Two Centuries of Systemic Bank Runs[†]

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Abstract

We study bank runs using a novel historical cross-country dataset that covers 184 countries since 1800 and combines a new narrative chronology with statistical indicators of bank deposit withdrawals. We document the following facts: (i) the unconditional likelihood of a bank run is 1.9%, and that of significant deposit withdrawals is 12.5%; (ii) *systemic* bank runs—those that are accompanied by deposit withdrawals—are associated with substantially larger output losses than non-systemic runs or deposit contractions alone; (iii) bank runs are contractionary even when they are not triggered by fundamental causes, banks are well-capitalized, and there is no evidence of a crisis or widespread failures in the banking sector; (iv) in both historical and contemporary episodes, depositors tend to run on highly leveraged banks, which leads to a credit crunch and a reallocation of deposits across banks; and (v) liability guarantees are associated with lower output losses after systemic runs, while having a lender of last resort or deposit insurance reduces the probability of a run becoming systemic. Overall, our findings highlight a key role of sudden bank liability disruptions in economic fluctuations, over and above other sources of financial fragility.

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1 Introduction

Banks play an important role for the allocation of capital in the economy by providing long-term loans funded by short-term deposits. At the same time, this maturity transformation also gives rise to an inherent vulnerability: the possibility of bank runs (Diamond and Dybvig, 1983). Despite the prominence of runs in economic theory and renewed interest in better understanding them in the wake of the 2023 Silicon Valley Bank run and failure, broad empirical evidence on key questions about bank runs and their interaction with the real economy remains limited. For example, have bank runs become more or less common over time? Are all banking crises accompanied by runs, and all runs by crises? Do depositors run on banks they perceive to be risky? Are bank runs damaging to the macroeconomy even if they are not the result of fundamental solvency issues?

We study these questions using a novel cross-country dataset covering 308 episodes of bank runs in 184 countries over the period 1800-2023. Because bank runs are relatively infrequent, the unprecedented historical coverage of our dataset provides us with the necessary statistical power to test competing views about these events. At the heart of our work are two data contributions. First, we collect narrative evidence on the incidence of bank runs from 463 individual sources, such as historical newspapers, central bank publications, specialized scholarship on the banking history of specific countries, and existing chronologies of financial crises. Second, we construct a new dataset on the banking sector's outstanding deposits, which allows us to identify 1,695 episodes during which aggregate deposits experienced a contraction.[1]

We begin by documenting several new stylized facts. First, we measure the probability of bank runs across time and space, a key ingredient for models and policy analysis (Goldstein and Pauzner, 2005). We find that the average unconditional frequency of bank runs over the period 1800-2023 is about 1.9%. The frequency of bank runs trended upwards until World War II, fell considerably during the relative financial calm of the 1940-1970s, and increased during the turbulent decades from 1980 to 2010. Second, to compare bank runs to other types of financial stability issues, we also construct a unified measure of banking crises by combining the influential crises lists of Baron et al. (2021), Laeven and Valencia (2018), Jordà et al. (2017), and Reinhart and Rogoff (2009).[2] We find that while almost half of banking crises coincide with runs, there are many episodes of runs without crises and vice versa. Unlike banking crises, runs are associated with a permanent drop

[1] The chronology of the narrative evidence on bank runs is documented in Appendix B and the dataset on deposits is described in Appendix C.

[2] We focus on these four chronologies because they appear to span the earlier important work by Bordo et al. (2001), Caprio and Klingebiel (2002), and Demirgüç-Kunt and Detragiache (2005).

in deposits, a limited change in bank equity returns, and a higher likelihood of ex-post government interventions aimed at stabilizing banks' liability side such as deposit freezes or liquidity support. These patterns provide further validation that our new measures indeed capture periods of severe liability disruptions.

Equipped with our newly collected narrative chronology and statistical data on deposit withdrawals, we begin our analysis by classifying bank runs into "systemic" and "non-systemic" episodes. We build on the literature on contagion and systemic financial panics following Allen and Gale (2000). The core idea is that while some bank runs are idiosyncratic in nature and only affect individual institutions, they may become relevant for the macroeconomy if they affect the banking sector as a whole. Following the insights from Diamond and Rajan (2005) and Uhlig (2010), we conceptualize that a run becomes systemic when deposit withdrawals at one bank increase the probability of a run at another bank, which can lead to a system-wide event characterized by a measurable decline in aggregate deposits. In the data, we thus define a bank run as systemic if we have objective, statistical evidence that it is accompanied by a contraction in the banking sector's total deposit base. In this regard, we are building on the work of Gorton (1988) who argues that banking panics occur when measurable variables (such as bank deposits) reach a certain threshold. The critical advantage of combining narrative and statistical evidence is that it provides us with a quantitatively validated chronology of bank runs rather than a purely subjective reading of historical documents.

Should we care about bank runs from a macroeconomic perspective? Our central empirical exercise is to investigate this question from a historical cross-country perspective. We find that the macroeconomic costs of runs are substantial: five years after a systemic bank run, real deposits contract significantly and real GDP is on average 9% lower relative to its pre-run trend.[3] The economic mechanism behind this pattern is the severe, roughly 30% contraction in outstanding credit, which is consistent with a critical role for the banking system in providing credit to the real economy (Bernanke and Gertler, 1995). Crucially, bank runs are only damaging to the macroeconomy when they are *systemic*, i.e., accompanied by a decline in aggregate deposits. In contrast, bank runs that are not systemic, as well as deposit contractions without narrative evidence of a bank run, are associated with only relatively minor drops in output and deposits, and weaker declines in credit. Taken at face value, these results suggest an important role for the liability side of bank balance sheets in economic downturns, confirming the notion that runs become particularly relevant from a macroeconomic perspective when they are systemic. This

[3]This order of magnitude for the output loss after systemic runs is similar to what has been previously documented for financial crises more broadly (e.g., Hoggarth et al., 2002; Cerra and Saxena, 2008; Reinhart and Rogoff, 2009; Bordo and Haubrich, 2010; Schularick and Taylor, 2012; Romer and Romer, 2017).

finding speaks to the theoretical research on banking panics by emphasizing the importance of allowing for the systemic nature of bank runs, as in Gertler and Kiyotaki (2015), Robatto (2019), Liu (2023), or Amador and Bianchi (2024).

Why are systemic bank runs associated with severe economic downturns? Is this due to issues related to illiquidity, insolvency, or behavioral factors? On the one hand, the theoretical literature often models runs as behavioral self-fulfilling phenomena, such as in Diamond and Dybvig (1983), Peck and Shell (2003), Diamond and Kashyap (2016), or Gertler and Kiyotaki (2015) (the latter build on the Cole and Kehoe (2000) model of self-fulfilling debt crises). If banks cannot make up for the sudden loss of deposits with other sources of funding, this may result in a credit crunch and an ensuing recession. This view falls within a general class of macroeconomic frameworks that feature sunspot equilibria (Farmer, 1999) and is also at times referred to as the "expectations" approach (Keister and Narasiman, 2016). On the other hand, bank runs may be caused by poor underlying macroeconomic fundamentals and involve equilibria in which it is individually rational for households to run even when nobody else does, as in Bryant (1980), Chari and Jagannathan (1988), Jacklin and Bhattacharya (1988), Allen and Gale (1998), or Kashyap et al. (2024). According to this view, runs are "optimal" outcomes that are not due to behavioral factors but, instead, the result of measurable, quantifiable triggers. There is also a class of frameworks that allow for *both* fundamental and non-fundamental causes of panics, such as the Goldstein and Pauzner (2005) model of bank runs or the Bocola and Dovis (2019) model of panics in sovereign bond markets, among others.

The question of whether bank runs are driven by fundamentals, the sunspot residual, or both is a central issue in the literature (Goldstein, 2013). Our long-run historical panel dataset allows us to investigate whether runs matter for the macroeconomy in isolation or only when accompanied by fundamental solvency issues. We provide three pieces of evidence suggesting that sudden liability disruptions in the banking sector are followed by an economic downturn even if fundamentals are sound.

First, we adopt a narrative approach to classify systemic bank runs based on whether they were triggered by fundamental factors or non-fundamental causes. Our narrative coding identifies bank run incidents for which historical accounts mention potential macroeconomic causes, such as changes in the stance of monetary policy, a sudden currency devaluation, or any other kind of crisis. Our approach identifies 55 out of 165 systemic bank runs as non-fundamental. We show that the aggregate output losses from these non-fundamental systemic runs are very similar to those from fundamental ones. This suggests that the underlying fundamental factors are not the sole determinants of GDP contractions following systemic bank runs. Put differently, weak fundamentals are

sufficient but not necessary for systemic bank runs to have macroeconomic repercussions.

Second, we benchmark the output losses from systemic bank runs relative to those from equity-led banking crises and waves of bank failures as identified by the existing literature. We find that systemic bank runs are particularly severe when they are accompanied by crises or bank failures. Importantly, however, systemic bank runs still predict a considerable decline in GDP even when they occur *outside* of periods of banking crises or failures. At the same time, crises are associated with a decline in bank equity returns, suggesting they pick up solvency issues in the banking sector, while systemic bank runs are not. Taken together, these patterns also suggest an independent role for the liability side of banks in real economic activity over and above just insolvency considerations.

Third, we investigate whether the banking sector's capitalization at the eve of a systemic run is associated with differences in future output losses. Consistent with the notion that depositors may be more likely to run when they are concerned about banks' solvency, we find a considerably larger GDP decline after runs when banks are highly levered. However, systemic runs still predict a decline in GDP even when banks have high capital buffers, again suggesting that runs are costly even in the absence of the most pressing solvency concerns.

To better understand the timing of how bank runs unfold, we gather monthly data for a series of bank runs, including in Lithuania (1995), Japan (1997), Argentina (2001), Myanmar (2003), Albania (2008), and Greece (2015). Across all of these case studies, we find a sharp drop in deposits precisely in the month where we identify a systemic bank run. Although bank runs may be the result of slow-moving fundamental causes, run events tend to be relatively sudden realizations that mark the beginning of banking sector distress. These non-linear patterns are consistent with, for example, theories in which banking sector disruptions are the result of sudden reversals in the production of information (Gorton and Ordoñez, 2023).

In addition to the above, we also provide case study evidence for three episodes of bank runs in the United States: the Great Depression, runs in the early 1990s, and the 2023 run on Silicon Valley Bank. Again, we find the sharpest drop in deposits after the start of the run. The contraction in deposits, in turn, is followed by an increase in the amount of currency in circulation in the Great Depression and flows into money market funds in recent times, consistent with a "flight to safety" by panicked depositors.

We also explore the role of institutional factors in determining which types of bank runs become systemic and, if they do, their macroeconomic aftermath. We find evidence that the existence of a central bank and of credible deposit insurance schemes are associated with a lower probability that a bank run turns into a systemic event, especially before the

2007-08 Global Financial Crisis. At least before this most recent wave of crises, we also find some evidence that deposit insurance may contribute to mitigating the contraction of output following systemic runs. The finding that deposit insurance is partly helpful to stem runs is in line with previous evidence from settings using micro data, such as Iyer and Puri (2012), Iyer et al. (2016), and Martin et al. (2018). It is also consistent with a theoretical prediction in Cooper and Ross (2002), who argue that in the presence of moral hazard and monitoring deposit insurance may be utility-improving but not sufficient to achieve the first-best outcome. As argued by Bordo (1990), having a lender of last resort may also play an important role in crisis management. We confirm this in the data as the existence of a central bank is correlated with a lower likelihood that a crisis becomes systemic. This observation is also in line with the theoretical predictions of the Santos and Suarez (2019) model of bank regulation. Once a run is systemic, however, a lender of last resort helps mitigate the ensuing output losses only to a limited extent.

We also analyze how heterogeneity in macroeconomic conditions and government interventions shapes the severity of output losses following bank runs. We find that systemic runs are associated with an additional 4.5 percentage point output loss for every one standard deviation increase in the credit-to-GDP ratio prior to the run, consistent with the idea that an excessive credit boom may foreshadow a particularly costly bust (e.g., Jordà et al., 2011). A one standard deviation larger current account deficit prior to a run is associated with a 7.5 percentage points higher output loss, consistent with a role for capital inflows. When we consider government interventions, we only find a positive and statistically significant role for liability guarantees, which specifically target depositors during a run. Systemic runs accompanied by such liability guarantees are associated with a 3.8 percentage points less severe output contraction.

To study what happens during systemic bank runs on a more granular level, we supplement our cross-country analysis with detailed bank-level data from two historically distinct episodes in the United States: (i) the period 1867-1904, for which we have data on bank balance sheets from Carlson et al. (2022), and (ii) the period 1976-2020, for which we have data from the Call Reports (now maintained by the FFIEC). We document that during systemic runs, there is vast heterogeneity in deposit flows across banks, with considerable reallocation of deposits from some banks to others. Investigating these deposit flows across banks allows us to test whether, at least in the United States, depositors run on banks more or less randomly or whether there are factors systematically determining which banks see deposit withdrawals.

We show that depositors do not run on banks indiscriminately; they typically run on highly-levered institutions, consistent with the existing evidence in, among others,

Saunders and Wilson (1996), Calomiris and Mason (1997), Iyer et al. (2016), and Chen et al. (2024). Banks with high ex-ante leverage, low profitability, or high reliance on deposit funding experience larger deposit outflows both in the historical period before the advent of deposit insurance and in the more recent data starting in the 1970s. The result on the reliance on deposit funding in particular is consistent with the predictions and findings of Chen et al. (2024), who argue that bank-level exposure to runs and panics correlates with the intensive margin of liquidity transformation, which in turn depends on the importance of deposits as a funding source.

In addition, we also find similar patterns in international bank-level data that cover systemic bank runs between 2005 and 2020. By comparing banks with and without deposit outflows during bank runs using an event study approach, we show that affected banks cannot make up for the loss of deposits by raising other types of funding, even in modern times where banks rely more on non-deposit funding sources such as interbank borrowing. As a result, they see a reduction in their leverage ratios and a contraction of their balance sheets and loan books. These results are consistent with the link between leverage-driven credit booms and banking crises (Geanakoplos, 2010; Gourinchas and Obstfeld, 2012; Boissay et al., 2016; Müller and Verner, 2024).

Our evidence based on over two centuries of bank runs suggests a distinct role for the banks' liability side in explaining how financial crises unfold. Even when the fundamentals are sound, systemic bank runs are associated with economic downturns that are intimately linked to credit crunches. This finding has potentially important implications for policy makers because it helps to quantify the aggregate value of funding stability that could be targeted by liquidity regulation.

Related literature. Our paper adds to the literature on the role of financial factors in the macroeconomy, building on the seminal works of Diamond (1984); Bernanke and Gertler (1989, 1995), Kiyotaki and Moore (1997), Holmstrom and Tirole (1997), and Allen and Gale (1998, 2000). Our focus is on the empirical measurement of financial fragility in general and (retail) bank runs in particular, building in this regard on the seminal foundations of Bryant (1980) and Diamond and Dybvig (1983). See Sufi and Taylor (2022) for an excellent survey of the empirical literature on financial crises.

Our empirical approach differs from the existing literature on banking crises in three important ways. First, we focus entirely on the occurrence of bank runs rather than other sources of banking sector distress, while existing chronologies look at combinations of factors. As others have documented, banking crises have a variety of sources, including bank failures (Calomiris and Mason, 2003b; Correia et al., 2024), an erosion of bank capital

(Jordà et al., 2021), or a more general panic (Friedman and Schwartz, 1963; Bernanke, 2018; Baron et al., 2021).[4] We show that many banking crises are *not* associated with runs, and runs are also not always the source of a crisis, somewhat in contrast to the view that crises and runs are one and the same phenomenon (Schwartz, 1987; Gorton, 2012).[5]

Our paper also complements recent work by Laeven et al. (2024), who provide evidence that bank capital losses during crises are permanent and mainly reflect deteriorating asset quality rather than liquidity concerns. We instead focus on bank runs and show that they matter for the economy even outside of such crises (or when banks are well capitalized and, thus, better shielded from losses). As such, our findings highlight a role for the liability side of the banking sector beyond its net worth (e.g., Gertler and Kiyotaki, 2010; He and Krishnamurthy, 2013; Brunnermeier and Sannikov, 2014; Rampini and Viswanathan, 2019; Baron et al., 2021). Relatedly, Calomiris and Mason (2003a), Frydman et al. (2015), and Monnet et al. (2021) use cross-sectional variation across regions or firms to provide evidence that individual historical bank run episodes can lead to a decline in economic activity. Our work also meshes well with recent evidence in Iyer et al. (2022) who document the predictive ability of deposit rates for local economic activity in the United States, which also suggests a role for bank liabilities in real economic outcomes.

Second, we propose a quantitatively validated measure of systemic bank runs, defined as bank runs accompanied by a drop in the outstanding deposits of the banking sector as a whole. As shown by Bordo and Meissner (2016) and Baron et al. (2021), existing chronologies of banking crises frequently disagree with one another, which gives rise to "classification uncertainty."[6] To address this, we build on Baron et al. (2021) in proposing a statistical measure to complement the more subjective classification of crisis episodes. Baron et al. (2021) identify banking crises by incorporating information on banks' stock returns. However, as they acknowledge, there are several important drawbacks to this approach. Even today, many banks are not listed on a stock exchange, and some countries may not have a sufficiently developed stock market to make banks' stock prices a reliable proxy. This issue is particularly important for developing countries, where the majority

[4] As we discuss throughout the paper, we focus entirely on runs involving retail deposits. Put differently, our chronology of runs does not include episodes where we only have evidence of a wholesale funding run, meaning runs on interbank deposits or other short-term debt. This emphasis is mainly dictated by a lack of available cross-country data on non-deposit liabilities of the banking system that we could use to validate the incidence of such wholesale funding runs with a statistical measure.

