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Stability: Evidence from Africa**

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Keywords: Deposit insurance, deposit insurance generosity, bank stability, Z-score, Africa

JEL Classification: G21; G28; G01

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1. Introduction

Deposit insurance emerged from the global financial crisis as a prominent tool for promoting confidence and financial stability (Anginer and Demirgüç-Kunt, 2019, 2025). However, its broader economic consequences remain far from settled, with competing theories predicting both benefits and costs. While deposit insurance may reduce the likelihood of destabilising withdrawals and enhance financial stability, it may also weaken market discipline, encourage excessive risk-taking, and ultimately undermine financial stability (Cull et al., 2005; Demirgüç-Kunt and Detragiache, 2002; Ioannidou and Penas, 2010; Lambert et al., 2017; Jemović and Marinković, 2021; Nguyen et al., 2022).

Whether the stabilising benefits of deposit insurance outweigh its potential moral hazard costs is likely to depend on the institutional and economic environment in which it operates. Prior research shows that the effects of deposit insurance are shaped by regulatory quality, institutional development and broader economic conditions (Anginer et al., 2014; Angkinand and Wihlborg, 2010; Chiaramonte et al., 2020; Liu et al., 2016). However, to date evidence on these issues remains limited in Africa, with existing studies focusing predominantly on non-African economies. Consequently, little is known regarding how the generosity of deposit insurance influences banking stability across African countries.

This evidence gap is particularly important, given that many African economies are characterised by heightened macroeconomic uncertainty, increasing the value of policies that strengthen depositor confidence and support banking stability (Wu et al., 2020; Dzingirai and Gwatidzo, 2026). At the same

time, African countries display substantial variation in institutional quality, regulatory capacity, financial development, financial inclusion and depositor protection frameworks. These differences are likely to influence whether the confidence-enhancing effects of generous deposit insurance dominate its potential moral hazard consequences. Despite these important contextual features, evidence from Africa remains scarce. Consequently, this paper provides new evidence on the relationship between deposit insurance generosity and banking stability across the continent.

Theory provides contrasting predictions regarding the impact of deposit insurance on banking sector stability. Diamond and Dybvig (1983) demonstrate that government-backed deposit insurance schemes mitigate the likelihood of bank runs by reducing incentives for pre-emptive deposit withdrawals. By strengthening depositor confidence and reducing the risk of bank runs, deposit insurance promotes funding stability and enhances banking sector stability.

Extensions of the Diamond and Dybvig (1983) framework (Jacklin and Bhattacharya, 1988; Cooper and Ross, 2002; Calomiris and Jaremski, 2016) suggest that deposit insurance can reduce bank stability by weakening market discipline and increasing moral hazard.

Consistent with these competing theoretical predictions, empirical evidence (drawn largely from non-African economies) regarding the impact of deposit insurance on bank stability is somewhat mixed. Some studies find that deposit insurance reduces bank risk and enhances financial stability (Gropp and Vesala, 2004; Liu et al., 2016; Martin et al., 2026). Thus supporting the confidence mechanism. Others show that explicit deposit insurance weakens market

discipline, increases moral hazard, and raises bank risk (Cull et al., 2005; Demirgüç-Kunt and Detragiache, 2002; Ioannidou and Penas, 2010). A growing literature suggests that these differences reflect variation in deposit insurance scheme design and the broader economic, regulatory, and institutional environment. In particular, the effects of deposit insurance may depend on risk-based pricing, macroeconomic conditions, and institutional quality (Angkinand and Wihlborg, 2010; Demirgüç-Kunt and Kane, 2002; Anginer et al., 2014; Liu et al., 2016; Chiaramonte et al., 2020; Chernykh and Kotomin, 2022). Anginer et al. (2014), for example, find that deposit insurance may increase bank risk in normal periods but enhance stability during systemic crises. Liu et al. (2016) similarly show that the effects of deposit insurance depend on economic volatilities.

Against this background, it remains unclear whether the generosity of deposit insurance schemes is associated with greater banking stability in Africa. The question is important because the balance between the stabilising and moral-hazard effects of deposit insurance is likely to depend on macroeconomic and institutional conditions.

The expansion of deposit insurance from six African countries in 2000 to thirty-one by 2020 provides a rich setting in which to examine its effects on banking stability (Figure 1). This expansion occurred alongside regional policy coordination and the diffusion of regulatory reforms through institutions such as Central African Economic and Monetary Community (CEMAC) and the West African Economic and Monetary Union (WAEMU), making the continent a

particularly informative empirical setting.¹ The analysis also responds to renewed policy interest in deposit-insurance design following the 2023 U.S. banking turmoil (IADI, 2023).

[Figure 1 around here]

In order to mitigate concerns arising from reverse causality, omitted variables, and non-random selection into deposit insurance adoption, we adapt the approach developed by Calomiris and Chen (2022). The framework combines an instrumental-variables strategy with a selection-correction procedure and exploits variation associated with the geographic (regional) diffusion of deposit insurance, (including influences operating through the regional monetary institutions such as CEMAC and WAEMU) that encourage or require the adoption of deposit insurance schemes. These influences provide variation in deposit insurance adoption and generosity, providing a basis for identifying the relationship between deposit insurance and banking stability while alleviating endogeneity concerns.

We construct a new panel dataset on deposit insurance adoption and generosity for all 54 African countries over 2000-2021. The dataset extends the World Bank Deposit Insurance Database (Demirgüç-Kunt et al., 2015) using information from IADI surveys, national deposit-insurance agencies, central banks, the IMF, the World Bank, and country-specific sources. We combine these data with measures of banking stability, country-level banking-sector balance-sheet conditions, macroeconomic performance, institutional quality, and systemic

¹ The two African regional economic and monetary blocks that issued a directive on deposit insurance implementation to member countries are used in this study. The Central African Economic and Monetary Community (CEMAC) comprises six member countries (Cameroon, Central African Republic, Chad, Republic of Congo, Gabon, and Equatorial Guinea). The West African Economic and Monetary Union (WAEMU) comprises eight member states (Benin, Burkina Faso, Ivory Coast, Guinea Bissau, Mali, Niger, Senegal, and Togo).

banking crises. The main analysis uses country-year observations for the 31 African countries with explicit deposit insurance schemes during 2000-2021, allowing us to exploit variation in deposit insurance generosity both across countries and over time.

By way of preview, we find that greater deposit insurance generosity is associated with higher banking sector stability. This suggests that, in African banking systems, the stabilising effects of deposit insurance dominate the risk-taking incentives commonly highlighted in the literature. We also find that greater deposit insurance generosity is associated with lower profit volatility and lower lending activity. These patterns are consistent with banks responding to more generous depositor protection by adopting more conservative business models, characterised by reduced risk-taking and slower credit growth. While the aggregate nature of the data does not allow us to identify the precise channels at work, the results highlight a robust association between deposit insurance generosity and banking stability.

We contribute to the literature on deposit insurance and banking stability in two respects. First, we provide new cross-country evidence on how deposit insurance generosity affects banking sector stability in Africa. While a substantial literature examines deposit insurance in advanced and emerging economies, evidence from Africa remains limited. Existing studies largely focus on single-country analyses of moral hazard (Egbuna et al., 2018) or financial inclusion in Sub-Saharan Africa (Alley, 2025), leaving the stability implications of deposit insurance generosity unexplored at the continent level. Using a newly constructed dataset covering all 54 African countries and a sample of countries with explicit

schemes, we find that greater deposit insurance generosity is associated with higher banking sector stability. Our findings extend the context-dependent deposit insurance literature by demonstrating that the balance between confidence and moral-hazard effects is context dependent, with broader depositor protection enhancing stability in African banking systems. Second, we make a substantive data contribution (and resource for further research) by constructing a novel panel dataset on deposit insurance adoption and coverage limits for all 54 African countries. Building on Demirgüç-Kunt et al. (2015), which documents deposit insurance adoption and coverage levels for a broad set of countries during 2003-2013, we extend coverage to the period 2000-2021. As such we systematically document changes in deposit insurance coverage limits across African countries over time. This unique dataset allows us to examine within-country variation in deposit insurance generosity and its relationship with banking sector stability. More broadly we provide one of the most comprehensive longitudinal datasets on deposit insurance arrangements in Africa, and establish a basis for future research on deposit insurance, financial safety nets and regulation across the African continent.

The remainder of the paper is organised as follows. Section 2 reviews the relevant literature. In Section 3, we describe the institutional setting. Sections 4 and 5 present the empirical methodology and data. In Section 6 we report the empirical results and robustness tests. Section 7 concludes.

2. Related literature and hypothesis

2.1. Determinants of deposit insurance adoption

The adoption of explicit deposit insurance reflects the interplay of external and domestic forces, including policy diffusion, regulatory reform, and responses to financial instability (Blair et al., 2006; Demirgüç-Kunt et al., 2008; Calomiris and Chen, 2022). This section reviews these explanations, with particular emphasis on the external influences that have shaped the rapid spread of deposit insurance across Africa.

2.1.1. Determinants of deposit insurance adoption: external factors

Prior research highlights the role of external institutional influences in shaping financial-sector reforms, including the adoption of deposit insurance. These influences may operate through regulatory harmonisation, technical assistance, policy advice, and the diffusion of regulatory standards across countries. At the regional level, the European Union (EU) provides a prominent example of such policy diffusion. The EU's Deposit Guarantee Schemes Directive played a central role in harmonising deposit insurance regimes across member states (Anginer and Demirgüç-Kunt, 2019; Demirgüç-Kunt et al., 2015). Although the institutional setting differs from Africa, the European experience illustrates how regional initiatives can accelerate the adoption of common financial safety-net arrangements.

At an international level, the International Monetary Fund (IMF) and the World Bank support deposit insurance reform through technical assistance, policy advice, and financial sector programmes. These institutions encourage the adoption of explicit deposit insurance as part of broader efforts to strengthen financial stability and crisis-management frameworks, particularly in developing and transition economies. Previous studies suggest that such direct and indirect

international influences are associated with a higher likelihood of adoption (Demirgüç-Kunt et al., 2008; Calomiris and Chen, 2022).

In Africa, the diffusion of deposit insurance has been driven not only by international influences but also by regional monetary institutions that have actively promoted regulatory harmonisation. Both CEMAC and WAEMU issued regional directives that promoted the establishment of explicit deposit insurance arrangements (IMF, 2012; Demirgüç-Kunt et al., 2015). These coordinated efforts illustrate how regional policy harmonisation can be a powerful mechanism for financial infrastructure development across multiple sovereign states. Building on this, we propose the following hypothesis:

H1a. External policy influences, including regional policy diffusion and initiatives within CEMAC and WAEMU, increase the likelihood of deposit insurance adoption in Africa.

2.1.2. Determinants of deposit insurance adoption: domestic factors

Another strand of literature adopts a political economy perspective to explain deposit insurance adoption. These studies examine how domestic political institutions, interest groups, and banking-sector conditions shape governments' decisions to introduce explicit deposit insurance. An important finding is that deposit insurance is frequently adopted during or following periods of financial distress, when public demand for depositor protection intensifies. Financial crises expose weaknesses in banking systems and increase political pressure for reforms, prompting governments to introduce explicit deposit insurance as part of broader financial-sector reforms (Demirgüç-Kunt et al., 2008). Building on this literature, we formulate the following hypothesis:

H1b. *Financial crises are positively associated with the likelihood of deposit insurance adoption in Africa.*

2.1.3. Determinants of deposit insurance generosity

Once explicit deposit insurance has been adopted, policymakers must determine the design of the scheme, including the level of depositor protection provided. Although considerably less attention has been devoted to this issue than to the determinants of deposit insurance adoption, a growing literature examines the political economy and institutional factors shaping deposit insurance design. Laeven (2004) finds that countries with undercapitalised banking systems and less sophisticated depositors tend to adopt more generous deposit insurance schemes. Broader political institutions (including democracy, executive constraints, and property-rights protection) are not significantly associated with coverage generosity. These findings are consistent with the private-interest theory of regulation, where high risk banks favour more generous deposit insurance to protect their liabilities and attract deposits.

Beyond political economy considerations, the broader literature emphasises that deposit insurance design should reflect country-specific institutional and regulatory environments. Demirgüç-Kunt and Kane (2002) argue that the effectiveness of deposit insurance depends on complementary institutional arrangements (including prudential regulation, supervisory quality), and incentive-compatible scheme design. Cross-country evidence further documents substantial variation in deposit insurance coverage limits and other design features. This suggests that governments adopt different approaches to depositor protection depending on domestic banking-sector characteristics and policy

objectives (Demirgüç-Kunt et al., 2015; Anginer and Demirgüç-Kunt, 2019). These studies provide the theoretical basis for modelling deposit insurance generosity as an endogenous policy choice rather than a uniform institutional feature, and motivate the empirical specification of the generosity equation estimated in the present study.

2.2. Deposit insurance generosity and banking stability

A key motivation for adopting explicit deposit insurance is to enhance financial stability by preventing destabilising bank runs. Diamond and Dybvig (1983) demonstrate that credible deposit insurance can eliminate self-fulfilling bank runs by assuring depositors that their funds remain protected even when other depositors withdraw. Empirical evidence supports this stabilising mechanism. Using daily account-level balance data to explore the drivers of deposit outflows and inflows in a distressed bank in the US, Martin et al. (2026) show that outflows of uninsured deposits are largely offset with inflows of new insured deposits. This suggests that insured deposits provide a stable funding source during periods of bank distress. Gropp and Vesala (2004) find that explicit deposit insurance reduces risk-taking among smaller European banks. They argue that limiting the scope of safety nets preserves monitoring incentives among uninsured creditors. Using data on US credit unions from 1971 to 1990, Karels and McClatchey (1999) find that the introduction of deposit insurance legislation was associated with higher liquidity and lower loan delinquency.

In contrast, a substantial body of literature argues that deposit insurance undermines financial stability by weakening market discipline and creating moral hazard. Cooper and Ross (2002) extend the Diamond-Dybvig model by

incorporating bank moral hazard and depositor monitoring. They show that although deposit insurance eliminates bank runs, it also weakens depositors' incentives to monitor banks. On the liability side, deposit insurance reduces depositors' incentives to monitor because they are compensated in the event of bank failure. On the asset side, banks have stronger incentives to invest in riskier projects because weakened market discipline allows shareholders to capture the upside of risky investments while part of the downside risk is transferred to the deposit insurer. The authors further demonstrate that appropriately designed capital requirements can mitigate these moral hazard problems and restore the first-best allocation. Ioannidou and Penas (2010) provide empirical support for this mechanism, showing that banks are more likely to originate riskier loans when the market discipline exerted by large depositors weakens.

Using data from 61 countries, Demirgüç-Kunt and Detragiache (2002) show that banking crises are more likely when deposit insurance coverage is more extensive. Similar evidence is reported for credit unions. Nguyen et al. (2022) find that increases in deposit insurance coverage led credit unions to expand total and unsecured lending, and subsequently resulted in a deterioration in loan quality. Cull et al. (2005) also find that deposit insurance increases bank risk. The authors note that risk-adjusted premium requirements imposed on banks have only a limited effect in curbing such behaviour. By contrast, Chernykh and Kotomin (2022) suggest that appropriately risk-adjusted deposit insurance schemes reduces moral hazard and promote financial stability. Taken together, these studies reinforce the fundamental trade-off identified by the theoretical literature. While deposit insurance can enhance financial stability by preventing

destabilising bank runs, it may also weaken market discipline and encourage excessive risk-taking, particularly when regulatory design and supervisory oversight are inadequate.

