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Deposit Insurance and Cross-Border Deposits in Times of Banking Crises[1]

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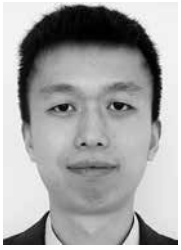

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INTRODUCTION

Deposit insurance (DI) schemes were first introduced in the 19th century. Some were privately funded, others were government sponsored, but ultimately all of these early attempts to protect depositors failed. The most important step toward a central government-sponsored deposit insurance scheme took place in 1933, with the establishment of the Federal Deposit Insurance Corporation (FDIC) in the United States.[2] Only in the late 20th century did deposit insurance systems become a salient feature of regulating the majority of national banking markets around the world.

The basic idea of a deposit insurance system is to avoid bank runs by guaranteeing deposits (Diamond and Dybvig 1983). But such a guarantee can stabilize a banking system only if it is fully credible. Any doubts, especially in times of financial crisis, can cause bank customers to attempt to withdraw their deposits. If this develops into bank runs, banks will be unable to return the deposits and the banking system will eventually collapse.

In the financially more closed economies of the past, withdrawn deposits could be reinvested in other domestic assets, but more often than not were simply held in cash. But now under the current conditions of capital account openness and financial globalization, depositors have an alternative: by opening bank accounts abroad, they can transfer their savings to countries that offer better and more credible protection for their deposits. Consequently, differences in depositor protection among countries can induce cross-border deposit flows. Such flows may become substantial when depositors are experiencing a banking crisis in their home country.

Responses to weaknesses in deposit protection at home have stabilizing as well as destabilizing effects. Deposit withdrawals can be stabilizing, as already their threat can keep banks from engaging in projects that are too risky. But especially during a banking crisis, a flight to safe(r) havens can push the national financial system into an even deeper crisis. Whether differences in deposit insurance systems around the globe affect cross-border deposits in particular during times of crisis remains an important, yet under-researched question.

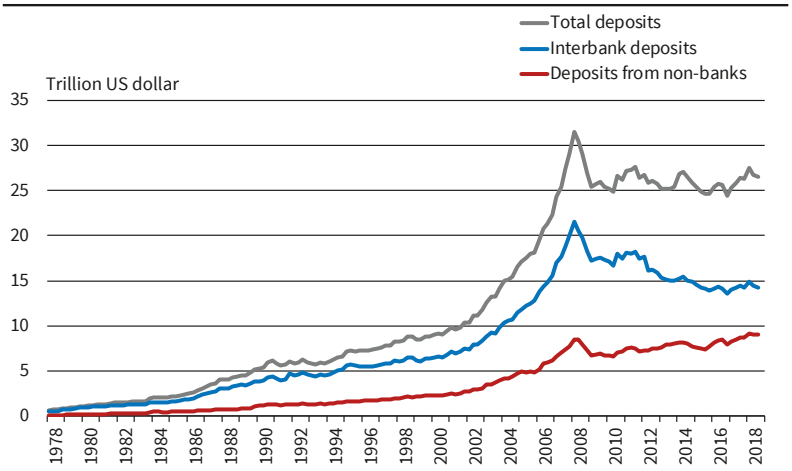
Prior to the great financial crisis (GFC) of 2007–08, cross-border deposits increased rapidly in both the interbank and the retail market. Global deregulation, regional integration initiatives such as the introduction of the euro, and the elimination of capital controls in many developing countries enabled banks to expand cross-border financial services. For customers, foreign deposit markets offer return opportunities and product diversity as well as access to safe havens.

Figure 1 depicts the substantial growth of cross-border deposits since 1977. By September 2018, the volume of global cross-border deposits had reached USD 26.5 trillion, of which 9 trillion constitute cross-border deposits from the non-banking sector, e.g., households and non-financial companies. The GFC is characterized by a sharp retrenchment. On an aggregate level, the cross-border retail market for deposits is much more resilient in the face of the financial crisis than the interbank market. However, as we argued before, this aggregate resilience can still entail substantial reallocations of deposits across countries, especially in response to a national banking crisis. Thus, a deeper understanding of the dynamics of cross-border deposits in response to depositor protection and banking crises is important for designing deposit insurance systems that stabilize the domestic financial system in both tranquil and crisis periods.