[5] To be clear, the imperfect overlap between runs and crises could also be explained by two other factors. First, existing crisis chronologies may be incomplete, and the events we classify as systemic runs should also be considered as banking crises. Second, we do not always observe an outright run if regulators quickly react to funding pressures in the banking system, although the underlying issues might be the same. For an excellent discussion of these issues, see Gorton (2012).

[6] See also Jalil (2015) for a similar perspective with a focus on historical banking crises in the United States.

of crises occur, and for historical crises. Our approach overcomes these limitations by using data on deposits, for which historical data are widely available and usually cover the entirety of a country's banking sector. Our work also complements that of Romer and Romer (2017), who propose a continuous narrative measure of financial distress. Similar to their work, our paper shows that it is possible to gauge the severity of a financial crisis using variation in the level of distress, in our case proxied by the extent of deposit withdrawals.

Third, our chronology of bank runs considerably extends the coverage of existing work trying to measure episodes of financial crises. With 16,345 country-year observations, our data has overall substantially broader coverage than any other chronology we are aware of. Importantly, we have information on bank deposit withdrawals, which allows us to identify systemic bank runs using an objective, statistical measure for close to the universe of modern economies. As such, an important contribution of our paper is that we provide a new, quantitatively validated measure for banking crises that we believe can serve as a useful input for future research.

We are not the first to think about bank runs as episodes of deposit contractions. Bordo and Wheelock (1998) describe what they call a "monetary approach" to financial stability as identifying "financial crises with banking panics that either cause or aggravate monetary contractions" (Bordo and Wheelock, 1998, p.44). The most prominent proponents of this view are perhaps Friedman and Schwartz (1963), who propose the ratio of outstanding deposits to currency in circulation as a statistical indicator of banking sector problems (see also Bernanke and James, 1990). Gorton (1988) documents a strong link between the currency-to-deposits ratio and banking panics in the United States. Reinhart and Rogoff (2009) also propose using deposit contractions as an "objective criterion for the incidence of banking sector distress" but cite a lack of cross-country data; our work overcomes this limitation through a new data collection effort. In doing so, we take the insights of these classic papers seriously and propose bank run episodes accompanied by deposit withdrawals as a reasonably objective and quantifiable approach to measure the incidence of financial stability issues across countries.

We also contribute to the empirical literature that analyzes depositor behavior during runs and in the run-up to bank failures (see, e.g., Kelly and Gráda, 2000; Gráda and White, 2003; Iyer and Puri, 2012; Iyer et al., 2016; Martin et al., 2018; Artavanis et al., 2022). Our results suggest that bank runs are often the ultimate trigger that turns vulnerabilities due to solvency issues into a full-blown crisis. As we show, depositors do not run on banks indiscriminately; they typically run on highly-levered institutions with impaired solvency, consistent with existing evidence in, among others, Saunders and Wilson (1996),

Calomiris and Mason (1997), Iyer et al. (2016), and Chen et al. (2024). That said, we also find sizable output losses even when banks are well capitalized, there is no crisis, there are no widespread bank failures, and the runs were not triggered by fundamental causes. As such, our findings complement bank-level evidence highlighting solvency issues such as Calomiris and Mason (2003b) and Correia et al. (2024), suggesting that sudden disruptions of bank funding may be costly from a macroeconomic perspective even where they do not translate into widespread bank failures.

Finally, our paper also complements the rich theoretical literature on bank runs and bank regulation. Goldstein and Pauzner (2005) put forth an important extension of the canonical Diamond and Dybvig (1983) setup and derive equilibrium probabilities of bank run equilibria. These probabilities can be calibrated with our dataset that covers many countries and many years. Gertler and Kiyotaki (2015) develop an influential macroeconomic framework with bank runs that has spurred an active quantitative literature (e.g., Robatto, 2019; Gertler et al., 2019, 2020). Similarly, a key ingredient in this class of models is the unconditional probability of runs, which our paper can provide readily available estimates for. Dávila and Goldstein (2023) study the optimal design of deposit insurance, a crucial policy instrument for the prevention of bank runs. They show that a small number of sufficient statistics—namely the probability of banking panics and the level of conditional losses—affects optimal policy. With our database, one can compute both the probability of runs and the elasticity of output with respect to runs. Finally, an important literature studies *systemic* bank runs and panics (Uhlig, 2010; Liu, 2023; Amador and Bianchi, 2024). The probability of narrative bank runs turning into systemic panics, among other critical parameters and estimates that are needed in this literature, is readily available from our data and analysis.

2 Measuring Systemic Bank Runs

This section describes a central contribution of our study: the creation of a new chronology of bank runs and statistical measures of deposit withdrawals covering 184 countries for the period 1800-2023.

2.1 A New Chronology of Bank Runs Around the World

Bank run definition. We define a bank run as a situation where "depositors rush to withdraw their deposits because they expect the bank to fail" (Diamond and Dybvig, 1983, p. 401), where we consider as a bank any type of deposit-taking institution. The

distinguishing feature of bank runs relative to the regular ebb and flow of deposits is their sudden and severe nature, which causes the affected institution to run into liquidity problems. Because our chronology varies by country, rather than by bank, we record both runs on individual institutions or clusters of institutions, and we also do not require the banks experiencing a run to be large. As we will discuss in Section 2.3, our approach is to use changes in outstanding deposits of the entire banking sector as a statistical measure to identify whether runs were *systemic* in nature or only affect (possibly immaterial) parts of the financial system.[7]

We focus on events that were not exclusively driven by runs on the wholesale liabilities of banks, i.e., interbank deposits and other types of non-deposit liabilities. Although such episodes of "wholesale funding runs" played a prominent role in the 2007-08 Global Financial Crisis, they played a much lesser role during many historical episodes as well as in most emerging markets. In addition, data on interbank deposits and other types of non-deposit liabilities are not systematically available for most countries. As a result, we focus on runs on (retail) deposits by households and non-financial firms.[8]

Narrative evidence. Following the existing literature, we rely on historical qualitative evidence to identify episodes of bank runs. Whenever possible, we try to identify contemporaneous accounts of runs rather than exclusively relying on ex-post historical descriptions. This approach should help in overcoming the natural tendency for bank run events to be more prominently reported if they accompanied a severe recession.

Why rely on such qualitative evidence at all? As argued by Romer and Romer (2017, p. 3073), "purely statistical indicators may misidentify financial disruptions." The reason is that any particular financial variable may be affected by many factors even in the absence of problems in the financial sector. In our case, we will rely on changes in outstanding banking sector deposits as a statistical measure. But a decline in deposits does not necessarily mean there is a bank run; it could also reflect tightening monetary policy or a recession without sudden withdrawals by panicked depositors. This is why we use a "hybrid" approach akin to Baron et al. (2021) in combining (subjective) narrative evidence with an (objective) statistical indicator.

[7]Note that because our data vary by country and year, there may be dozens or even hundreds of individual runs during each bank run episode. For brevity, we will sometimes refer to bank run episodes and bank runs interchangeably throughout the paper. Conceptually, we define a "bank run" as a sudden and severe withdrawal of retail deposits by households and non-financial corporations from one or several financial institutions that cause these institutions to experience liquidity issues.

[8]In some cases, we found several distinct bank runs in close succession. If these runs were not part of the same clustered episode, we documented them as separate events even if they happened in adjacent years. In our empirical analysis, we only retain the first such run episode within a three-year window to avoid duplicating the observations we use to study macroeconomic fluctuations around these events.

Comparison with other definitions of banking crises. Our approach to identifying bank runs differs from that in existing cross-country chronologies. Reinhart and Rogoff (2009) classify banking crises either as (1) bank runs that lead to the closure, merging or takeover of one or more financial institutions by the government, or (2) periods without runs where the government provides assistance to an important financial institution or group of institutions with the goal of preventing spillovers to other financial entities. Laeven and Valencia (2018) classify a banking crisis as a period of large-scale defaults affecting the financial sector by eroding banking sector capitalization. They mention that "[i]n some cases, the crisis is triggered by depositor runs on banks." Jordà et al. (2017) classify a period of banking distress by identifying major bank failures, banking panics, substantial losses in the banking sector, significant recapitalization, and/or significant government intervention. Baron et al. (2021) classify a banking crisis if the banking sector's ability to intermediate funds is severely impaired, where a large decline in bank equity is usually a necessary requirement for a banking crisis. Baron et al. (2021) define a "panic" episode when there is evidence of "sudden salient funding pressures," which may originate from deposit withdrawals, "strains in interbank lending markets," or "foreign-currency capital outflows from the banking sector" (Baron et al., 2021, p. 76).

The central conceptual difference we make is to focus entirely on bank runs. This should mean our bank run episodes are a strict subset of banking crises that may have many other causes. In practice, we uncover many episodes of bank runs that are not part of existing crisis chronologies. Section A.20 in the Online Appendix provides a detailed outline of the crisis definitions in existing work.

Our definition of bank runs also differs from the definition of "banking panics" in Baron et al. (2021). Section A.21 in the Online Appendix provides a detailed comparison of every discrepancy between our chronology of bank runs and that of banking panics in theirs. There are three reasons for these discrepancies. First, Baron et al. (2021) use qualitative judgement on whether a "panic" is severe enough to be of systemic nature. In contrast, we treat every bank run as an event, and then use variation in deposit growth rates as a quantitative means of establishing its systemicness. Second, Baron et al. (2021) sometimes refer to cases of wholesale funding runs as panics. In contrast, we focus entirely on "retail" bank runs which we can verify using statistical data on deposits. Third, there are a few cases where Baron et al. (2021) categorize events as a panic "to be conservative." If we were unable to find evidence of a bank run, such cases do not enter our chronology.

Examples of narrative bank runs. Before proceeding, we briefly showcase the value of the narrative approach to bank run identification by discussing three case studies.

In September 1893, New Zealand experienced a run on the Auckland Savings Bank. Customers withdrew more than £41,000, the equivalent of about $8 million in 2024, because of unfounded rumors about the bank's supposedly poor investments. According to Lewis (2015), the rumors were started by Margaret Sanders, a woman who was ridiculed by a group of teenagers and pushed in front of the bank branch. As she stumbled, a large crowd gathered, and it was falsely assumed there was a run on the bank, which triggered an (actual) run by depositors.

Another notable incident is a run on the Dutch bank DSB in October 2009. The run was triggered when Pieter Lakeman, a lawyer claiming to represent a collective of aggrieved clients in financial distress due to their investments in DSB financial products, appeared on Dutch public television. When he urged all depositors to participate in a mass withdrawal from the bank, thousands of depositors heeded the call, and DSB lost around one-sixth of its deposits (Dutchnews, 2009). This case highlights the possibility of sunspot-like coordination shocks to trigger chains of events that may not necessarily be driven by fundamentals.

Finally, the 2023 US regional banking crisis is a recent, salient event triggered by a run on Silicon Valley Bank after it dissolved its Treasury bond portfolio at a large loss (e.g., Jiang et al., 2023). This event prompted a combination of various government interventions, such as the Federal Reserve initiating a Bank Term Funding Program to offer liquidity to eligible depository institutions with assets pledged as collateral.

Sources of narrative information. All in all, we have been able to identify 308 bank run episodes in 184 countries by drawing on a grand total of 463 sources, where there are at times dozens of individual bank runs during each episode. These include many new sources (e.g., historical newspaper articles, government reports, banking history books, or IMF reports) but also existing narrative accounts of crises.

We have applied two guidelines to minimize false negatives (i.e., missed run events) and false positives (e.g., crisis events without runs). First, our aim is to be as comprehensive as possible. To minimize the probability of missing run events, we searched for evidence of bank runs on a country-by-country basis. We also researched every single episode classified as a banking crisis by Reinhart and Rogoff (2009), Jordà et al. (2017), Laeven and Valencia (2018) and Baron et al. (2021), as well as every event mentioned in the list of banking crisis interventions by Metrick and Schmelzing (2021). Second, we always seek to identify explicit evidence of bank runs by looking for key phrases such as "run," "sudden depositor withdrawals," or "panic among depositors." We avoid classifying as runs unspecified mentions of "drying up of liquidity" and similar descriptions that

could also refer to wholesale funding problems (for which we have no reliable statistical measures). This reflects the spirit of spotting events that were clearly identified as periods of bank runs by contemporary observers.[9]

Documentation. Appendix B contains episode-by-episode descriptions for each of the 308 bank run episodes we identified with the narrative approach and the underlying sources. This should enable others to follow the logic we used to classify a particular episode as a bank run. For each episode, we describe the background of the run, the involved institutions (if known), the month in which the run episode began, and the sources on which we draw. We also classify each run into "fundamental" and "non-fundamental" based on the definition which we describe in Section 4.3.

2.2 Measuring Episodes of Deposit Withdrawals

Data sources and coverage. To measure the extent of withdrawals from a country's banking sector, we construct a new dataset on outstanding deposits for 179 countries for the period 1800 to 2022. In total, we use 49 primary and secondary sources, many of which come from historical archives or were produced for country-specific statistical compendia. Table B.1 in the Online Appendix summarizes both the time periods covered and the individual sources used for our data on total deposits, demand deposits, and time deposits.

The resulting dataset comprises 13,849 country-year observations. As such, our deposit data cover essentially the universe of modern banking systems since 1800, subject to data availability constraints. The time series go back to the 19th century for many countries, including Argentina, France, Germany, Japan, Russia, Sweden, Switzerland, United Kingdom, and the United States. Overall, we identify 1,695 episodes during which aggregate deposits experienced a reduction.[10]

Definition of deposits. The statistics we have refer in almost all cases only to retail deposits by non-bank customers, and exclude various forms of wholesale or interbank funding. While Jordà et al. (2021) document an upward trend in banks' reliance on non-deposit liabilities in advanced economies, International Monetary Fund (2013) shows that

[9] We regard our global chronology of bank runs as work in progress, and would be grateful for any pointers to additional run events that we may have missed, so that we can include them in future versions of the dataset.

[10] An episode of aggregate deposit withdrawals sometimes spans multiple consecutive years. The total number of country-year observations with negative deposit growth rates is 3,293.

most banks in both advanced and emerging economies continue to overwhelmingly rely on deposit funding.

Where possible, we collect data on total deposits, which we further split into demand and time deposits. Demand deposits refer to all types of deposits that can be redeemed at par without delay; time deposits refer to those with a lock-in period of any length, which may also include various types of savings deposits. We have data on total outstanding deposits for 13,849 observations, data on demand deposits for 12,780 observations, and data on time deposits for 10,253 observations.[11]

Time series construction. Like any historical cross-country dataset, the raw data on deposits from different sources do not always agree. Furthermore, individual time series sometimes exhibit sudden jumps that stem from changes in statistical methodology or changes in the reported currency rather than "true" economic events. To create consistent time series, we carefully investigated the data from each individual source and combined them according to our assessment of their reliability for a given time period. We also adjusted for breaks stemming from a change in sources or methodological changes by chain-linking overlapping time series. All of these adjustments are carefully documented in a set of publicly available spreadsheets.[12]

2.3 Defining Systemic Bank Runs

Conceptual definition. The discussion above shows that the existing literature has used narrative evidence of bank runs at least partially to determine whether a country experienced a banking crisis. Our qualitative chronology of runs differs from these existing approaches in that we explicitly do *not* require such bank runs to be widespread or systemic. Instead, we rely on objective, quantitative data on deposit outflows from the banking sector to determine how systemic a bank run episode was.

The idea is the following. If a bank run event is sufficiently severe to affect the banking sector as a whole, either because it happens at large banks or many small banks, it should

[11] We construct total deposits as the sum of demand and time deposits when both are available. In some cases, historical data for total deposits are spliced using time series that only refer to demand or time deposits. In these cases, we do not calculate the other deposit category as residual to avoid creating mechanically constant shares of the different deposit types. This explains why we have a slightly different observation count for demand and time deposits.

[12] The IMF data in particular require adjustments because of erroneous entries and classification changes. Wherever possible, we tried to find alternative sources and identify the reason for changes in the IMF data to make sure we do not overly "smooth" the time series. When we do not have overlapping data for chain-linking series, we calculate the median deposit growth rate for the three years before and after a break, and use it to adjust a series break.

be accompanied by a substantive contraction in *aggregate* deposits. This approach is motivated by Diamond and Rajan (2005) and Uhlig (2010), in which withdrawals from one bank increase the probability of runs at another bank, which can ultimately lead to a run becoming systemic in nature. We dub episodes where we have narrative evidence of a bank run that is also associated with an outflow of deposits from the banking sector *systemic* bank runs. We visualize the intersection of bank runs with aggregate deposit contractions in Figure 1 as a Venn diagram.

Note that whether or not a bank run is the direct *cause* of the deposit contraction is irrelevant for our purposes. Suppose that a small bank experiences a bank run, which then causes a wider financial panic. During the course of the year, there is a freezing of interbank markets, several banks fail, credit supply contracts, and the banking sector as a whole experiences an outflow of deposits. While the run on the small bank may not be the direct cause of the aggregate decline in deposits, it nevertheless captures a run that ultimately triggers a systemic event. This is what we would like to exploit and differentiate from more idiosyncratic episodes of isolated runs on individual institutions that are not associated with wider banking sector distress. Given that in this example there is both narrative evidence of a run *and* a contraction of deposits, we would classify it as a systemic bank run.