The balance between the stabilising and moral-hazard effects of deposit insurance may also vary over the business cycle. Anginer et al. (2014) argue that the effects of deposit insurance are procyclical, with the moral-hazard channel dominating during economic expansions and the confidence and stabilisation channels becoming more important during financial crises. Similarly, Liu et al. (2016) find that while explicit deposit insurance generally increases bank risk, it helps stabilise banks during periods of financial crisis and heightened market volatility. Overall, they conclude that the risk-enhancing effects during expansionary periods outweigh the stabilising benefits during crises, resulting in a net destabilising effect. Relatedly, Chiaramonte et al. (2020) identify an inverse U-shaped relationship between deposit insurance coverage and bank stability, suggesting that the stabilising benefits of broader coverage diminish once coverage exceeds an optimal level.

Beyond macroeconomic conditions, a growing body of literature shows that the effects of deposit insurance also depend on institutional quality and governance arrangements (Angkinand and Wihlborg, 2010; Demirgüç-Kunt and Detragiache, 2002; Liu et al., 2016). Demirgüç-Kunt and Kane (2002) argue that the moral hazard associated with deposit insurance is exacerbated in countries with weak institutional environments. The effects of deposit insurance depend critically on institutional quality and scheme design. Broader coverage can increase banking fragility in weak institutional environments, while effective

governance and design features can mitigate moral hazard (Demirgüç-Kunt and Detragiache, 2002; Angkinand and Wihlborg, 2010; Liu et al., 2016).

Overall, prior evidence provides competing predictions regarding the effects of deposit insurance on banking stability. While broader depositor protection can strengthen confidence and reduce funding instability (Diamond and Dybvig, 1983; Gropp and Vesala, 2004; Liu et al., 2016), it may also weaken market discipline and increase moral hazard (Demirgüç-Kunt and Detragiache, 2002; Cull et al., 2005; Ioannidou and Penas, 2010). Moreover, existing evidence suggests that the balance between these effects depends on institutional quality, macroeconomic conditions, and scheme design (Angkinand and Wihlborg, 2010; Anginer et al., 2014; Chiaramonte et al., 2020; Liu et al., 2016). Consequently, whether greater deposit insurance generosity enhances or undermines banking stability in Africa remains an open empirical question. We therefore formulate the following competing hypotheses:

H2a. *Greater deposit insurance generosity increases banking stability across Africa.*

H2b. *Greater deposit insurance generosity reduces banking stability across Africa.*

3. Institutional background

In contrast to Europe or North America, where deposit insurance is the norm, explicit deposit insurance schemes were adopted only relatively recently in most African countries. Early adopters were typically countries that experienced banking crises during the 1990s. In these cases, adoption was often encouraged through policy recommendations from the International Monetary Fund (IMF).

Deposit insurance funds in these countries were frequently established with financial and technical support from the World Bank (Demirgüç-Kunt et al., 2008). By 2000, only six African countries (Kenya, Morocco, Nigeria, Sudan, Tanzania, and Uganda) had explicit deposit insurance schemes in place.

The delayed adoption of deposit insurance in Africa has often been attributed to the absence of key institutional prerequisites required for the effective functioning of deposit insurance systems. These include a contracting environment that protects creditor rights, credible accounting and disclosure standards, and well-developed bank regulatory and supervisory frameworks (Demirgüç-Kunt and Kane, 2002).

Following the 2008 global financial crisis, the adoption of explicit deposit insurance schemes accelerated globally as countries sought to enhance financial stability and bolster public confidence in the banking system (Demirgüç-Kunt et al., 2015). In Africa, this trend was particularly pronounced, with regional monetary unions playing a key role. The Central African Economic and Monetary Community (CEMAC) and the West African Economic and Monetary Union (WAEMU) were instrumental in promoting deposit insurance by issuing regional directives that encouraged or required member states to establish national deposit insurance schemes (Demirgüç-Kunt et al., 2015; IMF, 2012). These regional efforts reflect a broader recognition of the role deposit insurance in crisis prevention and resolution frameworks, particularly in low- and middle-income economies where banking industry resilience is limited (Financial Stability Board, 2012).

Regional organisations such as CEMAC and WAEMU have also played an important role in promoting the adoption of deposit insurance through regional

policy frameworks. Several member states introduced deposit insurance around the same time following these regional initiatives. Across African countries more broadly, however, substantial variation exists in the generosity of deposit insurance schemes. This variation in coverage limits, rather than the precise timing of adoption, provides the primary source of identification for our empirical analysis.

African banking systems exhibit considerable heterogeneity in institutional quality, regulatory capacity, financial development, financial inclusion, market concentration, bank business models, and depositor protection arrangements (Allen et al, 2011; Wu et al., 2020; Beck et al., 2025; Wilson et al., 2025). This diversity provides important context for understanding differences in the design and implementation of deposit insurance schemes across the continent.

Deposit insurance systems in Africa are typically administered by the central bank (e.g., Libya and Namibia) or specialized deposit insurance agencies (e.g., Kenya and Nigeria). Most African countries with deposit insurance schemes charge flat-based premiums to insured banks. However, in some cases (such as Nigeria and Uganda), banks are charged risk-based premiums. In terms of coverage design, deposit insurance schemes in Africa generally provide limited guarantees without requiring depositor coinsurance. Compensation is typically determined on a per-depositor basis. However, substantial heterogeneity exists across African countries with respect to coverage limits both across countries and over time. As shown in Table 2, the average coverage limit is approximately US\$11,000, with a standard deviation exceeding US\$32,000.

The institutional development of deposit insurance in Africa exhibits two notable characteristics. First, the institutional frameworks necessary for ensuring the effective operation of deposit insurance systems are often relatively weak, while many African economies are characterised by heightened vulnerability to shocks (UNCTAD, 2024). This makes it difficult to draw definitive conclusions regarding the likely impact of deposit insurance on banking stability based solely on evidence from other regions (Beck et al., 2009; Allen et al., 2011). Second, the adoption of deposit insurance has occurred over a relatively short period, largely shaped by regional policy coordination. External influences such as directives issued by WAEMU and CEMAC encouraged national adoption, but were not directly driven by domestic banking conditions. This feature is advantageous for our empirical strategy, given that it helps mitigate endogeneity concerns. The external impetus for adoption is less directly tied to individual country-level banking conditions than purely domestic reforms (Calomiris and Chen, 2022).

4. Methodology

Estimating the causal effect of deposit insurance generosity on bank stability is challenging in a cross-country setting because countries that adopt deposit insurance may differ systematically from those that do not. Such differences create selection bias and make it difficult to distinguish causal effects from simple correlations. To address these challenges, we employ a three-stage estimation framework based on Das et al. (2003) and the application of Calomiris and Chen (2022). The framework accommodates endogenous regressors, serial correlation, and flexible functional forms, while correcting for self-selection into deposit insurance adoption. These features make it well suited to cross-country analyses

in which both adoption decisions and deposit insurance generosity may be endogenous.

Following the sample-selection and endogeneity-correction framework of Das et al. (2003), as applied by Calomiris and Chen (2022) to deposit insurance, the empirical analysis proceeds in three stages. First, we estimate the propensity score for deposit insurance adoption to account for potential selection bias arising from systematic differences between countries that adopt explicit deposit insurance and those that do not. The predicted propensity score is subsequently incorporated into the outcome equation. Second, we estimate the unexplained component (residual) of deposit insurance generosity using the sample of countries with explicit deposit insurance. Finally, we estimate the effect of deposit insurance generosity on bank stability while including both the predicted propensity score and the estimated residual as control-function terms to correct for selection and endogeneity.

In Stage 1, the probability of adopting explicit deposit insurance is estimated using the probit specification in Equation (1).

$$DI\ adoption_{c,t} = \alpha + \beta. Controls_{c,t} + \gamma. Instruments_{c,t} + \omega_t + \varepsilon_{c,t} \quad (1)$$

where *DI adoption* is a binary variable that takes the value of one if country *c* has explicit deposit insurance in year *t* and zero otherwise.² *Controls* are a set of variables previously used in the literature that are likely to affect deposit insurance adoption. These variables include: *Inflation*; *GDP growth*; *Population*; *Currency crisis*; *Debt crisis*; and *All crisis* combined. Crisis is a dummy which

² In line with Demirgüç-Kunt et al. (2015), we consider a country as having deposit insurance if there is formal legislation or regulation establishing deposit insurance. Countries that have previously offered temporary guarantees on deposits are not considered as having deposit insurance.

takes the value of one for the three years following the onset of a crisis and zero otherwise. Institutional variables are introduced later in the analysis when examining the relationship between deposit insurance generosity and bank stability. In the adoption equation, we focus on macroeconomic and crisis-related variables commonly used in the literature to explain the timing of deposit insurance adoption.

Instruments are exogenous influences on deposit insurance adoption, which include a set of variables that capture regional and international policy diffusion on governments to enact deposit insurance. These instruments are important to strengthening our identification, given that (arguably) they are less likely to be driven solely by domestic banking-sector shocks (which might trigger the adoption of deposit insurance scheme). Following Calomiris and Chen (2022) and Demirgüç-Kunt et al. (2008), we include the following instruments: *Emulation* (the proportion of countries with deposit insurance in Africa); the *CEMAC directive* for deposit insurance adoption (which equals one for year 2011 and after when the directive is issued); and the *WAEMU directive* for deposit insurance adoption (which equals one for 2014 and subsequent years).³ ω_t is the year fixed effects and $\varepsilon_{c,t}$ is an error term.⁴ The fitted value from Stage 1 is then used to predict the

³ These regional directives did not mechanically impose identical deposit insurance schemes across member states but instead established coordinated policy frameworks encouraging national adoption. While several member states introduced deposit insurance around the same time following these directives, countries retained discretion over key design features of their schemes, particularly the level of deposit insurance coverage and operational arrangements. Consequently, substantial cross-country variation exists in the generosity of deposit insurance systems. Our empirical strategy therefore exploits variation in deposit insurance coverage limits across countries and over time, rather than relying solely on differences in adoption timing. The validity of these instruments relies on the assumption that external policy diffusion and regional directives affect domestic bank stability only through their influence on the adoption and generosity of deposit insurance schemes, and not through other direct channels.

⁴ Following Calomiris and Chen (2022), we also estimated specifications including country fixed effects. The estimated coefficient on deposit insurance generosity remained positive but became

propensity score, which accounts for endogenous selection into deposit insurance.

We denote the propensity score by $\hat{p}_{c,t}$.⁵

In Stage 2, we estimate Equation (2) using only countries with explicit deposit insurance, where deposit insurance generosity is the dependent variable.

$$DI \text{ coverage ratio}_{c,t} = \alpha + \beta \cdot Controls_{c,t} + \gamma \cdot Instruments_{c,t} + \omega_t + v_{c,t} \quad (2)$$

where *DI coverage ratio* measures the generosity of deposit insurance in country c in year t , which is the ratio of deposit insurance coverage limit to GDP per capita.

The coverage ratio is widely used in the literature as a proxy for the generosity of deposit insurance (e.g., Demirgüç-Kunt et al., 2015).⁶ ω_t is the year fixed effects and $v_{c,t}$ is an error term. Other variables are similarly defined as in Equation (1).

The residual from Equation (2), denoted by $\hat{v}_{c,t}$, captures the component of deposit insurance generosity that is not explained by the observed covariates and instruments. It serves as the control-function term used to correct for the potential endogeneity of deposit insurance generosity in the outcome equation.

In Stage 3, we estimate the effect of deposit insurance generosity on bank stability using Equation (3). The specification includes deposit insurance

statistically insignificant. Because deposit insurance adoption and generosity exhibit relatively little within-country variation over the sample period, the fixed-effects specification identifies the effect primarily from a limited number of within-country policy changes.

⁵ In the empirical implementation, the CEMAC and WAEMU directive variables are perfectly collinear with the adoption decision for member countries once year fixed effects are included. Consequently, these variables are omitted from the first-stage adoption equation. This omission is mechanical rather than a modelling choice. In the second-stage equation, which exploits variation in deposit insurance generosity conditional on adoption, the regional directive variables remain informative because countries retain substantial discretion over coverage limits.

⁶ This measure captures the generosity of depositor protection relative to the size of the economy and facilitates meaningful comparisons across countries with different income levels. Given that the measure is expressed relative to GDP per capita, changes over time may reflect revisions to statutory coverage limits, movements in GDP per capita, or both. Accordingly, the estimated coefficient should be interpreted as capturing changes in the effective generosity of deposit insurance rather than statutory policy changes alone. To further ensure that our results are not driven by the specific definition of generosity, we also employ an alternative measure based on deposit insurance coverage scores in the robustness analysis.

generosity together with the estimated propensity score from Stage 1 ($\hat{p}_{c,t}$) and the control-function residual from Stage 2 ($\hat{v}_{c,t}$) to account for selection and endogeneity, as specified in Equation (3).

$$y_{c,t} = \lambda + \delta.DI\ coverage\ ratio_{c,t} + \eta(\hat{p}_{c,t}) + \pi(\hat{v}_{c,t}) + \phi.Controls_{c,t} + \omega_t + \varepsilon_{c,t} \quad (3)$$

where $y_{c,t}$ indicates bank stability in country c in year t , which is measured by Z-score, a commonly used proxy for banking sector stability. In additional analyses, we replace the Z-score with alternative outcome variables, including the bank capital ratio, private sector lending, and government sector lending, to examine the broader effects of deposit insurance generosity. $\eta(\cdot)$ and $\pi(\cdot)$ are unknown functions to be estimated. ω_t is the year fixed effects and $\varepsilon_{c,t}$ is an error term. In our additional analysis $y_{c,t}$ represents bank capital ratio, private sector and government sector lending.⁷

Equation (3) features a function based on the predicted propensity score $\eta(\hat{p}_{c,t})$ and the estimated residual $\pi(\hat{v}_{c,t})$. The estimated propensity score controls for non-random selection into deposit insurance adoption by accounting for observable differences between adopting and non-adopting countries. The predicted residual, on the other hand, reflects the unexplained variation in deposit insurance generosity (Stage 2), which is only observable in countries that implemented deposit insurance. We also include a quadratic term of the propensity score in order to account for possible non-linearities between the propensity score and bank stability. This allows for possible nonlinear

⁷ The estimated propensity score and residual terms are included as correction terms to account for potential sample selection and endogeneity in the estimation procedure. Their coefficients are therefore not interpreted as structural determinants of banking sector stability but rather as components of the econometric correction proposed by Calomiris and Chen (2022).

relationships between deposit insurance coverage and bank stability. Including both the linear and quadratic residual terms allows for flexible correction of endogeneity arising from omitted variables and nonlinear relationships (Calomiris and Chen, 2022).⁸

The identifying assumption is that regional directives affected domestic banking stability only through their influence on the adoption and generosity of deposit insurance rather than through other direct channels. While this assumption cannot be tested directly, the directives established common policy frameworks rather than harmonising broader banking regulations or imposing identical coverage limits. Moreover, considerable cross-country variation remains in both the coverage limits and implementation of deposit insurance schemes after adoption, providing identifying variation for the analysis.

