit funding, confirming our postulation that the positive effect of DI is through the supply-side funding

[8] We conduct similar tests for DI design; however, we document no significant results.

channel that insulates banks from external liquidity shocks. Overall, DI helps stabilize bank lending in the global financial crisis. Our results extend earlier research on the positive role of DI by providing comprehensive cross-country evidence.

Moreover, our study contributes to the DI literature by examining a variety of DI designs. A careful investigation of design features reveals that the stabilization effect dominates the negative impact of a lending crisis if DI features are generous and credible. Specifically, more generous or credible deposit insurance designs have consistent beneficial effects by reducing the overall credit decline, mitigating the "flight home" effect, and limiting sharp rises in corporate loan rates.

Overall, we show that explicit DI and certain DI designs help alleviate the negative impact of financial crisis on credit availability at home and abroad. Moreover, we find that explicit DI helps reduce dramatic hikes in bank loan costs during the crisis. Furthermore and importantly, banks in DI countries recover faster than banks in countries with no DI.

Our results have important policy implications for policymakers who adopt, formulate, or administer DI systems. Careful DI design is highly relevant in shaping how DI affects bank lending during financial turbulence. For example, our findings support the global evolution of DI by increasing government and ex-ante funding to maintain confidence; we also support abolishing the coinsurance feature. Regulators and policymakers should weigh the costs and benefits of DI during both normal times and crisis periods in order to promote national financial stability and economic growth.

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Table 1. Summary statistics

Panel A reports the summary statistics for the bank portfolio sample with bank-year observations. Panel B reports the summary statistics for the loan price sample at the individual loan level. We report the number of observations (*N*), as well as mean, median, standard deviation, minimum, and maximum values.

Panel A: Bank portfolio sample

Variable	N	Mean	Median	Std. Dev.	P1	P99
DI variables						
Explicit	4,307	0.84	1.00	0.37	0.00	1.00
Generosity of deposit insurance						
No coinsurance	3,612	0.75	1.00	0.42	0.00	1.00
Interbank deposits coverage	3,612	0.32	0.00	0.46	0.00	1.00
Coverage limit	3,612	0.46	0.42	0.30	0.00	1.00
Credibility of deposit insurance						
Government backstop	3,612	0.43	0.00	0.49	0.00	1.00
Ex-ante funding	3,612	0.76	1.00	0.42	0.00	1.00
Government funding	3,612	0.07	0.00	0.25	0.00	1.00
Dependent variable						
Total lending ($mil)	4,307	2,290.46	375.46	9,524.67	18.75	14,014
Share to foreign country	4,307	0.58	0.63	0.37	0.00	1.00
Other country factors						
Creditor rights	4,307	2.10	2.00	1.19	0.00	4.00
Index of economic freedom	4,307	73.25	74.60	9.54	44.70	90.00
Log(GDP per capita)	4,307	10.39	10.62	0.73	6.89	11.43
Capital adequacy regulation	4,307	6.61	7.00	1.59	3.00	10.00
Limitation on bank entry	4,307	0.014	0.00	0.118	0.00	1.00
Bank features						
Bank size ($mil)	4,307	535,093	241,268	638,951	924.2	2,601,185
Loan loss provision ratio	4,307	0.026	0.027	0.02	0.003	0.106
Deposit ratio	4,307	0.69	0.70	0.15	0.20	0.97

Panel B: Loan sample

Variable	N	Mean	Median	Std. Dev.	Min	Max
Dependent variable						
Loan spread	20,792	213.463	200.00	161.73	16.50	800.00
Loan features						
Loan maturity	20,792	47.859	52.00	26.63	5.00	117.00
Loan size	20,792	428.254	146.97	1,149.71	1.00	4,750.00
Syndicate size	20,792	8.451	6.00	9.13	1.00	39.00
Relationship lending	20,792	0.353	0.00	0.48	0.00	1.00
Borrower attributes						
Firm size	20,792	5415.15	940.95	16,458.48	9.17	69,506
Leverage	20,792	0.34	0.31	0.28	0.00	1.28
Profitability	20,792	0.12	0.12	0.15	-0.31	0.43