Empirical implementation. To distinguish systemic bank runs from other, possibly more idiosyncratic cases, we need to define what exactly we mean by a substantive contraction in deposits. Our baseline definition simply defines such contractions as cases where the year-on-year change in outstanding nominal deposits ΔD_{it} is negative. A systemic bank run is thus a bank run episode that is accompanied by a contraction in aggregate banking sector deposits. We can make this differentiation for 165 out of the 308 bank run episodes in our chronology that overlap with the deposit data.

Why use nominal instead of real deposits? Our rationale is that we want to avoid classifying periods of stable deposits accompanied by mild inflation as episodes of deposit outflows. On the flipside, using nominal numbers may raise the concern that nominal deposits are not contracting despite widespread bank runs because of rampant inflation. We account for this in robustness exercises in Section A.8 of the Online Appendix, where we show, among others, that our findings are similar when we define deposit contractions based on real (rather than nominal) deposits.

Another concern with using nominal outstanding deposits is that they show a clear upward trend over time. This suggests that any "contraction" should potentially be calculated relative to some trend. Alternatively, one may want to consider more severe

contractions of deposits, defined either as absolute thresholds or relative to some measure of average deposit growth rates. In Section A.8 of the Online Appendix, we show that using such alternative definitions yields similar results to our simple baseline measure.

When classifying bank runs into systemic and non-systemic events, we do not require deposit contractions to perfectly overlap with the incidence of a run. In our baseline definition, we categorize a bank run as systemic if it coincides with a deposit contraction at any point between the year before and after the bank run:

$$\mathbf{1}[Run_{i,t}^{Systemic}] = \mathbf{1}[Run_{i,t}] \times max(\mathbf{1}[\Delta D_{i,t-1} < 0], \mathbf{1}[\Delta D_{i,t} < 0], \mathbf{1}[\Delta D_{i,t+1} < 0]). \quad (1)$$

Non-systemic runs are then defined as the residual number of bank run episodes with non-missing deposit data that are not systemic. We will later consider alternatives in Section A.8.

Runs on demand versus time deposits. For most of our dataset, we can differentiate between the outstanding demand and time deposits of the banking sector. Intuitively, demand deposits should be more run-prone given they are immediately redeemable; indeed, deposits in the Diamond and Dybvig (1983) model are of that nature. On the other hand, there is evidence that demand deposits were more stable than time deposits during the German crisis of 1931 (Blickle et al., 2022), a run on an Indian cooperative bank in 2001 (Iyer and Puri, 2012), and the 2007-08 crisis in the United States (Acharya and Mora, 2012).

Our data allow us to test whether during a typical bank run episode, demand or time deposits are more affected from a system-wide perspective. This also allows us to construct additional measures of systemic bank runs akin to our baseline indicator (which is based on total deposits).

What happens to the funds depositors withdraw? In a situation where the banking sector as a whole sees a contraction of deposits, a natural question is what depositors are doing with the money. Historically, one might expect that people simply keep the money in coins or bank notes, or exchange it directly for precious metals. In modern times, they might deposit the withdrawn funds with other financial institutions, such as better-protected banks or money market mutual funds (e.g., Acharya and Mora, 2015).

To address this question, in Section A.17 we zoom in on two systemic bank run episodes in the United States using higher-frequency data that allow us to track where withdrawn deposits are redirected to: currency in circulation or investments into money market funds.

2.4 Comparison with Other Chronologies

Table 1 compares the coverage of our (JKMS) measures of (idiosyncratic) bank runs, deposit withdrawal episodes, and systemic bank runs to several existing chronologies of banking crises. We focus on four prominent sources of crisis dates: Reinhart and Rogoff (2009), Laeven and Valencia (2018), Jordà et al. (2017), and Baron et al. (2021). Based on these datasets, we construct a set of dates that refer to the starting year of a banking crisis.[13]

An important conceptual difference between our bank run dates and the crisis chronologies of Reinhart and Rogoff (2009), Laeven and Valencia (2018), and Jordà et al. (2017) is that their dating of events is based entirely on narrative evidence. The inherently subjective nature of identifying these events gives rise to "classification uncertainty." As Jalil (2015), Bordo and Meissner (2016), and Baron et al. (2021) show, existing narrative classifications of crises can frequently disagree, use inconsistent coding, lack a proper documentation, or even identify entirely spurious "crises" based on an incorrect reading of secondary sources.

Baron et al. (2021) improve on this front by combining a qualitative reading of sources with a statistical measure of banking sector distress (declines in bank equity indices). Because data on banks' stock prices are not always available, they can construct an indicator of crises that is quantitatively validated for around two-thirds of their sample of narrative crises covering 46 countries. For the remainder, they use a mix of statistical validation and narrative coding, which gives them their measures with the most extensive coverage.

Our chronology of (systemic) bank runs makes progress in three dimensions. First, our data have unprecedented coverage. With 184 countries, we essentially cover the universe of economies that frequently publish economic data, considerably more than the 68 countries in Reinhart and Rogoff (2009) and 156 countries in Laeven and Valencia (2018). We can also identify historical runs by starting in 1800 like Reinhart and Rogoff (2009), which adds many episodes relative to the limited time coverage in Laeven and Valencia (2018). In total, the chronology of bank runs we introduce comprises 16,345 country-year observations, which is around four times the coverage of Baron et al. (2021) or Laeven and Valencia (2018) and considerably more than Reinhart and Rogoff (2009).

Second, our indicator for systemic bank runs not only incorporates qualitative sources but also the quantifiable, objective measure of contractions in the banking sector's de-

[13] To be precise, we use the most recently available update of these crisis chronologies. For Reinhart and Rogoff (2009), we use data published on Carmen Reinhart's website. Laeven and Valencia (2018) provide the most recent version of the data originally published in Laeven and Valencia (2008). The data in Schularick and Taylor (2012) are frequently updated as part of the Macrohistory Database (Jordà et al., 2017), and we use the 6th version of these data.

posits. Our sample includes 165 episodes of systemic runs, several episodes more than the 139 banking crises in Laeven and Valencia (2018). Importantly, the systemic run indicator covers 179 countries over the period 1800-2022 and a similar number of country-year observations as the purely narrative measure of Reinhart and Rogoff (2009).

Third, we focus on a single, specific source of banking sector distress in our narrative classification, and look for unambiguous evidence to support it using a comprehensive documentation of sources. This differs from existing work, which usually considers a multitude of possible causes of banking crises (including bank failures, bailouts, government interventions, a rise in the cost of intermediation, spikes in non-performing loans, or liquidity issues). The advantage of our more narrow definition is that it is more closely aligned with the large body of theoretical literature studying bank runs, or short-run funding fluctuations of banks, and further allows us to use a quantitative measure (deposit contractions) to validate the narrative evidence.

The conclusion we draw is that our new chronology of bank runs introduces, to the best of our knowledge, the most comprehensive available measure of banking sector distress. By combining a consistent narrative definition of bank runs with quantitative, objective information based on banking sector deposits, we believe it should also be relevant for those interested in studying financial crises more broadly.

2.5 A Unified Measure of Financial Crises

An important question we are interested in is how (systemic) bank runs compare with banking crises in general. To this end, we need an indicator for whether a country experiences a banking crisis in a given year, ideally with a similarly comprehensive coverage as our bank run chronology.

We construct a unified indicator variable of banking crises by combining the widely used chronologies mentioned above. The measure proposed by Baron et al. (2021) has the advantage of incorporating an objective, quantitative measure of poor banking sector health (a decline in bank equity prices). We thus prioritize their measure, and then use the crisis lists of Laeven and Valencia (2018), Jordà et al. (2017), and Reinhart and Rogoff (2009), in that order, to determine the first year of a banking crisis. To be clear, this means we use the crisis dates from Baron et al. (2021) for all country-year observations they cover, and then subsequently add the other sources.

One issue when combining several crisis chronologies is that they may assign the start date of the same crisis event to different years. For example, Reinhart and Rogoff (2009) identify a banking crisis in the United States lasting from 1984 to 1991, which Baron et al. (2021) classify as two separate events in 1984 and 1990, and Laeven and Valencia (2018)

treat 1988 as the crisis year. To address this issue, we apply a filter that sets the occurrence of a crisis to zero in case we already record a crisis within the past three years. Put differently, we only treat as a "new" event any banking crisis that was not preceded by another one within the last three years.

2.6 The JKMS List of Bank Runs

Table 2 presents our list of 308 narrative bank run episodes. For each episode, we report the drop in deposits (in %) during the year of the run as a measure of run severity, and the type of deposits seeing the largest drop. If a bank run is accompanied by a contraction of deposits, we call it a *systemic* bank run, in line with the methodology developed in Section 2.3. Whenever we can find information on it, we also include the month in which the bank runs started.

We also report whether or not a given bank run is associated with a banking crisis as identified by the existing literature, and whether there is evidence of a banking panic as classified by Baron et al. (2021). This way, we can distinguish between bank runs that are accompanied by crises and panics from those that are not.

A first finding from Table 2 is that not all bank runs are accompanied by banking crises or panics, even where the comprehensive coverage of our data overlaps with that of existing datasets. This is important because, as we will discuss in more detail in Section 3.3, some consider runs to be the very definition of a crisis. Yet even many systemic runs occur without there being a banking crisis as recorded by existing chronologies.

We also find an imperfect overlap between bank runs and the banking panic indicator from Baron et al. (2021). These differences could arise for three reasons. First, they include cases of *wholesale* bank runs arising from disruptions in the interbank market, while we focus on *retail* bank runs. Second, they determine how systemic a panic is by making a qualitative judgement based on reading narrative sources. In contrast, we use deposit contractions as an objective, quantitative criterion of how systemic a bank run event is. Third, there may be cases where we find unambiguous evidence of a (systemic) bank run, but they do not classify it as a panic and do not state any reasons for not doing so either.

3 Bank Runs Around the World: New Stylized Facts

Have bank runs become more or less common over time? How does their frequency compare to that of a garden-variety banking crisis? Are all crises driven by runs, and all runs by crises? What role does the systemic nature of a bank run play? There is

surprisingly limited evidence to help answer these questions. Using our newly collected data on (systemic) bank runs, this section introduces a new set of facts to address them.

3.1 How Frequent Are Bank Runs? The Long View

The average unconditional frequency of bank runs over the full 1800-2023 period is 1.9%.[14] Figure 2 plots the share of countries experiencing a bank run over time. For the sake of legibility, we calculate the number of runs using a ten-year moving average. We also plot the number of countries experiencing a banking crisis using our unified measure that is described in Section 2.5. Panel (a) visualizes the share of bank runs and banking crises for all countries in our entire sample.

Several features stand out. Most obviously, we find essentially no episodes of bank runs from the 1940s to the 1970s. For most countries, this period was one of relative financial calm, consistent with existing evidence on the absence of financial crises during that period (e.g., Reinhart and Rogoff, 2009). The 1980s saw a considerable increase in the likelihood of runs, which kept increasing well into the 2000s. Our measure of bank runs thus captures many well-known emerging market crises and the 2007-08 Global Financial Crisis, both of which were at times accompanied by panic among depositors.

What is perhaps most striking is the decoupling in the likelihood of banking crises and bank runs over the past four decades. In the 19th century, the share of countries experiencing a crisis or a run moved in lockstep, with both increasing in frequency between 1800 and the Great Depression. The recent spike in crises starting in 1980, however, was not accompanied by an equivalent increase in the likelihood of runs. While it is true that bank runs increased in frequency between the 1980s and 2000s, they were not more common then as they were in the 1920s or 1930s.

Rather interestingly, these patterns are roughly similar for both advanced and emerging economies, where "advanced" means a country falls into the top quartile of real GDP per capita in PPP terms for a given decade. For both groups of countries, Figures 2b and 2c show an increase in run frequency until the Great Depression, limited runs in the post-World War II era, and a rise in the number of runs after 1980 that is less severe than the increase in the number of banking crises.

Table 3 presents additional statistics on the frequency of bank runs. All numbers are

[14] This is our preferred measure which is defined as the total number of bank runs (308) over the number of observations for which we have coverage in any of the aggregate banking variables. Coverage for a given country starts with the first run or banking crisis we observe for this country, or with the first year for which we have aggregate deposit or credit data available. If we would instead divide the number of runs by the number of observations for which we have coverage in any macroeconomic variable, the frequency would be around 1.2%.

in percent. We split the sample into two distinct subperiods: before the introduction of deposit insurance in 1934, and the period afterwards. We also divide the sample based on region, income level, financial development, and whether or not a country has deposit insurance.

Several facts emerge. On average, runs were considerably more likely before the advent of deposit insurance, and they were more likely to become systemic. While most of the bank runs we identify took place in Europe or North America, we record episodes on all continents in (almost) all time periods. Overall, runs are more likely to occur in emerging than advanced economies, but the share of systemic runs is somewhat higher in advanced economies before 1934.

We also find an interesting pattern with regard to financial development, which we measure using the ratio of credit to GDP, split into three groups based on the terciles of the respective distribution across countries for a given decade. After 1933, runs happen most frequently in countries with relatively developed financial markets.

Finally, another noteworthy pattern emerges with regard to deposit insurance. While the overall probability of a run has gone down after 1933, this reduction mainly comes from countries *without* deposit insurance. We will revisit the role of deposit insurance more formally in Section 4.5.

3.2 Bank Runs and Deposit Contractions

The premise of our measure of systemic bank runs is that we can distinguish bank runs on the basis of the severity of deposit outflows. A natural starting point for assessing the plausibility of this approach is to examine the behavior of aggregate banking sector deposits during bank runs and "normal" times. This serves as an important validation test of our quantification approach.[15] To avoid duplicating deposit contractions associated with bank runs in consecutive years, we keep only the first bank run episode within a three-year window. Our empirical analysis covers 251 bank run episodes from our chronology.

Figure 3 provides two pieces of evidence. Panel (a) shows a density plot of the year-on-year percentage changes in deposits. We draw separate graphs for times when countries experience a bank run and for "normal times." We focus on changes in outstanding nominal deposits because this will serve as our baseline metric to identify deposit contractions, but the figure looks similar if we look at real deposits (see Figure A.5 in the Online Appendix).

[15] We present robustness checks and details in Section A.6 of the Online Appendix, and shall refer to exhibits therein in what follows.

During normal times, there is a broad distribution of deposit growth rates. On average, deposits grow at a rate of 15.4% per year, with a standard deviation of 21.2%. Deposits rarely contract, around 12.3% of the time in our sample.

When a country experiences a bank run, the distribution of deposit growth rates exhibits a clear shift to the left. During a run, the probability that a banking sector experiences an outflow of deposits is 27.5%. The mean deposit growth rate of 9.6% is considerably lower than during normal times. When using a Kolmogorov-Smirnov test for the equality of distributions, these differences in deposit growth rates are also statistically significant at the 1% level ($p = 0.0$).

Another pattern that is clear from Figure 3 is the considerable variation in deposit growth rates during bank runs. Some runs are accompanied by a contraction in deposits of 20% or more, while others see a steady growth of the deposit base. It is exactly this variation that we use to differentiate systemic bank runs destabilizing the entire banking sector's short-term funding from more isolated episodes without systemic implications.

To better understand the dynamics of deposit contractions during runs, Panel (b) of Figure 3 plots the estimates of an event study specification. We regress $\log(\text{deposits})_{it}$ on the incidence of the exact timing of a bank run, captured by a sequence of indicator variables referring to a time window of ±5 years around a run episode. Before a bank run, deposits expand relative to other periods. Once the run begins, there is a large reversal and a deposit contraction, and these negative growth rates persist for several years afterward.

Do depositors run more on demand or time deposits? Figures A.3 and A.4 in the Online Appendix provide some evidence. Demand deposits are drawn down more quickly during runs, which is partially mechanical because they have no lock-up period. We also find a decline in time deposits, both in the event study and when looking at the shift in the distribution of deposit growth rates around runs, but it is less rapid.

Panel (c) of Figure 3 presents another way to visualize the relationship between deposit growth rates and bank runs. For each country, we create decile bins based on the growth rate of real deposits, and then calculate the probability of a bank run in each of these bins. Banks runs are much more frequent when deposit growth rates are low, and the magnitude of these differences is large: a bank run has a probability of 3.3% in the first decile of bank deposit growth but considerably below 1% for higher deposit bins.

3.3 Do Runs and Crises Coincide?

What differentiates a bank run from a banking crisis, and particularly a crisis driven by a collapse in equity values? In the large literature following Diamond and Dybvig (1983), these are generally one and the same thing: by definition, a crisis is the undesirable

equilibrium in which depositors withdraw their funds from the banking sector independent of fundamentals. This view is also shared by others. Gorton (2012), for example, argues that "all financial crises are at root bank runs" (see also Schwartz, 1987). On the other hand, there is a literature arguing that banks' net worth is the key state variable for macro-financial linkages (e.g., Gertler and Kiyotaki, 2010; He and Krishnamurthy, 2013; Brunnermeier and Sannikov, 2014). The central idea is that an erosion of banks' net worth constrains their capacity to lend, irrespective of the behavior of depositors.

A first step in evaluating these views is to understand the extent to which bank runs overlap with banking crises. Table 4 reports the unconditional and conditional probabilities of several measures of bank runs and banking crises. The top panel shows the unconditional probabilities of a narrative bank run[16], aggregate deposit contraction, systemic bank run, and non-systemic bank run, as well as the probabilities conditional on a banking crisis or banking panic occurring within two years of the run event.[17]

Several features stand out. When a banking crisis occurs, the likelihood of a run is 47%. Unsurprisingly, this ratio is higher for banking panics (which refer to both major runs and other kinds of liability-side issues that banks may face). Put differently, not every episode classified as a banking crisis by some of the leading chroniclers of such events fulfills the standard of Gorton (2012) of being a run.