5. Data and summary statistics

5.1 Deposit insurance data

We construct a new panel dataset on explicit deposit insurance adoption and coverage limits for 54 African countries spanning 2000-2021. The dataset builds on the World Bank Deposit Insurance Database (Demirgüç-Kunt et al., 2015) by extending both its country coverage and time period through extensive manual data collection. Specifically, we track annual deposit insurance adoption and statutory coverage limits for all African countries over 2000-2021 using a wide range of local, regional, and international sources. The extended sample captures

⁸ While single-country studies appear to benefit from a more credible identification, the results face issues with external validity given the geographic context of the findings. Cross-country studies are more likely to gain generalizability but face the challenge of identification. Our study is the first study in Africa that utilises a novel econometric method employed by Calomiris and Chen (2022) to address identification issues in a cross-country context.

the recent wave of deposit insurance adoption across Africa and aligns with the updated bank stability data used in our analysis.

To ensure the accuracy and consistency of the dataset, we verify all observations using multiple independent sources. Our primary source is the annual deposit insurance survey conducted by the International Association of Deposit Insurers (IADI) between 2011 and 2022. Because the IADI surveys are publicly available only from 2011 onward and do not cover every African country in every year, we supplement them with information from national deposit insurance agencies, central banks, deposit insurance legislation, and national archives. Where official domestic sources are unavailable, we consult World Bank and IMF Country Reports, particularly for the earlier years of the sample. Finally, regional and national news reports are used to verify adoption dates and statutory coverage limits or to fill remaining gaps where official documentation is unavailable. Table 1 summarizes the manually collected data on deposit insurance adoption dates and annual coverage limits for the 31 African countries with explicit deposit insurance schemes.

[Table 1 around here]

5.2 Banking and macroeconomic data

To measure banking stability, we employ the Z-score, a commonly used indicator of stability in the banking literature and obtain data from the World Bank Global Financial Development database.⁹ We construct country-level banking variables

⁹ Our measure of banking sector stability is the banking-system Z-score obtained from the World Bank's Global Financial Development Database (GFDD). The GFDD constructs this indicator using country-level banking-sector aggregates based on return on assets (ROA), the capital-to-assets ratio, and the standard deviation of ROA. The underlying data are primarily sourced from Bureau van Dijk's Bankscope/Orbis Bank Focus database and compiled by the World Bank to produce cross-country measures of banking system stability. As with all studies using the GFDD,

using aggregated data from the IMF International Financial Statistics (bank asset, equity, loan to private sector, and loan to government sector) and World Bank Global Financial Development database (ROA, ROE, and Liquidity ratio). The key advantage of using these data sources is that most variables, particularly the Z-score, are constructed consistently, and thus allow us to control for differences in accounting principles across countries.

Macroeconomic variables are obtained from the IMF's International Financial Statistics (inflation and exchange rates) and the World Bank's World Development Indicators (GDP growth, GDP per capita, and population). Measures of institutional quality are obtained from the World Bank's Worldwide Governance Indicators (Kaufmann and Kraay, 2024). Data on banking, currency, sovereign debt, twin, and triple crises are obtained from Laeven and Valencia (2020) and Nguyen et al. (2022). After merging all datasets, the final sample comprises 1,177 country-year observations covering 54 African countries over 2000–2021, of which 31 operate explicit deposit insurance schemes. Table A.1 reports detailed variable definitions and data sources.

5.3 Summary statistics

Table 2 presents the summary statistics. Between 2000 and 2021, 31 of the 54 African countries (57%) adopted an explicit deposit insurance scheme. The deposit insurance indicator has a mean of 0.296 across 1,177 country-year observations, reflecting the relatively recent adoption of explicit schemes in Africa. Among the

our analysis inherits the strengths and limitations of this widely used database, including differences in the coverage of reporting banks across countries and over time. Because the Z-score incorporates historical information on bank profitability volatility, it reflects banking system stability over time rather than purely contemporaneous conditions. Accordingly, our estimates should be interpreted as documenting associations between deposit insurance generosity and banking sector stability rather than immediate causal effects within a single year.

31 adopting countries, the average duration of operation during the sample period is approximately 11 years. This pattern reflects widespread adoption through regional initiatives, particularly the introduction of deposit insurance across all CEMAC member states in 2011 and WAEMU member states in 2014. The average statutory coverage limit is approximately US\$11,000, indicating substantial variation in the generosity of deposit insurance schemes across African countries.

[Table 2 around here]

The average Z-score is 16, slightly below the global average of 16.4 reported in the 2022 Global Financial Development Database. Figure 2 illustrates the relationship between the deposit insurance coverage ratio (defined as the statutory coverage limit relative to GDP per capita) and the Z-score. The figure suggests that higher deposit insurance coverage ratios are associated with higher Z-scores, indicating a positive association between deposit insurance generosity and bank stability. However, this descriptive relationship may not be strictly linear. Accordingly, our empirical specification includes quadratic terms to allow for potential nonlinear effects across different levels of deposit insurance generosity.

[Figure 2 around here]

6. Empirical analysis

6.1 Stages 1 and 2: deposit insurance adoption and generosity

Table 3 Panel A reports the regression results of Stage 1 (the probability of adopting deposit insurance). In Column 1, we consider the impact of international influences on the likelihood of adopting deposit insurance, controlling for country-level macroeconomic conditions and *Currency crises*. In Column 2, we include *Debt*

crises, while in Column 3 we add *Post-multiple crises*. Table 3 Panel A shows that the international influence instrument (*Emulation*) strongly predicts the probability of deposit insurance adoption (*CEMAC directive* and *WAEMU directive* are dropped due to multicollinearity). The coefficients are positive and statistically significant at the 1% level. The results suggest that a country is more likely to adopt deposit insurance when the fraction of countries with deposit insurance increases. This is consistent with previous studies documenting policy diffusion in deposit insurance adoption (Calomiris and Chen, 2022; Demirgüç-Kunt and Detragiache, 2002; Demirgüç-Kunt et al., 2008).

Among the control variables, the coefficient on *Population* is positive and statistically significant, indicating that more populous countries are more likely to adopt deposit insurance. The likelihood of adopting deposit insurance declines following a currency crisis. One possible explanation is that currency crises often trigger macroeconomic stabilisation programmes that prioritise fiscal consolidation and monetary stabilisation, leaving limited fiscal and policy space for establishing new financial safety-net institutions such as deposit insurance. This differs from evidence for advanced economies, where deposit insurance adoption is more likely following banking crises (Calomiris and Chen, 2022). In our African sample, however, banking crises are relatively uncommon during the study period, underscoring important differences in the institutional and macroeconomic contexts between African and advanced economies. In addition, Demirgüç-Kunt et al. (2008) find that higher economic development increases the likelihood of deposit insurance adoption, likely due to stronger institutions and greater regulatory and fiscal capacity. We find no significant link between

economic growth and deposit insurance adoption. This finding is consistent with Laeven (2004) and suggests that, in Africa, regional policy coordination and international policy diffusion play a more important role than domestic economic conditions in explaining deposit insurance adoption.

[Table 3 around here]

Stage 2 examines the determinants of deposit insurance generosity, conditional on adoption, as specified in Equation (2). Table 3 Panel B reports the results. Consistent with the Stage 1 estimates, the international influence variables strongly predict deposit insurance generosity. The coefficients on *Emulation* and the *CEMAC* and *WAEMU* deposit insurance directives are positive and statistically significant, indicating that stronger international and regional policy influences are associated with more generous deposit insurance coverage. These findings are consistent with the literature showing that international policy diffusion influences both the adoption and design of deposit insurance systems (Calomiris and Chen, 2022). Overall, the Stage 1 and Stage 2 estimates support the identification strategy. The international influence variables strongly predict both the probability of adopting deposit insurance and the generosity of coverage among adopting countries, providing the foundation for the Stage 3 analysis of the relationship between deposit insurance generosity and bank stability after accounting for endogenous policy adoption and selection.

6.2 Main results: deposit insurance generosity and bank stability

In Stage 3, we examine the relationship between deposit insurance generosity and bank stability by regressing the Z-score on deposit insurance generosity. The predicted propensity score from Stage 1 and the predicted residual from Stage 2

are added as controls. Table 4 reports the results. In Columns 1, 2 and 3, we include: the estimated propensity score from Stage 1 (which controls for self-selection); the residual term from Stage 2 (which controls for the endogeneity of deposit insurance generosity); and different types of financial crisis. In Column 4, we report the results of the non-linear model, which incorporates the interaction between the propensity and residual terms. This specification allows the relationship between deposit insurance generosity and bank stability to vary across different levels of coverage. In Column 5, we further control for differences in country institutional environments.

The results suggest that more generous deposit insurance is associated with higher banking sector stability. The coefficient on deposit insurance generosity (measured by the deposit insurance coverage ratio) is positive and statistically significant across all specifications. Since a higher Z-score reflects lower risk, these findings suggest that increased generosity is associated with greater banking sector stability. Our preferred specification in Column 5, which controls for institutional environment, suggests that a one-standard-deviation increase in deposit insurance generosity is associated with a 2.2% increase relative to the sample mean Z-score (0.046×0.491). Our findings contrast with much of the prior evidence for advanced economies, where more generous deposit insurance is frequently associated with greater moral hazard and higher bank risk (Chernykh and Cole, 2011; Cull et al., 2005; Demirgüç-Kunt and Detragiache, 2002). These findings support the view that the effects of deposit insurance generosity are context dependent and may vary with the institutional and macroeconomic environment.

These findings are consistent with studies suggesting that the stabilising effects of deposit insurance become more pronounced during periods of financial stress and heightened market volatility, when stronger depositor protection helps maintain depositor confidence and reduce the likelihood of destabilising withdrawals (Anginer et al., 2014; Liu et al., 2016). One possible explanation is that the confidence- and liquidity-enhancing effects of deposit insurance are relatively more important in banking systems characterised by greater macroeconomic volatility, lower depositor confidence, and less developed financial markets. These features are common in many African banking systems, although they are unlikely to apply uniformly across countries. In such environments, the confidence-enhancing role of deposit insurance may outweigh incentives for excessive risk-taking. Nevertheless, our aggregate country-level data cannot distinguish this interpretation from alternative explanations, including concurrent regulatory reforms or changes in credit demand. We therefore interpret these mechanisms as plausible explanations that are consistent with our findings rather than definitive causal channels.

[Table 4 around here]

6.3 Robustness tests

6.3.1. Alternative measures of deposit insurance

We conduct several robustness checks to ensure the validity of our results. First, we use alternative measures of deposit insurance. In our baseline model, deposit insurance is measured by the ratio of the coverage limit to GDP per capita. In order to ensure that our findings are not driven by the specificity of a single measure, we follow Calomiris and Chen (2022) to measure deposit insurance using

a deposit insurance score ranging from 0 to 1. Specifically, after calculating the coverage ratio (coverage limit divided by GDP per capita), we partition the coverage ratios into five buckets and assign a score to each bucket depending on the magnitude of these ratios.¹⁰ This method mitigates the influence of extreme outliers in deposit insurance coverage. The findings, reported in Table 5, are consistent with the baseline results.

[Table 5 around here]

6.3.2. Alternative measure of bank stability

We further assess the robustness of our findings by employing an alternative measure of bank stability. As demonstrated during the 2008 global financial crisis and the 2023 US regional banking turmoil, liquidity shortages often serve as an early indicator of instability in the banking industry. To capture another dimension of bank stability, we collect data from the World Bank Global Financial Development database and construct a liquidity ratio, defined as the ratio of liquid assets to the sum of short-term funding and total deposits. We replicate the baseline regressions using this alternative outcome variable. The results are presented in Table 6. The estimated coefficients are positive and statistically significant across specifications with all major controls, suggesting that more generous deposit insurance is associated with higher bank liquidity. These findings are consistent with our baseline results and provide further evidence of a positive association between deposit insurance generosity and banking sector stability.

¹⁰ Coverage scores are determined by the ratio of the coverage limit to GDP per capita: a ratio of 0-1 scores 0.2; 1-2 scores 0.4; 2-6 scores 0.6; 6-20 scores 0.8; and ratios above 20 score 1.

[Table 6 around here]

6.3.3. Excluding countries with risk-based deposit insurance scheme

Prior research suggests that risk-based deposit insurance schemes mitigate bank moral hazard and enhance financial stability by aligning premiums with the underlying risk profile of financial institutions (Chernykh and Kotomin, 2022; Liu et al., 2016). In our sample, only two countries, Nigeria and Uganda have adopted such risk-adjusted schemes. Both countries are notable for their relatively large banking industries and longer established deposit insurance schemes. This raises the possibility that their inclusion could disproportionately influence our results. In order to address this concern, we exclude Nigeria and Uganda from the sample and re-estimate the baseline model. As reported in Table 7, the results remain robust, suggesting that our main findings are not sensitive to the presence of risk-based deposit insurance schemes in the sample.¹¹

[Table 7 around here]

6.3.4. Additional robustness tests

The literature suggests that the effects of deposit insurance depend on institutional and macroeconomic conditions. Demirgüç-Kunt and Kane (2002) argue that weak institutional environments amplify the moral hazard associated with deposit insurance. By contrast, Anginer et al. (2014) and Liu et al. (2016) show that the stabilising effects of deposit insurance become more pronounced

¹¹ Economic uncertainty such as hyperinflation can also distort the relationship between deposit insurance and bank stability. To address this, we exclude countries experiencing hyperinflation during the study period, specifically Sudan and Zimbabwe. These countries also include periods where deposit insurance coverage limits had to be inferred or carried forward due to missing data. Excluding them therefore provides a more conservative test that jointly mitigates concerns related to macroeconomic instability and potential measurement error. The results, reported in Tables A.4 and A.5, remain consistent with our baseline findings.

during periods of heightened financial stress and market volatility. We therefore examine whether our baseline results remain robust after accounting for these institutional and macroeconomic differences.

To examine whether our findings are sensitive to these factors, we re-estimate the baseline model using different sets of controls, with the results reported in Table 8. Column 1 controls for national income groups (as classified by the World Bank). Income groups proxy for broad differences in economic development, institutional capacity, and financial sector characteristics across African economies. In Column 2, we interact deposit insurance coverage with six indicators of institutional quality to allow the association between deposit insurance generosity and bank stability to vary with institutional quality. Column 3 further includes country fixed effects to control for unobservable country-specific factors. Across all specifications, the coefficient on the deposit insurance coverage ratio remains positive and highly significant.