Table 2. The effect of explicit deposit insurance and bank deposit funding on credit availability during the crisis
The dependent variable is *Log (Total lending)*, the natural logarithm of the total dollar amount of lending that a bank conducts in a given year. *Explicit* measures a country's DI status before the global financial crisis. It equals 1 for the adoption year and later, and zero otherwise. Following Acharya et al. (2011), *Crisis* equals 1 if the period starts with the collapse of the subprime market in July 2007 and ends in December 2009; it equals zero otherwise. The main explanatory variable of interest is the interaction term between *Explicit* and *Crisis.* We use OLS in column 1. To mitigate the concern that omitted bank factors drive the results, in column 2 we estimate the bank fixed-effect model. In column 3, we examine whether the effect of *Explicit* on bank lending is contingent on banks' funding source. We create a dummy variable, *High deposit ratio,* that equals 1 if the bank's deposits-to-total-liabilities ratio is above the sample median, and zero otherwise. We interact *High deposit ratio* with *Crisis* and *Explicit*. The control variables are defined in appendix A. We correct robust standard errors for bank-level clustering and heteroskedasticity. The *t*-statistics are in parentheses. The *, **, *** marks denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Variable	**(1) OLS**	**(2) Bank Fixed Effect**	**(3) Deposit Ratio Interaction**
Explicit	-0.506***	-0.059	-0.049
	[-6.922]	[-1.251]	[-1.403]
Crisis	-0.529***	-0.546***	-0.59***
	[-7.106]	[-2.963]	[-4.488]
Explicit × Crisis	0.422**	0.459**	0.159*
	[2.346]	[2.468]	[1.917]
Explicit × Crisis × High deposit ratio			0.302*
			[1.858]
High deposit ratio			0.145***
			[3.454]
Explicit × High deposit ratio			0.109
			[1.625]
High deposit ratio × Crisis			0.131**
			[2.434]
Bank size	0.245***	-0.016	-0.015
	[18.065]	[-0.368]	[-0.344]
Loan loss provision ratio	-1.504*	-2.962**	-2.931**
	[-1.778]	[-2.034]	[-2.010]
Deposit ratio	0.602***	0.462	
	[4.542]	[1.328]	
Creditor rights	0.207***	0.008	0.016
	[9.550]	[0.461]	[0.908]
Index of economic freedom	0.026***	0.002	0.002
	[8.841]	[0.859]	[0.816]
Log(GDP per capita)	0.262***	0.034	0.038
	[3.621]	[0.490]	[0.524]
Capital adequacy regulation	-0.061***	-0.036***	-0.022**
	[-4.215]	[-3.952]	[-2.360]
Limitation on bank entry	0.896***	0.533***	0.404***
	[4.652]	[3.897]	[2.890]
Log(Loan maturity)	-0.324***	-0.156***	-0.158***
	[-6.204]	[-2.659]	[-2.695]
Log(Loan size)	0.534***	0.563***	0.563***
	[23.215]	[22.033]	[21.974]
Syndicate size	0.016***	0.005*	0.006*
	[4.730]	[1.662]	[1.723]
Relationship lending	0.106	0.133	0.126
	[0.556]	[0.714]	[0.675]
Log(Firm size)	0.035	0.027	0.028

	[1.608]	[1.272]	[1.310]
Leverage	-0.612***	-0.495**	-0.492**
	[-2.797]	[-2.371]	[-2.356]
Profitability	-0.100	-0.007	0.016
	[-0.235]	[-0.019]	[0.039]
Constant	6.766***	5.358***	4.455***
	[7.686]	[7.005]	[5.524]
Observations	4,307	4,307	4,307
Adjusted R-squared	0.431	0.524	0.526
Borrower rating	Y	Y	Y
Loan type	Y	Y	Y
Loan purpose	Y	Y	Y
Year effects	Y	Y	Y
Bank effect	N	Y	Y

Table 3. The effect of generous deposit insurance designs on credit availability during the crisis

In this table, we examine how DI generosity affects credit availability during the financial crisis. The dependent variable is *Log (Total lending)*, which is the natural logarithm of the total dollar amount of lending that a bank conducts in a given year. The main explanatory variable of interest is the interaction term between the DI design variables and *Crisis*. The control variables are defined in appendix A. We correct robust standard errors for bank-level clustering and heteroskedasticity. The *t*-statistics are in parentheses. The *, **, *** marks denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Variable	(1) No Coinsurance	(2) Interbank Deposits Coverage	(3) Coverage Limit
Crisis	-0.590***	-0.333***	-0.428***
	[-5.589]	[-3.767]	[-3.440]
No coinsurance × Crisis	0.377**		
	[1.982]		
Interbank deposits coverage × Crisis		-0.091	
		[-0.735]	
Coverage limit × Crisis			0.317*
			[1.820]
No coinsurance	-0.093		
	[-1.256]		
Interbank deposits coverage		0.097	
		[1.466]	
Coverage limit			-0.027
			[-0.404]
Bank size	0.245***	0.239***	0.236***
	[16.258]	[16.655]	[16.802]
Loan loss provision ratio	-3.815***	-3.946***	-2.133**
	[-2.948]	[-3.258]	[-2.106]
Deposit ratio	0.727***	0.664***	0.618***
	[4.895]	[4.702]	[4.494]
Creditor rights	0.219***	0.172***	0.055**
	[8.504]	[6.368]	[2.228]
Index of economic freedom	0.009**	0.014***	0.006
	[2.490]	[3.687]	[1.258]
Log(GDP per capita)	0.278***	0.310***	0.045
	[3.148]	[3.675]	[0.639]
Capital adequacy regulation	-0.071***	-0.044***	-0.010
	[-4.304]	[-2.745]	[-0.611]
Limitation on bank entry	1.019***	1.086***	0.193
	[4.433]	[5.018]	[1.484]
Log(Loan maturity)	-0.334***	-0.285***	-0.043
	[-6.202]	[-5.532]	[-0.685]
Log(Loan size)	0.580***	0.557***	0.561***
	[21.999]	[22.620]	[23.142]
Syndicate size	-0.018***	-0.019***	-0.029***
	[-5.084]	[-5.426]	[-7.352]
Relationship lending	0.132	0.052	0.113
	[0.597]	[0.253]	[0.571]
Log(Firm size)	0.035	0.046*	0.047**
	[1.409]	[1.960]	[2.101]
Leverage	-0.728***	-0.852***	-0.746***
	[-2.975]	[-3.647]	[-3.290]
Profitability	0.214	0.257	0.155
	[0.494]	[0.607]	[0.320]
Constant	-6.481***	-6.591***	-6.162***
	[-6.135]	[-6.683]	[-6.096]