Systemic bank runs, meaning those affecting aggregate banking sector deposits, occur around 33% of banking crises, considerably more frequently than more isolated episodes without a deposit contraction (15%). Since the classifications of banking crises require such events to have a systemic dimension, this finding provides some reassurance that our new measure of systemic bank runs is able to pick up broader disruptions as opposed to more isolated, idiosyncratic events.

Figure A.2 in the Online Appendix plots the dynamic probability of a bank run around different types of financial crises using an event study approach. When a run happens, it is usually in the exact year of a banking crisis, or in the year before and after, with no clear lead-lag relationship. Interestingly, bank runs are considerably more likely to happen *before* currency or sovereign debt crises.

Table A.4 in the Online Appendix presents the results from a panel regression relating the likelihood of bank runs to different types of financial crises in a multivariate setting. This exercise confirms that banking crises are considerably more predictive of runs than

[16] In this table, we condition the probability of narrative bank runs on the availability of aggregate deposit data. Hence, the unconditional probability of a systemic bank run and the unconditional probability of a non-systemic bank run add up exactly to the unconditional probability of narrative bank runs.

[17] Tables A.2 and A.3 in the Online Appendix provide a more granular breakdown for different crisis definitions.

other types of crises. It also gives a sense of the imperfect overlap between crises and runs. For this purpose, we use the Area Under the Curve (AUC). The AUC is the integral under the Receiver Operating Characteristic (ROC) Curve, which plots the true positive rate (sensitivity) and the false positive rate (1−specificity) for various threshold settings. A model with an AUC of 0.5 suggests no ability to discriminate between crisis times and other periods equivalent to flipping a coin. When measured by the AUC, the classification ability of crises to differentiate between episodes of bank runs and other times is reasonably high ($AUC = 0.71$), but far from perfect.

This analysis suggests that runs are a common feature of banking crises, but perhaps not a necessary condition. A natural question is to then turn this question around and ask: if a bank run occurs, what is the probability of this being followed by a banking crisis or a banking panic?[18]

The bottom panel of Table 4 answers this question by showing both the probabilities of banking crises and banking panics within two years of a bank run. A key finding is that 56% of bank runs in our sample are accompanied by a banking crisis and an even higher fraction of systemic bank runs (61%). Consistent with our previous findings, more isolated run episodes are much less likely to be linked to banking crises (in 48% of cases). Because banking panics are less frequent than banking crises, we find an overall lower probability of panics conditional on a bank run.

The findings in this section highlight that, based on the best available empirical measures, a bank run and a banking crisis are not necessarily one and the same event. To be clear, however, this imperfect overlap could also be explained by the fact that existing crisis chronologies are incomplete (because they missed our systemic bank runs) and that some funding pressures never turn into outright runs because of early regulatory intervention.[19]

3.4 The Macroeconomic Background of Bank Runs

The two previous sections provided evidence that bank runs are often accompanied by systemic financial crises and deposit outflows. To lend further credence to our new measures, we next investigate a number of factors one would plausibly expect to be associated with bank runs. As before, we keep only the first bank run episode within a three-year window in order to prevent duplicating macroeconomic observations associated with bank runs that occur in consecutive years (a total of 251 bank run episodes).

First, Figure A.1 in the Online Appendix plots a selection of macroeconomic variables

[18] We dig deeper into the more general precursors of financial crises in Section A.5 of the Online Appendix.
[19] See Gorton (2012) for an excellent discussion of these issues.

around the onset of systemic bank runs. These event studies are estimated using panel regression models of the variable of interest on a set of dummies referring to the time periods five years before and after a run event.

Bank runs are routinely preceded by a credit expansion, similar to what others have documented for banking crises (see, among others, Reinhart, 2002; Borio and Lowe, 2002; Gourinchas and Obstfeld, 2012; Schularick and Taylor, 2012; Greenwood et al., 2022; Müller and Verner, 2024). Before a run, countries experience a capital inflow (as measured by a current account deficit), which then reverts into a "sudden stop." The real exchange rate also shows a predictable pattern of (slight) appreciation before the run starts, followed by a currency crash. The ratio of gross fixed capital formation to GDP, as a proxy for investment, also experiences a sharp contraction in the year of a bank run.

We also find a predictable pattern of asset price movements around bank runs. Bank equity returns, which Baron et al. (2021) use to proxy for negative shocks to the health of the banking sector, see a large drop in the year before a bank run begins, which further accelerates when the run takes place. Credit spreads, in turn, only spike once a run has started. This could reflect improved price discovery in the equity market (e.g., Longstaff et al., 2005) but also that banks react to a run on their deposit base by contracting lending.

Second, Table A.1 extends this analysis using an event-level approach, where we compare the average peak-to-trough values of macroeconomic variables as well as the probability of different types of government interventions for bank runs relative to banking crises. Bank runs are typically associated with a decline in deposits, particularly when they are systemic, and this pattern is more pronounced than for a banking crisis. This provides some reassurance that we are indeed capturing episodes where liability-side problems of banks are particularly important. We also find that the ensuing credit crunch is somewhat more pronounced for systemic bank runs than other types of banking crises.

Third and finally, a look at government interventions is instructive, for which we use data from Laeven and Valencia (2018) and Metrick and Schmelzing (2021). Liability guarantees (including but not limited to deposits), bank holidays or deposit freezes, as well as liquidity support are much more common during bank runs relative to a more typical banking crisis. Relative to other crises, we also find that bank runs are associated with a higher likelihood of recapitalizations and nationalizations. We will study the role of these government interventions more formally in Section 4.6.

4 The Macroeconomic Aftermath of Bank Runs

Equipped with our new chronology of bank runs, we ask how these episodes are related to real economic activity. Our emphasis is on understanding the macroeconomic costs of bank runs: Are they large? Are they similar or even worse to those of banking crises? Can they be fully explained by underlying solvency issues? We start our investigation by looking at the average patterns of real GDP around bank run events and other crises, and then use variation in deposit growth rates to differentiate between runs of varying severity. Finally, we study the role of deposit insurance, the presence of a lender of last resort, and various crisis interventions in shaping the aftermath of bank runs. Our empirical analysis covers up to 251 narrative bank runs and up to 141 systemic bank runs.

4.1 Data

We complement our new datasets on bank runs and deposits with information on real and nominal GDP, the current account, investment, credit, real effective exchange rates, bank equity returns, and various measures of credit spreads.

Macroeconomic data. We obtain data on real and nominal GDP, the current account, and gross fixed capital formation (to proxy for investment) from the World Bank, International Monetary Fund, Organisation for Economic Co-operation and Development, Penn World Tables, Jordà et al. (2017), and additional country-specific sources. Real effective exchange rates are taken from the Bank for International Settlements and Bruegel (Darvas, 2012).

Credit and asset prices. We take data on credit to the private sector from the Global Credit Project (Müller and Verner, 2024). These data are defined similarly to those on deposits in that they measure the outstanding stock of credit. To maximize coverage, we also add some additional data points on credit from Jordà et al. (2017). Data on bank equity returns, credit spreads, and mortgage spreads are all taken from Baron et al. (2021).

Deposit insurance and central bank founding dates. Information on the existence of deposit insurance is from Demirgüç-Kunt et al. (2014).[20] We compile a list of central bank founding dates based on publicly available information on central bank websites, where

[20]For Taiwan, we set the start date of deposit insurance to 1985 (based on the Central Deposit Insurance Corporation's website). In Macau, we take 2008 as the beginning of deposit insurance, where an initially temporary scheme is now managed by the Deposit Guarantee Fund.

we treat as the relevant date the first year a central bank is in operation in a given territory according to present-day political borders.

4.2 The Average Output Losses from Bank Runs

In this section, we investigate the average output losses that accompany bank runs. First, we compute the path of real GDP around both systemic runs and non-systemic runs by using an event study approach. Second, we analyze the effects on real GDP and additional macroeconomic variables by using a more formal local projection approach to control for potential confounding factors. Out of the total of 251 bank run episodes that we can use for the empirical analysis, we have data on real GDP for 198 bank runs. The sample has a total of 13,022 country-year observations. The year of the bank run is marked as $t = 0$, and we treat periods without bank runs as the benchmark.

Figure 4 plots the estimates from an event study. We show the path of real GDP around both systemic runs and non-systemic runs. In the top panel of the figure, the event study depicts a severe drop in real GDP one year after systemic runs occur. We observe a persistent decline in real GDP of about 8.7% five years after systemic runs, implying a long-lasting shift in the trend of real GDP. This pattern is qualitatively similar to the well-established finding that financial crises tend to have severe output costs (see, e.g., Cerra and Saxena, 2008; Reinhart and Rogoff, 2009; Bordo and Haubrich, 2010). Non-systemic runs, which are depicted in the bottom panel of the figure, also coincide with a mild drop in real GDP. However, the corresponding decline is considerably less severe than that around systemic runs. Figure A.10 in the Online Appendix provides a more granular look at systemic runs defined based on a contraction in demand or time deposits, with very similar quantitative conclusions.

To more formally examine the relation between bank runs and output losses, we estimate impulse responses using local projections following Jordà (2005) for the horizons $h = 1, ..., 5$:

$$\Delta Y_{i,t+h} = \alpha_i^h + \beta^{run,h} \mathbf{1}_{i,t}^{run} + \sum_{k=1}^{3} \gamma^{k,h} \Delta \mathbf{X}_{i,t-k} + \epsilon_{i,t}^h \text{ with } h \in [0,4], \tag{2}$$

where i subscripts countries, t years, and h the forecast horizon. $Y_{i,t}$ denotes an outcome of interest, such as real GDP. The indicator variable $\mathbf{1}_{c,t}^{run}$ is equal to one for any systemic bank runs in either one of the three different deposit categories: total deposits, demand deposits, or time deposits. α_i denotes country fixed effects.

Specification (2) provides us with a flexible framework to control for past realizations of $Y_{i,t}$, e.g., real GDP growth, as well as for other predictors, which are all contained in $\mathbf{X}_{i,t-k}$.

In our baseline specifications, we include three lags of real GDP growth rates, real deposit growth rates, real credit growth rates, and changes in deposits-to-GDP. For robustness, we also consider alternative numbers of lags or adding year fixed effects. Standard errors are double-clustered by country and year, which corrects for serial correlation and residual correlation across countries from common shocks.

We are particularly interested in the sequence of coefficient estimates $\beta^{run,h}$, which capture the impulse response of the outcome $Y_{i,t}$ to the occurrence of a bank run. These estimates do not necessarily capture the causal effect of bank runs, because runs are not necessarily exogenous events. In some cases, the catalyst of a run is clearly an idiosyncratic event, such as a (false) rumor, an isolated fraud case at a well-known bank, or policy changes in foreign countries. In other cases, bank runs are an endogenous response to news about the poor state of the banking sector or the outbreak of war. For our baseline exercises, we do not take a stance on what drives bank runs in the first place. Instead, we are interested in characterizing the aftermath of bank runs while taking their occurrence as given, and provide further robustness exercises below. In section 4.3, we also consider a specification that exploits variation in bank runs which we classify as not being caused by fundamental factors, which are more likely to be exogenous to the state of the economy.

Figure 5 shows the impulse response functions of real GDP, real deposits, real credit, and the deposits-to-GDP ratio. Bank runs are associated with a -8.9% loss in output and a -17.0% drop in deposits after four years. Because deposits contract more than GDP, the ratio of deposits to GDP also declines. We find a large drop in credit of -27.0%, suggesting a credit crunch. The aftermath of an average bank run can thus be described as severe.

Next, we show in Figure 6 that the severity of the aftermath of non-systemic runs—i.e., narrative runs without any aggregate deposit contractions—or deposit contractions without runs is several magnitudes lower than that of a systemic run. Non-systemic runs do not coincide with significant contractions in real deposits and are linked to a -2.9% decline in real GDP, which is less than half the impact we find for systemic runs. This result suggests that the intersection of narrative evidence and aggregate deposit withdrawals does not only pick up bank run events with large-scale implications for a country's banking system; it shows that these systemic runs also matter for the real economy.

To test for differences in economic outcomes around different bank run events more formally, Table 5 predicts changes in real GDP relative to the year before the run using the

following regression specification:

$$\Delta Y_{i,t+h} = \alpha_i^h + \beta_1^h \mathbf{1}[\Delta D_{i,t} < 0] + \beta_2^h \mathbf{1}[Run_{i,t}^{Systemic}] + \beta_3^h \mathbf{1}[Run_{i,t}^{Nonsystemic}] + \sum_{k=1}^{3} \gamma^{k,h} \Delta \mathbf{X}_{i,t-k} + \epsilon_{i,t}^h \text{ with } h \in [0,4], \tag{3}$$

where $\mathbf{1}[\Delta D_{i,t} < 0]$ is a dummy for deposit contractions, i.e., periods where the year-on-year growth in outstanding nominal deposits $\Delta D_{i,t}$ is negative, without narrative bank runs, $\mathbf{1}[Run_{i,t}^{Systemic}]$ is a dummy for systemic bank runs, i.e., narrative bank runs accompanied by deposit contractions, and $\mathbf{1}[Run_{i,t}^{Nonsystemic}]$ a dummy for non-systemic bank runs, i.e., narrative bank runs that are not accompanied by deposit contractions. α_i denotes country fixed effects, and $Y_{i,t}$ denotes real GDP for country i in year t. $\mathbf{X}_{i,t-k}$ includes the same controls as in (2), namely three lags of real GDP growth, real deposit growth rates, real credit growth rates, and changes in the deposits-to-GDP ratio.

The results in Table 5 are consistent with Figure 5. Systemic bank runs have a considerably higher degree of predictability for future real GDP growth than non-systemic runs or deposit contractions in the absence of bank runs. The coefficient on systemic bank runs at $h = 4$ suggests that these types of runs are associated with a -9.2% contraction in real GDP within four years. The coefficient on systemic bank runs is always statistically significantly different from the other two (across all horizons) at the 1% level.

The Intensive Margin of Deposit Withdrawals. To capture differences in the severity of bank runs, we next analyze the intensive margin of aggregate deposit withdrawals, as detailed in Appendix A.10. Our findings reveal that smaller deposit outflows during runs are associated with milder macroeconomic effects, with the smallest withdrawals coinciding with the lowest output losses. Conversely, in periods outside of bank runs, the estimated coefficients are significantly smaller—by nearly an order of magnitude. These patterns underscore the critical distinction between systemic bank runs, characterized by substantial aggregate deposit losses, and non-systemic runs. This also suggests that deposit contractions are particularly predictive of real economic outcomes when they occur in conjunction with a bank run.

Deposit outflows and real GDP during the Great Depression. To further investigate the link between output losses and deposit contractions, we use the Great Depression as a case study. The Great Depression is interesting to study for two reasons. First, we find narrative evidence for bank runs for 18 different countries between 1929 and 1931. Second, deposit insurance was not available and only introduced in the United States in 1934, meaning that no country had an explicit deposit insurance scheme in place. Here

we focus on the cross-section of countries during the Great Depression. Below, we will zoom in on three bank runs that took place during the Great Depression in the US as a case study, and analyze the aggregate flow of funds and the timing of the deposit contraction. Figure A.23 plots the mean growth rate of real GDP against the mean growth rate of real total deposits for the period of the Great Depression between 1929 and 1931. In line with our local projection evidence in Figure A.20, we find that countries with larger deposit contractions around the Great Depression tended to also experience larger output losses.[21]

Robustness. We explore several additional robustness checks in the Online Appendix section A.7. Section A.9 discusses natural disasters and wars as potential confounders. In section A.7, we also consider alternative econometric specifications. Section A.8 revisits our baseline results using alternative ways of differentiating between systemic and non-systemic runs, for example by using country-specific thresholds or monthly deposit data. Across all of these tests, the empirical findings remain almost unchanged.

Taken together, the results in this section provide first evidence on the macroeconomic aftermath of bank runs. When they are systemic in nature, bank runs are associated with considerable output losses, similar in magnitude to that associated with banking crises as classified by the previous literature.

4.3 Bank Runs, Fundamentals, and Output Losses

Are the output losses from bank runs merely a reflection of underlying fundamental problems of the banking sector and, in that sense, "nothing special" relative to a garden-variety banking crisis? Or does a sudden disruption of bank liabilities matter even in the absence of concerns about the solvency of the banking sector? In this section, we provide several pieces of evidence on these questions. In short, we find that the fundamental solvency of banks plays an important role in understanding the GDP contraction following systemic bank runs. However, bank runs are also associated with an economic downturn in cases where they were not initially triggered by fundamental causes, banks are well capitalized, and the banking sector faces neither a crisis nor widespread failures.

Fundamental vs. non-fundamental runs. To begin our analysis, we distinguish systemic bank runs by their underlying causes. An obvious concern with our analysis above is that bank runs may simply be a reaction to deteriorating underlying fundamentals rather than playing a separate causal role. To rule out the most obvious kinds of confounders,

[21] In line with Monnet et al. (2021), we detect no aggregate deposit contraction in France during the Great Depression, which they explain with a reallocation of deposits from banks to savings institutions.

we zoom in on the subset of systemic bank runs that are less likely to be triggered by macroeconomic fundamentals.[22] For this purpose, we use a narrative coding to exclude bank runs for which historical accounts mention macroeconomic causes, such as a currency devaluation or monetary policy shocks, or any type of financial or non-financial crisis. Table 2 provides the coding of fundamentalness for every bank run in our dataset.