In this policy note, we summarize our research results on the impact of differences in deposit insur-

Figure 1

The Growth of Cross-Border Deposits



Source: BIS, Locational Banking Statistics, Table A3. Illustration based on Qi, Sander, Kleimeier (2019). © ifo Institute

[1] This article is based on Qi, S., S. Kleimeier and H. Sander (2019), "The travels of a bank deposit in turbulent times: The importance of deposit insurance design for cross-border deposits" Working Paper available at SSRN: http://dx.doi.org/10.2139/ssrn.2668495.

[2] The first central government-sponsored deposit insurance system was introduced in Czechoslovakia in 1924. See Eisenbeis and Kaufman (2015) for more historical details.

ance systems around the globe on cross-border deposits, with a special focus on potential changes in depositing behavior when countries are going through a banking crisis. Our research utilizes locational banking statistics from the Bank of International Settlements (BIS). These statistics come with the caveat that only half of the 47 BIS "bank countries" report in detail about which other countries they receive deposits from, with coverage typically starting in the mid-1990s. Until 2007, none of these bank countries had experienced a banking crisis. Hence, we first investigate the impact of the 64 banking crisis years in the depositors' home countries, which are included in our sample. The GFC triggered banking crises in the BIS bank countries, too. As a reaction to this global and systemic crisis, many of these countries announced emergency actions in form of ad hoc government guarantees. Most prominently, the German government's announcement that "savers' deposits are safe" was a credible action that German savers believed and that thus kept German savings in German banks. But what did this statement do to bank deposits in other countries?

DEPOSIT INSURANCE SCHEMES AROUND THE WORLD BEFORE THE GLOBAL FINANCIAL CRISIS

By 2006, most advanced economies had some kind of explicit deposit insurance system in place. Among our bank countries, only Australia had none, but introduced one on October 12, 2008, shortly after the Lehman bankruptcy. As we pointed out before, the existence of a deposit insurance scheme can not only prevent bank runs but also make a banking market attractive. In 2006, 79 of the countries surveyed by the World Bank had an explicit scheme, compared to only 62 in 1998. During this period, no country removed its explicit deposit insurance scheme.[3]

While protecting savers, deposit insurance—like every insurance scheme—can create moral hazard by incentivizing higher risk-taking by banks (Barth, Caprio and Levine 2004; Demirgüç-Kunt and Detragiache 1997, 2002; Rossi 1999). Regulators can mitigate this by requiring bank rather than government funding, or by setting risk-based insurance fees as part of the deposit insurance scheme (Demirgüç-Kunt and Detragiache 2002).

For both banks and depositors, the extent to which deposits are covered by the deposit insurance scheme is important. Limited or restricted coverage reduces moral hazard as large, sophisticated depositors remain uninsured and thus have an incentive to monitor and discipline banks by demanding higher deposit rates or refusing to deposit funds altogether (Garcia 1999). In contrast, depositors might be more attracted to a banking market where deposit insurance coverage is more extensive, as the responsibility for monitoring and disciplining shifts to the deposit insurance agency. Thus, both a deposit insurance scheme's coverage level and intensity (which includes a coverage limit and a formal coinsurance scheme) matter. Besides these de jure coverage characteristics, the deposit insurance scheme's repayment history is a de facto feature that might influence depositor and bank behavior.

Furthermore, a deposit insurance scheme must be credible, i.e., the depositor must believe that it is capable of covering all insured potential losses. Therefore, the *power* of the deposit insurance agency is of utmost importance. It derives this power from the ability to intervene in a bank, to cancel or revoke insurance for any participating bank, and to take legal action against bank directors or officials. Regarding the latter, it also matters whether the deposit insurance agency has ever actually taken any such legal action. A deposit insurance agency without this power might well prove ineffective. For example, Garcia (1999) argues that a weak relationship between the deposit insurance agency and the bank supervisors, who instead of the deposit insurance agency have the authority to resolve bank failures, can reduce the agency's power.