Observations	3,612	3,612	3,612
Adjusted R-squared	0.416	0.407	0.408
Borrower rating	Y	Y	Y
Loan type	Y	Y	Y
Loan purpose	Y	Y	Y
Year effects	Y	Y	Y

Table 4. The effect of credible deposit insurance designs on credit availability during the crisis

In this table, we examine how DI credibility affects credit availability during the financial crisis. The dependent variable is *Log (Total lending)*, which is the natural logarithm of the total dollar amount of lending that a bank conducts in a given year. The main explanatory variable of interest is the interaction term between the DI design variables and *Crisis*. The control variables are defined in appendix A. We correct robust standard errors for bank-level clustering and heteroskedasticity. The *t*-statistics are in parentheses. The *, **, *** marks denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Variable	(1) Government Backstop	(2) Ex-Ante Funding	(3) Government Funding
Crisis	-0.459***	-0.806***	-0.486***
	[-4.617]	[-7.543]	[-3.830]
Government backstop × Crisis	0.242*		
	[1.829]		
Ex-ante funding × Crisis		0.260**	
		[1.961]	
Government funding × Crisis			0.449*
			[1.774]
Government backstop	0.054		
	[0.746]		
Ex-ante funding		0.041	
		[0.557]	
Government funding			0.175
			[1.293]
Bank size	0.238***	0.238***	0.258***
	[16.611]	[16.623]	[17.107]
Loan loss provision ratio	-3.239**	-4.123***	-1.670
	[-2.395]	[-2.693]	[-1.570]
Deposit ratio	0.330*	0.307*	0.671***
	[1.900]	[1.711]	[4.591]
Creditor rights	0.225***	0.204***	0.050*
	[7.523]	[6.842]	[1.937]
Index of economic freedom	0.012**	0.026***	0.022***
	[2.065]	[4.185]	[5.70]
Log(GDP per capita)	0.426***	0.390***	0.083
	[3.631]	[3.260]	[1.032]
Capital adequacy regulation	-0.031	-0.051***	-0.010
	[-1.640]	[-2.668]	[-0.596]
Limitation on bank entry	-0.284***	-0.259**	-0.278**
	[-2.693]	[-2.474]	[-2.016]
Log(Loan maturity)	-0.256***	-0.282***	-0.135**
	[-4.698]	[-4.957]	[-2.085]
Log(Loan size)	0.553***	0.551***	0.10***
	[22.426]	[22.383]	[23.507]
Syndicate size	-0.019***	-0.023***	0.002
	[-5.035]	[-5.699]	[0.616]
Relationship lending	0.065	0.047	0.230
	[0.313]	[0.229]	[1.052]
Log(Firm size)	0.038*	0.042*	0.044*
	[1.744]	[1.848]	[1.882]
Leverage	-0.860***	-0.766***	-0.832***
	[-3.688]	[-3.296]	[-3.390]
Profitability	0.349	0.304	0.281
	[0.770]	[0.660]	[0.627]
Constant	-7.739***	-8.062***	-1.316

	[-5.683]	[-5.742]	[-1.246]
Observations	3,612	3,612	3,612
Adjusted R-squared	0.415	0.416	0.37
Borrower rating	Y	Y	Y
Loan type	Y	Y	Y
Loan purpose	Y	Y	Y
Year effects	Y	Y	Y

Table 5. The effect of explicit deposit insurance on the "flight home" effect during the crisis

The dependent variable is *Share to foreign country*, which is the proportion of loans in a bank's portfolio allocated to foreign borrowers in a given year. It is a measure of the "flight home" effect. *Explicit* measures a country's DI status before the global financial crisis. It equals 1 for the adoption year and later, and zero otherwise. Following Acharya et al. (2011), *Crisis* equals 1 if the period starts with the collapse of the subprime market in July 2007 and ends in December 2009; it equals zero otherwise. The main explanatory variable of interest is the interaction term between *Explicit* and *Crisis.* We use OLS in column 1. To mitigate the concern that omitted bank factors drive the results, in column 2 we estimate the bank fixed-effect model. In column 3, we examine whether the effect of *Explicit* on bank lending is contingent on banks' funding source. We create a dummy variable, *High deposit ratio,* that equals 1 if the bank's deposits-to-total-liabilities ratio is above the sample median, and zero otherwise. We interact *High deposit ratio* with *Crisis* and *Explicit*. The control variables are defined in appendix A. We correct robust standard errors for bank-level clustering and heteroskedasticity. The *t*-statistics are in parentheses. The *, **, *** marks denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Variable	(1) OLS	(2) Bank Fixed Effect	(3) Deposit Ratio Interaction
Explicit	-0.046***	0.003	0.001
	[-2.953]	[0.198]	[0.052]
Crisis	-0.066**	-0.079***	-0.080***
	[-2.242]	[-4.478]	[-4.528]
Explicit × Crisis	0.059**	0.070**	0.078**
	[2.390]	[1.962]	[2.122]
Explicit × Crisis × High deposit ratio			0.063**
			[2.506]
High deposit ratio			0.030
			[1.539]
Explicit × High deposit ratio			0.036
			[0.614]
High deposit ratio × Crisis			0.020
			[0.907]
Bank size	0.003	-0.011	-0.011
	[1.139]	[-1.535]	[-1.527]
Loan loss provision ratio	1.549***	0.274	0.292
	[9.355]	[1.235]	[1.322]
Deposit ratio	0.243***	0.047	
	[9.098]	[0.809]	
Creditor rights	0.079***	0.061***	0.060***
	[17.175]	[5.002]	[4.955]
Index of economic freedom	0.009***	0.004**	0.004**
	[11.313]	[2.466]	[2.553]
Log(GDP per capita)	0.076***	0.052**	0.051**
	[8.244]	[2.359]	[2.344]
Capital adequacy regulation	-0.016***	-0.010***	-0.009***
	[-5.593]	[-2.783]	[-2.595]
Limitation on bank entry	-0.110***	-0.056***	-0.055***
	[-6.702]	[-3.056]	[-2.999]
Log(Loan maturity)	-0.020*	-0.056***	-0.057***
	[-1.756]	[-5.917]	[-6.013]
Log(Loan size)	0.060***	0.041***	0.041***
	[12.992]	[9.566]	[9.601]
Syndicate size	0.003***	0.004***	0.004***
	[4.713]	[6.753]	[6.626]
Relationship lending	-0.338***	-0.234***	-0.232***
	[-8.921]	[-7.687]	[-7.626]