Figure 7 plots the macroeconomic aftermath of two types of events: *any* systemic bank run, our baseline measure, and non-fundamental systemic runs as classified using our narrative coding. Both types of events are associated with strikingly similar impulse responses of real GDP, deposits, and credit.

This result has two important implications. For one, they address some of the most obvious endogeneity concerns, and go at least some way in suggesting that bank runs may at times indeed play a causal role in deep economic downturns. More importantly, they show that the output losses following systemic runs are not necessarily explained by underlying fundamental shocks. The implication is that bank runs may pose a danger to the macroeconomy even in the absence of underlying solvency issues that might ultimately lead to bank failures. The finding is thus in line with the behavioral and sunspots view of banking panics (Diamond and Dybvig, 1983). It suggests that fundamentals are sufficient but not necessary for the systemic bank runs to have macroeconomic repercussions.

Our narrative approach to the classification of fundamentalness provides a robust first pass at this first-order question. There are also other promising approaches that could be adopted at the macro-historical scale such as ours. For example, Bocola and Dovis (2019) propose a method grounded in their quantitative model of debt crises. In an environment with both fundamental and non-fundamental sovereign bond panic risks, the maturity structure of debt can be leveraged to infer the true driver of panics since the model predicts contrasting paths for debt maturity during and following financial crises. Due to the non-existence of consistent cross-country historical data on the maturity structure of bank deposits, we leave this avenue for future research.

Bank runs, banking crises, and bank failures. Another way to understand the extent to which the GDP downturn following systemic bank runs is explained by deteriorating fundamentals is to look at the overlap of bank runs with other events of financial distress. By comparing the path of output following systemic runs with that of banking crises and waves of bank failures, we can evaluate how these events overlap and potentially reinforce each other.

[22] Some of these runs that are not triggered by macroeconomic fundamentals could still be driven by bank-level fundamentals and might be predictable using bank-level variables. We explore this dimension of micro fundamentals in Section 5, which describes our bank-level evidence and analysis.

Figure 8a compares the impulse response of output for three different types of events: banking crises without systemic runs, systemic runs without a banking crisis, and systemic runs with a banking crisis. To focus on the impulse response for one type of event, we treat runs and crises as overlapping if they occur within a time window of three years. When we focus on systemic runs outside of crisis periods, we drop all country-year observations where a banking crisis happens between three years before and after a run. For crises without systemic runs, the opposite applies. Finally, we classify systemic runs as coinciding with crises if they happen within three years of each other. We implement these estimations by estimating equation (2) separately, where we replace $\mathbf{1}^{run}$ with an indicator for the event under consideration.

Figure 8a shows a clear pattern. The output losses are the largest for systemic runs that overlap with banking crises. Put differently, the worst crises are those associated with large-scale bank runs. Nevertheless, both systemic runs and banking crises are also independently associated with a decline in output, and the magnitudes are roughly comparable. This suggests that systemic bank runs are detrimental to future output growth even where bank solvency is not sufficiently impaired in a way that would prompt existing chronologies to classify an episode as a crisis.

The impulse responses of bank equity returns are consistent with this interpretation. While banking crises are always associated with lower bank equity returns, with or without a run, there is no such pattern for systemic bank runs without a crisis. Because output contracts after a systemic run, but bank equity prices do not, this suggests that bank runs can be detrimental to the macroeconomy even in the absence of a negative solvency shock. As such, comparing the path of output following systemic bank runs with and without banking crises may be informative about the effect of liquidity regulation, which would allow for dissolving a liquid asset buffer while averting a bank equity decline.[23]

To better understand whether systemic runs are indeed costly from a macroeconomic perspective in the absence of the most pressing solvency concerns, we also consider their interaction with the presence of widespread bank failures, for which we have data from Laeven and Valencia (2018) and Baron et al. (2021). When we repeat the same exercise as above and differentiate bank runs from bank failures in Figure 8b, we find a qualitatively similar pattern for both GDP and the evolution of bank equity prices. Widespread bank failures are always followed by deep output losses and perhaps more so when they coincide with runs. But systemic bank run episodes are also associated

[23] Figure A.21 in the Online Appendix depicts the macroeconomic aftermath of systemic bank runs, banking crises, and episodes of widespread bank failures for additional variables and shows that systemic bank runs predict a much worse decline in credit when they are accompanied by banking crises or widespread bank failures.

with statistically significant declines in economic activity even where there are no bank failures, and solvency thus does not seem to be impaired to a critical extent.

The role of banking sector capitalization. Finally, as another way to proxy fundamental solvency of the banking sector in a country, we turn to data on bank capitalization. Here, we consider local projections with an interaction term that conditions the future path of output on the level of bank capitalization in a country prior to a systemic bank run:

$$\Delta Y_{i,t+h} = \alpha_i^h + \beta^{sysrun,h}\mathbf{1}_{i,t}^{sysrun} + \beta^{int,h}\mathbf{1}_{i,t}^{sysrun} \times z_{i,t} + \upsilon^h z_{i,t} + \sum_{k=1}^{3} \gamma^{k,h}\Delta\mathbf{X}_{i,t-k} + \sum_{k=1}^{3} \zeta^{k,h}\Delta\mathbf{X}_{i,t-k} \times z_{i,t} + \epsilon_{i,t}^h \text{ with } h \in [0,4], \tag{4}$$

where $z_{i,t}$ denotes the level of banking sector capitalization and $\mathbf{X}_{i,t-k}$ includes the same controls as in (2), namely three lags of real GDP growth, real deposit growth rates, real credit growth rates, and changes in the deposits-to-GDP ratio.

Figure 8c plots the results. Systemic bank runs are followed by a less severe contraction of output when the banking sector is highly capitalized, suggesting that solvency plays an important role for reducing the vulnerability of the banking sector to adverse shocks. These results are consistent with Jordà et al. (2021), who show that banking crises have less severe consequences when banks have higher initial levels of capitalization. They are also in line with predictions of theoretical models such as Abad et al. (2024), among others, who emphasize bank capitalization in the regulation of banks' systemic risk-taking decisions. Importantly, however, we find that the cushioning role of bank equity is far from perfect. Even in cases where banks are well-capitalized, systemic runs are still associated with significant output losses.

Interpretation of the results. Our overall takeaway is the following. The solvency of the banking sector is a critical ingredient for understanding the path of GDP after a systemic bank run. The most severe output losses come at the heel of systemic bank runs coinciding with a banking crisis, widespread bank failures, and low levels of initial banking sector capitalization. That said, these fundamental factors are insufficient for explaining why output declines following a run. We still find such declines where we have no indication that banks are in dire straits. As such, our findings suggest that systemic bank runs are episodes of severe liability-side disruptions of the banking sector that translate into macroeconomic losses even where they are not triggered by fundamental causes.[24]

[24] In Figure A.18 in the Online Appendix, we demonstrate that the macroeconomic aftermath around systemic bank runs—narrative bank runs from our chronology that coincide with contractions in aggregate

4.4 When Do Depositors Run? Evidence from Monthly Data

A concern with the patterns we document above using annual data is determining precisely when the banking sector as a whole experiences an outflow of deposits in relation to the occurrence of bank runs. To investigate this, and to further validate our new chronology, we use a monthly dataset on changes in outstanding deposits. The source of these data are the IMF's International Financial Statistics. In addition to the dates recorded in our dataset, we add monthly information on the incidence of banking crises from Baron et al. (2021) and Laeven and Valencia (2018) where available. We highlight six episodes for which we have high-quality data: Albania in October 2008, Argentina in June 2001, Estonia in September 2008, Lithuania in December 1995, Greece in January 2015, Myanmar in February 2003, and Japan in November 1997.

Figure A.26 plots the outstanding amount of banking sector deposits in the 24 months before and after a bank run. We index deposits to be equal to 100 in the month before the run. Vertical lines indicate a bank run in our chronology (JKMS) or a banking crisis/panic as recorded by Baron et al. (2021, abbreviated as BVX) and Laeven and Valencia (2018, abbreviated as LV). Section A.16 in the Online Appendix provides additional case studies.

Across all of these episodes, aggregate deposits show a clear decline during and after the exact month of a bank run. In some instances, such as Myanmar in 2003 or Greece in 2015, this contraction is rapid and severe, unfolding within a month or two. In other cases, such as Lithuania in 1995 or Japan in 1997, we find a drop in deposits that is more prolonged. In sum, these patterns again support our use of aggregate deposit data for assessing the severity of bank runs.

Where Does Money Flow During Bank Runs? What happens to the economy's overall flow of funds during bank runs? When depositors withdraw their money, where does it go? In Appendix A.17, we attempt to shed some light on these questions by examining two systemic bank run episodes in the United States, the runs associated with the Great Depression and the early 1990s recession, using higher frequency data. In addition, we also briefly review the 2023 Silicon Valley Bank run and failure. Overall, taken together with our previous case study evidence, our takeaway is that the strongest decline in aggregate total deposits comes after runs take place. The increase in highly liquid assets—such as currency—generally accompanies runs and further indicates that depositors flee into assets they perceive to be safer. This pattern suggests that runs mark the beginning of aggregate banking distress and potentially further amplify any adverse effects on the real economy.

deposits—are not triggered by asset-side disruptions preceding the run.

4.5 The Role of Deposit Insurance and the Lender of Last Resort

In this section, we consider the role of institutional factors in shaping whether bank runs become systemic and, if they do, what their macroeconomic aftermath may be. We narrow in on two institutional features with a clear-cut connection to bank runs: deposit insurance and a lender of last resort.

Averting bank runs has historically been considered an important part of a central bank's responsibilities since Sir Francis Baring first mentioned it in his *Observations on the Establishment of the Bank of England* in 1797. To begin our empirical analysis, we thus focus on whether a country had a central bank at the time an episode of runs occurred. Our large historical dataset is ideally suited to address this question because many countries in fact had no central bank for many years.[25]

When looking at deposit insurance, we consider two separate variables. First, we simply consider whether a country has established an explicit deposit insurance according to the inception dates collected by Demirgüç-Kunt et al. (2014). We code this variation into an indicator equal to one for all years after the inception and zero before. These dates also vary widely across countries: the United States were first to establish deposit insurance in 1933, but Sweden only introduced it in 1996, and Hong Kong only in 2004.

Our second indicator also considers the introduction date of deposit insurance but only treats it as explicit (i.e., our dummy being equal to one) if it is funded ex ante rather than ex post. While this is the case for 98 of 112 countries who have deposit insurance today, it creates additional variation in how credible such a potential backstop is, which may in turn affect the decision of depositors to withdraw.

Which bank runs become systemic? As a first exercise, we focus on the question why some runs turn systemic while others remain more isolated in a few individual institutions. To evaluate whether deposit insurance and a lender of last resort matter in determining the outcome of runs, we estimate a linear probability model on the level of an individual run episode where the unit of observation are all country-year observations that experienced any run:

$$Systemic\ run_{it} = \alpha_i + \beta X_{it} + \varepsilon_{it}. \tag{5}$$

In specification (5), the dependent variable $Systemic\ run_{it}$ is a dummy variable equal to 1

[25] As explained in Section 4.1, we classify these dates based on when the central bank in the territory of a modern-day country was first founded. These dates vary widely across countries and are not necessarily related to a country's year of independence or founding. For example, we assign 1909 as the year of the central bank's founding for Burundi, based on the fact that the Banque du Congo Belge effectively functioned as central bank. Similarly, the National Bank of Czechoslovakia was founded in 1926, which we use as the date for the Czech Republic despite the fact that the Czech National Bank was only founded in 1993.

if a bank run is systemic and 0 if it is not. X_{it} is a predictor variable defined at the time the run takes place. α_i denotes country fixed effects. This means that we always compare the link between the institutional environment and the outcome of bank runs before and after deposit insurance or a central bank is in place. Standard errors are clustered by country.

Table 6 presents the results. In columns 1-3, we estimate equation 5 for the full sample of bank runs. In columns 4-6, we exclude the runs associated with the Global Financial Crisis between 2007-2011. A central bank is associated with a considerably lower likelihood of bank runs turning systemic. The coefficient of -0.25 in column 1 implies that the probability of a bank run becoming systemic drops from an average of 0.66 to 0.41 if a country has a central bank. We also find negative coefficients for the existence of deposit insurance. This pattern is more precisely estimated and somewhat larger when we exclude the Global Financial Crisis during which many countries experienced runs despite having deposit insurance. We also find more negative coefficients when we focus on deposit insurance that is funded ex-ante (rather than ex-post), suggesting that the credibility of such arrangements matters. The coefficient of -0.30 in column 3 suggests that having a deposit insurance scheme with ex-ante funding is associated with a drop in the likelihood of a run being systemic from 0.65 to 0.35, a large magnitude.[26]

Institutional frameworks and output losses. Having established that the extent to which a run turns systemic is partly predictable with the existence of deposit insurance and a lender of last resort, we next ask whether these factors also matter for the output losses following runs in case they do. In particular, we estimate regressions of the type in equation 4 where we introduce interaction terms for the occurrence of a systemic bank run with the presence of deposit insurance or a lender of last resort. Figure A.22 suggests that once a run becomes systemic, deposit insurance and the presence of a central bank play a relatively limited role in mitigating their output losses. When we again abstract from the runs surrounding the Global Financial Crisis, however, deposit insurance is associated with a considerably less severe recession following a systemic bank run, although this difference is not statistically significant at conventional levels.[27]

Overall, our interpretation is that deposit insurance and a lender of last resort matter more for the likelihood of a run becoming systemic in the first place rather than for the output losses once it does. However, because the difference in the decline of GDP

[26] In Table A.7 in the Online Appendix, we also consider several measures of crisis interventions as predictors of whether a run turns systemic. We find a positive correlation of systemic bank runs with bank holidays and deposit freezes, perhaps because these events are more severe and thus require more stringent interventions.

[27] We report all coefficients of the interaction terms in Table A.6 in the Online Appendix.

following bank runs is much larger for systemic than non-systemic episodes, our takeaway is that these institutional factors may still play an important role for the macroeconomic aftermath of bank runs.

4.6 The Role of Crisis Interventions and Macroeconomic Conditions

In this section, we examine more closely the role of government interventions and macroeconomic conditions in explaining the heterogeneous output losses accompanying bank runs.

Crisis interventions. We consider the role of six categories of government interventions specifically designed to mitigate the consequences of systemic financial distress events: liability guarantees, nationalization, recapitalization, liquidity support, the existence of either bank holidays or deposit freezes, and banking sector restructuring. As above, we estimate local projections where we include interactions for a systemic bank run indicator with one of these crisis interventions, as in equation 4. We set the indicator variables for the presence of these interventions to one if we observe them either in the precise year of the systemic bank run or in the year before and after.

Before turning to the discussion of the results, we should note that these interventions are clearly endogenous to both the state of the economy as well as the severity of distress in the financial sector. As such, we cannot interpret the coefficients on the intervention dummies as evidence that they reduce the output losses of bank runs. Nevertheless, we still view these estimations as a useful descriptive device for understanding which combination of bank run and intervention events have historically been associated with lower output losses.

Figure A.22 plots the results. A clear finding from our large historical sample is that only liability guarantees attract a positive and statistically significant interaction term. Systemic runs that coincide with liability guarantees are associated with a 3.8 percentage points smaller drop in output relative to the average run episode. This finding is consistent with the fact that liability guarantees are directly targeted at depositors, whereas the other interventions are more indirect, e.g., by bolstering the banking system's solvency. The limited ability of the other types of interventions to cushion economic losses stemming from banking sector distress is consistent with the evidence of permanent capital losses in Laeven et al. (2024). Our results complement theirs by pointing to the idea that, while a wide range of stabilization policies seem to be ex-post ineffective, only those policies targeted at liabilities have some potential to be successful, even though they cannot help to directly restore bank capital.

Macroeconomic conditions. To study the conditions in which the output losses following systemic runs are more severe, we consider the following macroeconomic variables: credit growth (measured as the three-year change in credit-to-GDP), capital inflows (the three-year change in the current account-to-GDP), deposits-to-GDP, and the share of non-core funding of banks. We again include these variables as interactions with the indicator for a systemic bank run in the local projection framework specified in equation 4.

Figure 9 visualizes the resulting sets of coefficients. We find that the output losses following systemic bank runs are more severe following an expansion of credit and capital inflows, consistent with existing findings on the costs of financial crises (e.g., Jordà et al., 2011). We find a qualitatively similar pattern for an expansion in deposits-to-GDP, suggesting that a rapid expansion of the deposit base can also signal higher future output losses once a run materializes. Interestingly, we find a relatively limited role for the share of non-core funding of the banking sector, although we only have these data for a smaller sample of countries. Taken at face value, these estimates would suggest that systemic runs can even be damaging in economies where banks rely more on wholesale funding sources.

In sum, the results in this section suggest that systemic bank runs have considerable costs, and much more so than non-systemic runs or deposit withdrawals alone. We find similar patterns even in cases where the runs are not associated with deteriorating fundamentals. In the next section, we move beyond the macro-historical view taken so far and adopt a bank-level perspective to understand systemic run episodes.

5 Bank-Level Evidence

In this section, we move beyond our aggregate analysis and take a more granular, bank-level approach. We use our chronology of systemic bank runs and examine how individual banks fare during these episodes, which allows us to distinguish between banks that experienced deposit outflows and those that did not.

5.1 Data

The first data source we use is the Office of the Comptroller of the Currency (OCC) dataset from Carlson et al. (2022), which covers the period between 1867 and 1904, overlapping with three separate bank run episodes in the US banking system in 1873, 1884, and 1893. The dataset includes 108,732 bank-year observations for 7,046 individual national banks.

