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By *Lechedzani Kgari, Linh Nguyen, Anna L. Sobiech, John O.S. Wilson*

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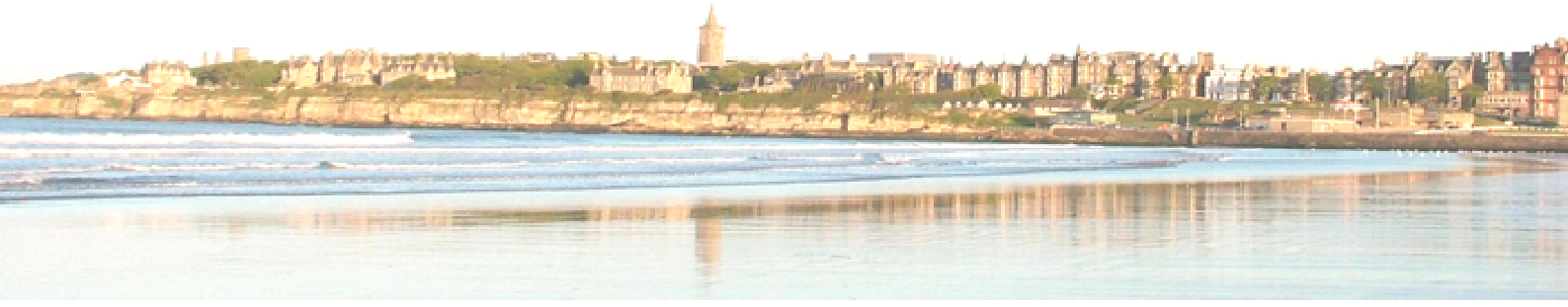

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Keywords: Deposit insurance, bank stability, Z-score, Africa, institutional environment

JEL Classification: G21; G28; G01

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1. Introduction

Over the past two decades, deposit insurance adoption has expanded rapidly across Africa. The number of countries with explicit deposit insurance schemes increased from 6 in 2000 to 31 in 2020 (Figure 1). Following the global financial crisis, policymakers have increasingly introduced deposit insurance as part of broader efforts to strengthen confidence in the banking system and promote banking sector stability. Prior evidence (which for the most part has been confined to non-African economies) suggests that deposit insurance may reduce banking sector stability (Cull et al., 2005; Demirgüç-Kunt and Detragiache 2002; Ioannidou and Penas, 2010; Lambert et al., 2017; Nguyen et al., 2022). However, to date there is a paucity of evidence regarding the impact of deposit insurance on banking sector stability in Africa. In this paper, we address this evidence gap.

[Figure 1 around here]

Economic theory provides conflicting predictions regarding the impact of deposit insurance on banking sector stability. In a seminal contribution, Diamond and Dybvig (1983) demonstrate that government-backed deposit insurance mitigates risk by reducing incentives for pre-emptive deposit withdrawals, thereby lowering the likelihood of bank runs. By guaranteeing depositor funds, deposit insurance can limit the contagion effects of individual bank failures. Moreover, to preserve their charter value, access to deposit insurance may encourage banks to engage in more prudent risk-taking (Keeley, 1990; Demsetz et al., 1996). Consequently, deposit insurance may enhance banking sector stability.

Subsequent theoretical developments extend the Diamond and Dybvig (1983) framework (Calomiris and Jaremski, 2016; Jacklin and Bhattacharya, 1988). Cooper and Ross (2002) incorporate the adverse incentive effects of deposit insurance on banks' investment strategies and depositor monitoring decisions to show that deposit insurance can reduce bank stability in the presence of moral hazard. With deposit insurance in place, banks may assume

greater risk, by maintaining lower capital levels, making riskier lending decisions, and adopting weaker risk management practices, in the knowledge that they are protected by deposit insurance (and other safety nets) in the event of failure. Deposit insurance may also reduce depositors' incentives to monitor banks, thereby amplifying the negative effects of excessive risk-taking on bank stability.

Consistent with these competing theoretical predictions, the empirical literature (largely based on non-African economies) provides mixed evidence regarding the impact of deposit insurance on bank stability. Some studies find that deposit insurance reduces bank risk and enhances stability (Gropp and Vesala, 2004; Liu et al., 2016; Martin et al., 2026), supporting the stabilising mechanism highlighted by Diamond and Dybvig (1983). In contrast, other studies document that the introduction of explicit deposit insurance schemes weakens market discipline, increases moral hazard, and ultimately raises bank risk (Cull et al., 2005; Demirgüç-Kunt and Detragiache, 2002; Ioannidou and Penas, 2010).

To account for these mixed empirical findings, recent research argues that the effect of deposit insurance on bank risk is inherently context-dependent and shaped by key design and environmental factors. In particular, the effects may vary with the structure of the deposit insurance scheme, macroeconomic conditions, and institutional characteristics. For example, the impact may depend on whether deposit insurance premiums are risk-adjusted (Chernykh and Kotomin, 2022; Liu et al., 2016), the state of the economy (Anginer et al., 2014; Chiaramonte et al., 2020), and the broader institutional environment (Angkinand and Wihlborg, 2006; Demirgüç-Kunt and Kane, 2002). Anginer et al. (2014) show that deposit insurance tends to reduce bank risk during economic downturns but may increase risk during periods of economic expansion when the moral hazard effects become more pronounced. Similarly, Liu et al. (2016) find that risk-adjusted deposit insurance schemes can mitigate moral hazard by aligning insurance premiums with the level of bank risk.

Given the inconclusive evidence in prior studies and the lack of African-focused research, the effect of deposit insurance generosity on bank stability across the continent remains poorly understood. Investigating this relationship within African banking systems is therefore important from a public policy perspective. It also responds to a recent call by the International Association of Deposit Insurers (IADI) for further analysis of deposit insurance design following the 2023 U.S. banking turmoil (IADI, 2023).

Africa provides a useful empirical setting for this analysis for two reasons. First, African countries are organised into regional economic blocks, making the cross-country transfer and diffusion of regulatory best practices (such as deposit insurance scheme adoption) relatively rapid. This may explain the accelerated wave of deposit insurance adoption (under the guidance of regional authorities) across the continent over a short period. In addition, external influences from other member countries in a regional economic and monetary block provide a potential source of identification, given the plausible assumption that the adoption of deposit insurance by one member country should not reflect economic conditions that could alter bank risk taking in another member country in the same block.[1]

Second, partly due to historical and political factors, the institutional environment, defined as the framework that shapes political, economic, and social interactions, including both formal laws and informal norms, tends to differ significantly in African countries relative to many other regions of the world (Acemoglu and Robinson, 2010; Besley and Reynal-Querol, 2014; North, 1991). This is reflected in the 2025 Corruption Perceptions Index produced by Transparency International, in which many African countries receive lower scores relative to Europe and North America, the primary focus of much of the existing literature. We focus on

[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. One is the Central African Economic and Monetary Community (CEMAC), comprising of six member countries (Cameroon, Central African Republic, Chad, Republic of Congo, Gabon, and Equatorial Guinea) and another is the West African Economic and Monetary Union (WAEMU), comprising of eight member states (Benin, Burkina Faso, Ivory Coast, Guinea Bissau, Mali, Niger, Senegal, and Togo).

this distinct institutional context to examine the impacts of deposit insurance on bank stability, given that prior evidence suggests that the institutional environment plays a crucial role in shaping this relationship (Demirgüç-Kunt and Kane, 2002; Hovakimian et al., 2003; Dewenter et al., 2018).

To address potential endogeneity concerns arising from reverse causality and omitted variable bias, we utilise a recent econometric approach developed by Calomiris and Chen (2022). This approach exploits external influences from international and regional institutions, including the International Monetary Fund (IMF) and, in the African context, regional monetary authorities such as the Central African Economic and Monetary Community (CEMAC) and the West African Economic and Monetary Union (WAEMU), which encourage or require the adoption of deposit insurance schemes. These external pressures generate variation that can be used as an instrument to identify the causal effect of deposit insurance on banking stability.

This methodological framework combines an instrumental variables strategy with a selection-correction approach, allowing us to isolate the effect of deposit insurance generosity on bank stability while accounting for the endogenous nature of policy adoption. In particular, it addresses reverse causality, whereby the adoption of deposit insurance may itself be a regulatory response to rising instability in the banking sector. It also mitigates omitted variable bias that may arise when both deposit insurance adoption and bank instability are driven by underlying macroeconomic or institutional factors that simultaneously increase financial risk and trigger regulatory intervention (Calomiris and Chen, 2022). The framework is particularly well suited to a cross-country setting, where both the adoption and the design of deposit insurance schemes may be shaped by broader macroeconomic and institutional conditions.