Log(Firm size)	0.014***	0.001	0.001
	[3.150]	[0.300]	[0.179]
Leverage	0.024	0.086**	0.084**
	[0.538]	[2.468]	[2.402]
Profitability	0.185**	0.093	0.087
	[2.123]	[1.368]	[1.278]
Constant	0.626***	0.517**	0.541**
	[5.443]	[2.321]	[2.434]
Observations	4,307	4,307	4,307
Adjusted R-squared	0.288	0.650	0.655
Borrower rating	Y	Y	Y
Loan type	Y	Y	Y
Loan purpose	Y	Y	Y
Year effects	Y	Y	Y
Bank effect	N	Y	Y

Table 6. The effect of generous deposit insurance designs on the "flight home" effect during the crisis
In this table, we examine how DI generosity affects the "flight home" effect during the financial crisis. The dependent variable is *Share to foreign country*, which is the proportion of loans in a bank's portfolio allocated to foreign borrowers in a given year. The main explanatory variable of interest is the interaction term between the DI design variables and *Crisis.* The control variables are defined in appendix A. We correct robust standard errors for bank-level clustering and heteroskedasticity. The *t*-statistics are in parentheses. The *, **, *** marks denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Variable	(1) No Coinsurance	(2) Interbank Deposits Coverage	(3) Coverage Limit
Crisis	-0.098***	-0.090***	-0.091***
	[-4.368]	[-3.805]	[-3.337]
No coinsurance × Crisis	0.010		
	[0.205]		
Interbank deposits coverage × Crisis		0.073**	
		[2.338]	
Coverage limit × Crisis			0.048*
			[1.791]
No coinsurance	-0.002		
	[-0.109]		
Interbank deposits coverage		-0.076***	
		[-3.248]	
Coverage limit			-0.134***
			[-10.952]
Bank size	0.026***	0.025***	0.006*
	[5.415]	[5.266]	[1.932]
Loan loss provision ratio	1.705***	1.814***	1.830***
	[5.489]	[5.940]	[8.802]
Deposit ratio	0.097**	0.104***	0.224***
	[2.427]	[2.638]	[7.763]
Creditor rights	0.015**	0.010	0.047***
	[2.139]	[1.383]	[8.514]
Index of economic freedom	0.010***	0.009***	0.006***
	[6.666]	[6.253]	[4.418]
Log(GDP per capita)	-0.017	-0.073***	0.057***
	[-0.582]	[-2.736]	[4.451]
Capital adequacy regulation	-0.009**	-0.012***	-0.019***
	[-2.013]	[-2.684]	[-5.883]
Limitation on bank entry	-0.116***	-0.122***	-0.120***
	[-3.722]	[-4.495]	[-4.502]
Log(Loan maturity)	0.009	0.002	-0.018
	[0.715]	[0.146]	[-1.295]
Log(Loan size)	0.024***	0.029***	0.056***
	[4.760]	[5.793]	[10.909]
Syndicate size	0.003***	0.003***	0.003***
	[3.900]	[4.213]	[4.780]
Relationship lending	-0.211***	-0.205***	-0.252***
	[-4.356]	[-4.408]	[-5.935]
Log(Firm size)	0.014***	0.013**	0.002
	[2.762]	[2.516]	[0.393]
Leverage	-0.007	-0.007	-0.023
	[-0.956]	[-0.869]	[-0.478]
Profitability	0.341***	0.312***	0.188*
	[3.296]	[3.048]	[1.892]

Constant	1.274***	1.834***	0.813***
	[3.754]	[5.904]	[3.350]
Observations	3,612	3,612	3,612
Adjusted R-squared	0.351	0.339	0.295
Borrower rating	Y	Y	Y
Loan type	Y	Y	Y
Loan purpose	Y	Y	Y
Year effects	Y	Y	Y