The second dataset is the call reports for US banks between 1976 and 2020, which

overlaps with three more recent episodes of runs in 1982, 1991, and 2007. After data cleaning procedures, we are left with 424,066 bank-year observations and 20,621 unique banks.

We provide summary statistics for bank-level variables in these two datasets in Table A.8 of the Online Appendix. Section A.1 provides a detailed description of the data cleaning process for both datasets. Table A.8 presents descriptive statistics, which show that US banks between 1867 and 1904 were in many aspects similar to modern banks between 1976 and 2020, but some differences are worth noting. Banks from the 19th century until the early 20th century were less leveraged than modern banks. Bank deposits were also more volatile, resulting in a higher degree of heterogeneity in deposit growth rates.

5.2 Runs and the Cross-Section of Deposit Outflows

The left-hand side panels of Figure 10 plot the cross-section of deposit and loan growth rates across banks during systemic bank runs, i.e., conditional on a narrative run accompanied by an aggregate deposit contraction. We sort these growth rates into percentiles of bank-level deposit growth rates to get a sense of the degree of heterogeneity in inflows and outflows during run events.

Several facts stand out. First, there is considerable heterogeneity in deposit growth rates during systemic bank runs. While many banks experience outflows, others receive large inflows. In combination with our evidence from the Great Depression and the early 1990s (in Section A.17), this highlights the redistributive nature of systemic bank runs during which depositors try to identify sound institutions where they believe their funds will be safe.

Second, the fraction of banks experiencing deposit outflows during runs was substantially higher in the period 1867-1904 compared to the modern period. In the historical data, close to 80% of banks saw a contraction of deposits, while this is true only for around 60% of banks after 1976. As a result, the average deposit contraction (computed based on bank-level data) during a systemic run was more pronounced in the 19th century.

Third, the cross-section of loan growth rates was historically much more correlated with deposit growth rates during systemic bank runs. Put differently, runs and credit crunches went hand-in-hand, which was no longer the case for runs in the past five decades. This pattern may reflect both the severity or "systemicness" of runs, as can be seen by the lower deposit contractions post-1976, but also the increasing importance of non-deposit funding.

Fourth, the panels on the right-hand side of Figure 10 show a striking change in

depositor behavior during systemic bank runs relative to both banking crises and all other times between the 19th century and the modern period. Historically, runs were associated with a vastly different distribution of changes in bank deposits, characterized by an overall contraction and few inflows, while both banking crises and "normal times" saw a higher mean growth in deposits and considerably fewer outflows. After 1976, however, the distribution of deposit growth during runs overlaps much more with that during other times.

5.3 Which Banks Do Depositors Run On?

Systemic bank runs are associated with a reallocation of deposits, which cannot completely avert an overall outflow of aggregate deposits out of the banking sector. This begs the question which banks depositors run on, which is instrumental for understanding why systemic runs are associated with GDP losses.

Figure 11 visualizes the relationship between changes in bank-level deposits around systemic bank runs and lagged bank-level characteristics using binscatter plots.[28] In both the 19th century (top panel) and recent decades (bottom panel), there is a clear, linear relationship between deposit outflows and bank leverage, and we observe an inverse linear relationship between deposit outflows and bank profits (measured more precisely through net interest income in more recent data), as well as the share of non-core-funding to liabilities.[29] Highly levered, unprofitable banks experience substantial outflows of deposits during systemic runs, which are then reallocated to better capitalized, more solvent institutions.[30]

The importance of bank leverage as a correlate of bank vulnerabilities is consistent with the theoretical literature linking banks' risk taking to financial instability (see, e.g., Coimbra and Rey, 2023). Another open question in the literature is whether depositors who are better informed about the institution's solvency are more likely to run on their banks (see, e.g., Goldstein and Pauzner, 2005). We show that depositors do not run indiscriminately on banks but, instead, target institutions with poor solvency proxied by

[28] Deposit flows are measured between periods $t-1$ and t, with t denoting the year of the systemic bank run. All relationships depicted in Figure 11 remain robust when alternatively measuring cumulative deposit flows between periods $t-1$ and $t+1$.

[29] We use non-deposit funding of banks as our measure for non-core funding. Non-deposit funding can easily be calculated in all three bank-level datasets: the OCC dataset, the modern Call reports, and the Orbis dataset used in the Online Appendix.

[30] In Figure A.29 of the Online Appendix, we investigate the role of bank size for the aggregate deposit contractions around bank runs that we document in Section 3.2. We show that systemic bank runs in the US are usually not driven by deposit outflows from the largest US banks but are, instead, driven by deposit withdrawals from other banks outside the group of the top five largest US banks.

either low bank profits in the 19th century or a low level of net interest income in recent decades. This finding is also in line with existing evidence from the US indicating that a deterioration in banks' solvency precedes their failure (see, e.g., Correia et al., 2024; Cipriani et al., 2024). Finally, banks that rely less on non-core funding see greater deposit outflows in general. This relationship, however, is noisier in more recent data (in the bottom panel of Figure 11), suggesting stronger strategic complementarity in the run behavior of different types of investors (Vives, 2014).

5.4 Bank Balance Sheets During Runs: An Event Study Approach

Combined with our list of systemic runs, the bank-level data also allows us to examine heterogeneity in bank outcomes during these events. To do so, we use an event study approach where we compare the balance sheets of banks experiencing an outflow of deposits during systemic runs to those that do not. This analysis allows us to document how systemic run episodes play out for individual institutions using the cross-sectional variation depicted in Figure 10.

Figure 12 shows event study plots, again separately for the period 1867-1904 and after 1976 (when the modern Call Reports become available). This reveals several insightful regularities about bank behavior during runs.

First, once a systemic bank run starts, deposits drop markedly for several years, with somewhat of a recovery in the 19th century but a permanently lower level of deposits in the modern era. Importantly, banks cannot make up for this drop in deposits by substituting with other types of funding: if anything, we also observe a decline in non-deposit liabilities for banks experiencing deposit outflows, resulting in an overall contraction of bank liabilities for them. This is different in the modern era where non-deposit liabilities are shielded from systemic bank runs, and explains the level shift while preserving the differences between banks experiencing a run and those that do not.

Second, we find clear knock-on effects of deposit outflows on other balance sheet items, including a contraction in the loan book and total assets. This pattern suggests that a disruption on the liability side of banks translates into a deterioration in their ability to support the real economy and a credit crunch, which may partially explain why bank runs are associated with particularly deep and protracted recessions.

Third, along many dimensions, banks experiencing deposit outflows during a systemic run were *not* typically on different balance sheet trends before the run starts. In other words, banks with and without deposit withdrawals exhibit "parallel trends" during the credit booms that often precede run events. In some sense, this may be surprising: if it is excessive risk taking on the part of the banks that ultimately leads to them facing

runs, we would expect more pronounced differences in the growth of loans and leverage beforehand.

In an attempt to understand how generalizable these US experiences are, we investigate a sample of international banks for which we have data from Orbis covering the years 2005 to 2020. Using the same methods as for the sample of US banks above, Section A.19.2 in the Online Appendix shows qualitatively similar patterns. Less solvent banks and banks with low shares of non-core funding also see larger deposit outflows during runs outside of the United States, although the pattern for bank leverage is less clear.

6 Conclusion

Bank runs have been widely studied in theory, but empirical evidence has been scarce, mostly because an objective measure of bank runs is difficult to come by. We provide a comprehensive evaluation of the frequency of bank runs around the globe and their macroeconomic consequences. The principal contributions of our study are threefold. First, we provide a credible measure of bank runs by combining a qualitative narrative-based approach with a quantitative statistical indicator of deposit withdrawals, and show that it helps to identify bank runs with systemic and macroeconomic consequences. Second, we quantify the impact of bank runs on individual banks and the macroeconomy across different regions and periods using a chronology with unprecedented coverage and, thus, external validity. Third, we document that systemic bank runs are associated with economic downturns even where the banking sector's fundamentals appear to be sound, suggesting that liability-side disruptions are at least partly to blame for the deep, protracted recessions following banking crises.

Our results provide novel insights into what happens to individual banks during systemic bank run episodes. As we show, there is substantial variation in deposit growth rates across banks during these runs. Highly levered institutions experience rapid outflows, which in turn benefits banks with healthier levels of capitalization. Importantly, the banks experiencing outflows cannot compensate for the negative shock to their liability side with other sources of funding, resulting in a sizable balance sheet contraction, including their loan book. This evidence, based on data from both the 19th century and the post-1976 period, points to a key role for bank runs in explaining the credit crunch accompanying periods of financial sector distress.

The new chronology of bank runs and the dataset on deposits that we introduce open up many possibilities for the study of financial crises. For one, these data have a much more comprehensive coverage than existing crisis lists, spanning close to the universe of

modern economies since 1800. In contrast to existing work, our measure of systemic bank runs is not purely based on narrative evidence but is also validated using a statistical measure: a contraction of aggregate deposits. We believe there are many other potential applications of these data in finance and macroeconomics.

Taken at face value, our findings suggest that crisis episodes are particularly damaging when a free fall in banking sector deposits is allowed to materialize. As such, they are supportive of policies targeted directly at depositors in stabilizing the banking system during panic episodes, in addition to concerns about bank capitalization. A careful monitoring of bank deposit flows, and not only measures of imbalances in credit markets, may thus be a useful seismograph for the state of the banking sector.

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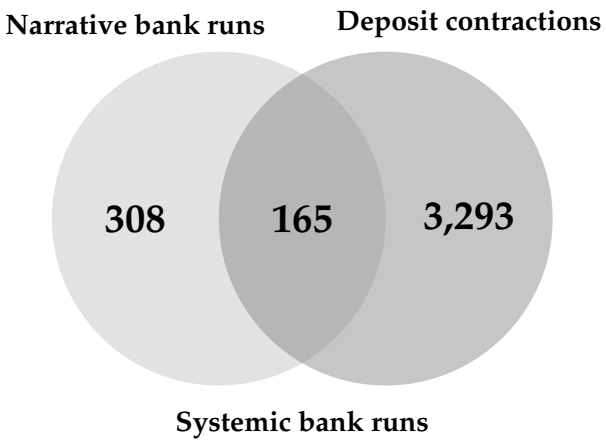
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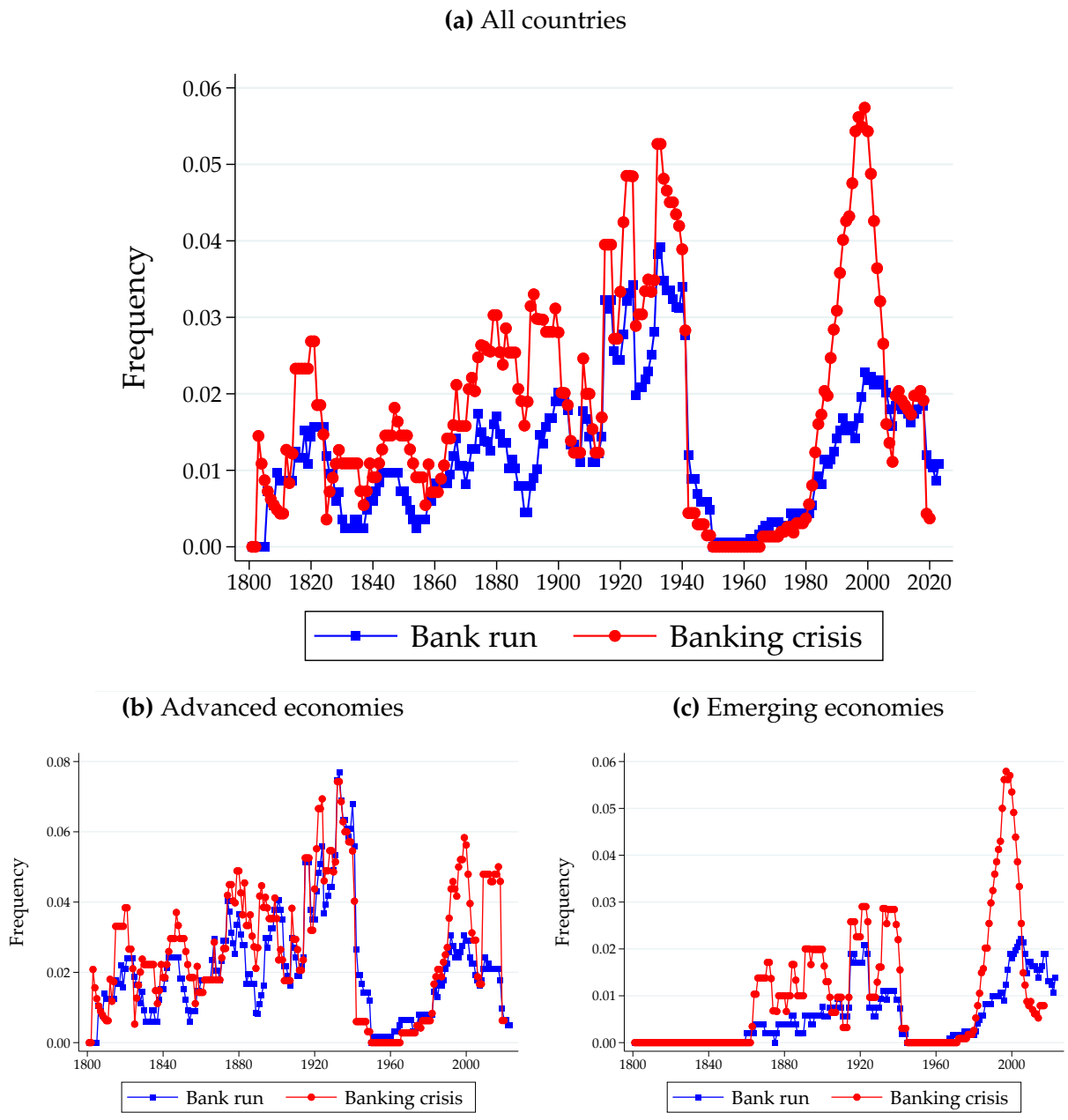
Figures

Figure 1: Defining Systemic Bank Runs



Notes: The figure visualizes the total number of bank runs for which we have narrative evidence and the total number of episodes for which we observe a contraction in any type of deposit (total deposits, demand deposits, or time deposits). We define the intersection of narrative bank runs and deposit contractions as "systemic bank runs." The number in the intersection of both circles corresponds to the total number of systemic bank runs in our sample.

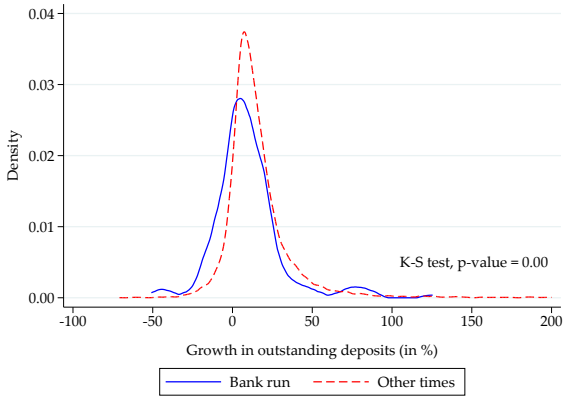
Figure 2: Frequency of Bank Runs and Banking Crises



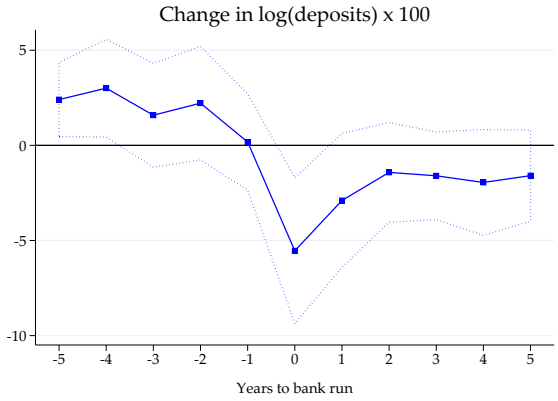
Notes: The figures plot the frequencies of bank runs for which we have narrative evidence and the unified banking crises measure from 1800 to 2023 for (i) for all countries (top panel), (ii) for advanced economies only (bottom-left panel), and (iii) for emerging economies only (bottom-right panel). We visualize the annual frequency of runs and crises as a moving average, using a ten-year time window. The frequency in each individual year is calculated as the total number of runs/crises divided by the number of countries for which we have data coverage in that specific year.