We conduct our empirical analysis in three stages. In the first stage, we estimate the probability that a country adopts deposit insurance using a set of instruments that capture

external influences, measured by the proportion of countries with explicit deposit insurance schemes. The fitted values from this regression are used to construct the propensity scores. In the second stage, we regress deposit insurance generosity on the selected sample of countries that have adopted deposit insurance and obtain the residuals. In the third stage, we regress banking sector stability on deposit insurance generosity, the propensity scores estimated in the first stage, which control for self-selection into deposit insurance adoption, and the residuals obtained from the second stage, which account for the endogeneity of deposit insurance generosity (Calomiris and Chen, 2022).

The dataset used in the empirical analysis is collected from several sources. Data on the presence and coverage of deposit insurance is collected from the World Bank Deposit Insurance Database (Demirgüç-Kunt et al., 2015). This provides comprehensive cross-country information on deposit insurance arrangements for the period 2003-2013. To capture the recent wave of deposit insurance adoption across Africa and to ensure broader temporal coverage, we extend this dataset both backward and forward to cover the period 2000–2021 for all 54 African countries.

Extending the dataset involved compiling and verifying information from a wide range of sources. Specifically, we draw on surveys conducted by the International Association of Deposit Insurers (IADI) between 2011 and 2022, official publications of national deposit insurance agencies, World Bank and IMF country reports, central bank reports, and media sources across individual African countries. This approach allows us to construct a comprehensive dataset on deposit insurance adoption and coverage across the continent. Table 1 presents detailed information on deposit insurance coverage across African countries.

[Table 1 around here]

To measure banking sector stability, we use the Z-score, which captures the probability of default of a country's commercial banking system. The Z-score is obtained from the World

Bank Global Financial Development Database (updated September 2022). Data on bank balance sheet variables, aggregated at the country level are obtained from the IMF's International Financial Statistics, while macroeconomic variables are drawn from the World Bank's World Development Indicators. Measures of the institutional environment are taken from the Worldwide Governance Indicators of the World Bank (updated 2023). Data on systemic banking crises are obtained from Laeven and Valencia (2020) and Nguyen et al. (2022). Our main sample comprises 31 African countries with explicit deposit insurance schemes over the period 2000-2021.

Based on the results from the first and second stages of the analysis, we find that external influences play a significant role in driving both the adoption of deposit insurance and the generosity of deposit insurance schemes in Africa. In the third stage of the analysis, we examine the impact of deposit insurance generosity on bank stability, and find that greater generosity is associated with higher banking sector stability (as measured by the Z-score). Further analysis suggests that this stabilising effect operates through two channels. First, higher deposit insurance coverage is associated with less volatile bank profitability. Second, deposit insurance coverage increases are associated with a contraction in private sector lending, consistent with more conservative lending behaviour among banks.

This paper makes two main contributions to the literature on deposit insurance and bank stability. First, we provide the first systematic evidence on the relationship between deposit insurance generosity and bank stability in Africa. The existing literature emphasises the destabilising effects of deposit insurance through weakened market discipline and increased risk-taking (Anginer et al., 2014; Cull et al., 2005; Demirgüç-Kunt and Detragiache, 2002; Ioannidou and Penas, 2010; Liu et al., 2016; Nguyen et al., 2022). In contrast, our results show that greater deposit insurance coverage is associated with higher banking sector stability across African countries. This finding adds to a growing body of evidence which suggests that the

effects of deposit insurance are context-dependent and vary across institutional and financial environments.

Second, we construct a novel panel dataset on deposit insurance adoption and coverage limits across all 54 African countries. This dataset builds on the influential work of Demirgüç-Kunt et al. (2015), which documents deposit insurance adoption and coverage levels for many countries globally over the period 2003-2013. Our dataset extends this coverage to span 2000-2021 and tracks changes in deposit insurance coverage limits over time within each African country. This allows us to analyse variation in deposit insurance generosity and provides a more comprehensive and up-to-date dataset on deposit insurance arrangements across Africa.

The remainder of the paper is organised as follows. Section 2 reviews the relevant literature. Section 3 describes the institutional setting. Section 4 outlines the empirical methodology. Section 5 describes the data. Section 6 presents the empirical results and robustness tests. Section 7 concludes.

2. Related literature and hypothesis

2.1. Determinants of deposit insurance adoption

The literature identifies a wide range of factors influencing the adoption of deposit insurance, which can broadly be categorised into external and domestic drivers. This section reviews both strands of the literature, with particular emphasis on external influences, which are especially relevant for understanding the rapid diffusion of deposit insurance across African countries.

2.1.1. External influences

A growing literature shows that international and regional institutions exert significant influence on financial sector reforms, including the adoption of deposit insurance. Evidence from multiple regions indicates that such external pressures often catalyse policy adoption in low- and middle-income countries. At the regional level, the European Union has been especially influential, with its Deposit Guarantee Scheme Directive driving the harmonisation

of deposit insurance regimes across member states (Anginer and Demirgüç-Kunt, 2019; Demirgüç-Kunt et al., 2015).

At the international level, organisations such as the International Monetary Fund (IMF) and the World Bank play an important role in supporting deposit insurance implementation by providing technical assistance, policy guidance, and financial incentives. These institutions promote deposit insurance adoption as part of broader financial sector stability and crisis management strategies, particularly in developing and transition economies. Several studies confirm that such international influence, whether direct or indirect, can significantly increase the likelihood of adoption (Demirgüç-Kunt et al., 2008; Calomiris and Chen, 2022).

In Africa, this dynamic has been especially pronounced, and has operated through an additional channel: regional monetary cooperation. Two regional economic and monetary unions, the Central African Economic and Monetary Community (CEMAC) and the West African Economic and Monetary Union (WAEMU), have played a particularly active role in shaping financial regulatory reform. Both institutions issued regional directives that either encouraged or required their member states to establish formal national deposit insurance schemes (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 strand of literature, we propose the following hypothesis:

H1a. The likelihood of deposit insurance adoption in Africa *increases* with external influences, specifically the regional prevalence of adoption and the implementation of the CEMAC and WAEMU directives.

2.1.2. Internal drivers

In contrast, a second stream of the literature focuses on domestic drivers, often through a political economy lens. These studies explore how a country's institutional and political

characteristics such as political regimes, the strength of public and private interest groups, and banking sector dynamics, influence the decision to adopt deposit insurance.

One key insight from this literature is that deposit insurance adoption often occurs during or following financial crises, when public pressure on policymakers intensifies. Crises expose vulnerabilities in the financial system and elevate public demand for formal safety nets, prompting governments to respond with institutional reforms such as the introduction of explicit deposit insurance (Demirgüç-Kunt et al., 2008).

Domestic financial and demographic conditions also shape the design and generosity of deposit insurance. Laeven (2004) shows that countries with undercapitalised banks and less financially literate depositors tend to adopt more generous schemes, reflecting political incentives to stabilise fragile banking systems and appease vulnerable constituencies. Notably, the study finds no significant link between coverage levels and broader political-institutional factors such as democracy, executive constraints, income, or property rights. These patterns align with private interest theories of regulation, which argue that high-risk banks lobby for expansive coverage to protect their liabilities and attract deposits.

The 2008 global financial crisis marked an important turning point, after which the adoption of explicit deposit insurance schemes accelerated worldwide. Countries moved rapidly to formalise depositor protection mechanisms in order to restore confidence in the banking system and enhance systemic stability (Demirgüç-Kunt et al., 2015). This global shift underscores the salience of financial crises as triggers for institutional change, especially in jurisdictions lacking pre-existing depositor protection. In our empirical analysis, financial crises refer to domestic banking, currency, or sovereign debt crises as identified in the crisis databases of Laeven and Valencia (2020) and Nguyen et al. (2022). Building on this literature, we formulate the following hypothesis:

H1b. The likelihood of deposit insurance adoption in Africa increases following a financial crisis.