Table 7. The effect of credible deposit insurance designs on "flight home" effect during the crisis
In this table, we examine how DI credibility affects the "flight home" effect during the financial crisis. The dependent variable is *Share to foreign country*, which is the proportion of loans in a bank's portfolio allocated to foreign borrowers in a given year. The main explanatory variable of interest is the interaction term between the DI design variables and *Crisis.* The control variables are defined in appendix A. We correct robust standard errors for bank-level clustering and heteroskedasticity. The *t*-statistics are in parentheses. The *, **, *** marks denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Variable	(1) Government Backstop	(2) Ex-Ante Funding	(3) Government Funding
Crisis	-0.100***	-0.068***	-0.075***
	[-3.602]	[-3.193]	[-3.631]
Government backstop × Crisis	0.078***		
	[2.811]		
Ex-ante funding × Crisis		0.060*	
		[1.871]	
Government funding × Crisis			-0.053
			[-0.901]
Government backstop	-0.009		
	[-0.768]		
Ex-ante funding		-0.070***	
		[-3.977]	
Government funding			0.127***
			[3.791]
Bank size	0.005	0.005*	0.007**
	[1.609]	[1.651]	[2.188]
Loan loss provision ratio	1.750***	2.196***	1.938***
	[8.242]	[6.331]	[6.341]
Deposit ratio	0.251***	0.072*	0.091**
	[8.525]	[1.786]	[2.323]
Creditor rights	0.080***	0.029***	0.020***
	[15.925]	[4.342]	[3.023]
Index of economic freedom	0.011***	0.010***	0.008***
	[11.698]	[7.606]	[5.796]
Log(GDP per capita)	0.090***	0.066***	0.019
	[7.997]	[2.928]	[0.700]
Capital adequacy regulation	-0.019***	-0.018***	-0.009**
	[-5.852]	[-4.151]	[-2.206]
Limitation on bank entry	-0.124***	-0.234***	-0.207***
	[-4.513]	[-3.727]	[-3.759]
Log(Loan maturity)	-0.016	0.010	0.005
	[-1.215]	[0.835]	[0.427]
Log(Loan size)	0.063***	0.021***	0.021***
	[12.366]	[4.254]	[4.329]
Syndicate size	0.003***	0.003***	0.003***
	[4.397]	[4.520]	[4.555]
Relationship lending	-0.273***	-0.211***	-0.201***
	[-6.293]	[-4.249]	[-4.333]
Log(Firm size)	0.007	0.008	0.008*
	[1.370]	[1.524]	[1.692]
Leverage	-0.011	-0.007	-0.007
	[-0.217]	[-0.861]	[-0.848]
Profitability	0.253**	0.284***	0.272***
	[2.483]	[2.731]	[2.673]
Constant	0.702***	0.003	0.514

	[4.737]	[0.013]	[1.621]
Observations	3,612	3,612	3,612
Adjusted R-squared	0.295	0.316	0.327
Borrower rating	Y	Y	Y
Loan type	Y	Y	Y
Loan purpose	Y	Y	Y
Year effects	Y	Y	Y

Table 8. The effect of explicit deposit insurance on the cost of bank loans during the crisis

The dependent variable is *Log(Loan spread)*, which is the natural logarithm of the basis points the borrower pays over LIBOR for each dollar drawn. *Explicit* measures a country's DI status before the global financial crisis. It equals 1 for the adoption year and later, and zero otherwise. Following Acharya et al. (2011), *Crisis* equals 1 if the period starts with the collapse of the subprime market in July 2007 and ends in December 2009; it equals zero otherwise. The main explanatory variable of interest is the interaction term between *Explicit* and *Crisis.* We use OLS in column 1. To mitigate the concern that omitted bank factors drive the results, in column 2 we estimate the bank fixed-effect model. In column 3, we examine whether the effect of *Explicit* on bank lending is contingent on banks' funding source. We create a dummy variable, *High deposit ratio,* that equals 1 if the bank's deposits-to-total-liabilities ratio is above the sample median and zero otherwise. We interact *High deposit ratio* with *Crisis* and *Explicit*. The control variables are defined in appendix A. We correct robust standard errors for bank-level clustering and heteroskedasticity. The *t*-statistics are in parentheses. The *, **, *** marks denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Variable	(1) OLS	(2) Bank Fixed Effect	(3) Deposit Ratio Interaction
Explicit	0.247***	0.213***	0.202***
	[11.351]	[9.418]	[8.641]
Crisis	0.497***	0.442***	0.453***
	[48.940]	[35.701]	[37.078]
Explicit × Crisis	-0.143***	-0.149***	-0.148***
	[-3.891]	[-3.970]	[-3.849]
High deposit ratio			-0.062***
			[-2.852]
Explicit × High deposit ratio			-0.044
			[-0.946]
Crisis × High deposit ratio			-0.086***
			[-4.096]
Explicit × Crisis × High deposit ratio			-0.150**
			[-1.974]
Bank size	-0.013***	-0.249***	-0.257***
	[-3.355]	[-14.176]	[-14.372]
Loan loss provision ratio	2.078***	2.317***	1.937***
	[5.472]	[4.170]	[3.542]
Deposit ratio	-0.119***	-0.671***	
	[-2.802]	[-6.154]	
Creditor rights	-0.049***	-0.033***	-0.033***
	[-10.362]	[-2.992]	[-2.974]
Index of economic freedom	-0.003***	-0.003*	-0.004**
	[-3.567]	[-1.895]	[-2.093]
Log(GDP per capita)	-0.201***	-0.353***	-0.404***
	[-6.883]	[-5.984]	[-6.872]
Capital adequacy regulation	0.001	0.006	0.009*
	[0.167]	[1.061]	[1.726]
Limitation on bank entry	0.128***	0.021	0.048
	[4.323]	[0.407]	[0.907]
Log(Loan maturity)	0.089***	0.094***	0.093***
	[14.747]	[15.551]	[15.408]
Log(Loan size)	-0.101***	-0.108***	-0.108***
	[-30.426]	[-32.614]	[-32.678]
Syndicate size	-0.007***	-0.005***	-0.005***
	[-14.614]	[-12.002]	[-11.788]
Relationship lending	-0.044***	-0.056***	-0.055***
	[-5.203]	[-6.673]	[-6.518]
Log(Firm size)	-0.146***	-0.132***	-0.133***
	[-49.498]	[-44.955]	[-45.168]
Leverage	0.620***	0.595***	0.594***