Figure 3: Bank Runs and Deposit Contractions

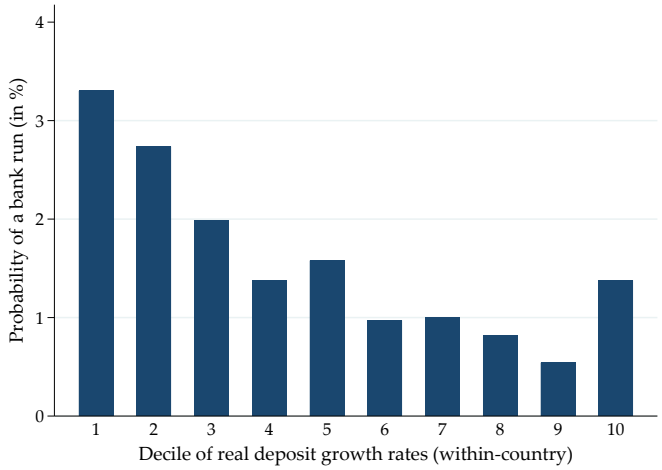
(a) Distribution of deposit growth rates



(b) Deposit contractions around runs



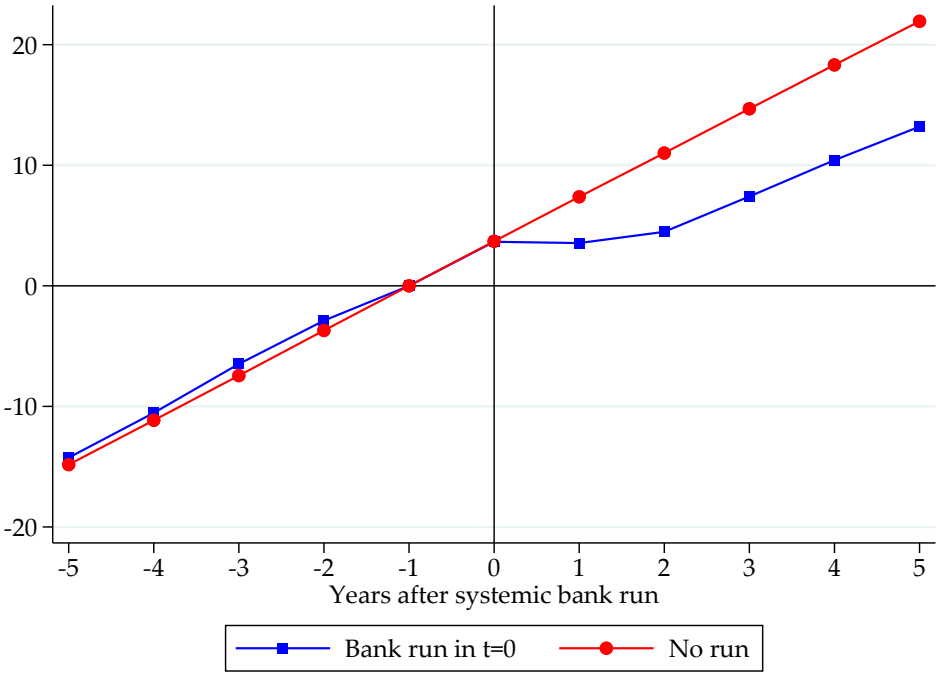
(c) Run frequency by real deposit growth deciles



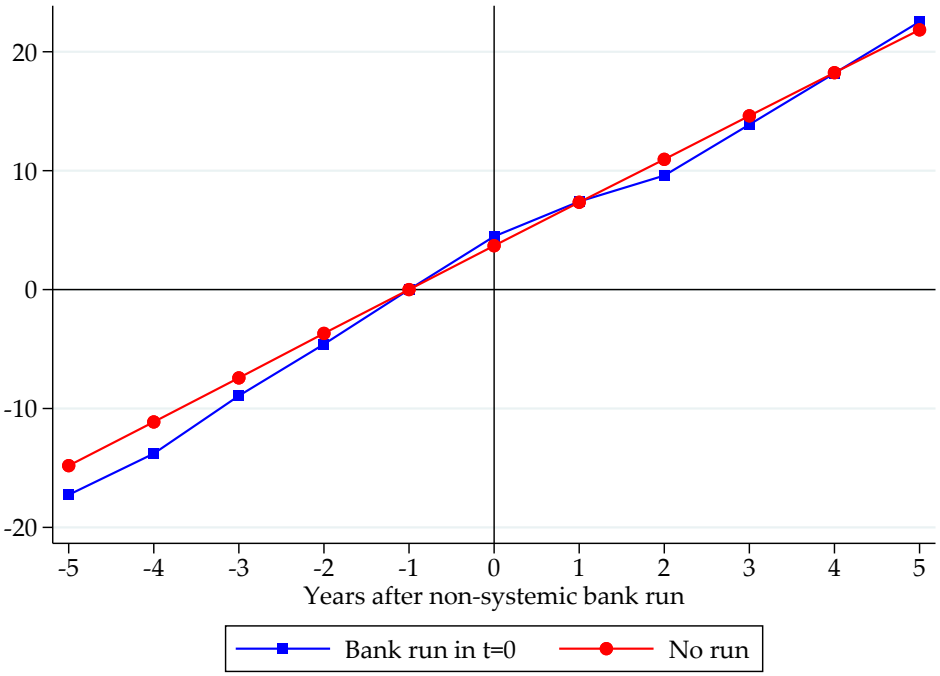
Notes: The figures in Panels (a) and (b) plot measures of the growth in deposits around the incidence of bank runs. Panel (a) shows the distribution of nominal deposit growth rates during periods of bank runs vs. other times. We trim nominal growth rates at 200% to abstract from the influence of major inflation episodes. Panel (b) plots the estimates of an event study specification relating log(nominal deposits) to the exact year a bank run starts. Panel (c) plots the frequency of a bank run across deciles of real deposit growth rates at the country level.

Figure 4: Path of Output Around Systemic and Non-Systemic Bank Runs

(a) Systemic bank runs

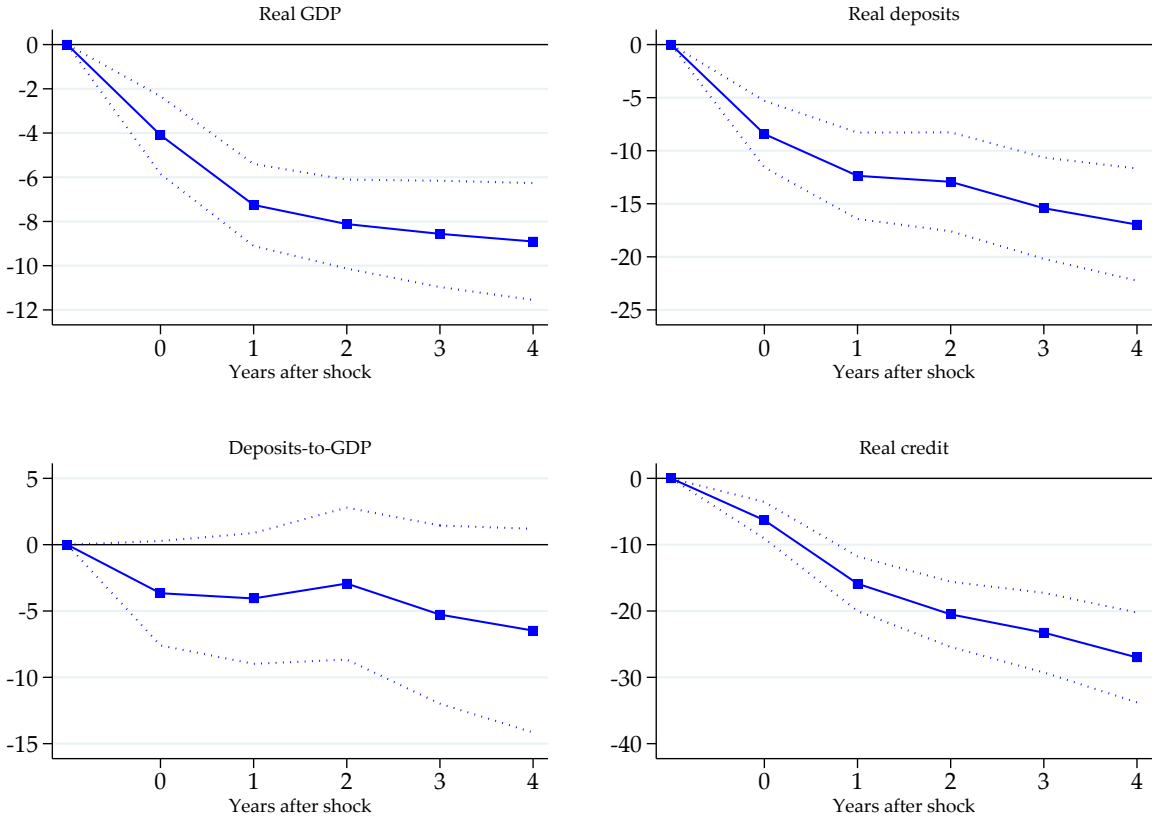


(b) Non-systemic bank runs



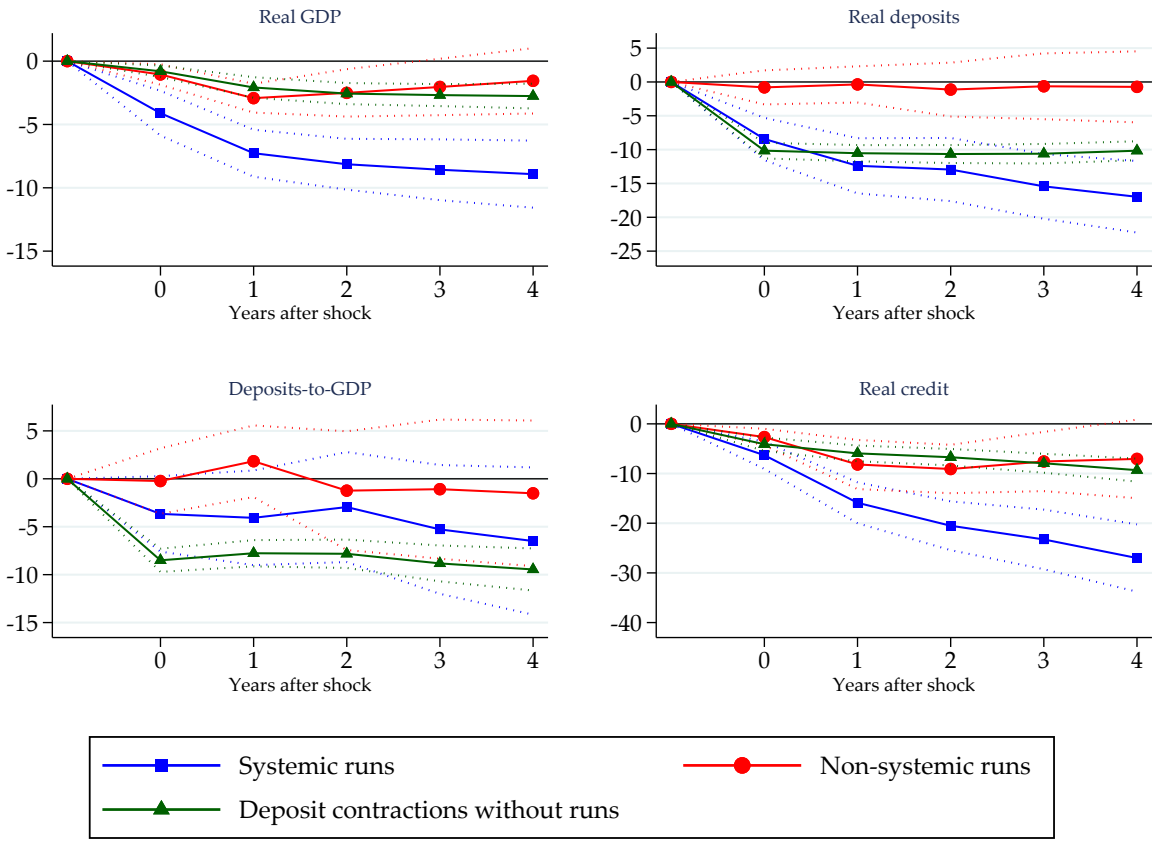
Notes: The figures plot the path of real GDP around systemic bank runs (top panel) and non-systemic bank runs (bottom panel). Blue lines visualize real GDP around bank runs (either systemic or non-systemic), and red lines depict the counterfactual path based on periods when no runs occurred.

Figure 5: Macroeconomic Aftermath of Systemic Bank Runs



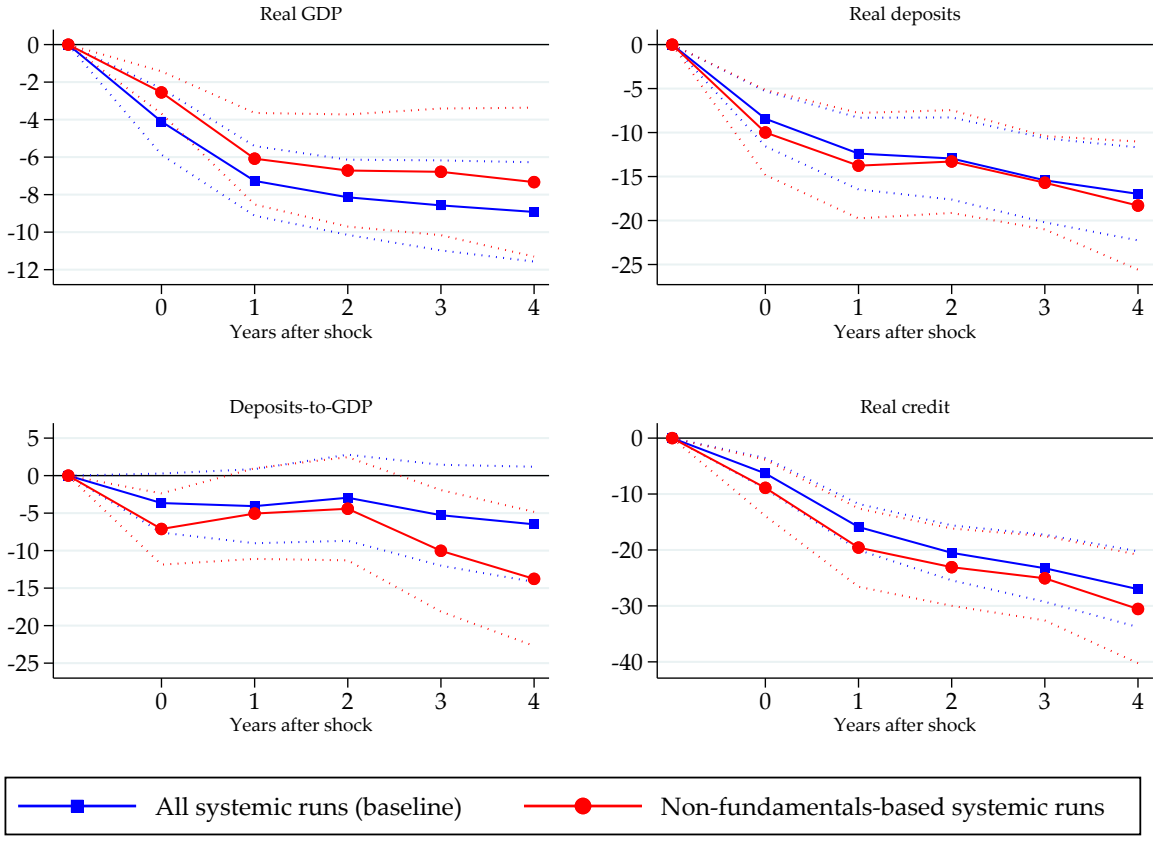
Notes: The figures plot the impulse response function of real GDP growth rates, real deposit growth rates, real credit growth rates, and changes in deposits-to-GDP to a systemic bank run based on the local projection estimates as specified in equation (2). We define a systemic bank run as a narrative bank run that coincides with a contraction of either total deposits, demand deposits, or time deposits between the year before and after a narrative bank run. The blue bands depict 95% confidence bands based on standard errors double-clustered by country and year.

Figure 6: Output Losses of Runs and Deposit Contractions



Notes: The figures plot the impulse response function of real GDP growth rates, real deposit growth rates, real credit growth rates, and changes in deposits-to-GDP for (i) systemic bank runs (blue line), (ii) non-systemic bank runs (red line), and (iii) deposit contractions outside of run episodes (green line). The estimates are based on the local projection specified in equation (3). The error bands depict 95% confidence bands based on standard errors double-clustered by country and year.

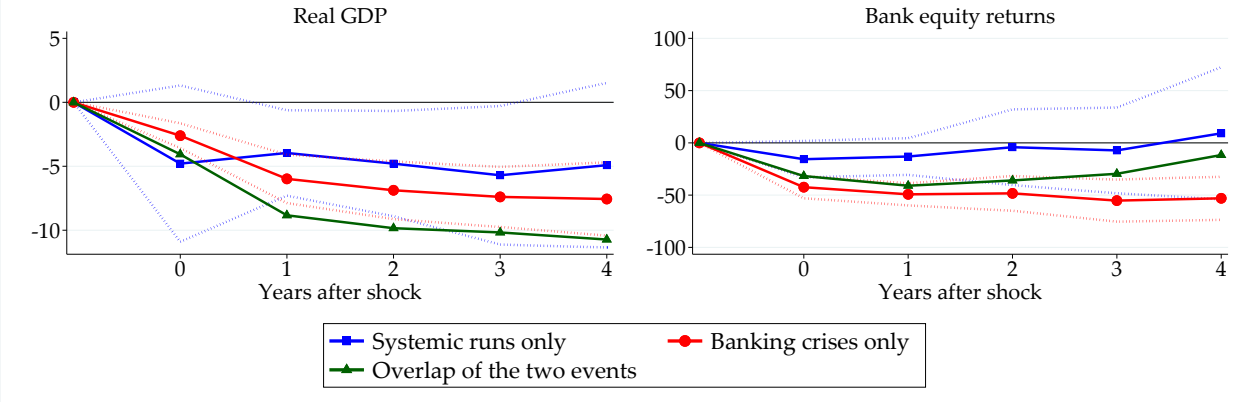
Figure 7: Output Losses of Systemic Runs Not Based on Fundamentals



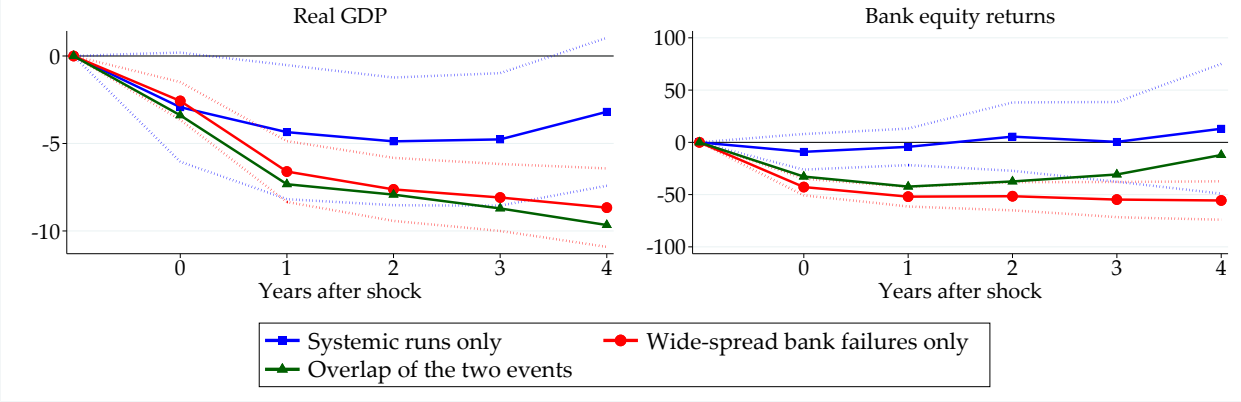
Notes: The figures plot the impulse response function of real GDP, real deposits, real credit, and deposits-to-GDP for (i) systemic runs (blue line) and (ii) non-fundamental-based systemic runs (red line). We define systemic runs not based on fundamentals as those for which we find no mentions of macroeconomic causes such as business cycle downturns, monetary policy decisions, capital inflows, or credit booms in narrative accounts of the bank run events in our chronology. The error bands depict 95% confidence bands based on standard errors double-clustered by country and year. The estimates are based on the local projection specified in equation (2).