2.2. Consequences of deposit insurance adoption

A central rationale for adopting deposit insurance is to support banking sector stability by discouraging pre-emptive withdrawals and preventing bank runs. Diamond and Dybvig (1983) show that when depositors expect others to withdraw, insurance removes the incentive to join a run. Empirical evidence reinforces this mechanism. Using daily account-level data from a distressed U.S. bank, Martin et al. (2026) find that uninsured outflows were largely offset by inflows of insured deposits, underscoring the stabilising role of insurance. Gropp and Vesala (2004) show that explicit insurance reduces risk taking among smaller EU banks with subordinated debtholders by limiting the safety net and preserving market discipline. Similarly, Karels and McClatchey (1999) find that the introduction of deposit insurance in U.S. credit unions increased liquidity and reduced loan delinquency.

A substantial literature highlights the potential destabilising effects of deposit insurance through moral hazard. Incorporating moral hazard into the Diamond-Dybvig framework, Cooper and Ross (2002) show that insurance weakens depositor monitoring and encourages banks to take greater risks because their ability to attract deposits becomes less tied to asset quality. Empirical evidence supports this: Ioannidou and Penas (2010) find that banks initiate riskier loans when discipline from large depositors declines, while Demirgüç-Kunt and Detragiache (2002) show across 61 countries that extensive coverage increases the likelihood of banking crises. Similar patterns appear among credit unions, with Nguyen et al. (2022) reporting that higher coverage leads institutions to expand unsecured lending at the cost of loan quality, and Cull et al. (2005) finding that insurance raises risk even when premiums are risk-adjusted. In contrast, Chernykh and Kotomin (2022) argue that well-designed, risk-adjusted schemes can curb moral hazard and enhance stability. Overall, this literature

underscores a fundamental trade-off: while deposit insurance can prevent runs by reducing withdrawal incentives, it may simultaneously weaken market discipline and encourage excessive risk-taking, particularly when regulatory design is inadequate.

Other studies emphasize that the effects of deposit insurance are contingent on the phase of the economic cycle. Anginer et al. (2014) argue that deposit insurance has procyclical effects, with the moral hazard channel dominating in good times, and the stabilisation channel becoming more prominent during crises. However, they find that the overall impact of deposit insurance destabilising, given that the risk-enhancing (moral hazard) effects in boom periods outweigh the stabilising benefits during downturns. Similarly, Chiaramonte et al. (2020) identify an inverse U-shaped relationship between deposit insurance coverage and bank stability, with stability declining at high coverage levels during crisis periods.

Several studies emphasise that institutional and governance conditions critically shape the effects of deposit insurance (Angkinand and Wihlborg, 2006; Demirgüç-Kunt and Detragiache, 2002; Hovakimian et al., 2003; Ngalawa et al., 2016). Demirgüç-Kunt and Kane (2002) show that moral hazard is amplified where institutional quality is weak, and Demirgüç-Kunt and Detragiache (2002) find that explicit insurance increases crisis risk, especially in environments with weak institutions and deregulated interest rates. Destabilising effects are also stronger when schemes provide broad coverage, rely on government funding, or are publicly administered. In contrast, Liu et al. (2016) argue that government-established systems and coinsurance arrangements can mitigate adverse outcomes. Angkinand and Wihlborg (2006) further demonstrate that the market-discipline effects of partial insurance depend on governance features such as ownership structure and shareholder rights, implying that optimal coverage levels vary across institutional contexts.

In summary, the existing literature suggests that the net effect of deposit insurance on bank stability depends critically on the institutional environment. Where regulatory capacity is

strong and market discipline is effective, moral hazard tends to dominate and deposit insurance can be destabilising. Where uncertainty is high, depositor coordination failures are more likely, and the stabilising channel identified by Diamond and Dybvig (1983) becomes relatively more important. African banking systems are characterised by pronounced macroeconomic volatility, limited financial depth, and depositor bases with limited capacity for sophisticated bank monitoring. These are conditions under which the coordination failure problem is likely to be more salient than moral hazard. This suggests that deposit insurance may play a more stabilising role in Africa than the existing literature, drawn predominantly from advanced economies, would predict. We therefore hypothesise:

H2: Greater deposit insurance generosity is associated with higher banking sector stability in Africa.

3. Institutional background

In contrast to Europe or North America, where deposit insurance is the norm, explicit deposit insurance schemes were only adopted 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) aimed at protecting depositors and strengthening confidence in the banking system. 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 banking sector 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 of 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 promote the adoption of deposit insurance through policy directives. However, implementation ultimately occurs through national legislative processes. While several member states introduced deposit insurance around the same time following these directives, countries retained discretion over key design features, particularly the level of deposit insurance coverage and operational arrangements. Consequently, substantial cross-country variation exists in the generosity of deposit insurance schemes across African countries. This variation in coverage limits, rather than the precise timing of adoption, provides the primary source of identification for our empirical analysis (described in detail in Section 5.3 and Table 1). The number of African countries with explicit deposit insurance increased markedly from 6 in 2000 to 31 in 2021 (see Figure 1). This expansion reflects a significant institutional transformation driven by both domestic reforms and coordinated regional policy initiatives.

Deposit insurance systems in Africa tend to share several common features. They are typically administered by public institutions, such as the central bank (Libya and Namibia) or specialised deposit insurance agencies (Kenya and Nigeria). Most African countries with deposit insurance schemes charge flat-based premiums to insured banks, albeit there are exceptions (such as in Nigeria and Uganda), where 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 rapidly over a relatively short period, largely driven by pressure from regional monetary authorities. 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, as it helps mitigate endogeneity concerns. In particular, the external impetus for adoption is plausibly exogenous to local factors that may also influence bank stability (Calomiris and Chen, 2022).

4. Methodology

Identifying a causal link between deposit insurance and bank stability is challenging, particularly in a cross-country context, given that countries that adopt deposit insurance may differ systematically from those that do not. In order to address this challenge, we adopt an econometric framework developed by Calomiris and Chen (2022) to estimate the impact of deposit insurance generosity on bank stability. This approach is designed to address key identification challenges in settings where policy adoption and policy design may be endogenous to underlying financial conditions. In particular, the framework allows for endogenous regressors, serial correlation in the error term, and flexible functional forms, while also correcting for self-selection into policy adoption. These features make the approach well suited for analysing the impacts of deposit insurance in a cross-country setting, where adoption decisions and policy design may respond to macroeconomic and financial sector conditions.

Following an instrumental variable strategy similar in spirit to Calomiris and Chen (2022), the empirical analysis proceeds in three stages. Stage 1 estimates the propensity score for deposit insurance adoption. This accounts for the possibility that countries adopting deposit insurance differ systematically from those that do not. The predicted propensity scores are included in Stage 3 to control for self-selection into deposit insurance adoption. Using the sample of countries that have adopted deposit insurance, Stage 2 estimates the residual component of deposit insurance generosity. The resulting residuals are included in Stage 3 to address the endogeneity of deposit insurance generosity. Stage 3 estimates the impact of deposit insurance generosity on bank stability, where the predicted propensity scores from Stage 1 and the residuals from Stage 2 are included as controls.

In the first stage, the probability of enacting deposit insurance is estimated using a probit regression specified in Equation (1).

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

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. 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. $Controls$ 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 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 international pressure on governments to enact deposit insurance. These instruments are important to strengthening our identification, given that (arguably) they do not coincide with local shocks to banking industries (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); *CEMAC directive* for deposit insurance adoption (which equals one for year 2011 and after when the directive is issued); and *WAEMU directive* for deposit insurance adoption (which equals one for 2014 and subsequent years).[2] ω_t is the year fixed

[2] 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

effects and $\varepsilon_{c,t}$ is an error term. The fitted value from this first stage is then used to predict the propensity score, which accounts for endogenous selection into deposit insurance. We denote the propensity score by $\hat{p}_{c,t}$.

In the second stage, we use deposit insurance generosity as a dependent variable and run a regression on a sample of countries which adopted deposit insurance as specified in Equation (2).

$$DI\ coverage\ ratio_{c,t} = \alpha + \beta.Controls_{c,t} + \gamma.Instruments_{c,t} + \omega_t + \upsilon_{c,t} \qquad (2)$$

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 schemes (e.g., Demirgüç-Kunt et al., 2015)[3]. ω_t is the year fixed effects and $\upsilon_{c,t}$ is an error term. Other variables are similarly defined as in Equation (1). We denote the residual from Equation (2) by $\hat{v}_{c,t}$.

In the third stage, we estimate the impact of deposit insurance on bank stability by regressing our bank stability indicator on: deposit insurance generosity, the predicted propensity score from stage one $\hat{p}_{c,t}$; and the predicted residual from stage two $\hat{v}_{c,t}$, as specified in Equation (3).