	[36.075]	[35.199]	[35.120]
Profitability	-0.682***	-0.724***	-0.723***
	[-18.255]	[-18.966]	[-18.928]
Constant	4.277***	6.693***	6.882***
	[14.141]	[11.148]	[11.446]
Observations	32,765	32,765	32,765
Adjusted R-squared	0.450	0.483	0.483
Borrower rating	Y	Y	Y
Loan type	Y	Y	Y
Loan purpose	Y	Y	Y
Year effects	Y	Y	Y
Bank effects	N	Y	Y

Table 9. The effect of generous deposit insurance designs on the cost of bank loans during the crisis
In this table, we examine how DI generosity affects the cost of bank loans. The dependent variable is *Log(Loan spread)*, which is the natural logarithm of the basis points the borrower pays over LIBOR for each dollar drawn. The main explanatory variable of interest is the interaction term between *DI design variables* and *Crisis.* The control variables are defined in appendix A. We correct robust standard errors for bank-level clustering and heteroskedasticity. The *t*-statistics are in parentheses. The *, **, *** marks denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Variable	**(1)** **No Coinsurance**	**(2)** **Interbank Deposits Coverage**	**(3)** **Coverage Limit**
Crisis	0.446***	0.482***	0.456***
	[44.188]	[49.032]	[45.640]
No coinsurance	0.022		
	[0.991]		
No coinsurance× Crisis	-0.191***		
	[-7.893]		
Interbank deposits coverage		0.419***	
		[34.954]	
Interbank deposits coverage × Crisis		-0.135***	
		[-7.101]	
Coverage limit			0.039
			[1.394]
Coverage limit × Crisis			-0.087**
			[-2.298]
Bank size	-0.019***	-0.020***	-0.019***
	[-5.106]	[-5.562]	[-4.914]
Loan loss provision ratio	0.761	1.273***	0.356
	[1.613]	[2.753]	[0.761]
Deposit ratio	-0.040	-0.143***	-0.051
	[-0.923]	[-3.347]	[-1.185]
Creditor rights	-0.060***	-0.006	-0.068***
	[-7.971]	[-1.309]	[-11.564]
Index of economic freedom	-0.015***	-0.005***	-0.014***
	[-14.148]	[-4.921]	[-12.928]
Log(GDP per capita)	0.010	0.017	0.027
	[0.306]	[0.600]	[0.905]
Capital adequacy regulation	-0.005	-0.018***	-0.020***
	[-1.059]	[-4.019]	[-4.599]
Limitation on bank entry	0.164	0.203**	0.307***
	[1.586]	[2.151]	[3.178]
Log(Loan maturity)	-0.004	0.001	-0.004
	[-0.734]	[0.123]	[-0.642]
Log(Loan size)	-0.127***	-0.117***	-0.127***
	[-36.378]	[-34.236]	[-36.381]
Syndicate size	-0.004***	-0.003***	-0.005***
	[-10.202]	[-6.555]	[-10.454]
Relationship lending	-0.013	-0.029***	-0.011
	[-1.555]	[-3.700]	[-1.342]
Log(Firm size)	-0.128***	-0.112***	-0.128***
	[-42.721]	[-37.498]	[-42.787]
Leverage	0.623***	0.585***	0.623***
	[37.844]	[36.125]	[37.851]
Profitability	-0.706***	-0.745***	-0.704***
	[-19.808]	[-21.282]	[-19.729]
Constant	3.791***	4.862***	4.245***

	[5.866]	[6.420]	[5.481]
Observations	29,811	29,811	29,811
Adjusted R-squared	0.550	0.566	0.549
Borrower rating	Y	Y	Y
Loan type	Y	Y	Y
Loan purpose	Y	Y	Y
Year effects	Y	Y	Y