The interaction terms with institutional quality indicators yield mixed results. This may reflect the substantial heterogeneity in institutional environments across African countries, as well as the fact that different dimensions of institutional quality capture distinct aspects of governance and regulatory effectiveness. Importantly, however, the positive relationship between deposit insurance generosity and bank stability remains robust across all specifications, suggesting that the stabilising effects of deposit insurance are not driven solely by institutional quality differences. These results provide further evidence that the positive association between deposit insurance generosity and banking stability is robust to alternative specifications and institutional controls.

[Table 8 around here]

6.4 Empirical patterns associated with deposit insurance and bank stability

We next examine which components of the Z-score are associated with deposit insurance generosity. Specifically, we seek to identify which aspects of bank stability are most affected by deposit insurance. In order to do so, we partition the Z-score into its constituent components of bank capital (Equity/Asset), volatility of profit (standard deviation of ROA) and profit (ROA), and investigate how deposit insurance influences each of these respectively. This approach allows us to identify which dimensions of bank stability are most strongly associated with deposit insurance generosity. While these analyses provide useful descriptive evidence, they should not be interpreted as identifying the mechanisms through which deposit insurance influences banking stability.¹²

6.4.1. Bank capital

We begin by examining the relationship between deposit insurance generosity and bank capital ratios. The results are presented in Table 9. As shown in Column 1, the coefficient on deposit insurance generosity is statistically insignificant and economically small, suggesting little association between deposit insurance generosity and banks' capital ratios. To better understand this result, we further examine the two components of the capital ratio: total assets and total equity. The estimates reported in Columns 2 and 3 indicate that deposit insurance generosity is negatively associated with both total assets and total equity. One possible interpretation is that banks operating in countries with more generous deposit

¹² The results on the impact of deposit insurance coverage on bank profitability (ROA) provide no clear evidence. To save space, we report the relevant findings in the Appendix, Table A.6.

insurance tend to have lower levels of assets and equity, with these reductions occurring proportionally so that capital ratios remain broadly unchanged. However, our aggregate country-level analysis cannot distinguish this interpretation from alternative explanations. Overall, these findings suggest that the negative association between deposit insurance generosity and bank balance sheet size does not translate into a meaningful difference in capital adequacy.

[Table 9 around here]

6.4.2. Volatility of bank profit

We next examine the relationship between deposit insurance generosity and bank earnings volatility, another key component of the Z-score. Earnings volatility is an important dimension of banking stability because greater volatility increases banks' risk profiles and lowers Z-scores (De Haan and Poghosyan, 2012). Given the positive association between deposit insurance generosity and banking stability documented in our baseline results, we investigate whether deposit insurance generosity is also associated with lower volatility of bank profitability. To do so, we draw on data from the World Bank Global Financial Development database and re-estimate the baseline model using the standard deviation of ROA, computed over a five-year rolling window, as the dependent variable. The results, reported in Table 10, show that greater deposit insurance generosity is associated with lower bank profit volatility. These findings suggest that the positive association between deposit insurance generosity and banking stability is closely linked to lower earnings volatility, one of the principal components of the Z-score.

[Table 10 around here]

6.5 Bank lending

As shown previously, deposit insurance generosity is not significantly associated with bank capital ratios. This finding is accompanied by negative associations with both total assets and total equity, leaving the capital ratio largely unchanged. Given that bank loans constitute a major component of bank assets, an important question is whether deposit insurance generosity is also associated with bank lending. We therefore examine the relationship between deposit insurance generosity and bank lending.

Prior literature provides mixed evidence regarding the relationship between deposit insurance and bank lending. Hasan et al. (2022), for example, find that banks in countries with explicit deposit insurance implemented smaller reductions in total and foreign lending during the global financial crisis, particularly among banks with greater reliance on deposit funding. Their findings further suggest that more generous or credible deposit insurance schemes are associated with greater resilience in bank lending during periods of financial stress. By contrast, other studies report that greater deposit insurance generosity is associated with expanded lending and increased risk-taking by banks and credit unions (Calomiris and Chen, 2022; Lambert et al., 2017; Nguyen et al., 2022).

To provide descriptive evidence on this relationship in the African context, we compile data on total loans, loans to the private sector, and loans to the government sector from the IMF International Financial Statistics and the World Bank Global Financial Development database. We plot the time series of annual growth in total loans relative to assets, together with the shares of loans to the private and government sectors, for countries that have adopted deposit

insurance. As shown in Figure 3, bank lending exhibits a downward trend after 2011, a period that coincides with the most recent wave of deposit insurance adoption across many African countries. While this descriptive evidence does not establish a causal relationship, it is consistent with the regression analysis presented below.

[Figure 3 around here]

We next examine the relationship between deposit insurance generosity and bank lending. The results are reported in Table 11. The coefficient on deposit insurance generosity is negative and statistically significant for total bank lending (Column 1), indicating that greater deposit insurance generosity is associated with lower lending relative to total assets. A similar negative and statistically significant association is observed for lending to the private sector (Column 2). By contrast, the coefficient for government lending (Column 3) is also negative but statistically insignificant. Overall, these findings suggest that the negative association between deposit insurance generosity and bank lending is primarily driven by lower lending to the private sector.

[Table 11 around here]

Following prior literature (Calomiris and Chen, 2022) we also scale total bank loans by GDP. This measure captures bank lending relative to the size of the economy, thus providing a complementary perspective on the relationship between deposit insurance generosity and credit provision. The results, reported in Table 12 show that the coefficients on deposit insurance generosity are consistently negative and statistically significant across all specifications. These findings indicate that greater deposit insurance generosity is associated with lower bank

lending relative to GDP, with similar negative associations observed for both private and government-sector lending. These findings differ from prior studies reporting that greater deposit insurance generosity is associated with expanded or riskier lending (Calomiris and Chen, 2022; Lambert et al., 2017; Nguyen et al., 2022).

The negative association between deposit insurance generosity and bank lending is nevertheless consistent with our earlier findings of lower profit volatility and largely unchanged capital ratios. One possible interpretation is that banks operating in countries with more generous deposit insurance employ relatively more conservative lending patterns. These findings differ from Ngalawa et al. (2016) who show that deposit insurance combined with greater private-sector credit is associated with increased banking instability. Thus, consistent with a moral-hazard explanation. Instead, our results document lower private-sector lending, albeit our aggregate country-level analysis cannot determine whether this pattern reflects: more conservative bank behaviour; changes in credit demand; or broader macroeconomic conditions.¹³

While our results are consistent with the notion that deposit insurance generosity is associated with more conservative lending patterns, alternative explanations cannot be ruled out. In particular, the observed decline in lending could also reflect changes in loan demand, concurrent policy reforms, or broader macroeconomic conditions during the period of deposit insurance expansion. Our results show that greater deposit insurance generosity is associated with weaker

¹³ To further assess the impact of deposit insurance on bank lending, one useful approach is to examine its effect on loan performance. The Global Financial Development Database provides the ratio of non-performing loans (loans overdue by 90 days or more) to total gross loans. Unfortunately, data coverage for African countries is limited, preventing a more in-depth analysis.

credit provision. While this finding is consistent with banks adopting more conservative balance sheet strategies, our aggregate country-level evidence does not allow us to identify the channels through which this relationship operates, and these channels may differ across countries.

These findings also have implications for the debate regarding the moral hazard associated with deposit insurance. A large body of literature argues that deposit insurance may increase bank risk-taking by weakening depositor discipline and encouraging banks to expand riskier lending (Demirgüç-Kunt and Detragiache, 2002; Cull et al., 2005; Ioannidou and Penas, 2010). In such settings, banks may take advantage of the implicit safety net provided by deposit insurance and increase their exposure to riskier assets. By contrast, our results are not consistent with this pattern. Instead, we observe lower bank lending alongside lower volatility of bank profitability in countries with more generous deposit insurance. One possible interpretation is that banks operating in these environments adopt relatively more conservative balance-sheet strategies. Alternatively, the observed patterns may reflect differences in credit demand or other country-specific factors that are not captured by our analysis. This interpretation is nevertheless consistent with evidence suggesting that the confidence-enhancing effects of deposit insurance may be more pronounced in volatile macroeconomic and institutional environments (Anginer et al., 2014; Liu et al., 2016).

[Table 12 around here]

In summary, our findings suggest that greater deposit insurance generosity is associated with higher banking sector stability in Africa, with the positive

association appearing to be particularly related to lower volatility of bank profitability. Although deposit insurance generosity is not significantly associated with bank capital ratios, it is associated with lower earnings volatility. At the same time, greater deposit insurance generosity is associated with lower credit provision, both overall and across the private and public sectors.

7. Conclusion

In the wake of the 2023 run on Silicon Valley Bank, deposit insurance has once again become a focal point for policymakers seeking to prevent bank runs and contain financial contagion. Despite its renewed policy relevance, the academic literature remains divided on whether deposit insurance enhances or undermines banking sector stability. While some studies highlight its stabilising role in alleviating liquidity pressures during crises, others emphasise its potential to exacerbate moral hazard, weaken market discipline, and encourage excessive risk-taking.

In this paper, we contribute to this debate by examining the relationship between deposit insurance generosity and bank stability in Africa, a region that has experienced a rapid expansion of deposit insurance schemes in recent decades. Using a novel dataset covering 54 African countries over the period 2000-2021, we provide evidence that greater deposit insurance generosity is associated with higher banking sector stability. In particular, we find that greater deposit insurance generosity is associated with higher Z-scores, providing evidence that the confidence-enhancing effects of depositor protection can outweigh the moral-hazard costs emphasised in much of the literature.

Further analysis identifies two empirical patterns associated with the positive relationship between deposit insurance generosity and bank stability. Greater deposit insurance generosity is associated with lower volatility of bank profitability and lower bank lending. While deposit insurance generosity is not significantly associated with bank capital ratios, these findings are consistent with the possibility that banks adopt more conservative balance-sheet strategies, resulting in lower earnings volatility and reduced credit expansion. These findings contrast with much of the existing evidence from advanced economies, where deposit insurance is often associated with increased risk-taking and moral hazard.

Taken together, our findings have several implications for policymakers in developing economies. First, they suggest that deposit insurance may contribute to financial stability, even in environments characterised by relatively weaker institutional frameworks. Second, the results highlight the importance of considering institutional and macroeconomic context when designing deposit insurance systems. In banking systems characterised by greater macroeconomic volatility and less developed financial infrastructure, the confidence-stabilising effects of deposit insurance may outweigh potential moral hazard concerns. At the same time, the observed contraction in lending highlights a potential trade-off between financial stability and credit provision, suggesting that the design of deposit insurance schemes should carefully balance depositor protection with the need to maintain adequate credit supply to the real economy.

The evidence points to a clear association between more generous deposit insurance and greater banking stability. In particular, greater deposit insurance generosity is associated with lower lending and lower earnings volatility, patterns

consistent with banks operating more conservatively in environments with broader depositor protection. While the aggregate nature of the data does not allow us to isolate the precise channels through which these effects arise, the findings provide new evidence on how deposit insurance is related to banking stability across African banking systems and establish a foundation for future research on the underlying mechanisms.

Our findings also highlight promising directions for future research. Understanding how deposit insurance interacts with banking system characteristics, including the prevalence of state-owned and state-supported banks could further illuminate the determinants of banking stability. Building on the evidence presented here, future research that combines bank-level supervisory data with ownership, resolution, and institutional information could provide a richer understanding of the mechanisms through which depositor protection schemes influence banking system outcomes across diverse institutional settings.

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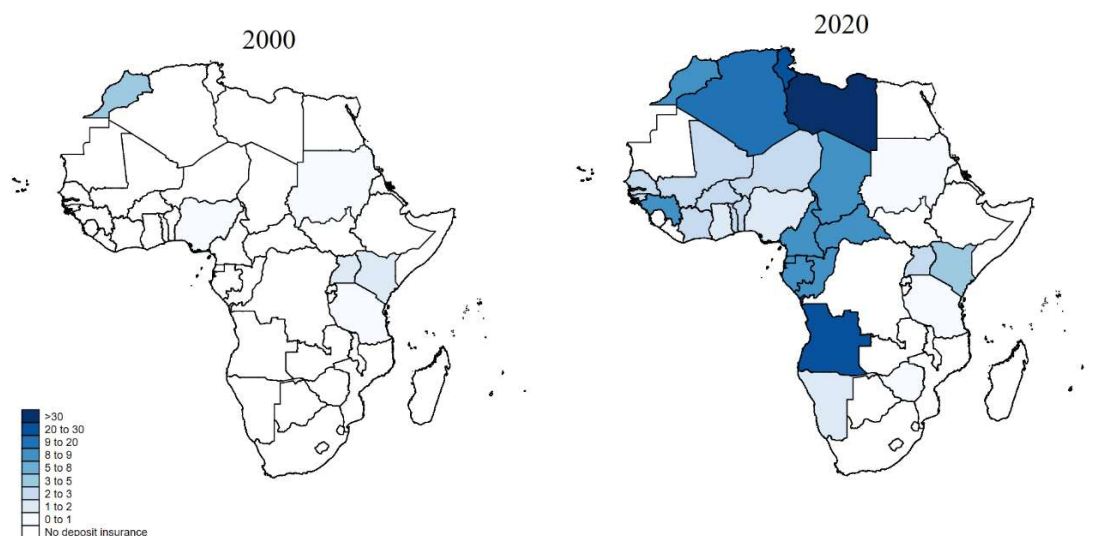
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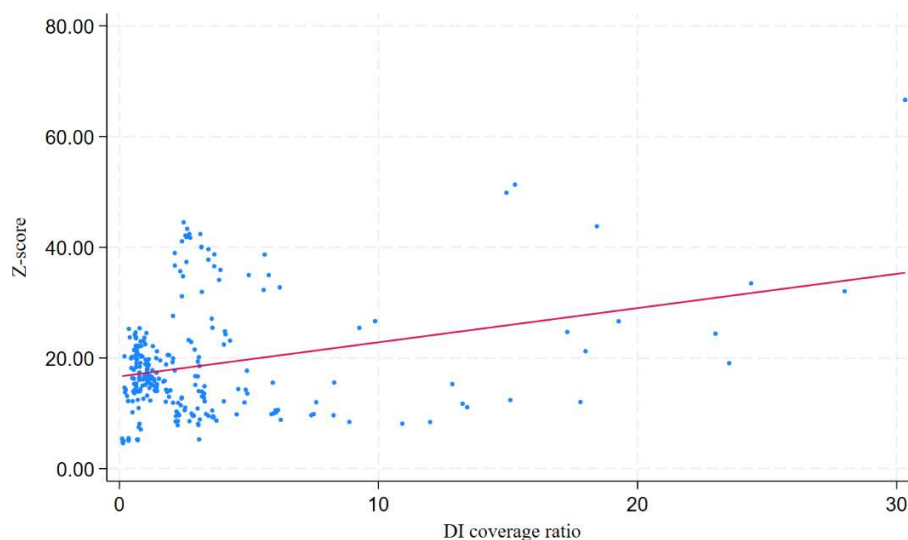
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Figure 1. Deposit insurance and coverage limits



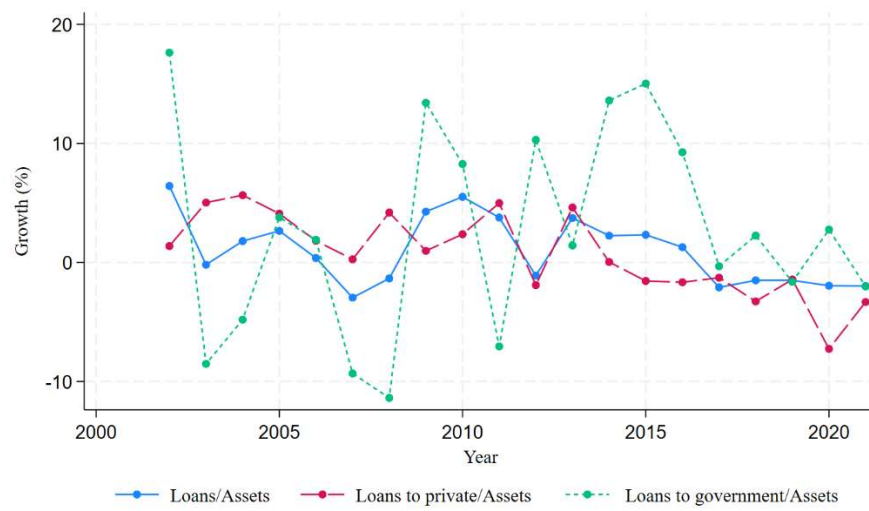
This figure shows African countries with an explicit deposit insurance scheme in place in the years 2000 and 2020. Colour shading indicates the coverage limit, expressed in thousands of US dollars. Coverage limits were originally collected in local currency from various sources and converted to US dollars using the annual average exchange rate from the IMF's *International Financial Statistics*. See Table 1 for detailed data sources on deposit insurance and Table A.1 for variable definitions.