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

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. $\eta(.)$ and $\pi(.)$ are unknown functions to be

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.

[3] While other design features such as coinsurance or funding arrangements may also influence the effectiveness of deposit insurance systems, consistent cross-country data on these features are not available for many African countries over our sample period. 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.

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.

Equation (3) features a function based on the predicted propensity score $\eta(\hat{\mathrm{p}}_{c,t})$ and the estimated residual $\pi(\hat{v}_{c,t})$. The estimation of the propensity score (Stage 1) allows us to match countries with comparable characteristics (countries with similar propensity scores) but differing treatment conditions (Stage 3). 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. In order to account for possible non-linearities between the propensity score and bank stability We also include quadratic term of the propensity score. This allows us to capture any U-shaped relationship between deposit insurance coverage and bank stability. Including both the residual and its quadratic helps control for omitted variable bias, and capture any potential non-linear effects (Calomiris and Chen, 2022).[4]

5. Data and summary statistics

5.1 Deposit insurance data

We construct an original dataset on deposit insurance adoption and coverage limits for all 54 African countries over the period 2000 to 2021, drawing on a wide range of local, regional, and international sources. The foundation is the World Bank Deposit Insurance Database (Demirgüç-Kunt et al., 2015), which provides cross-country data from 2003 to 2013. We extend this database both backward and forward through manual data collection, producing a panel that spans more than two decades and captures the full arc of deposit insurance adoption

[4] While single-country studies seem to benefit from a more credible identification, the results face issues with external validity given the geographic context of the findings. Cross-country studies, on the other hand, 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 recently employed by Calomiris and Chen (2022) to address identification issues in a cross-country context.

across the continent, including the recent wave of scheme introductions not covered by existing cross-country databases.

Data collection proceeded in several steps. First, we use the annual deposit insurance surveys conducted by the International Association of Deposit Insurance (IADI) from 2011 to 2022. Given that the IADI data are only available publicly from 2011 and not all African countries participate in the survey each year, we manually collect deposit insurance information from national deposit insurance agencies, central banks, individual deposit insurance acts, and national archives to identify coverage limits. If no information is available, we search for information from World Bank and IMF Country Reports, particularly in the earlier years of the sample. We also manually check and collect deposit insurance and coverage limits based on various regional and national news outlets in Africa. Table 1 presents detailed information on deposit insurance adoption and coverage limits annually for 54 countries in Africa.

[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 obtained from the World Bank Global Financial Development database. We construct bank level data 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.

For macroeconomic variables, we obtain data from the IMF International Financial Statistics (Inflation and Exchange Rate) and the World Bank World Development Indicators (GDP growth, GDP per capita and Population). Data on country corporate governance comes

from the World Bank Worldwide Governance Indicators (Kaufmann and Kraay, 2024). Data on financial crises come from Laeven and Valencia (2020) and Nguyen et al. (2022), which provide data on banking crises, currency crises, sovereign debt crises, twin crises, and triple crises. After merging all the data, our final sample spans the period 2000 to 2021 for 54 countries, of which 31 have explicit deposit insurance schemes. Table A.1 presents variable definitions and data sources.

5.3 Summary statistics

Table 2 presents the summary statistics. Between 2000 and 2021, 57% of African countries (31 out of 54) adopted an explicit deposit insurance scheme. The average value of the deposit insurance dummy is 0.296 across 1,177 country-year observations, indicating that adopting countries maintained a scheme for approximately 11 years on average. This reflects widespread adoption driven by regional initiatives, notably the introduction of schemes in all CEMAC member states in 2011 and WAEMU countries in 2014. On average, the coverage limit is approximately $11,000, with a standard deviation of $32,000.

[Table 2 around here]

In terms of bank stability (measured by the Z-score), the sample exhibits a mean value of 16. This is slightly below the global average of 16.4, reported in the Global Financial Development database 2022. Figure 2 plots the relationship between the deposit insurance coverage ratio (defined as the coverage limit relative to GDP per capita) and the Z-score. The figure shows that higher deposit insurance coverage ratios are associated with higher Z-scores. Since a higher Z-score indicates greater bank stability, this suggests that more generous deposit insurance may be linked to enhanced bank stability. While Figure 2 suggests a broadly positive association between deposit insurance generosity and bank stability, the relationship may not necessarily be strictly linear. In our empirical framework, we account for potential nonlinearities by including quadratic terms in the model following the approach of Calomiris

and Chen (2022). This allows the relationship between deposit insurance generosity and bank stability to vary across different levels of coverage.

[Figure 2 around here]

6. Empirical analysis

6.1 Regression results of Stage 1 and Stage 2

Table 3 Panel A reports the regression results of Stage 1 (the probability of adopting deposit insurance) as specified in Equation (1): 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 international influences measured by *Emulation* as an instrument predict 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. Our results are in line with prior findings (Calomiris and Chen, 2022; Demirgüç-Kunt and Detragiache, 2002; Demirgüç-Kunt et al., 2008).

Among the control variables, the coefficient for *Population* is positive and statistically significant, suggesting that deposit insurance is more prevalent in more populous countries. The likelihood of adopting deposit insurance declines following a currency crisis. This may reflect the fact that currency crises often trigger macroeconomic stabilisation programmes prioritising fiscal consolidation and monetary stabilisation, leaving limited fiscal and policy space for establishing new financial safety net institutions such as deposit insurance systems. This contrasts with prior evidence for developed countries that suggests that deposit insurance is more likely following a banking crisis (Calomiris and Chen, 2022), an event not observed in our sample during the sample period. In addition, Demirgüç-Kunt et al. (2008) find that higher

economic development increases the likelihood of deposit insurance adoption, likely due to stronger institutions, regulatory and fiscal capacity. We find no significant link between economic growth and deposit insurance adoption, being consistent with Laeven (2004) and suggesting that in the African context, regional initiatives or external influence may be more influential.

[Table 3 around here]

In Stage 2, we replace the deposit insurance dummy with the deposit insurance generosity as a dependent variable, specified in Equation (2). Table 3 Panel B reports the results. Parallel to their role in predicting deposit insurance adoption, the instruments reflecting international pressures provide significant explanatory power for the generosity of deposit insurance arrangements.

The coefficients on *Emulation*, the *CEMAC directive* (on deposit insurance adoption in Central Africa) and *WAEMU directive* (on deposit insurance adoption in West Africa) are positive and statistically significant, suggesting a positive effect of these international influences on deposit insurance generosity. These findings align with earlier work showing that external factors (such as the prevalence of deposit insurance globally and pressure from international institutions) strongly influence countries' decisions to adopt such schemes (Calomiris and Chen, 2022).

Overall, our Stage 1 and Stage 2 results indicate that international-influence instruments effectively predict both the likelihood of adopting deposit insurance and the generosity of schemes among adopting countries.

6.2 Deposit insurance and bank stability

In Stage 3, we consider the consequences of deposit insurance generosity on bank stability by regressing bank stability (Z-score) on deposit insurance generosity. The predicted propensity score in 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 indicate that more generous deposit insurance increases bank 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 imply that increased generosity enhances bank 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 22% increase in the average Z-score (0.046*0.491). This finding stands in stark contrast to prior evidence outside Africa, where deposit insurance is typically linked to greater financial fragility (Anginer et al., 2014; Chernykh and Cole, 2011; Cull et al., 2005; Demirgüç-Kunt and Detragiache, 2002; Liu et al., 2016). Although prior studies argue that deposit insurance can increase risk-taking by banks and non-banks (Lambert et al., 2017; Nguyen et al., 2022), our results point to a different dynamic in Africa, where deposit insurance appears to strengthen bank stability.

[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.[5] This 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 reinforce the view that deposit insurance contributes to greater banking sector stability.

[Table 6 around here]

[5] 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.

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 banking sector 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, and ensure that our findings are not driven by these outliers, 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.[6]

[Table 7 around here]

6.3.4 Additional robustness tests

Prior evidence highlights the importance of institutional context in shaping the effects of deposit insurance on bank stability. In this section we further examine the role of institutional characteristics. Demirgüç-Kunt and Kane (2002) show that moral hazard tends to be more severe in countries with weaker institutional environments. By contrast, Liu et al. (2016) suggest that in countries experiencing high market volatility, deposit insurance can instil public confidence and exert a stabilising effect on the banking sector. The overall impact of deposit insurance on bank stability therefore depends on the interplay between institutional quality and market volatility.