Table 10. The effect of credible deposit insurance designs on the cost of bank loans during the crisis
In this table, we examine how DI credibility affects the cost of bank loans. The dependent variable is *Log(Loan spread)*, which is the natural logarithm of the basis points the borrower pays over LIBOR for each dollar drawn. The main explanatory variable of interest is the interaction term between the DI design variables and *Crisis.* The control variables are defined in appendix A. We correct robust standard errors for bank-level clustering and heteroskedasticity. The *t*-statistics are in parentheses. The *, **, *** marks denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Variable	(1) **Government Backstop**	(2) **Ex-ante Funding**	(3) **Government Funding**
Crisis	0.493***	0.543***	0.457***
	[27.352]	[23.891]	[44.618]
Government backstop	0.064***		
	[3.159]		
Government backstop× Crisis	-0.052**		
	[-2.412]		
Ex-ante funding		0.021	
		[1.087]	
Ex-ante funding × Crisis		-0.057**	
		[-2.167]	
Government funding			0.185***
			[17.453]
Government funding × Crisis			-0.136***
			[-7.104]
Bank size	-0.022***	-0.022***	-0.020***
	[-5.756]	[-5.489]	[-5.389]
Loan loss provision ratio	0.188	0.893*	0.685
	[0.379]	[1.774]	[1.465]
Deposit ratio	-0.117***	-0.077*	-0.009
	[-2.603]	[-1.682]	[-0.201]
Creditor rights	-0.038***	-0.026***	-0.045***
	[-6.876]	[-3.753]	[-9.254]
Index of economic freedom	-0.011***	-0.013***	-0.012***
	[-6.765]	[-10.905]	[-11.240]
Log(GDP per capita)	0.065*	0.095***	0.014
	[1.846]	[2.682]	[0.486]
Capital adequacy regulation	-0.019***	-0.011**	-0.021***
	[-3.934]	[-2.151]	[-4.657]
Limitation on bank entry	0.193*	0.145	0.227**
	[1.888]	[1.392]	[2.370]
Log(Loan maturity)	0.043***	0.098***	0.002
	[6.954]	[15.844]	[0.312]
Log(Loan size)	-0.133***	-0.136***	-0.124***
	[-37.498]	[-37.606]	[-35.766]
Syndicate size	-0.006***	-0.005***	-0.004***
	[-12.534]	[-11.485]	[-10.167]
Relationship lending	-0.027***	-0.045***	-0.021**
	[-3.244]	[-5.217]	[-2.539]
Log(Firm size)	-0.121***	-0.135***	-0.124***
	[-39.678]	[-43.488]	[-41.287]
Leverage	0.614***	0.604***	0.607***
	[35.925]	[34.448]	[37.000]
Profitability	-0.714***	-0.713***	-0.706***
	[-19.256]	[-18.763]	[-19.889]
Constant	4.334***	3.842***	4.943***
	[9.746]	[8.037]	[11.712]

Observations	29,811	29,811	29,811
Adjusted R-squared	0.505	0.476	0.553
Borrower rating	Y	Y	Y
Loan type	Y	Y	Y
Loan purpose	Y	Y	Y
Year effects	Y	Y	Y

Table 11. Deposit insurance and bank recovery speed after the crisis

In this table, we test whether banks in countries with deposit insurance recover faster from the global financial crisis than banks in countries without deposit insurance. Following Reinhart and Rogoff (2014), we define recovery speed in columns (1) to (3) as the number of years it takes for banks to revert to 2006 levels of credit availability, lending to foreign borrowers, and loan spreads, respectively. We conduct multivariate regressions with the dependent variable as the natural logarithm of 1 plus the number of recovery years for each bank in our sample. The control variables are the mean values of bank, country, loan, and borrower characteristics during the crisis period. The *t*-statistics are in parentheses. The *, **, *** marks denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Variable	(1) Recovery Years: _Credit Availability	(2) Recovery Years: _Share to Foreign Country	(3) Recovery Years: _Loan Spread
Explicit	-0.278***	-0.191*	-0.113***
	[-2.957]	[-1.852]	[-19.919]
Bank size	-0.005	-0.043***	-0.002***
	[-0.381]	[-4.705]	[-6.258]
Loan loss provision ratio	-3.251**	0.544	-0.013
	[-2.586]	[0.809]	[-0.510]
Deposit ratio	-0.288**	-0.177**	-0.012***
	[2.477]	[2.169]	[5.137]
Creditor rights	0.045***	-0.016	0.0003
	[2.649]	[-1.457]	[1.149]
Index of economic freedom	-0.010***	0.001	-0.0001***
	[-3.405]	[0.441]	[-2.804]
Log(GDP per capita)	0.043	0.090**	-0.001
	[0.628]	[2.434]	[-0.797]
Capital adequacy regulation	-0.013	-0.009	0.00003
	[-0.920]	[-1.193]	[0.231]
Limitation on bank entry	0.024	-0.041	0.006**
	[1.114]	[-1.165]	[2.242]
Log(Loan maturity)	-0.041	0.075***	-0.001
	[-0.776]	[2.919]	[-1.374]
Log(Loan size)	0.004	-0.002	0.001***
	[0.214]	[-0.182]	[3.294]
Syndicate size	0.001	0.005*	-0.00006**
	[0.414]	[1.884]	[-2.262]
Relationship lending	-0.039	-0.006	-0.0004
	[-0.239]	[-0.079]	[-0.800]
Log(Firm size)	0.012	-0.019**	0.0001
	[0.721]	[-2.058]	[0.651]
Leverage	0.251	0.305**	0.002*
	[1.515]	[2.415]	[1.796]
Profitability	-0.110	0.158	-0.001
	[-0.329]	[0.584]	[-0.666]
Constant	1.757**	0.964*	1.229***
	[2.105]	[1.746]	[88.394]
Observations	274	274	3,975
Adjusted R-squared	0.081	0.228	0.144