Figure 2. Deposit insurance generosity and banking stability



This figure plots the correlation between deposit insurance coverage ratio (the ratio of coverage limit to GDP per capita) and banking stability measured by Z-score (for countries that have deposit insurance scheme). The coverage limit in local currency is manually collected from various sources and converted to US\$ using yearly average exchange rate from IMF's *International Financial Statistics*. Z-score comes from World Bank Global Financial Development database. See Table 1 for detailed data sources of deposit insurance and Table A.1 for variable definitions.

Figure 3. Loan growth



This figure plots growth of total loans over assets; loans to private sector to assets; and loans to government sector to assets after a country adopting deposit insurance. Growth is the log difference (%). Data come from IMF's *International Financial Statistics*. Please see Table A.1 for data sources and variable definitions.

Table 1. Deposit insurance adoption and coverage limit in Africa from 2000 to 2021

No	County	Adoption	Currency	Coverage limits in thousands of local currencies (Period)
1	Algeria	2003	DIN	600 (2003-2016); 2,000 (2017-2021)
2	Angola	2018	AOA	12,500 (2018-2021)
3	Benin	2014	XOF	1,400 (2014-2021)
4	Burkina Faso	2014	XOF	1,400 (2014-2021)
5	Cabo Verde	2016	CVE	1,000 (2016-2021)
6	Cameroon	2011	XAF	5,000 (2011-2021)
7	Central African Rep.	2011	XAF	5,000 (2011-2021)
8	Chad	2011	XAF	5,000 (2011-2021)
9	Congo, Rep.	2011	XAF	5,000 (2011-2021)
10	Côte d'Ivoire	2014	XOF	1,400 (2014-2021)
11	Equatorial Guinea	2011	XAF	5,000 (2011-2021)
12	Gabon	2011	XAF	5,000 (2011-2021)
13	Ghana	2016	GHC	6.25 (2016-2021)
14	Guinea	2019	GNF	85,000 (2019-2021)
15	Guinea-Bissau	2014	XOF	1,400 (2014-2021)
16	Kenya	1985	KES	100 (2000-2019); 500 (2020-2021)
17	Libya	2010	LYD	250 (2010-2021)
18	Mali	2014	XOF	1,400 (2014-2021)
19	Mauritius	2019	MUR	300 (2019-2021)
20	Morocco	1996	MAD	50 (2000-2005); 80 (2006-2021)
21	Namibia	2020	NAD	25 (2020-2021)
22	Niger	2014	XOF	1,400 (2014-2021)
23	Nigeria	1988	NGN	50 (2000-2005); 200 (2006-2010); 500 (2011-2021)
24	Rwanda	2016	RWF	500 (2016-2021)
25	Senegal	2014	XOF	1,400 (2014-2021)
26	Sudan	1996	SDG	1.5 (2000-2003); 3 (2004-2009); 10 (2010-2013); 15 (2014-2020); 60 (2021)
27	Tanzania	1994	TZS	250 (2000-2003); 500 (2004-2009); 1,500 (2010-2021)
28	Togo	2014	XOF	1,400 (2014-2021)
29	Tunisia	2016	TND	60 (2017-2021)
30	Uganda	1994	UGX	3,000 (2000-2018); 10,000 (2019-2021)
31	Zimbabwe	2003	USD	3.64 (2003-2004); 0.15 (2005-2012); 0.5 (2013-2015); 1.0 (2016-2021)

This table presents the coverage limits for 31 out of 51 African countries with explicit deposit insurance schemes over the period 2000-2021, expressed in local currency (in thousands). The data were manually collected from multiple sources, including the World Bank Deposit Insurance Database (Demirgüç-Kunt et al., 2015); International Association of Deposit Insurers (Annual Surveys, 2011-2022); World Bank Country Reports (Financial Inclusion and Stability Project, Financial Sector Reviews); IMF Country Reports (various issues); national central banks (Financial Stability Reports, press releases, governor speeches, strategic plans); national deposit insurance corporations; Bank for International Settlements (Country Reviews); national law archives; African Development Bank (Country Briefs); regional newspapers (*The East African*, *African Heroes*, *AllAfrica*); national newspapers (*Nation Online Malawi*, *Namibian Broadcasting Corporation*, *Namibia Economist*, *Leadership Newspaper Nigeria*, *Oxford Business Group Tunisia*, *The Herald Zimbabwe*); and the European Bank for Reconstruction and Development. For some years, coverage limits were estimated due to missing data, specifically for Sudan (2000-2002, 2004-2009, and 2018-2020) and Zimbabwe (2005-2009), where values were assumed to remain unchanged from the previously available year. For WAEMU countries, the deposit guarantee fund was established in 2014, while the common statutory coverage limit was formally set at XOF 1.4 million in 2017; this limit is applied to the transitional period 2014-2016 for consistency in constructing the coverage series. In the case of Zimbabwe, coverage limits are expressed in US dollars due to limited data on local currency coverage and the occurrence of hyperinflation.

Table 2. Summary statistics

VARIABLES	(1) N	(2) mean	(3) sd	(4) p25	(5) p50	(6) p75
DI adoption	1,177	0.296	0.457	-	-	-
Coverage limit (US\$ thousand)	346	10.939	32.839	1.293	2.520	8.687
DI coverage ratio	680	2.015	4.520	0.000	0.150	2.136
DI score	682	0.337	0.206	0.200	0.200	0.500
Emulation	1,177	0.296	0.173	0.151	0.278	0.500
CEMAC directive	1,177	0.056	0.230	0.000	0.000	0.000
WAEMU directive	1,177	0.054	0.227	0.000	0.000	0.000
Z-score	838	16.222	8.125	10.324	14.779	19.877
Z-score (log)	838	2.670	0.491	2.334	2.693	2.990
Liquidity ratio	836	0.401	0.199	0.256	0.355	0.503
Equity (US\$ million)	985	2,330.738	5,649.997	114.541	332.459	1,335.922
Equity (log)	984	5.992	1.903	4.742	5.807	7.198
Asset (US\$ million)	985	23,737.061	63,246.283	977.165	2,768.089	10,373.777
Asset (log)	984	8.158	1.956	6.885	7.941	9.252
Total loan (US\$ million)	961	17,329.827	48,258.038	564.239	1,796.061	7,313.155
Loan to private (US\$ million)	985	11,238.440	33,638.360	323.341	1,370.092	5,397.780
Loan to government (US\$ million)	961	5,863.155	20,320.938	107.293	462.068	2,035.358
Equity/Asset	997	0.124	0.047	0.090	0.113	0.152
Pre-tax ROE	804	0.245	0.169	0.143	0.217	0.311
After-tax ROE	799	0.177	0.124	0.104	0.160	0.224
Pre-tax ROA	814	0.026	0.023	0.014	0.023	0.036
After-tax ROA	812	0.018	0.018	0.010	0.017	0.027
Loan to private/Asset	997	0.457	0.151	0.349	0.472	0.563
Loan to government/Asset	973	0.187	0.129	0.095	0.160	0.243
Loan to private/GDP	978	0.500	2.347	0.081	0.161	0.292
Loan to government/GDP	954	0.174	0.579	0.023	0.053	0.137
Inflation	1,080	0.100	0.344	0.022	0.049	0.092
GDP growth	1,130	0.039	0.065	0.020	0.042	0.063
GDP per capita	1,134	2,349.897	2,907.111	630.313	1,200.316	2,914.127
Population (log)	1,177	15.883	1.582	14.683	16.219	17.004
Post-currency crisis	1,047	0.138	0.346	0.000	0.000	0.000
Post-debt crisis	1,091	0.622	0.485	0.000	1.000	1.000
Post-multiple crises	1,105	0.684	0.465	0.000	1.000	1.000
Control of corruption	1,103	-0.668	0.599	-1.117	-0.718	-0.311
Voice and Accountability	1,103	-0.673	0.720	-1.222	-0.736	-0.153
Political stability	1,103	-0.615	0.894	-1.226	-0.469	0.024
Government effectiveness	1,103	-0.792	0.630	-1.208	-0.820	-0.483
Regulatory quality	1,103	-0.738	0.640	-1.136	-0.727	-0.348
Rule of law	1,103	-0.735	0.631	-1.169	-0.737	-0.325
Number of countries	54	54	54	54	54	54

This table provides summary statistics on deposit insurance adoption, generosity, and other variables aggregated at the country level for a sample of 54 African countries over the period 2000-2021. Variable definitions and data sources are presented in Tables 1 and A.1, respectively.

Table 3. Deposit insurance adoption and generosity: the baseline

Panel A. Deposit insurance adoption			
Dependent: DI adoption	(1)	(2)	(3)
Emulation	2.462*** (0.696)	2.568*** (0.765)	2.524*** (0.779)
Inflation	-0.196 (0.426)	-0.258 (0.446)	-0.313 (0.439)
GDP growth	-0.757 (0.975)	-0.812 (0.995)	-0.794 (0.966)
Population (log)	0.628*** (0.188)	0.639*** (0.193)	0.662*** (0.204)
Post-currency crisis	-1.093*** (0.389)	-1.090*** (0.387)	-0.806* (0.464)
Post-debt crisis		0.128 (0.369)	0.744 (0.760)
Post-multiple crises			-0.696 (0.746)
Observations	853	840	840
Number of countries	54	54	54
Pseudo R-squared	0.299	0.300	0.304

Panel B. Deposit insurance generosity			
Dependent: DI coverage ratio	(1)	(2)	(3)
Emulation	32.325** (14.954)	24.968** (11.628)	23.935* (11.826)
CEMAC directive	8.229*** (2.991)	8.150** (2.992)	8.133** (3.009)
WAEMU directive	2.886*** (0.922)	3.267*** (0.788)	3.235*** (0.811)
Inflation	-1.270 (0.783)	-1.749*** (0.569)	-1.814*** (0.581)
GDP growth	1.112 (2.052)	-0.040 (2.289)	0.055 (2.323)
Population (log)	-18.726 (11.079)	-13.375 (9.166)	-13.347 (9.183)
Post-currency crisis	0.262 (1.287)	0.688 (1.089)	1.272 (1.688)
Post-debt crisis		1.730** (0.784)	2.825 (1.951)
Post-multiple crises			-1.207 (1.681)
Observations	590	578	578
R-squared	0.463	0.524	0.527
Number of countries	31	31	31

This table reports the results of Stage1 (Panel A) and Stage 2 (Panel B) of a three-stage model similar to Calomiris and Chen (2022). In Stage 1, a probit model is used to estimate the likelihood of deposit insurance adoption and to predict the propensity score (Equation 1). The dependent variable is deposit insurance that takes the value of one if a country has an explicit deposit insurance scheme in a given year, zero otherwise. Stage 2 estimates the residual of deposit insurance generosity. The dependent variable is the ratio of deposit insurance coverage limit to GDP per capita (winsorized at the 1st and 95th percentiles) on selected sample including only countries that adopt deposit insurance scheme (Equation 2). The exogenous variables for deposit insurance adoption and coverage limit are Emulation, CEMAC directive and WAEMU directive. The latter two are dropped in Stage 1 due to multicollinearity. All estimations include year fixed effects. The exogenous variables are used as instruments in Stage 3 alongside with the propensity score predicted in Stage 1 and residual estimated in Stage 2 (Equation 3 with results in Table 4). Column 1 includes post-currency crisis dummy. Column 2 controls for both post-currency and post-debt crisis. Column 3 adds the post dummy for multiple crises. Robust standard errors clustered at country level are in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% level, respectively. Table 1 and A.1 present the variable definitions and data sources.

Table 4. Deposit insurance and bank stability: the baseline

Dependent: Z-score (log)	(1)	(2)	(3)	(4)	(5)
DI coverage ratio	0.018** (0.007)	0.033*** (0.005)	0.037*** (0.006)	0.053*** (0.008)	0.046*** (0.008)
Propensity	0.874*** (0.238)	0.921*** (0.211)	0.996*** (0.235)	2.663*** (0.651)	2.274*** (0.626)
Residual	-0.017*** (0.005)	-0.022*** (0.003)	-0.023*** (0.004)	-0.026*** (0.006)	-0.028*** (0.006)
Propensity^2				-1.667** (0.811)	-2.144** (0.836)
Residual^2				-0.000** (0.000)	-0.001*** (0.000)
Propensity*Residual				0.029 (0.021)	0.069*** (0.026)
Inflation	0.105 (0.108)	0.109 (0.087)	0.104 (0.090)	-0.223 (0.170)	-0.325 (0.213)
GDP growth	0.195 (0.209)	0.134 (0.329)	0.113 (0.359)	-0.172 (0.326)	-0.348 (0.305)
Population (log)	0.157*** (0.008)	0.164*** (0.010)	0.163*** (0.010)	0.000 (0.000)	0.000 (0.000)
Post-currency crisis	0.177** (0.078)	0.124 (0.094)	0.038 (0.135)	-0.063 (0.135)	-0.153 (0.132)
Post-debt crisis		-0.114* (0.068)	-0.242** (0.118)	-0.582*** (0.147)	-0.527*** (0.143)
Post-multiple crises			0.133 (0.116)	0.372** (0.145)	0.542*** (0.143)
Corruption					0.062 (0.074)
Accountability					-0.127*** (0.045)
Political					-0.118*** (0.039)
Effectiveness					0.420*** (0.093)
Regulatory					-0.138 (0.085)
Rule of law					0.130 (0.104)
Observations	380	380	380	380	350
Number of countries	27	27	27	27	26

This table reports the results of the impact of deposit insurance generosity on bank stability. The dependent variable is the Z-score (log). Deposit insurance generosity is the ratio of deposit insurance coverage limit to GDP per capita (winsorized at the 1st and 95th percentiles). This estimation is Stage 3, Equation 3, of a three-stage model similar to Calomiris and Chen (2022). Stage 1 estimates the likelihood of adopting deposit insurance from which the propensity score is predicted (Equation 1, results reported in Table 3, Panel A). Stage 2 estimates the residual of deposit insurance generosity on selected sample including only countries that adopt deposit insurance scheme (Equation 2, results reported in Table 3, Panel B). The propensity score from Stage 1 and residual from Stage 2 are added as controls in Stage 3. The results of the linear terms of the propensity score and residual are reported in Column 1 (controlling for post-currency crisis), Column 2 (controlling for post-debt crisis) and Column 3 (controlling for post-multiple crises). A nonlinear model of the propensity score and residual are reported in Column 4 (excluding interactions between DI coverage and country's institutional characteristics) and Column 5 (including interactions). All estimations include year fixed effects. Robust standard errors clustered at country level are in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% level, respectively. Table 1 and A.1 present the variable definitions and data sources.