[6] 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.

To investigate the impact of these competing influences, 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). Lower-income countries typically have fewer financial resources to strengthen institutions and tend to experience greater financial volatility. In Column 2, we interact deposit insurance coverage with six indicators of institutional quality to capture the effect on bank stability that operates through institutional channels. 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 measures produce mixed results, reflecting both the wide variation in institutional environments across African countries and the fact that different indicators capture distinct governance and regulatory dimensions. Crucially, the positive association between deposit-insurance generosity and bank stability remains robust across all specifications, indicating that its stabilising effect is not simply an artifact of institutional quality.

[Table 8 around here]

6.4 Drivers of the positive link between deposit insurance and bank stability

Thus far, the results of our analysis suggest that deposit insurance enhances bank stability in Africa. A natural next stage is to investigate the underlying mechanisms driving this relationship. 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 better understand the channels through which deposit insurance contributes to bank stability.[7]

6.4.1 Bank capital

We begin by analysing the impact of deposit insurance on bank capital ratios. In this analysis, the capital ratio is used as the outcome variable in Equation (3). The results are presented in Table 9. As shown in Column 3, the coefficient on deposit insurance coverage is statistically insignificant and economically small, suggesting that increases in deposit insurance coverage do not have a meaningful impact on bank capital ratios. To better understand this null result, we disaggregate the capital ratio into its two main components of total equity and total assets. The findings, reported in Columns 1 and 2 indicate that both total equity and total assets decline following increases in deposit insurance coverage. One possible explanation is that banks adjust their balance sheets by scaling back lending and other riskier assets. As bank assets contract, equity may decline proportionally due to lower retained earnings and a smaller balance sheet, leaving the overall capital ratio largely unchanged. This outcome contrasts with previous findings. For example, Önder and Özyildirim (2008) document a decline in capital ratios during periods when government safety net guarantees are more generous. Our results instead suggest that balance sheet contraction may occur without materially altering capital adequacy.

[Table 9 around here]

6.4.2 Volatility of bank profit

Another key component of our bank stability indicator is the volatility of bank profit. Higher profit volatility increases a bank's risk profile and undermines bank stability. Given the positive relationship between deposit insurance generosity and bank stability established in our baseline

[7] 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.

findings, we hypothesise that deposit insurance may reduce fluctuations in bank earnings. To test this, we draw on data from the World Bank Global Financial Development database and re-estimate our baseline model using the volatility of bank profits as the dependent variable. Profit volatility is measured as the standard deviation of ROA, computed over a five-year rolling window. The results, reported in Table 10, indicate that higher deposit insurance coverage reduces bank profit volatility. This finding points to a potential channel through which deposit insurance enhances stability: by helping to smooth bank earnings over time.

[Table 10 around here]

6.5 Bank lending

As shown previously, deposit insurance coverage does not have a significant impact on the bank capital ratio. This result is explained by the simultaneous decline in both bank equity and total assets, which effectively offset each other and leave the capital ratio unchanged. Given that bank loans constitute a major component of total assets, an important question is how deposit insurance affects bank lending behaviour. In this section, we investigate the relationship between deposit insurance coverage and bank lending.

Prior research offers mixed evidence on how deposit insurance affects bank lending. Hasan et al. (2022) show that banks in countries with explicit deposit insurance cut total and foreign lending less during the global financial crisis, especially those more reliant on deposit funding, and that more generous or credible schemes amplify this stabilising effect in periods of financial stress. In contrast, other studies find that higher coverage levels can expand lending and encourage riskier loan portfolios among banks and credit unions (Calomiris and Chen, 2022; Lambert et al., 2017; Nguyen et al., 2022).

To shed light on this relationship in the African context, we collect 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, as well as the shares of loans to the private and government sectors, for countries that have adopted deposit insurance. Figure 3 reveals a downward trend in bank lending following 2011, the year that marks the onset of the most recent wave of deposit insurance adoption in many African countries.

[Figure 3 around here]

We then investigate the impact of deposit insurance coverage on bank lending. The results are presented in Table 11. The coefficient on deposit insurance coverage in Column 1 is negative and statistically significant, indicating that higher deposit insurance coverage is associated with a reduction in overall bank lending. A similar pattern is observed for loans to the private sector in Column 2. This suggests that the decline in lending is not limited to a particular borrower group but reflects a broader contraction in credit provision.

[Table 11 around here]

As an alternative measure of bank lending, we follow Calomiris and Chen (2022) and scale total bank loans by GDP. This approach allows us to assess the broader macroeconomic implications of deposit insurance on credit provision. The results, presented in Table 12, show that the coefficients on deposit insurance generosity are consistently negative and statistically significant at the 1% level. These findings suggest that greater deposit insurance coverage is associated with a contraction in overall bank lending relative to the size of the economy. The decline is evident in both private and government sector lending. This result stands in contrast to prior studies documenting that deposit insurance generosity increases riskier lending (Calomiris and Chen, 2022; Lambert et al., 2017; Nguyen et al., 2022).

The decline in lending is consistent with our earlier results showing reduced profit volatility and stable capital ratios. Following increases in deposit insurance coverage, banks in Africa may be scaling back riskier lending in order to preserve capital buffers and stabilise earnings. This points to a distinct adjustment mechanism in the African context, where deposit

insurance appears to encourage balance sheet consolidation rather than credit expansion, which may reduce moral hazard and enhance banking sector stability (Ngalawa et al., 2016).[8]

While these results suggest that deposit insurance may encourage banks to adopt more conservative lending strategies, alternative explanations cannot be ruled out. In particular, the observed decline in lending could also reflect changes in loan demand or broader macroeconomic conditions during the period of deposit insurance expansion. Our results therefore document an association between deposit insurance generosity and reduced credit provision, which is consistent with a stabilising adjustment in bank balance sheets, although the precise mechanisms may vary across countries.

These findings also speak directly to the moral-hazard debate around deposit insurance. A substantial literature contends that deposit insurance weakens depositor discipline and encourages banks to take on riskier lending (Demirgüç-Kunt and Detragiache, 2002; Cull et al., 2005; Ioannidou and Penas, 2010), allowing banks to exploit the safety net and increase exposure to higher-risk assets. Our results provide no evidence consistent with this channel. Instead, greater deposit-insurance generosity is followed by a contraction in lending and less volatility bank profitability. This suggests that banks respond to expanded deposit insurance coverage by adopting more conservative balance-sheet strategies, not by increasing risk-taking. One explanation is that in many African banking systems (characterised by macroeconomic and institutional volatility) the confidence-enhancing effects of deposit insurance may outweigh any incentives for excessive risk (Anginer et al., 2014; Liu et al., 2016).

[Table 12 around here]

In summary, our findings show that deposit insurance enhances bank stability in Africa, primarily by reducing the volatility of bank profitability. While deposit insurance coverage

[8] 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.

does not significantly affect bank capital ratios, it nevertheless contributes to financial resilience via more stable earnings. However, this increased stability comes at a cost. More generous deposit insurance is associated with a contraction in 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 and an econometric framework developed by Calomiris and Chen (2022), we provide evidence that greater deposit insurance generosity is associated with higher banking sector stability. In particular, we find that increases in deposit insurance coverage are linked to higher Z-scores, indicating a lower probability of bank default.

Further analysis suggests that this stabilising effect operates primarily through a reduction in the volatility of bank profitability and a contraction in bank lending. While deposit insurance coverage does not significantly affect bank capital ratios, it appears to encourage banks to adopt more conservative balance sheet strategies, resulting in more stable earnings 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 offer several important implications for policymakers in developing economies. First, they suggest that deposit insurance can contribute to banking sector stability even in environments characterised by 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 higher economic volatility and less developed financial infrastructure, the confidence-stabilising role of deposit insurance may outweigh potential moral hazard concerns. At the same time, the observed contraction in lending highlights a potential trade-off between banking sector 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.