Appendix A

Variable	Definition	Original Sources
Crisis	Equals 1 if the period starts with the collapse of the subprime market in July 2007 and ends in December 2009; it equals zero otherwise.	
Explicit	Measures a country's DI status before the global financial crisis. It equals 1 for the adoption year and later, and zero otherwise.	Demirgüç-Kunt et al. (2013)
No coinsurance	Equals 1 if the country has no coinsurance arrangements, and zero otherwise.	Demirgüç-Kunt et al. (2013)
Interbank deposits coverage	Equals 1 if the DI system covers interbank deposits, and zero otherwise.	Demirgüç-Kunt et al. (2013)
Coverage limit	We transform the coverage limit per capita into a percentile rank within a range of [0, 1] to incorporate non-numerical information about full coverage recorded in the data source, where a higher value represents a higher coverage ratio; a value of 1 indicates that DI covers all depositor losses.	Demirgüç-Kunt et al. (2013)
Government backstop	Equals 1 if there is explicit government support for shortfalls of funds to cover deposits, and zero otherwise.	Demirgüç-Kunt et al. (2013)
Ex-ante funding	Equals 1 if the country funds potential payouts ex-ante, and zero otherwise.	Demirgüç-Kunt et al. (2013)
Government funding	Equals 1 if the DI is funded by the government, and zero otherwise.	Demirgüç-Kunt et al. (2013)
Log(Total lending)	The natural logarithm of the total dollar amount of lending that a bank conducts in a given year.	LPC's DealScan
Share to foreign country	The proportion of loans in a bank's portfolio allocated to foreign borrowers in a given year.	LPC's DealScan
Loan spread	The basis points the borrower pays over LIBOR for each dollar drawn.	LPC's DealScan
Loan maturity	How long (in months) the facility will be active from signing date to expiration date.	LPC's DealScan
Loan size	The loan facility amount in millions of dollars.	LPC's DealScan
Syndicate size	Number of lenders in the syndicate.	LPC's DealScan
Relationship lending	Equals 1 if there is prior lending by the same lead banks over the previous five-year window, and zero otherwise.	LPC's DealScan
Creditor rights	Measures the power lenders have in reorganization and liquidation procedures. The index measures the presence of four components: (1) restrictions when a debtor files for reorganization (e.g., creditor consent); (2) automatic stays or asset freezes allowing secured creditors to seize collateral after the petition for reorganization is approved; (3) seniority of secured creditors over other creditors (e.g., the government or employees) in liquidation; and (4) management control of the business during reorganization. *Creditor rights* is the aggregated score, ranging from 0 to 4, with a higher value indicating stronger creditor rights.	World Development Indicator (WDI)
Index of economic freedom	Based on four broad categories of economic freedom: rule of law, government size, regulatory efficiency, and open markets. *Rule of law* measures property rights, government integrity, and judicial effectiveness; *Government size* measures government spending, tax burden, and fiscal health; *Regulatory efficiency* measures business freedom, labor freedom, and monetary	Heritage Foundation

	freedom; and *Open markets* measures trade freedom, investment freedom, and financial freedom.	
Log(GDP per capita)	The natural log of GDP per capita.	WDI
Capital adequacy regulation	Minimum capital adequacy considering certain risk elements and whether certain market value losses are deducted from capital. Higher values indicate greater stringency.	Barth et al. (2006, 2008)
Limitation on bank entry	The fraction of entry applications denied.	Barth et al. (2006, 2008)
Bank size	The natural log of the borrower's book value of total assets, in millions of U.S. dollars.	BankScope
Loan loss provision ratio	Loan loss provision to total loans.	BankScope
Deposit ratio	All short-term and long-term deposit funding to total assets.	BankScope
Log(Firm size)	The natural log of the borrower's book value of total assets.	Global Compustat
Leverage	Total debt to total assets.	Global Compustat
Profitability	Earnings before interest, taxes, depreciation, and amortization (EBITDA) to total assets.	Global Compustat
Borrower rating	Numeric S&P debt rating.	Global Compustat

Appendix B

In this table, we show the DI adoption and design in place before the global financial crisis by country.

Country name	Date of inception of explicit DI	No coinsurance	Interbank deposits coverage	Coverage limit / GDP per Capita (in %)	Government backstop	Ex-ante funding	Government funding
Argentina	1995	1	0	303	0	1	0
Austria	1979	1	0	73	1	0	0
Bangladesh	1984	1	1	271	0	1	0
Belgium	1974	1	0	76	1	1	0
Brazil	1995	1	0	215	0	1	0
Bulgaria	1999	1	1	328	1	1	0
Canada	1967	1	1	157	0	1	0
China	2015						
Czech Republic	1994	0	0	304	0	1	0
Egypt, Arab Rep.							
Finland	1969	1	0	90	0	1	0
France	1980	1	0	276	0	1	0
Germany	1998	0	0	77	0	1	0
Greece	1995	1	0	130	0	1	0
Hungary	1993	0	0	162	1	1	0
India	1961	1	0	384	1	1	0
Indonesia	2004	1	1	unlimited	1	1	0
Ireland	1989	0	0	57	1	1	0
Israel							
Italy	1987	1	0	446	0	0	0
Jamaica	1998	1	1	145	1	1	0
Jordan	2000	1	1	713	0	1	0
Korea, Rep.	1996	1	0	312	0	1	0
Kuwait							
Malaysia	2005	1	1	unlimited	0	1	0
Netherlands	1978	1	0	69	0	0	0
New Zealand							
Norway	1961	1	1	573	0	1	0
Oman	1995	0	1	571	0	1	0
Panama							

Philippines	1963	1	0	181	0	1	0
Poland	1995	0	0	451	0	1	0
Portugal	1992	1	0	183	1	1	0
South Africa							
Spain	1977	1	0	108	0	1	0
Sweden	1996	1	0	88	0	1	0
Switzerland	1984	1	0	49	0	0	0
Turkey	1983	1	0	730	0	1	0
United States	1933	1	1	262	1	1	0