Table 5. Deposit insurance and bank stability: alternative measure of deposit insurance

Dependent: Z-score (log)	(1)	(2)	(3)	(4)	(5)
DI score	0.526*** (0.175)	0.564*** (0.170)	0.564*** (0.175)	0.661*** (0.158)	0.366** (0.160)
Propensity	0.930*** (0.244)	0.960*** (0.230)	0.968*** (0.254)	2.474*** (0.673)	2.124*** (0.647)
Residual	-0.379*** (0.087)	-0.400*** (0.085)	-0.400*** (0.088)	0.000 (0.000)	0.000 (0.000)
Propensity^2				-1.941** (0.800)	- (0.802)
Residual^2				-0.250*** (0.058)	- (0.076)
Propensity*Residual				1.114*** (0.402)	1.597*** (0.458)
Inflation	0.104 (0.104)	0.134 (0.090)	0.135 (0.090)	-0.184 (0.166)	-0.360* (0.209)
GDP growth	-0.093 (0.104)	-0.078 (0.099)	-0.078 (0.100)	-0.478* (0.282)	-0.569** (0.264)
Population (log)	0.150*** (0.010)	0.153*** (0.011)	0.153*** (0.011)	-0.428*** (0.077)	- (0.077)
Post-currency crisis	0.152** (0.073)	0.151** (0.069)	0.142* (0.075)	-0.102 (0.135)	-0.172 (0.132)
Post-debt crisis		-0.067 (0.053)	-0.080 (0.061)	-0.525*** (0.144)	- (0.137)
Post-multiple crises			0.015 (0.084)	0.438*** (0.145)	0.438*** (0.140)
Corruption					0.057 (0.073)
Accountability					-0.113** (0.045)
Political					- (0.138***)
Effectiveness					0.426*** (0.092)
Regulatory					- (0.231***)
Rule of law					0.164 (0.104)
Observations	383	383	383	383	353
Number of countries	27	27	27	27	26

This table reports the results of the impact of deposit insurance generosity on bank stability. The dependent variable is the Z-score (log). Deposit insurance generosity is alternatively measured by generosity score constructed following an approach similar to Calomiris and Chen (2022). This estimation is Stage 3, Equation 3, of a three-stage model similar to Calomiris and Chen (2022). Stage 1 estimates the likelihood of adopting deposit insurance from which the propensity score is predicted (Equation 1, results reported in Table A.2, Panel A). Stage 2 estimates the residual of deposit insurance generosity on selected sample including only countries that adopt deposit insurance scheme (Equation 2, results reported in Table A.2, Panel B). The propensity score from Stage 1 and residual from Stage 2 are added as controls in Stage 3. The results of the linear terms of the propensity score and residual are reported in Column 1 (controlling for post-currency crisis), Column 2 (controlling for post-debt crisis) and Column 3 (controlling for post-multiple crises). A nonlinear model of the propensity score and residual are reported in Column 4 (excluding interactions between DI coverage and country's institutional characteristics) and Column 5 (including interactions). All estimations include year fixed effects. Robust standard errors clustered at country level are in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% level, respectively. Table 1 and A.1 present the variable definitions and data sources.

Table 6. Deposit insurance and bank stability: alternative measure of bank stability

Dependent: Liquidity ratio	(1)	(2)	(3)	(4)	(5)
DI coverage ratio	0.006 (0.006)	0.005 (0.005)	0.020*** (0.007)	0.023*** (0.003)	0.014*** (0.003)
Propensity	-0.003 (0.295)	-0.026 (0.275)	0.075 (0.221)	0.051 (0.279)	0.121 (0.266)
Residual	-0.005 (0.003)	-0.005* (0.003)	-0.003 (0.002)	-0.001 (0.003)	0.001 (0.003)
Propensity^2				-0.074 (0.345)	0.510 (0.353)
Residual^2				0.000 (0.000)	0.000*** (0.000)
Propensity*Residual				0.002 (0.009)	-0.030*** (0.011)
Inflation	0.312*** (0.068)	0.285*** (0.076)	0.382*** (0.046)	0.415*** (0.072)	0.263*** (0.089)
GDP growth	0.186 (0.129)	0.153 (0.133)	0.295** (0.135)	0.359*** (0.137)	0.391*** (0.127)
Population (log)	0.028*** (0.006)	0.026*** (0.006)	0.021*** (0.005)	0.000 (0.000)	0.000 (0.000)
Post-currency crisis	-0.050 (0.070)	-0.051 (0.068)	-0.024 (0.116)	-0.045 (0.054)	0.046 (0.054)
Post-debt crisis		0.049 (0.041)	0.078 (0.100)	0.110* (0.060)	0.142** (0.059)
Post-multiple crises			-0.022 (0.094)	-0.031 (0.059)	-0.097* (0.059)
Corruption					-0.015 (0.031)
Accountability					-0.028 (0.019)
Political					-0.015 (0.017)
Effectiveness					0.117*** (0.039)
Regulatory					-0.190*** (0.036)
Rule of law					-0.020 (0.044)
Observations	381	381	381	381	351
Number of countries	28	28	28	28	27

This table reports the results of the impact of deposit insurance generosity on bank stability. The dependent variable is Liquidity ratio. Deposit insurance generosity is the ratio of deposit insurance coverage limit to GDP per capita (winsorized at the 1st and 95th percentiles). This estimation is Stage 3, Equation 3, of a three-stage model similar to Calomiris and Chen (2022). Stage 1 estimates the likelihood of adopting deposit insurance from which the propensity score is predicted (Equation 1, results reported in Table 3, Panel A). Stage 2 estimates the residual of deposit insurance generosity on selected sample including only countries that adopt deposit insurance scheme (Equation 2, results reported in Table 3, Panel B). The propensity score from Stage 1 and residual from Stage 2 are added as controls in Stage 3. The results of the linear terms of the propensity score and residual are reported in Column 1 (controlling for post-currency crisis), Column 2 (controlling for post-debt crisis) and Column 3 (controlling for post-multiple crises). A nonlinear model of the propensity score and residual are reported in Column 4 (excluding interactions between DI coverage and country's institutional characteristics) and Column 5 (including interactions). All estimations include year fixed effects. Robust standard errors clustered at country level are in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% level, respectively. Table 1 and A.1 present the variable definitions and data sources.

Table 7. Deposit insurance and bank stability: excluding countries with risk-adjusted premium

Dependent: Z-score (log)	(1)	(2)	(3)	(4)	(5)
DI coverage ratio	0.012* (0.006)	0.024*** (0.005)	0.031*** (0.006)	0.050*** (0.008)	0.049*** (0.009)
Propensity	0.845*** (0.227)	0.855*** (0.203)	1.027*** (0.235)	3.321*** (0.744)	3.144*** (0.709)
Residual	-0.014** (0.006)	-0.019*** (0.004)	-0.020*** (0.004)	-0.020*** (0.005)	-0.022*** (0.005)
Propensity^2				-2.194** (1.048)	-2.785*** (1.026)
Residual^2				-0.000 (0.000)	-0.001*** (0.000)
Propensity*Residual				0.014 (0.030)	0.051 (0.031)
Inflation	0.082 (0.103)	0.096 (0.082)	0.102 (0.085)	-0.199 (0.175)	-0.203 (0.214)
GDP growth	0.250 (0.198)	0.203 (0.282)	0.165 (0.339)	0.020 (0.334)	-0.089 (0.306)
Population (log)	0.163*** (0.008)	0.169*** (0.010)	0.168*** (0.010)	0.000 (0.000)	0.000 (0.000)
Post-currency crisis	0.141** (0.067)	0.095 (0.086)	-0.115 (0.181)	-0.427*** (0.161)	-0.424*** (0.147)
Post-debt crisis		-0.088 (0.067)	-0.395** (0.189)	-1.049*** (0.208)	-0.958*** (0.194)
Post-multiple crises			0.314 (0.199)	0.854*** (0.211)	0.999*** (0.194)
Corruption					-0.199** (0.083)
Accountability					-0.203*** (0.046)
Political					-0.154*** (0.040)
Effectiveness					0.435*** (0.096)
Regulatory					0.019 (0.087)
Rule of law					0.337*** (0.111)
Observations	342	342	342	342	314
Number of countries	25	25	25	25	24

This table reports the results of the impact of deposit insurance generosity on bank stability on a sub-sample which excludes countries with risk-adjusted premium (Nigeria and Uganda). The dependent variable is the Z-score (log). Deposit insurance generosity is the ratio of deposit insurance coverage limit to GDP per capita (winsorized at the 1st and 95th percentiles). This estimation is Stage 3, Equation 3, of a three-stage model similar to Calomiris and Chen (2022). Stage 1 estimates the likelihood of adopting deposit insurance from which the propensity score is predicted (Equation 1, results reported in Table A.3, Panel A). Stage 2 estimates the residual of deposit insurance generosity on selected sample including only countries that adopt deposit insurance scheme (Equation 2, results reported in Table A.3, Panel B). The propensity score from Stage 1 and residual from Stage 2 are added as controls in Stage 3. The results of the linear terms of the propensity score and residual are reported in Column 1 (controlling for post-currency crisis), Column 2 (controlling for post-debt crisis) and Column 3 (controlling for post-multiple crises). A nonlinear model of the propensity score and residual are reported in Column 4 (excluding interactions between DI coverage and country's institutional characteristics) and Column 5 (including interactions). All estimations include year fixed effects. Robust standard errors clustered at country level are in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% level, respectively. Table 1 and A.1 present the variable definitions and data sources.

Table 8. Deposit insurance and bank stability: additional robustness tests

Dependent variable: Z-score	(1)	(2)	(3)
DI coverage ratio	0.028** (0.012)	0.178*** (0.031)	0.055** (0.026)
Propensity	2.038*** (0.634)	2.187*** (0.705)	0.360 (0.389)
Residual	-0.024*** (0.008)	-0.031*** (0.007)	0.018 (0.018)
Propensity^2	-2.369*** (0.818)	-2.153** (0.921)	0.093 (0.502)
Residual^2	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Propensity*Residual	0.079*** (0.026)	0.069*** (0.027)	-0.007 (0.017)
Inflation	-0.370* (0.209)	-0.155 (0.215)	0.001 (0.121)
GDP growth	-0.329 (0.303)	-0.611* (0.329)	-0.336* (0.176)
Population (log)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Post-currency crisis	-0.225* (0.130)	-0.224 (0.149)	-0.133 (0.100)
Post-debt crisis	-0.440*** (0.147)	-0.648*** (0.158)	-0.121 (0.112)
Post-multiple crises	0.505*** (0.144)	0.538*** (0.156)	0.163* (0.093)
Corruption	0.086 (0.072)		
Accountability	-0.174*** (0.045)		
Political	-0.160*** (0.040)		
Effectiveness	0.280*** (0.099)		
Regulatory	-0.068 (0.084)		
Rule of law	0.246** (0.108)		
DI coverage*Corruption		0.127** (0.057)	0.012 (0.035)
DI coverage*Accountability		-0.143*** (0.042)	-0.103*** (0.030)
DI coverage*Political		0.005 (0.021)	0.068*** (0.014)
DI coverage*Effectiveness		-0.102 (0.064)	-0.030 (0.032)
DI coverage*Regulatory		-0.043 (0.034)	-0.042** (0.020)
DI coverage*Rule		0.240*** (0.059)	0.119*** (0.034)
Observations	350	350	350
Number of countries	26	26	26

This table reports the results of the impact of deposit insurance generosity on bank stability additionally controlling for (1) country's income level in Column 1; (2) interactions between DI coverage with each of six indicators of national institutions characteristics in Column 2; and (3) country fixed effects in Column 3. The dependent variable is the Z-score (log). Deposit insurance generosity is the ratio of deposit insurance coverage limit to GDP per capita (winsorized at the 1st and 95th percentiles). This estimation is Stage 3, Equation 3, of a three-stage model similar to Calomiris and Chen (2022). Stage 1 estimates the likelihood of adopting deposit insurance from which the propensity score is predicted (Equation 1, results reported in Table 3, Panel A). Stage 2 estimates the residual of deposit insurance generosity on selected sample including only countries that adopt deposit insurance scheme (Equation 2, results reported in Table 3, Panel B). The propensity score from Stage 1 and residual from Stage 2 are added as controls in Stage 3. All estimations include year fixed effects. Robust standard errors clustered at country level are in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% level, respectively. Table 1 and A.1 present the variable definitions and data sources.

Table 9. Deposit insurance and components of Z-Score: Bank capital ratio

Dependent variable	(1) Equity/Assets	(2) Total Assets	(3) Equity
DI coverage ratio	-0.007 (0.031)	-0.224*** (0.025)	-0.232*** (0.037)
Propensity	0.102 (0.490)	0.018 (0.384)	0.120 (0.584)
Residual	0.004 (0.026)	0.216*** (0.021)	0.220*** (0.031)
Propensity^2	0.453 (0.569)	0.829* (0.446)	1.281* (0.677)
Residual^2	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Propensity*Residual	-0.008 (0.020)	-0.050*** (0.016)	-0.058** (0.024)
Inflation	0.103 (0.159)	-1.252*** (0.124)	-1.149*** (0.189)
GDP growth	-0.491* (0.289)	-0.252 (0.226)	-0.743** (0.344)
Population (log)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Post-currency crisis	0.092 (0.104)	0.195** (0.081)	0.287** (0.124)
Post-debt crisis	0.125 (0.130)	0.675*** (0.102)	0.801*** (0.155)
Post-multiple crises	-0.128 (0.100)	-0.285*** (0.079)	-0.413*** (0.119)
Corruption	0.218** (0.092)	-0.160** (0.072)	0.058 (0.109)
Accountability	-0.009 (0.070)	-0.054 (0.055)	-0.063 (0.084)
Political	0.051 (0.042)	-0.036 (0.033)	0.015 (0.050)
Effectiveness	0.515*** (0.103)	0.251*** (0.080)	0.766*** (0.122)
Regulatory	-0.025 (0.090)	0.149** (0.071)	0.124 (0.107)
Rule of law	0.066 (0.100)	0.128 (0.079)	0.193 (0.120)
Observations	393	392	392
Number of countries	30	29	29

This table reports the results of the impact of deposit insurance generosity on bank capital. The dependent variable is Equity/Assets in Column 1, Total Assets in Column 2; and Equity in Column 3; all in natural logarithm form. Deposit insurance generosity is the ratio of deposit insurance coverage limit to GDP per capita (winsorized at the 1st and 95th percentiles). This estimation is Stage 3, Equation 3, of a three-stage model similar to Calomiris and Chen (2022). Stage 1 estimates the likelihood of adopting deposit insurance from which the propensity score is predicted (Equation 1, results reported in Table 3, Panel A). Stage 2 estimates the residual of deposit insurance generosity on selected sample including only countries that adopt deposit insurance scheme (Equation 2, results reported in Table 3, Panel B). The propensity score from Stage 1 and residual from Stage 2 are added as controls in Stage 3. All estimations include year and country fixed effects. Robust standard errors clustered at country level are in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% level, respectively. Table 1 and A.1 present the variable definitions and data sources.