In sum, effective protection of depositors depends crucially on the overall design and implementation of the deposit insurance scheme (Eisenbeis and Kaufman 2015). Based on data obtained from the World Bank's Bank Regulation and Supervision Surveys, we have created proxies for five major deposit insurance features (Table 1). Figure 2 depicts the state of global deposit insurance in 2006 just before the onset of the GFC. It illustrates how, despite deposit market internationalization, there are significant differences among countries' deposit insurance schemes, which may increase the attractiveness of a deposit market for foreign depositors.

Table 1

Deposit Insurance Characteristics

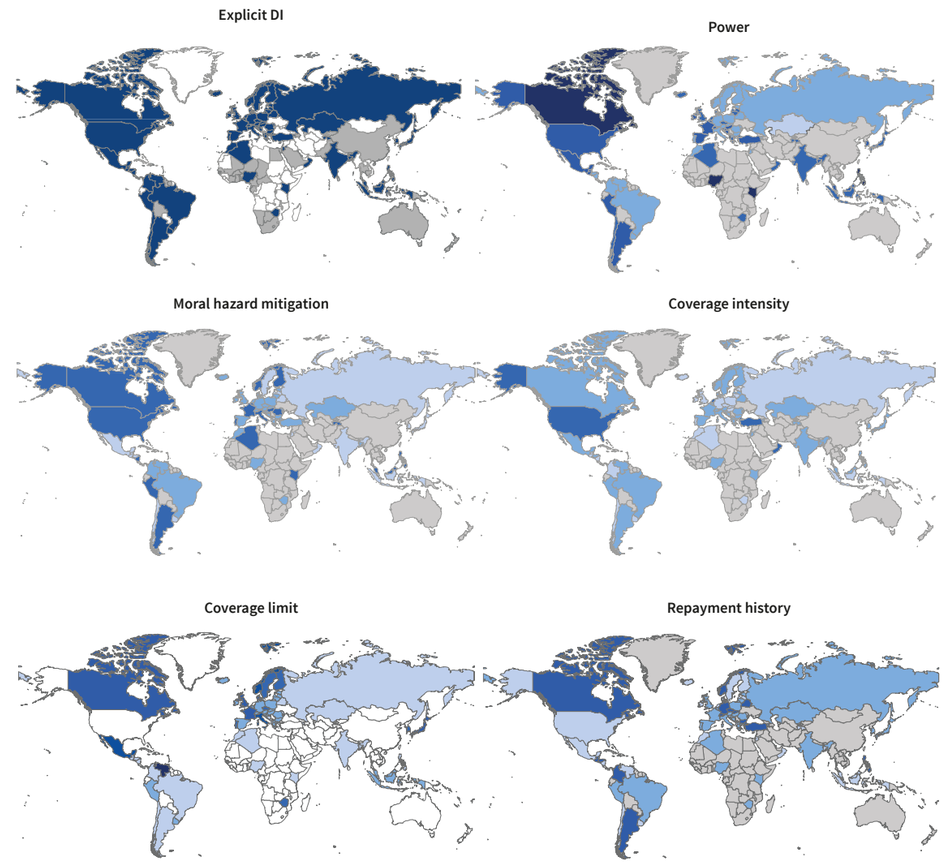
Characteristic	Survey questions
Explicit DI	(1) Is there an explicit deposit insurance protection system?
Power	(1) Does the deposit insurance authority make the decision to intervene in a bank?
	(2) Does the deposit insurance authority have the legal power to cancel or revoke deposit insurance for any participating bank?
	(3) Can the deposit insurance authority take legal action for violations against laws, regulations,and bylaws against bank officials?
	(4) Has the deposit insurance authority ever taken legal action for violations against laws, regulations, and bylaws against bank officials?
Moral hazard mitigation	(1) Is the deposit insurance funded by banks?
	(2) Do deposit insurance fees charged to banks vary based on some assessment of risk?
Coverage limit	What is the deposit insurance limit per account in US$?
Coverage intensity	(1) Is there a no limit per person?
	(2) Is there no formal coinsurance?
Repayment history	(1) Were insured depositors wholly compensated (to the extent of legal protection) the last time a bank failed?
	(2) Were any deposits not explicitly covered by deposit insurance at the time of the failure compensated when the bank failed?