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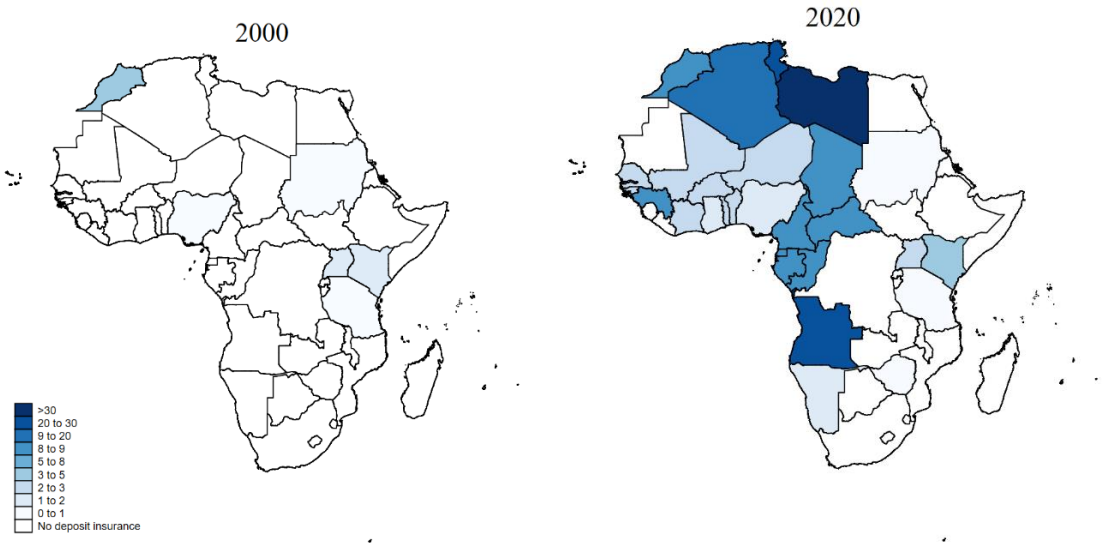
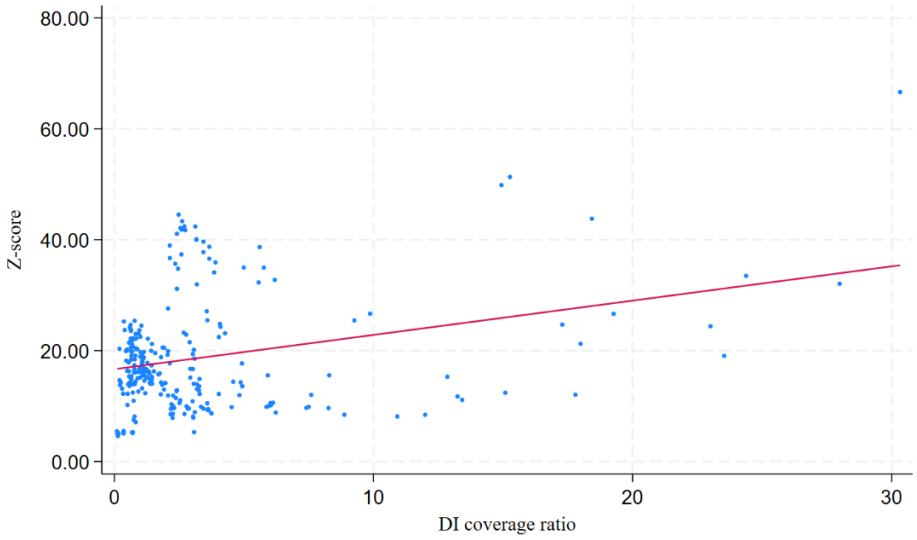
Figure 1. Deposit insurance and coverage limit