Table 10. Deposit insurance and components of Z-Score: Volatility of bank profit

Dependent variable: ROA volatility	(1)	(2)	(3)	(4)
DI coverage ratio	-0.379** (0.167)	-0.244 (0.183)	-0.337** (0.141)	-0.218 (0.154)
Propensity	0.795 (2.605)	3.121 (2.706)	0.700 (2.197)	2.743 (2.282)
Residual	0.493*** (0.163)	0.354** (0.177)	0.435*** (0.138)	0.310** (0.150)
Propensity^2	8.624** (3.404)	9.751*** (3.409)	7.274** (2.871)	8.295*** (2.875)
Residual^2	0.010*** (0.001)	0.013*** (0.002)	0.008*** (0.001)	0.011*** (0.002)
Propensity*Residual	-0.523*** (0.125)	-0.621*** (0.130)	-0.440*** (0.105)	-0.527*** (0.109)
Inflation	2.767 (2.131)	4.160* (2.226)	2.252 (1.798)	3.363* (1.877)
GDP growth	0.206 (1.160)	0.939 (1.175)	0.045 (0.978)	0.691 (0.991)
Population (log)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Post-currency crisis	-3.755*** (0.596)	-3.224*** (0.656)	-3.136*** (0.503)	-2.649*** (0.553)
Post-debt crisis	-3.284*** (0.844)	-3.624*** (0.867)	-2.676*** (0.712)	-2.969*** (0.731)
Post-multiple crises	4.387*** (0.645)	4.398*** (0.666)	3.652*** (0.544)	3.643*** (0.562)
Corruption		1.503** (0.633)		1.194** (0.534)
Accountability		-0.835** (0.424)		-0.722** (0.358)
Political		0.402 (0.292)		0.320 (0.246)
Effectiveness		-1.753** (0.799)		-1.522** (0.674)
Regulatory		-0.639 (0.557)		-0.604 (0.470)
Rule of law		0.057 (0.723)		0.131 (0.610)
Observations	260	253	260	253
Number of countries	25	24	25	24

This table reports the results of the impact of deposit insurance generosity on volatility of bank profit. The dependent variable is pre-tax ROA volatility in Columns 1 and 2; and after-tax ROA volatility in Columns 3 and 4. Deposit insurance generosity is the ratio of deposit insurance coverage limit to GDP per capita (winsorized at the 1st and 95th percentiles). This estimation is Stage 3, Equation 3, of a three-stage model similar to Calomiris and Chen (2022). Stage 1 estimates the likelihood of adopting deposit insurance from which the propensity score is predicted (Equation 1, results reported in Table 3, Panel A). Stage 2 estimates the residual of deposit insurance generosity on selected sample including only countries that adopt deposit insurance scheme (Equation 2, results reported in Table 3, Panel B). The propensity score from Stage 1 and residual from Stage 2 are added as controls in Stage 3. All estimations include year and country fixed effects. Robust standard errors clustered at country level are in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% level, respectively. Table 1 and A.1 present the variable definitions and data sources.

Table 11. Deposit insurance and bank lending: loans-to-assets

Dependent variable	(1) Total loans/Assets	(2) Loans-to-private/Assets	(3) Loans-to-government/Assets
DI coverage ratio	-0.048*** (0.016)	-0.039** (0.019)	-0.018 (0.038)
Propensity	-0.802*** (0.258)	-0.671** (0.300)	-1.216** (0.605)
Residual	0.083*** (0.014)	0.064*** (0.016)	0.086*** (0.032)
Propensity^2	0.738** (0.311)	0.910*** (0.348)	0.633 (0.730)
Residual^2	-0.000** (0.000)	-0.000* (0.000)	-0.001** (0.000)
Propensity*Residual	-0.020* (0.011)	-0.024* (0.013)	-0.029 (0.026)
Inflation	-0.881*** (0.082)	-0.693*** (0.097)	-1.337*** (0.192)
GDP growth	-0.473*** (0.150)	-0.339* (0.177)	-0.817** (0.352)
Population (log)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Post-currency crisis	-0.057 (0.053)	-0.048 (0.064)	-0.170 (0.125)
Post-debt crisis	0.207*** (0.067)	0.146* (0.080)	0.240 (0.158)
Post-multiple crises	-0.061 (0.052)	-0.066 (0.061)	-0.026 (0.122)
Corruption	-0.014 (0.047)	0.121** (0.056)	-0.211* (0.111)
Accountability	0.055 (0.036)	0.019 (0.043)	0.085 (0.085)
Political	0.040* (0.021)	0.091*** (0.025)	-0.068 (0.050)
Effectiveness	0.079 (0.053)	0.131** (0.063)	-0.052 (0.124)
Regulatory	-0.003 (0.046)	-0.125** (0.055)	0.059 (0.109)
Rule of law	-0.061 (0.052)	-0.252*** (0.061)	0.359*** (0.121)
Observations	392	393	392
Number of countries	30	30	30

This table reports the results of the impact of deposit insurance generosity on bank lending measured by bank loans to total assets. The dependent variable is Total loans to total assets in Column 1; Loans to private sector to total assets in Column 2; and Loans to government sector to total assets in Column 3; all in natural logarithm form. Deposit insurance generosity is the ratio of deposit insurance coverage limit to GDP per capita (winsorized at the 1st and 95th percentiles). This estimation is Stage 3, Equation 3, of a three-stage model similar to Calomiris and Chen (2022). Stage 1 estimates the likelihood of adopting deposit insurance from which the propensity score is predicted (Equation 1, results reported in Table 3, Panel A). Stage 2 estimates the residual of deposit insurance generosity on selected sample including only countries that adopt deposit insurance scheme (Equation 2, results reported in Table 3, Panel B). The propensity score from Stage 1 and residual from Stage 2 are added as controls in Stage 3. All estimations include year and country fixed effects. Robust standard errors clustered at country level are in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% level, respectively. Table 1 and A.1 present the variable definitions and data sources.

Table 12. Deposit insurance and bank lending: loans-to-GDP

Dependent variable	(1) Loans/GDP	(2) Loans-to-private/GDP	(3) Loans-to-government/GDP
DI coverage ratio	-0.332*** (0.039)	-0.321*** (0.040)	-0.302*** (0.053)
Propensity	0.706 (0.616)	0.778 (0.622)	0.292 (0.854)
Residual	0.325*** (0.032)	0.306*** (0.033)	0.328*** (0.045)
Propensity^2	0.218 (0.743)	0.506 (0.722)	0.113 (1.030)
Residual^2	0.001* (0.000)	0.001* (0.000)	0.000 (0.001)
Propensity*Residual	-0.053** (0.026)	-0.061** (0.026)	-0.063* (0.036)
Inflation	-1.482*** (0.195)	-1.297*** (0.201)	-1.939*** (0.271)
GDP growth	-0.727** (0.358)	-0.613* (0.366)	-1.071** (0.496)
Population (log)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Post-currency crisis	0.797*** (0.128)	0.805*** (0.132)	0.684*** (0.177)
Post-debt crisis	1.279*** (0.160)	1.224*** (0.165)	1.312*** (0.222)
Post-multiple crises	-0.580*** (0.124)	-0.590*** (0.127)	-0.545*** (0.172)
Corruption	-0.171 (0.113)	-0.039 (0.117)	-0.369** (0.157)
Accountability	0.123 (0.086)	0.088 (0.089)	0.152 (0.120)
Political	0.096* (0.051)	0.148*** (0.053)	-0.012 (0.071)
Effectiveness	-0.097 (0.126)	-0.039 (0.130)	-0.228 (0.175)
Regulatory	0.050 (0.111)	-0.075 (0.114)	0.113 (0.154)
Rule of law	0.254** (0.123)	0.065 (0.127)	0.674*** (0.171)
Observations	392	393	392
Number of countries	30	30	30

This table reports the results of the impact of deposit insurance generosity on bank lending measured by bank loans to total national GDP. The dependent variable is Total loans to GDP in Column 1; Loans to private sector to GDP in Column 2; and Loans to government sector to GDP in Column 3; all in natural logarithm form. Deposit insurance generosity is the ratio of deposit insurance coverage limit to GDP per capita (winsorized at the 1st and 95th percentiles). This estimation is Stage 3, Equation 3, of a three-stage model similar to Calomiris and Chen (2022). Stage 1 estimates the likelihood of adopting deposit insurance from which the propensity score is predicted (Equation 1, results reported in Table 3, Panel A). Stage 2 estimates the residual of deposit insurance generosity on selected sample including only countries that adopt deposit insurance scheme (Equation 2, results reported in Table 3, Panel B). The propensity score from Stage 1 and residual from Stage 2 are added as controls in Stage 3. All estimations include year and country fixed effects. Robust standard errors clustered at country level are in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% level, respectively. Table 1 and A.1 present the variable definitions and data sources.

Table A.1. Variable definitions

Variable	Definition	Source
<i>Deposit insurance</i>		
DI adoption	A dummy that takes the value of one if a country has explicit deposit insurance, zero otherwise	Compiled by the authors using various international, regional and national sources (please see Table 1 for details)
Coverage limit	Deposit insurance coverage limit in local currency	
DI coverage ratio	Coverage limit to GDP per capita	
DI score	A score that equals 0.2 if coverage ratio is smaller than 1; 0.4 if the ratio is from 1 to 2; 0.6 if the ratio is from 2 to 6; 0.8 if the ratio is from 6 to 20; and equals 1 if the ratio is larger than 20. In countries with coinsurance, the score equals 0.5 times the coverage score.	
Emulation	The proportion of countries with explicit deposit insurance in a given year	Bank of Central African States (BEAC)
CEMAC directive	A dummy that takes the value of one for the years 2011 and onwards for member countries of the Central African Economic and Monetary Community (CEMAC). The year 2011 was when the CEMAC directive on deposit insurance entered into force.	
WAEMU directive	A dummy that takes the value of one for the years 2014 and onwards for member countries of the West African Economic and Monetary Union (WAEMU). The year 2014 was when the WAEMU directive on deposit insurance entered into force.	Central Bank of West African States (BCEAO)
<i>Bank stability</i>		
Z-score (log)	The natural logarithm of Z-score, which captures the probability of default of a country's commercial banking system. Z-score compares the buffer of a country's commercial banking system (capitalisation and returns) with the volatility of those returns.	World Bank Global Financial Development Database (updated September 2022)
Liquidity ratio	The ratio of the value of liquid assets to short-term funding plus total deposits	
<i>Aggregate bank-level</i>		
Equity (log)	The natural logarithm of bank shares and other equity (Code: FOSE_XDC)	IMF International Financial Statistics database
Asset (log)	The natural logarithm of bank total assets, which is the sum of Claims on Central Bank (Code: FOSAA_XDC), Claims on Other Sectors (Code: FOSAO_XDC), Claims on Non-residents (Code: FOSAF_XDC), and Claims on Central Government (Code: FOSAG_XDC)	
Equity/Asset	The ratio of bank equity to total assets	
Loan to private/Asset	The ratio of loan to private sector (Claims on Private Sector, Code: FOSAOP_XDC) to total bank assets	
Loan to government/Asset	The ratio of loan to government sector (the sum of Claims on State and Local Government (Code: FOSAOG_XDC), Claims on Public Non-financial Corporations (Code: FOSAON_XDC), and Claims on Central Government (Code: FOSAG_XDC)) to total bank assets	

Table A.1. Variable definitions (cont.)

Pre-tax ROE	Commercial banks' pre-tax income to yearly averaged equity	World Bank Global Financial Development Database (updated September 2022)
After-tax ROE	Commercial banks' after-tax net income to yearly averaged equity	
Pre-tax ROA	Commercial banks' pre-tax income to yearly averaged total assets	
After-tax ROA	Commercial banks' after-tax net income to yearly averaged total assets	
<i>Country-level</i>		
Loan to private/GDP	Loan to private sector over GDP	
Loan to government/GDP	Loan to government sector over GDP	
Inflation	Consumer Price Index, All items, Percentage change, Previous period (%) (Code: PCPI_PC_PP_PT)	
GDP growth	GDP growth rate	
Population (log)	The natural logarithm of total population	
GDP per capita	GDP per capita (constant 2015 US\$)	
Post-currency crisis	A dummy that takes the value of one for the three years following the start of a currency crisis, zero otherwise	
Post-debt crisis	A dummy that takes the value of one for the three years following the start of a debt crisis, zero otherwise	
Post-multiple crises	A dummy that takes the value of one for the three years following the start of any types of crises, zero otherwise	
<i>Country governance</i>		
Control of corruption	An index captures perceptions of the extent to which public power is exercise for private gain, including both petty and grand forms of corruptions, as well as “capture” of the state by elites and private interests.	Kaufmann and Kraay (2024). Worldwide Governance Indicators.
Voice and Accountability	An index captures perceptions of the extent to which a country’s citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.	
Political stability	An index measures perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism.	
Government effectiveness	An index captures perceptions of the quality of public services, the quality of the civil services and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government’s commitment to such policies.	
Regulatory quality	An index captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.	
Rule of law	An index captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.	