Source: Own definition of DI feature categories based on the survey questions in the 'Depositor (Savings) Protection Schemes' section of the World Bank's Bank Regulation and Supervision Surveys.

[3] The World Bank regularly assesses the state and design of deposit insurance schemes through its Bank Regulation and Supervision Surveys, available at https://www.worldbank.org/en/research/brief/BRSS. We rely on these surveys to measure specific deposit insurance characteristics.

Figure 2

Deposit Insurance Schemes around the World



Note: Darker colors indicate a stronger deposit insurance scheme.
Source: World Bank (2007) Bank Regulation and Supervision Survey, authors' calculations. Illustration based on Qi, Sander, Kleimeier (2019). © ifo Institute

CROSS-BORDER DEPOSITING: SEARCHING FOR A SAFE HAVEN OR REGULATORY ARBITRAGE?

Cross-border depositing allows depositors to transfer their savings to countries with deposit insurance schemes that offer extensive and credible protection. The existing literature largely looks at this *safe haven* effect[4]: the better the protection offered by a country's banks, the more foreign deposits they can attract. However, depositors do not merely assess a foreign banking market on its own terms; they also compare its conditions with those at home. If, for example, the difference between the best deposit insurance abroad and the protection at home is small, it does not make much sense to move deposits abroad given the transaction costs. But as long as deposit insurance schemes differ from country to country, depositors have the opportunity to engage in *regulatory arbitrage*, i.e., to take advantage of differences in regulation by transferring their savings to a country with a better deposit insurance scheme than the one in their home country.

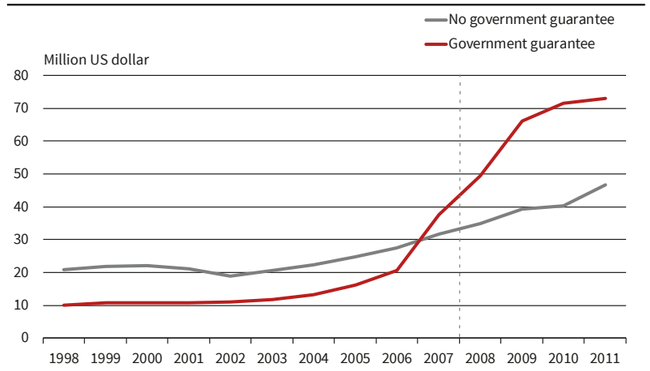
In Qi, Kleimeier and Sander (2019), we extend the literature by exploring not only the impact of the existence of a deposit insurance scheme, but also the effect various features of such a scheme have on depositors' safe haven and regulatory arbitrage behavior. Our results indicate that depositors take a broad and encompassing view of foreign deposit insurance sys-

[4] For early contributions, see Lane and Sarisoy (2000) and Huizinga and Nicodème (2006).

tem when searching for a safe haven. They consider all characteristics of a deposit insurance scheme, including its power, coverage intensity, and coverage limit—but not its repayment history. This omission suggests that cross-border depositors interpret a strong repayment history simultaneously as a negative signal—indicating past bank failures—and a positive signal—indicating that depositors were covered. Regulatory arbitrage behavior, in contrast, is motivated by a much narrower set of deposit insurance scheme features. Here depositors seem to ask only two questions: Does the foreign country deliver the explicit deposit insurance protection that my home country fails to provide? Is the foreign deposit insurance agency more powerful than mine at home? Smaller differences between the other features may not provide sufficient benefits to compensate for transaction costs.