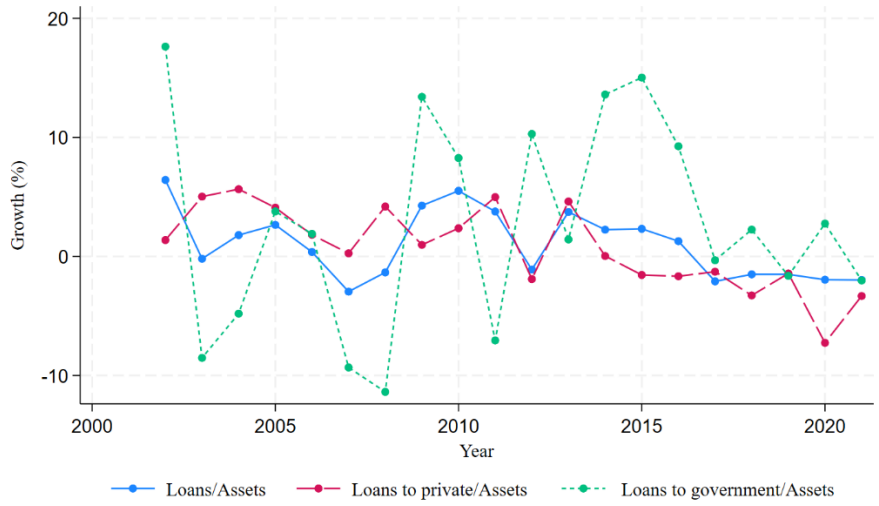
This figure shows African countries with an explicit deposit insurance scheme in place in the years 2000 and 2020. Colour shading indicates the coverage limit, expressed in thousands of US dollars. Coverage limits were originally collected in local currency from various sources and converted to US dollars 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. 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	0.000	0.000	1.000
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***	2.568***	2.524***
	(0.696)	(0.765)	(0.779)
Inflation	-0.196	-0.258	-0.313
	(0.426)	(0.446)	(0.439)
GDP growth	-0.757	-0.812	-0.794
	(0.975)	(0.995)	(0.966)
Population (log)	0.628***	0.639***	0.662***
	(0.188)	(0.193)	(0.204)
Post-currency crisis	-1.093***	-1.090***	-0.806*
	(0.389)	(0.387)	(0.464)
Post-debt crisis		0.128	0.744
		(0.369)	(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**	24.968**	23.935*
	(14.954)	(11.628)	(11.826)
CEMAC directive	8.229***	8.150**	8.133**
	(2.991)	(2.992)	(3.009)
WAEMU directive	2.886***	3.267***	3.235***
	(0.922)	(0.788)	(0.811)
Inflation	-1.270	-1.749***	-1.814***
	(0.783)	(0.569)	(0.581)
GDP growth	1.112	-0.040	0.055
	(2.052)	(2.289)	(2.323)
Population (log)	-18.726	-13.375	-13.347
	(11.079)	(9.166)	(9.183)
Post-currency crisis	0.262	0.688	1.272
	(1.287)	(1.089)	(1.688)
Post-debt crisis		1.730**	2.825
		(0.784)	(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**	0.033***	0.037***	0.053***	0.046***
	(0.007)	(0.005)	(0.006)	(0.008)	(0.008)
Propensity	0.874***	0.921***	0.996***	2.663***	2.274***
	(0.238)	(0.211)	(0.235)	(0.651)	(0.626)
Residual	-0.017***	-0.022***	-0.023***	-0.026***	-0.028***
	(0.005)	(0.003)	(0.004)	(0.006)	(0.006)
Propensity^2				-1.667**	-2.144**
				(0.811)	(0.836)
Residual^2				-0.000**	-0.001***
				(0.000)	(0.000)
Propensity*Residual				0.029	0.069***
				(0.021)	(0.026)
Inflation	0.105	0.109	0.104	-0.223	-0.325
	(0.108)	(0.087)	(0.090)	(0.170)	(0.213)
GDP growth	0.195	0.134	0.113	-0.172	-0.348
	(0.209)	(0.329)	(0.359)	(0.326)	(0.305)
Population (log)	0.157***	0.164***	0.163***	0.000	0.000
	(0.008)	(0.010)	(0.010)	(0.000)	(0.000)
Post-currency crisis	0.177**	0.124	0.038	-0.063	-0.153
	(0.078)	(0.094)	(0.135)	(0.135)	(0.132)
Post-debt crisis		-0.114*	-0.242**	-0.582***	-0.527***
		(0.068)	(0.118)	(0.147)	(0.143)
Post-multiple crises			0.133	0.372**	0.542***
			(0.116)	(0.145)	(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***	0.564***	0.564***	0.661***	0.366**
	(0.175)	(0.170)	(0.175)	(0.158)	(0.160)
Propensity	0.930***	0.960***	0.968***	2.474***	2.124***
	(0.244)	(0.230)	(0.254)	(0.673)	(0.647)
Residual	-0.379***	-0.400***	-0.400***	0.000	0.000
	(0.087)	(0.085)	(0.088)	(0.000)	(0.000)
Propensity^2				-1.941**	-2.331***
				(0.800)	(0.802)
Residual^2				-0.250***	-0.325***
				(0.058)	(0.076)
Propensity*Residual				1.114***	1.597***
				(0.402)	(0.458)
Inflation	0.104	0.134	0.135	-0.184	-0.360*
	(0.104)	(0.090)	(0.090)	(0.166)	(0.209)
GDP growth	-0.093	-0.078	-0.078	-0.478*	-0.569**
	(0.104)	(0.099)	(0.100)	(0.282)	(0.264)
Population (log)	0.150***	0.153***	0.153***	-0.428***	-0.416***
	(0.010)	(0.011)	(0.011)	(0.077)	(0.077)
Post-currency crisis	0.152**	0.151**	0.142*	-0.102	-0.172
	(0.073)	(0.069)	(0.075)	(0.135)	(0.132)
Post-debt crisis		-0.067	-0.080	-0.525***	-0.438***
		(0.053)	(0.061)	(0.144)	(0.137)
Post-multiple crises			0.015	0.438***	0.537***
			(0.084)	(0.145)	(0.140)
Corruption					0.057
					(0.073)
Accountability					-0.113**
					(0.045)
Political					-0.138***
					(0.038)
Effectiveness					0.426***
					(0.092)
Regulatory					-0.231***
					(0.078)
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 1and 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	0.005	0.020***	0.023***	0.014***
	(0.006)	(0.005)	(0.007)	(0.003)	(0.003)
Propensity	-0.003	-0.026	0.075	0.051	0.121
	(0.295)	(0.275)	(0.221)	(0.279)	(0.266)
Residual	-0.005	-0.005*	-0.003	-0.001	0.001
	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)
Propensity^2				-0.074	0.510
				(0.345)	(0.353)
Residual^2				0.000	0.000***
				(0.000)	(0.000)
Propensity*Residual				0.002	-0.030***
				(0.009)	(0.011)
Inflation	0.312***	0.285***	0.382***	0.415***	0.263***
	(0.068)	(0.076)	(0.046)	(0.072)	(0.089)
GDP growth	0.186	0.153	0.295**	0.359***	0.391***
	(0.129)	(0.133)	(0.135)	(0.137)	(0.127)
Population (log)	0.028***	0.026***	0.021***	0.000	0.000
	(0.006)	(0.006)	(0.005)	(0.000)	(0.000)
Post-currency crisis	-0.050	-0.051	-0.024	-0.045	0.046
	(0.070)	(0.068)	(0.116)	(0.054)	(0.054)
Post-debt crisis		0.049	0.078	0.110*	0.142**
		(0.041)	(0.100)	(0.060)	(0.059)
Post-multiple crises			-0.022	-0.031	-0.097*
			(0.094)	(0.059)	(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*	0.024***	0.031***	0.050***	0.049***
	(0.006)	(0.005)	(0.006)	(0.008)	(0.009)
Propensity	0.845***	0.855***	1.027***	3.321***	3.144***
	(0.227)	(0.203)	(0.235)	(0.744)	(0.709)
Residual	-0.014**	-0.019***	-0.020***	-0.020***	-0.022***
	(0.006)	(0.004)	(0.004)	(0.005)	(0.005)
Propensity^2				-2.194**	-2.785***
				(1.048)	(1.026)
Residual^2				-0.000	-0.001***
				(0.000)	(0.000)
Propensity*Residual				0.014	0.051
				(0.030)	(0.031)
Inflation	0.082	0.096	0.102	-0.199	-0.203
	(0.103)	(0.082)	(0.085)	(0.175)	(0.214)
GDP growth	0.250	0.203	0.165	0.020	-0.089
	(0.198)	(0.282)	(0.339)	(0.334)	(0.306)
Population (log)	0.163***	0.169***	0.168***	0.000	0.000
	(0.008)	(0.010)	(0.010)	(0.000)	(0.000)
Post-currency crisis	0.141**	0.095	-0.115	-0.427***	-0.424***
	(0.067)	(0.086)	(0.181)	(0.161)	(0.147)
Post-debt crisis		-0.088	-0.395**	-1.049***	-0.958***
		(0.067)	(0.189)	(0.208)	(0.194)
Post-multiple crises			0.314	0.854***	0.999***
			(0.199)	(0.211)	(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**	0.178***	0.055**
	(0.012)	(0.031)	(0.026)
Propensity	2.038***	2.187***	0.360
	(0.634)	(0.705)	(0.389)
Residual	-0.024***	-0.031***	0.018
	(0.008)	(0.007)	(0.018)
Propensity^2	-2.369***	-2.153**	0.093
	(0.818)	(0.921)	(0.502)
Residual^2	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)
Propensity*Residual	0.079***	0.069***	-0.007
	(0.026)	(0.027)	(0.017)
Inflation	-0.370*	-0.155	0.001
	(0.209)	(0.215)	(0.121)
GDP growth	-0.329	-0.611*	-0.336*
	(0.303)	(0.329)	(0.176)
Population (log)	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
Post-currency crisis	-0.225*	-0.224	-0.133
	(0.130)	(0.149)	(0.100)
Post-debt crisis	-0.440***	-0.648***	-0.121
	(0.147)	(0.158)	(0.112)
Post-multiple crises	0.505***	0.538***	0.163*
	(0.144)	(0.156)	(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**	0.012
		(0.057)	(0.035)
DI coverage*Accountability		-0.143***	-0.103***
		(0.042)	(0.030)
DI coverage*Political		0.005	0.068***
		(0.021)	(0.014)
DI coverage*Effectiveness		-0.102	-0.030
		(0.064)	(0.032)
DI coverage*Regulatory		-0.043	-0.042**
		(0.034)	(0.020)
DI coverage*Rule		0.240***	0.119***
		(0.059)	(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	-0.224***	-0.232***
	(0.031)	(0.025)	(0.037)
Propensity	0.102	0.018	0.120
	(0.490)	(0.384)	(0.584)
Residual	0.004	0.216***	0.220***
	(0.026)	(0.021)	(0.031)
Propensity^2	0.453	0.829*	1.281*
	(0.569)	(0.446)	(0.677)
Residual^2	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
Propensity*Residual	-0.008	-0.050***	-0.058**
	(0.020)	(0.016)	(0.024)
Inflation	0.103	-1.252***	-1.149***
	(0.159)	(0.124)	(0.189)
GDP growth	-0.491*	-0.252	-0.743**
	(0.289)	(0.226)	(0.344)
Population (log)	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
Post-currency crisis	0.092	0.195**	0.287**
	(0.104)	(0.081)	(0.124)
Post-debt crisis	0.125	0.675***	0.801***
	(0.130)	(0.102)	(0.155)
Post-multiple crises	-0.128	-0.285***	-0.413***
	(0.100)	(0.079)	(0.119)
Corruption	0.218**	-0.160**	0.058
	(0.092)	(0.072)	(0.109)
Accountability	-0.009	-0.054	-0.063
	(0.070)	(0.055)	(0.084)
Political	0.051	-0.036	0.015
	(0.042)	(0.033)	(0.050)
Effectiveness	0.515***	0.251***	0.766***
	(0.103)	(0.080)	(0.122)
Regulatory	-0.025	0.149**	0.124
	(0.090)	(0.071)	(0.107)
Rule of law	0.066	0.128	0.193
	(0.100)	(0.079)	(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**	-0.244	-0.337**	-0.218
	(0.167)	(0.183)	(0.141)	(0.154)
Propensity	0.795	3.121	0.700	2.743
	(2.605)	(2.706)	(2.197)	(2.282)
Residual	0.493***	0.354**	0.435***	0.310**
	(0.163)	(0.177)	(0.138)	(0.150)
Propensity^2	8.624**	9.751***	7.274**	8.295***
	(3.404)	(3.409)	(2.871)	(2.875)
Residual^2	0.010***	0.013***	0.008***	0.011***
	(0.001)	(0.002)	(0.001)	(0.002)
Propensity*Residual	-0.523***	-0.621***	-0.440***	-0.527***
	(0.125)	(0.130)	(0.105)	(0.109)
Inflation	2.767	4.160*	2.252	3.363*
	(2.131)	(2.226)	(1.798)	(1.877)
GDP growth	0.206	0.939	0.045	0.691
	(1.160)	(1.175)	(0.978)	(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***	-3.224***	-3.136***	-2.649***
	(0.596)	(0.656)	(0.503)	(0.553)
Post-debt crisis	-3.284***	-3.624***	-2.676***	-2.969***
	(0.844)	(0.867)	(0.712)	(0.731)
Post-multiple crises	4.387***	4.398***	3.652***	3.643***
	(0.645)	(0.666)	(0.544)	(0.562)
Corruption		1.503**		1.194**
		(0.633)		(0.534)
Accountability		-0.835**		-0.722**
		(0.424)		(0.358)
Political		0.402		0.320
		(0.292)		(0.246)
Effectiveness		-1.753**		-1.522**
		(0.799)		(0.674)
Regulatory		-0.639		-0.604
		(0.557)		(0.470)
Rule of law		0.057		0.131
		(0.723)		(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