Table A.2. Deposit insurance adoption and generosity: alternative measure of deposit insurance

Panel A. Deposit insurance adoption: alternative measure of deposit insurance generosity			
Dependent variable: DI adoption	(1)	(2)	(3)
Emulation	2.462*** (0.696)	2.568*** (0.765)	2.524*** (0.779)
Inflation	-0.196 (0.426)	-0.258 (0.446)	-0.313 (0.439)
GDP growth	-0.757 (0.975)	-0.812 (0.995)	-0.794 (0.966)
Population (log)	0.628*** (0.188)	0.639*** (0.193)	0.662*** (0.204)
Post-currency crisis	-1.093*** (0.389)	-1.090*** (0.387)	-0.806* (0.464)
Post-debt crisis		0.128 (0.369)	0.744 (0.760)
Post-multiple crises			-0.696 (0.746)
Observations	853	840	840
Number of countries	54	54	54
Pseudo R-squared	0.299	0.300	0.304

Panel B. Deposit insurance generosity: alternative measure of deposit insurance generosity			
Dependent variable: DI coverage score	(1)	(2)	(3)
Emulation	1.464*** (0.525)	1.310** (0.484)	1.321** (0.486)
CEMAC directive	0.456*** (0.090)	0.453*** (0.089)	0.453*** (0.089)
WAEMU directive	0.366*** (0.049)	0.373*** (0.045)	0.374*** (0.045)
Inflation	-0.079*** (0.025)	-0.091*** (0.027)	-0.090*** (0.025)
GDP growth	-0.108 (0.092)	-0.086 (0.085)	-0.087 (0.086)
Population (log)	-0.769** (0.322)	-0.647* (0.324)	-0.648* (0.325)
Post-currency crisis	0.032 (0.041)	0.046 (0.038)	0.040 (0.072)
Post-debt crisis		0.078** (0.029)	0.066 (0.089)
Post-multiple crises			0.013 (0.085)
Observations	595	583	583
R-squared	0.641	0.662	0.662
Number of countries	31	31	31

This table reports the results of Stage 1 (Panel A) and Stage 2 (Panel B) of a three-stage model similar to Calomiris and Chen (2022). In Stage 1, a probit model is used to estimate the likelihood of deposit insurance adoption and to predict the propensity score (Equation 1). The dependent variable is deposit insurance that takes the value of one if a country has an explicit deposit insurance scheme in a given year, zero otherwise. Stage 2 estimates the residual of deposit insurance generosity. The dependent variable is Deposit insurance generosity, alternatively measured by generosity score constructed following an approach similar to Calomiris and Chen (2022) on selected sample including only countries that adopt deposit insurance scheme (Equation 2). The exogenous variables for deposit insurance adoption and coverage limit are Emulation, CEMAC directive and WAEMU directive. The latter two are dropped in Stage 1 due to multicollinearity. All estimations include year fixed effects. The exogenous variables are used as instruments in Stage 3 (Equation 3, results reported in Table 5) alongside with the propensity score predicted in Stage 1 and residual estimated in Stage 2. Column 1 includes post-currency crisis dummy. Column 2 controls for both post-currency and post-debt crisis. Column 3 adds the post dummy for multiple crises. Robust standard errors clustered at country level are in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% level, respectively. Table 1 and A.1 present the variable definitions and data sources.

Table A.3. Deposit insurance adoption and generosity: excluding countries with risk-adjusted premium

Panel A. Deposit insurance adoption: excluding countries with risk-adjusted premium			
Dependent variable: DI adoption	(1)	(2)	(3)
Emulation	2.704*** (0.708)	2.792*** (0.754)	2.758*** (0.792)
Inflation	-0.150 (0.422)	-0.228 (0.459)	-0.399 (0.548)
GDP growth	-1.023 (1.001)	-1.086 (1.022)	-1.055 (0.950)
Population (log)	0.529*** (0.188)	0.538*** (0.193)	0.562*** (0.200)
Post-currency crisis	-0.987** (0.398)	-0.981** (0.394)	-0.313 (0.407)
Post-debt crisis		0.160 (0.398)	5.832*** (0.571)
Post-multiple crises			-5.835*** (0.557)
Observations	813	800	800
Number of countries	54	54	54
Pseudo R-squared	0.249	0.249	0.278

Panel B. Deposit insurance generosity: excluding countries with risk-adjusted premium			
Dependent variable: DI coverage ratio	(1)	(2)	(3)
Emulation	31.689** (15.141)	24.959** (11.997)	22.593* (12.275)
CEMAC directive	8.110** (3.083)	8.208** (3.082)	8.224** (3.099)
WAEMU directive	2.757** (1.013)	3.306*** (0.905)	3.263*** (0.942)
Inflation	-1.208 (0.811)	-1.770*** (0.614)	-1.950*** (0.655)
GDP growth	1.198 (2.105)	-0.002 (2.308)	0.216 (2.358)
Population (log)	-18.239 (11.326)	-13.474 (9.553)	-13.474 (9.551)
Post-currency crisis	0.322 (1.412)	0.755 (1.224)	2.104 (2.112)
Post-debt crisis		1.802** (0.827)	4.478* (2.527)
Post-multiple crises			-2.860 (2.249)
Observations	550	538	538
R-squared	0.464	0.526	0.535
Number of countries	29	29	29

This table reports the results of Stage1 (Panel A) and Stage 2 (Panel B) of a three-stage model similar to Calomiris and Chen (2022). In Stage 1, a probit model is used to estimate the likelihood of deposit insurance adoption and to predict the propensity score (Equation 1). The dependent variable is deposit insurance that takes the value of one if a country has an explicit deposit insurance scheme in a given year, zero otherwise. Stage 2 estimates the residual of deposit insurance generosity. The dependent variable is the ratio of deposit insurance coverage limit to GDP per capita (winsorized at the 1st and 95th percentiles) on selected sample including only countries that adopt deposit insurance scheme (Equation 2) and excluding countries with risk-adjusted premium (Nigeria and Uganda). The exogenous variables for deposit insurance adoption and coverage limit are Emulation, CEMAC directive and WAEMU directive. The latter two are dropped in Stage 1 due to multicollinearity. All estimations include year fixed effects. The exogenous variables are used as instruments in Stage 3 (Equation 3, results reported in Table 7) alongside with the propensity score predicted in Stage 1 and residual estimated in Stage 2. Column 1 includes post-currency crisis dummy. Column 2 controls for both post-currency and post-debt crisis. Column 3 adds the post dummy for multiple crises. Robust standard errors clustered at country level are in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% level, respectively. Table 1 and A.1 present the variable definitions and data sources.

Table A.4. Deposit insurance adoption and generosity: excluding countries with hyperinflation

Panel A. Deposit insurance adoption: excluding countries with hyperinflation			
Dependent variable: DI adoption	(1)	(2)	(3)
Emulation	2.705*** (0.767)	2.678*** (0.839)	2.673*** (0.831)
Inflation	-1.699 (1.993)	-1.622 (1.757)	-1.615 (1.731)
GDP growth	-0.549 (0.764)	-0.572 (0.750)	-0.571 (0.750)
Population (log)	0.648*** (0.197)	0.650*** (0.197)	0.652*** (0.201)
Post-currency crisis	-1.611*** (0.464)	-1.619*** (0.463)	-1.577*** (0.638)
Post-debt crisis		-0.042 (0.353)	0.025 (0.783)
Post-multiple crises			-0.074 (0.787)
Observations	832	819	819
Number of countries	54	54	54
Pseudo R-squared	0.325	0.326	0.326

Panel B. Deposit insurance generosity: excluding countries with hyperinflation			
Dependent variable: DI coverage ratio	(1)	(2)	(3)
Emulation	40.978** (16.330)	31.215** (12.591)	29.407** (13.661)
CEMAC directive	8.204** (3.027)	8.103** (3.024)	8.060** (3.051)
WAEMU directive	2.835*** (0.962)	3.210*** (0.818)	3.165*** (0.850)
Inflation	-0.651 (0.859)	-1.195** (0.513)	-1.217** (0.517)
GDP growth	1.414 (2.116)	0.149 (2.392)	0.221 (2.437)
Population (log)	-18.489 (11.080)	-13.215 (9.234)	-13.169 (9.260)
Post-currency crisis	0.341 (1.538)	0.887 (1.357)	1.759 (2.379)
Post-debt crisis		1.695** (0.809)	3.085 (2.440)
Post-multiple crises			-1.509 (2.181)
Observations	568	556	556
R-squared	0.469	0.529	0.532
Number of countries	29	29	29

This table reports the results of Stage 1 (Panel A) and Stage 2 (Panel B) of a three-stage model similar to Calomiris and Chen (2022). In Stage 1, a probit model is used to estimate the likelihood of deposit insurance adoption and to predict the propensity score (Equation 1). The dependent variable is deposit insurance that takes the value of one if a country has an explicit deposit insurance scheme in a given year, zero otherwise. Stage 2 estimates the residual of deposit insurance generosity. The dependent variable is the ratio of deposit insurance coverage limit to GDP per capita (winsorized at the 1st and 95th percentiles) on selected sample including only countries that adopt deposit insurance scheme (Equation 2) and excluding with hyperinflation (Zimbabwe and Sudan). The exogenous variables for deposit insurance adoption and coverage limit are Emulation, CEMAC directive and WAEMU directive. The latter two are dropped in Stage 1 due to multicollinearity. All estimations include year fixed effects. The exogenous variables are used as instruments in Stage 3 alongside with the propensity score predicted in Stage 1 and residual estimated in Stage 2 (Equation 3, results reported in Table A.5). Column 1 includes post-currency crisis dummy. Column 2 controls for both post-currency and post-debt crisis. Column 3 adds the post dummy for multiple crises. Robust standard errors clustered at country level are in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% level, respectively. Table 1 and A.1 present the variable definitions and data sources.

Table A.5. Deposit insurance and bank stability: excluding countries with hyperinflation

VARIABLES	(1) Z-score (log)	(2) Z-score (log)	(3) Z-score (log)	(4) Z-score (log)	(5) Z-score (log)
DI coverage ratio	0.016* (0.008)	0.027*** (0.006)	0.029*** (0.005)	0.052*** (0.008)	0.052*** (0.008)
Propensity	0.718*** (0.166)	0.745*** (0.182)	0.802*** (0.185)	2.880*** (0.615)	2.395*** (0.606)
Residual	-0.015*** (0.005)	-0.021*** (0.003)	-0.022*** (0.003)	-0.028*** (0.006)	-0.029*** (0.006)
Propensity^2				-2.263*** (0.758)	-2.858*** (0.824)
Residual^2				-0.000*** (0.000)	-0.001*** (0.000)
Propensity*Residual				0.043** (0.020)	0.093*** (0.027)
Inflation	0.110 (0.107)	0.107 (0.094)	0.117 (0.095)	-0.001 (0.191)	-0.110 (0.245)
GDP growth	0.276** (0.133)	0.305** (0.152)	0.318** (0.152)	0.189 (0.325)	-0.011 (0.305)
Population (log)	0.165*** (0.007)	0.168*** (0.010)	0.169*** (0.010)	0.000 (0.000)	0.000 (0.000)
Post-currency crisis	0.190** (0.079)	0.182** (0.084)	0.305*** (0.100)	0.400** (0.177)	0.303* (0.174)
Post-debt crisis		-0.061 (0.068)	0.063 (0.070)	-0.126 (0.150)	-0.038 (0.140)
Post-multiple crises			-0.146** (0.067)	-0.063 (0.150)	0.071 (0.142)
Corruption					0.059 (0.073)
Accountability					-0.083* (0.045)
Political					-0.044 (0.041)
Effectiveness					0.477*** (0.092)
Regulatory					-0.065 (0.089)
Rule of law					-0.050 (0.106)
Observations	367	367	367	367	338
Number of countries	25	25	25		

This table reports the results of the impact of deposit insurance generosity on bank stability on a sub-sample which excludes excluding countries with hyperinflation ((Zimbabwe and Sudan)). The dependent variable is the Z-score (log). Deposit insurance generosity is the ratio of deposit insurance coverage limit to GDP per capita (winsorized at the 1st and 95th percentiles). This estimation is Stage 3, Equation 3, of a three-stage model similar to Calomiris and Chen (2022). Stage 1 estimates the likelihood of adopting deposit insurance from which the propensity score is predicted (Equation 1, results reported in Table A.4, Panel A). Stage 2 estimates the residual of deposit insurance generosity on selected sample including only countries that adopt deposit insurance scheme (Equation 2, results reported in Table A.4, Panel B). The propensity score from Stage 1 and residual from Stage 2 are added as controls in Stage 3. The results of the linear terms of the propensity score and residual are reported in Column 1 (controlling for post-currency crisis), Column 2 (controlling for post-debt crisis) and Column 3 (controlling for post-multiple crises). A nonlinear model of the propensity score and residual are reported in Column 4 (excluding interactions between DI coverage and country's institutional characteristics) and Column 5 (including interactions). All estimations include year fixed effects. Robust standard errors clustered at country level are in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% level, respectively. Table 1 and A.1 present the variable definitions and data sources.

Table A.6. Deposit insurance and components of Z-Score: bank profit

Dependent variable: ROA	(1)	(2)	(3)	(4)
DI coverage ratio	0.213 (0.185)	0.040 (0.218)	0.141 (0.155)	-0.010 (0.183)
Propensity	6.951* (3.650)	5.209 (3.969)	5.153* (3.057)	3.615 (3.329)
Residual	-0.369** (0.178)	-0.257 (0.205)	-0.252* (0.149)	-0.146 (0.172)
Propensity^2	-18.545*** (4.907)	-17.831*** (5.041)	-15.155*** (4.110)	-14.724*** (4.229)
Residual^2	-0.006*** (0.002)	-0.006** (0.003)	-0.006*** (0.002)	-0.006*** (0.002)
Propensity*Residual	0.774*** (0.173)	0.792*** (0.182)	0.640*** (0.144)	0.663*** (0.153)
Inflation	0.948 (1.309)	0.025 (1.406)	0.084 (1.096)	-0.667 (1.180)
GDP growth	0.540 (1.722)	-0.330 (1.823)	0.205 (1.442)	-0.538 (1.530)
Population (log)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Post-currency crisis	0.226 (0.809)	0.083 (0.909)	0.073 (0.678)	-0.079 (0.762)
Post-debt crisis	-0.362 (1.048)	-0.038 (1.114)	-0.220 (0.878)	0.074 (0.934)
Post-multiple crises	0.128 (0.882)	0.070 (0.921)	0.145 (0.739)	0.094 (0.772)
Corruption		-0.779 (0.736)		-0.701 (0.617)
Accountability		1.085* (0.597)		0.893* (0.500)
Political		-0.675* (0.357)		-0.539* (0.299)
Effectiveness		2.394*** (0.869)		1.902*** (0.729)
Regulatory		-0.364 (0.753)		-0.155 (0.632)
Rule of law		-0.255 (0.829)		-0.277 (0.696)
Observations	369	342	369	342
Number of countries	27	26	27	26

This table reports the results of the impact of deposit insurance generosity on bank profit. The dependent variable is pre-tax ROA in Columns 1 and 2; and after-tax ROA in Columns 3 and 4. Deposit insurance generosity is the ratio of deposit insurance coverage limit to GDP per capita (winsorized at the 1st and 95th percentiles). This estimation is Stage 3, Equation 3, of a three-stage model similar to Calomiris and Chen (2022). Stage 1 estimates the likelihood of adopting deposit insurance from which the propensity score is predicted (Equation 1, results reported in Table 3, Panel A). Stage 2 estimates the residual of deposit insurance generosity on selected sample including only countries that adopt deposit insurance scheme (Equation 2, results reported in Table 3, Panel B). The propensity score from Stage 1 and residual from Stage 2 are added as controls in Stage 3. All estimations include year and country fixed effects. Robust standard errors clustered at country level are in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% level, respectively. Table 1 and A.1 present the variable definitions and data sources.



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