Figure 3

Cross-Border Deposits and Emergency Actions



Note: Bank countries are categorised into those that provide a government guarantee and those that do not. For each group, the average volume of received, bilateral cross-border deposits is shown.

Source: Qi, Kleimeier and Sander (2019). © ifo Institute

But does this safe haven and regulatory arbitrage behavior persist when depositors experience a banking crisis at home? This is a salient question, as even before the GFC, systemic banking crises frequently disrupted markets. In our data set of 131 countries, we observed 165 crisis episodes between 1998 and 2011, of which 64 took place before the GFC (see Table 2). During such episodes, depositors are likely to increase market discipline as "traumatic episodes may act as wake-up calls for depositors" (Martinez Peria and Schmukler 2001). In consequence, safe haven and regulatory arbitrage might thus become even stronger motivators for cross-border depositing. However, it may also happen that depositors completely lose faith in all banking markets and deposit insurance systems, and no longer engage in safe haven or regulatory arbitrage behavior at all. Kleimeier, Sander and Heuchemer (2013) suggest that depositors do indeed discipline the domestic banking market during a systemic banking crisis, but move deposits abroad only once a banking crisis is clearly systemic. Thus, during the early phases of the crisis, depositors still trust their home country's deposit insurance. However, such depositor discipline is short-lived, as trust is typically restored within two years after the start of a crisis.

Table 2

Systemic Banking Crises

Year	Number of countries that experience a systemic banking crisis
1998	24
1999	14
2000	9
2001	7
2002	4
2003	3
2004	2
2005	1
2006	0
2007	2
2008	24
2009	25
2010	25
2011	25

Source: Laeven andValencia (2012). We include borderline systemic banking crises.

In Qi, Kleimeier and Sander (2019), we find that when going through a banking crisis at home, depositors move funds abroad, predominantly in search of a safe haven. Regulatory arbitrage considerations no longer matter, except when depositors are not protected by an explicit deposit insurance scheme at home. In other words, in times of crisis, the best becomes the enemy of the good: being somewhat better than the depositor's deposit insurance at home is not sufficient to attract savings from crisis countries that have received their wake-up call.

THE EFFECT OF EMERGENCY ACTIONS DURING THE GLOBAL FINANCIAL CRISIS

The GFC sounded a wake-up call for the global economy, and the systemic banking crisis threatened the credibility of deposit insurance schemes of former safe havens. As a consequence, many countries revised their deposit insurance schemes between September 2008 and March 2019. According to the International Association of Deposit Insurers, at least 49 countries enhanced depositor protection, ranging from full government guarantees to temporary increases in government-sponsored coverage. These actions were initiated in Europe but quickly spread to nearly every continent. Prior to the GFC, the main goal of deposit insurance agencies was protecting small depositors, as they did not have the ability to understand and monitor the risks taken by financial institutions. However, after the GFC, maintaining and strengthening the stability of the financial system has been set as the primary goal, dropping the protection of small depositors down to secondary importance (Bernet and Walter 2009).

Figure 3 provides a vivid illustration of the impact of government emergency actions on cross-border deposits. It compares average bilateral cross-border deposit volumes of countries that introduce government guarantees to those that do not. Before 2008, both groups of countries show a similar development of cross-border deposits. Since 2008, however, the extension of government guarantees has resulted in a substantial increase in cross-border deposits for countries that took such action. In Qi, Sander and Kleimeier (2019), we conduct difference-in-difference analyses that substantiate this visual impression. Bilateral cross-border deposits increase when the government issues guarantees, whether limited or unlimited. Even when hit by a crisis, foreign banking markets can remain attractive safe havens for cross-border depositors by making credible commitments to depositor protection. For cross-border flows, this implies that deposits can be relocated to safe havens on a large scale. As a result, countries with weaker deposit insurance protection and less credibility will be confronted with increased—and potentially destabilizing—capital outflows.