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

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

Appendix
Deposit Insurance and Banking Sector Stability: Evidence from Africa

Table A.1. Variable definitions

Variable	Definition	Source
Deposit insurance		
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	
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.	Bank of Central African States (BEAC)
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)
Bank stability		
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	
Aggregate bank-level		
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	
Country-level		
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	
Country governance		
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***	2.568***	2.524***
	(0.696)	(0.765)	(0.779)
Inflation	-0.196	-0.258	-0.313
	(0.426)	(0.446)	(0.439)
GDP growth	-0.757	-0.812	-0.794
	(0.975)	(0.995)	(0.966)
Population (log)	0.628***	0.639***	0.662***
	(0.188)	(0.193)	(0.204)
Post-currency crisis	-1.093***	-1.090***	-0.806*
	(0.389)	(0.387)	(0.464)
Post-debt crisis		0.128	0.744
		(0.369)	(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***	1.310**	1.321**
	(0.525)	(0.484)	(0.486)
CEMAC directive	0.456***	0.453***	0.453***
	(0.090)	(0.089)	(0.089)
WAEMU directive	0.366***	0.373***	0.374***
	(0.049)	(0.045)	(0.045)
Inflation	-0.079***	-0.091***	-0.090***
	(0.025)	(0.027)	(0.025)
GDP growth	-0.108	-0.086	-0.087
	(0.092)	(0.085)	(0.086)
Population (log)	-0.769**	-0.647*	-0.648*
	(0.322)	(0.324)	(0.325)
Post-currency crisis	0.032	0.046	0.040
	(0.041)	(0.038)	(0.072)
Post-debt crisis		0.078**	0.066
		(0.029)	(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 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 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 alongside with the propensity score predicted in Stage 1 and residual estimated in Stage 2 (Equation 3, results reported in Table XXX). Column 1 includes post-currency crisis dummy. Column 2 controls for both post-currency and post-dent 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***	2.792***	2.758***
	(0.708)	(0.754)	(0.792)
Inflation	-0.150	-0.228	-0.399
	(0.422)	(0.459)	(0.548)
GDP growth	-1.023	-1.086	-1.055
	(1.001)	(1.022)	(0.950)
Population (log)	0.529***	0.538***	0.562***
	(0.188)	(0.193)	(0.200)
Post-currency crisis	-0.987**	-0.981**	-0.313
	(0.398)	(0.394)	(0.407)
Post-debt crisis		0.160	5.832***
		(0.398)	(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**	24.959**	22.593*
	(15.141)	(11.997)	(12.275)
CEMAC directive	8.110**	8.208**	8.224**
	(3.083)	(3.082)	(3.099)
WAEMU directive	2.757**	3.306***	3.263***
	(1.013)	(0.905)	(0.942)
Inflation	-1.208	-1.770***	-1.950***
	(0.811)	(0.614)	(0.655)
GDP growth	1.198	-0.002	0.216
	(2.105)	(2.308)	(2.358)
Population (log)	-18.239	-13.474	-13.474
	(11.326)	(9.553)	(9.551)
Post-currency crisis	0.322	0.755	2.104
	(1.412)	(1.224)	(2.112)
Post-debt crisis		1.802**	4.478*
		(0.827)	(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 alongside with the propensity score predicted in Stage 1 and residual estimated in Stage 2 (Equation 3, results reported in Table XXX). Column 1 includes post-currency crisis dummy. Column 2 controls for both post-currency and post-dent 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***	2.678***	2.673***
	(0.767)	(0.839)	(0.831)
Inflation	-1.699	-1.622	-1.615
	(1.993)	(1.757)	(1.731)
GDP growth	-0.549	-0.572	-0.571
	(0.764)	(0.750)	(0.750)
Population (log)	0.648***	0.650***	0.652***
	(0.197)	(0.197)	(0.201)
Post-currency crisis	-1.611***	-1.619***	-1.577**
	(0.464)	(0.463)	(0.638)
Post-debt crisis		-0.042	0.025
		(0.353)	(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**	31.215**	29.407**
	(16.330)	(12.591)	(13.661)
CEMAC directive	8.204**	8.103**	8.060**
	(3.027)	(3.024)	(3.051)
WAEMU directive	2.835***	3.210***	3.165***
	(0.962)	(0.818)	(0.850)
Inflation	-0.651	-1.195**	-1.217**
	(0.859)	(0.513)	(0.517)
GDP growth	1.414	0.149	0.221
	(2.116)	(2.392)	(2.437)
Population (log)	-18.489	-13.215	-13.169
	(11.080)	(9.234)	(9.260)
Post-currency crisis	0.341	0.887	1.759
	(1.538)	(1.357)	(2.379)
Post-debt crisis		1.695**	3.085
		(0.809)	(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 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 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-dent 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*	0.027***	0.029***	0.052***	0.052***
	(0.008)	(0.006)	(0.005)	(0.008)	(0.008)
Propensity	0.718***	0.745***	0.802***	2.880***	2.395***
	(0.166)	(0.182)	(0.185)	(0.615)	(0.606)
Residual	-0.015***	-0.021***	-0.022***	-0.028***	-0.029***
	(0.005)	(0.003)	(0.003)	(0.006)	(0.006)
Propensity^2				-2.263***	-2.858***
				(0.758)	(0.824)
Residual^2				-0.000***	-0.001***
				(0.000)	(0.000)
Propensity*Residual				0.043**	0.093***
				(0.020)	(0.027)
Inflation	0.110	0.107	0.117	-0.001	-0.110
	(0.107)	(0.094)	(0.095)	(0.191)	(0.245)
GDP growth	0.276**	0.305**	0.318**	0.189	-0.011
	(0.133)	(0.152)	(0.152)	(0.325)	(0.305)
Population (log)	0.165***	0.168***	0.169***	0.000	0.000
	(0.007)	(0.010)	(0.010)	(0.000)	(0.000)
Post-currency crisis	0.190**	0.182**	0.305***	0.400**	0.303*
	(0.079)	(0.084)	(0.100)	(0.177)	(0.174)
Post-debt crisis		-0.061	0.063	-0.126	-0.038
		(0.068)	(0.070)	(0.150)	(0.140)
Post-multiple crises			-0.146**	-0.063	0.071
			(0.067)	(0.150)	(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	0.040	0.141	-0.010
	(0.185)	(0.218)	(0.155)	(0.183)
Propensity	6.951*	5.209	5.153*	3.615
	(3.650)	(3.969)	(3.057)	(3.329)
Residual	-0.369**	-0.257	-0.252*	-0.146
	(0.178)	(0.205)	(0.149)	(0.172)
Propensity^2	-18.545***	-17.831***	-15.155***	-14.724***
	(4.907)	(5.041)	(4.110)	(4.229)
Residual^2	-0.006***	-0.006**	-0.006***	-0.006***
	(0.002)	(0.003)	(0.002)	(0.002)
Propensity*Residual	0.774***	0.792***	0.640***	0.663***
	(0.173)	(0.182)	(0.144)	(0.153)
Inflation	0.948	0.025	0.084	-0.667
	(1.309)	(1.406)	(1.096)	(1.180)
GDP growth	0.540	-0.330	0.205	-0.538
	(1.722)	(1.823)	(1.442)	(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	0.083	0.073	-0.079
	(0.809)	(0.909)	(0.678)	(0.762)
Post-debt crisis	-0.362	-0.038	-0.220	0.074
	(1.048)	(1.114)	(0.878)	(0.934)
Post-multiple crises	0.128	0.070	0.145	0.094
	(0.882)	(0.921)	(0.739)	(0.772)
Corruption		-0.779		-0.701
		(0.736)		(0.617)
Accountability		1.085*		0.893*
		(0.597)		(0.500)
Political		-0.675*		-0.539*
		(0.357)		(0.299)
Effectiveness		2.394***		1.902***
		(0.869)		(0.729)
Regulatory		-0.364		-0.155
		(0.753)		(0.632)
Rule of law		-0.255		-0.277
		(0.829)		(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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