CONCLUSION

Well-designed deposit insurance systems do not simply protect a country's domestic banking market from bank runs and moral hazard, but can also induce cross-border deposit flows that enhance the home country's financial stability. Regulators therefore need to assess their regulation vis-à-vis that of other countries. This is true in tranquil times, but becomes even more important in times of crisis when customers "go for the best," i.e., shift their savings to the safe havens of the world. This way, depositors can trigger a regulatory race to the top.

Our results show that especially during crises, credibility is crucial. A credible deposit insurance scheme prevents additional financial stress via capital flight. Our findings provide new evidence by identifying those deposit insurance features that are particularly important in inducing cross-border deposit flows, and can thus be instrumental for designing deposit insurance schemes for financially open economies.

Finally, our results may also inform the ongoing debate on making the European Monetary Union (EMU) more crisis-resilient. Given the importance of joint risk-sharing in a monetary union and the limited support for fiscal risk-sharing within the EMU, private risk-sharing via retail banking market integration ranks high on the regulators' priority list (ECB 2016). A well-designed European deposit insurance scheme is crucial in this context.[5] Our results show that it is not only the existence of such a scheme that is important, but all its features as well—not least the power that will be accorded the deposit insurance agency.

REFERENCES

Barth, J. R., G. Caprio and R. Levine (2004), "Bank regulation and supervision: What works best?", *Journal of Financial Intermediation, 13*(2), 205–248.

Bernet, B. and S. Walter (2009), "Design, structure and implementation of a modern deposit insurance scheme", *SUERF Studies No. 2009/5.*

Demirgüç-Kunt, A. and E. Detragiache (1997), "The determinants of banking crises: Evidence from developing and developed countries", *World Bank Policy Research Working Paper no. 1828.*

Demirgüç-Kunt, A. and E. Detragiache (2002), "Does deposit insurance increase banking system stability? An empirical investigation", *Journal of Monetary Economics, 49*(7), 1373–1406.

Diamond, D. W. and P.H. Dybvig (1986), "Banking theory, deposit insurance, and bank regulation", *Journal of Business, 59*(1), 55–68.

ECB (2016), "Financial Integration in Europe 2016, Special Feature A: Financial Integration and Risk sharing in a Monetary Union", Frankfurt: European Central Bank.

Eisenbeis, R. A. and G. G. Kaufman (2015), "Deposit insurance issues in the post-2008 crisis world", in A.N. Berger, P. Molyneux and J.O.S. Wilson, eds., *The Oxford Handbook of Banking,* Oxford University Press, Oxford, 527–49.

Garcia, G. G. H. (1999), "Deposit insurance: A survey of actual and best practices", *International Monetary Fund Working Paper no. WP/99/54.*

Huizinga, H. and G. Nicodème (2006), "Deposit insurance and international bank liabilities", *Journal of Banking andFinance, 30*(3), 965–87.

Kleimeier, S., H. Sander and S. Heuchemer (2013), "Financial crises and cross-border banking: New evidence", *Journal of International Money and Finance, 32,* 884–915.

Lane, P. R. and S. Sarisoy (2000), "Does deposit insurance stimulate capital inflows?" *Economics Letters, 69*(2), 193–200.

Martinez P.M.S. and S.L. Schmukler (2001), "Do depositors punish banks for bad behavior? Market discipline, deposit insurance, and banking crises", *Journal of Finance, 56* (3), 1029–51.

Qi, S., S. Kleimeier and H. Sander (2019), "The travels of a bank deposit in turbulent times: The importance of deposit insurance design for cross-border deposits" Working Paper available at SSRN: http://dx.doi.org/10.2139/ssrn.2668495.

Rossi, M. (1999), "Financial fragility and economic performance in developing economies: Do capital controls, prudential regulation and supervision matter?", *International Monetary Fund Working Paper no. 99/66.*

Schoenmaker, D. (2018), "Building a stable European deposit insurance scheme", *Journal of Financial Regulation, 4*(2), 314–20.

[5] For a recent contribution see Schoenmaker (2018).