Figure 8: Bank Runs, Bank Solvency, and Output Losses

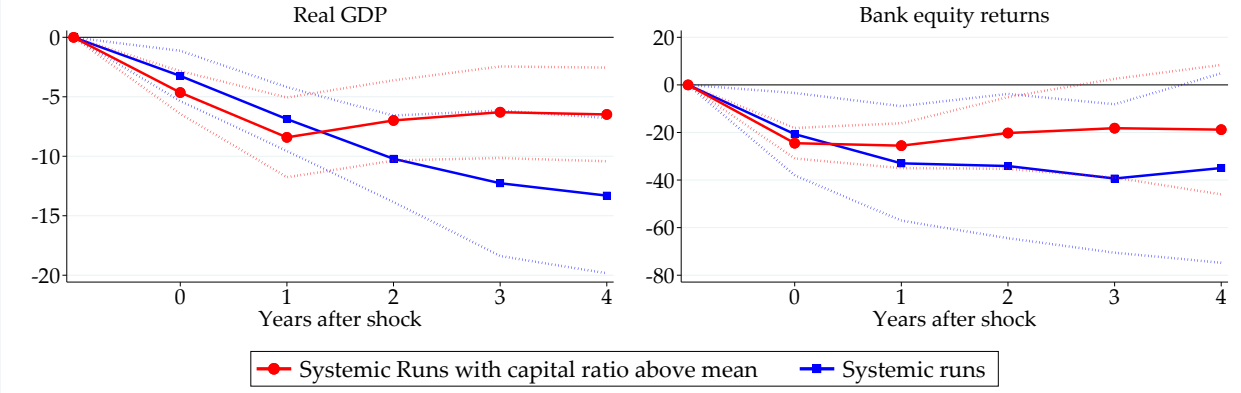
(a) Banking crises



(b) Widespread bank failures



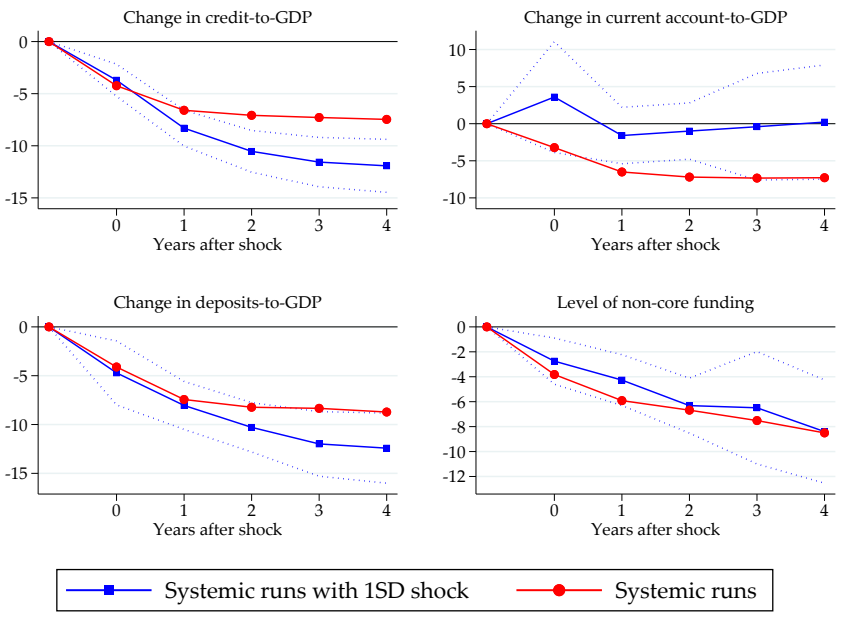
(c) Bank capital ratio



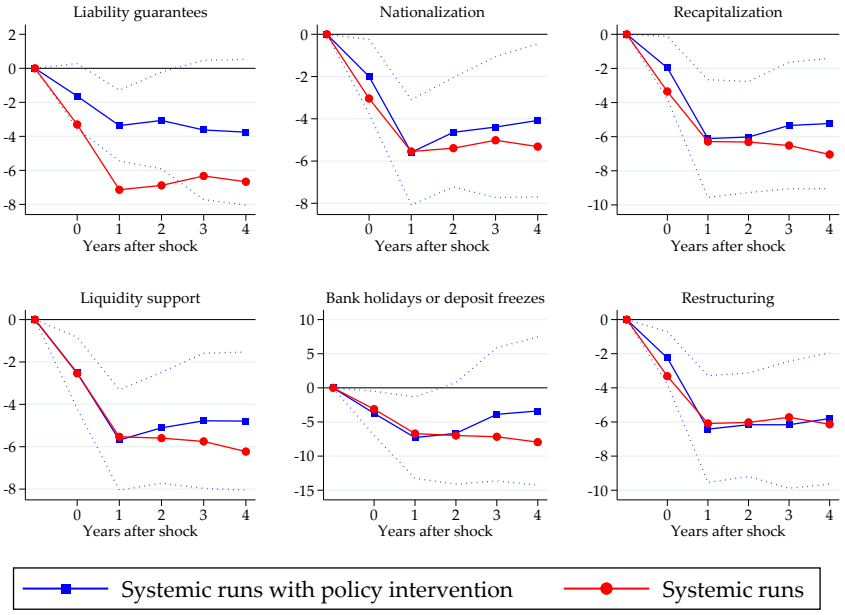
Notes: The figures plot the impulse response function of real GDP and real bank equity returns around systemic bank runs both within and outside of episodes of low levels of bank solvency. Panels (a) and (b) focus on the overlap of systemic bank runs with episodes of banking crises or widespread bank failures based on estimations from equation 2, where each line comes from a separate regression. Panel (c) plots the impulse responses around systemic bank runs (blue lines) and around systemic bank runs with an above-mean banking sector capitalization (red lines), based on estimating equation 4. The error bands depict 95% confidence bands based on standard errors double-clustered by country and year.

Figure 9: When Are Systemic Bank Runs Most Damaging to the Real Economy?

(a) Macroeconomic fundamentals



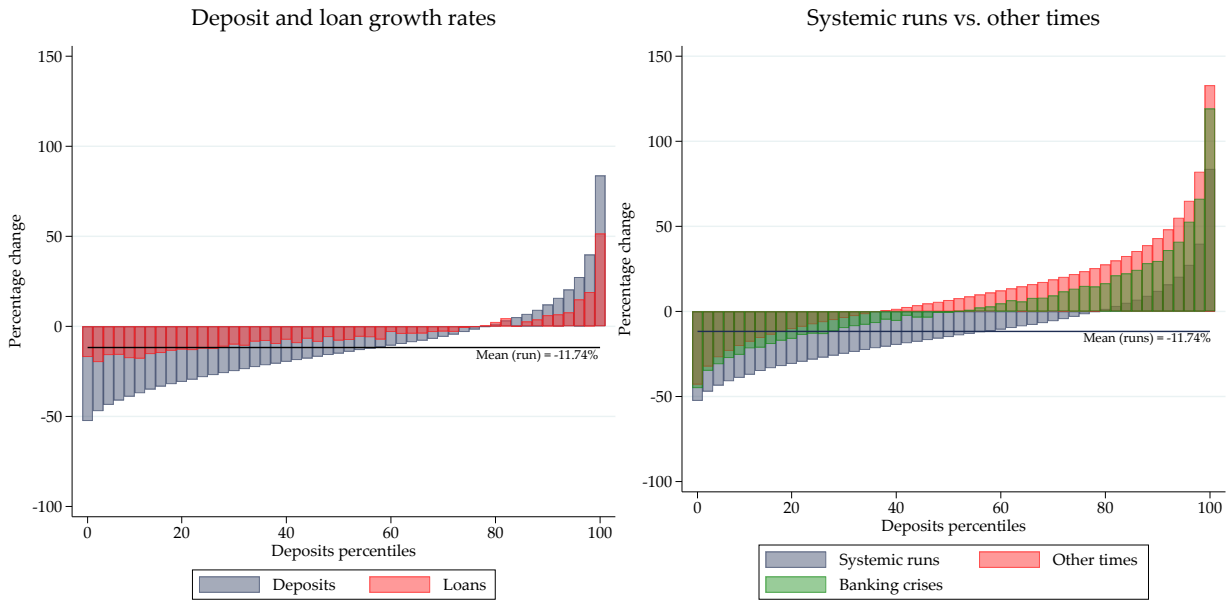
(b) Government interventions



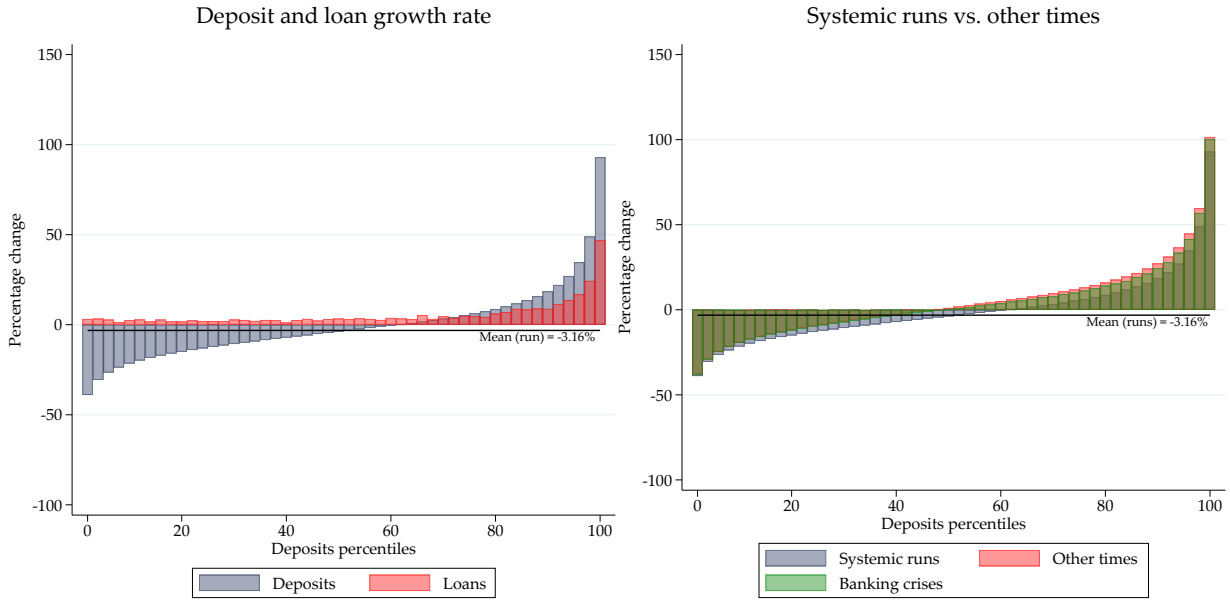
Notes: These figures plot how real GDP around systemic runs varies with ex-ante trends in macroeconomic fundamentals and with different types of government interventions. Panel (a) visualizes the average real GDP growth rates around systemic runs for one standard deviation higher values of the three-year change in credit-to-GDP, current-account-to-GDP ratio, or deposits-to-GDP, as well as the level of banks' non-core funding share as of $t-1$. Panel (b) visualizes the average real GDP growth rates around systemic runs coinciding with the following interventions: liability guarantees, nationalization, recapitalization, liquidity support, the existence of either bank holidays or deposit freezes, and bank restructuring. The estimates are based on the local projection specified in equation (4). The blue bands depict 95% confidence bands based on standard errors double-clustered by country and year.

Figure 10: Dispersion in Bank-Level Deposit and Loan Growth During Systemic Runs

(a) US banks, 1867-1904

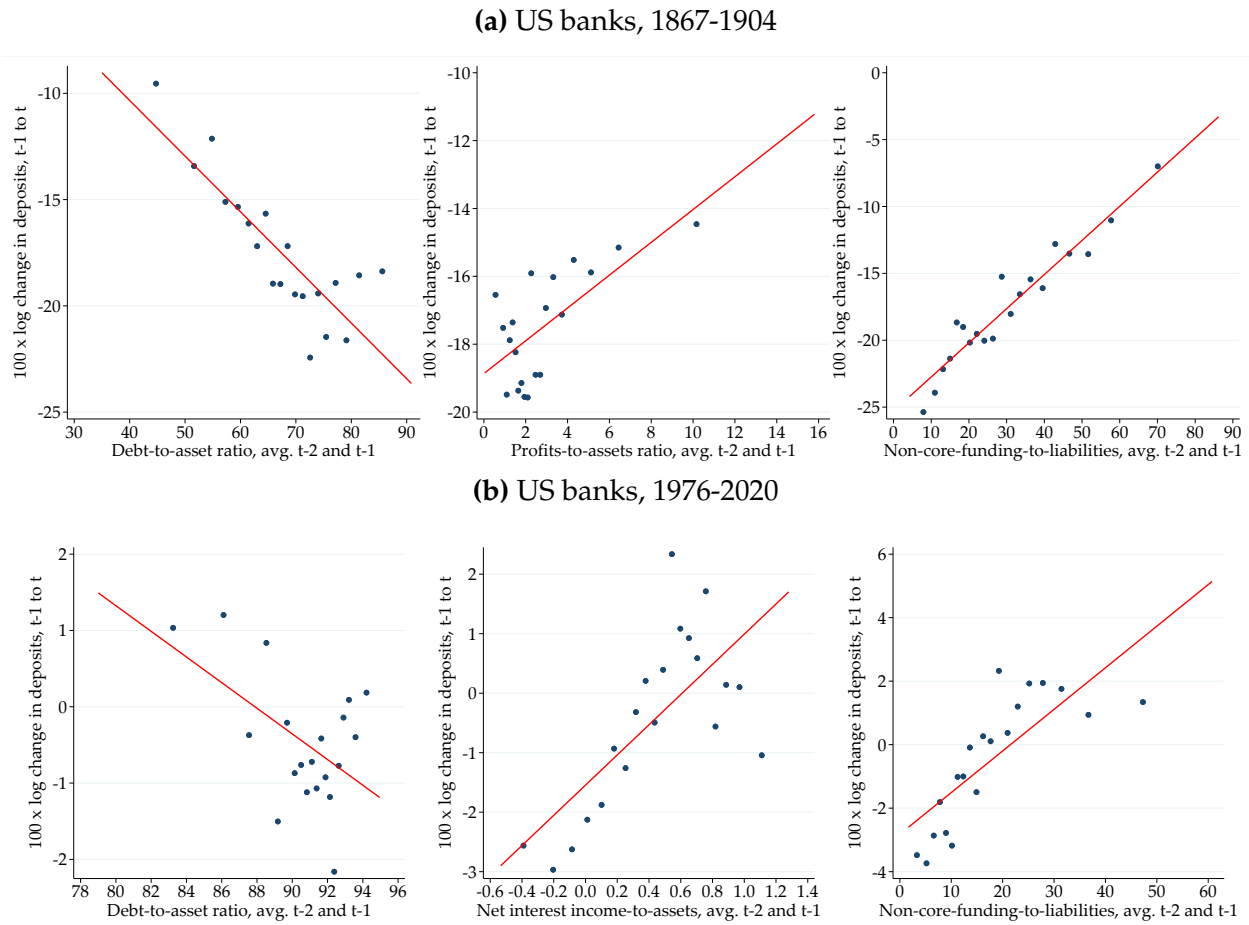


(b) US banks, 1976-2020



Notes: These figures plot bank-level growth rates of real deposits and real loans in the United States during periods of systemic bank runs, periods of banking crises, and other times outside of episodes of runs and banking crises in the United States across percentile bins of real deposit growth rates. The figures in panel (a) are based on the OCC dataset covering the period 1867-1904. The OCC sample includes systemic bank runs for the following years: and 1884 and 1893 . The figures in panels (b) are based on Call Reports data for the period 1976-2020. The Call Reports sample includes systemic bank runs for the following years: , 1982, 1991, 2007 . The black solid line indicates the average deposit growth rate during systemic runs in the respective sample.

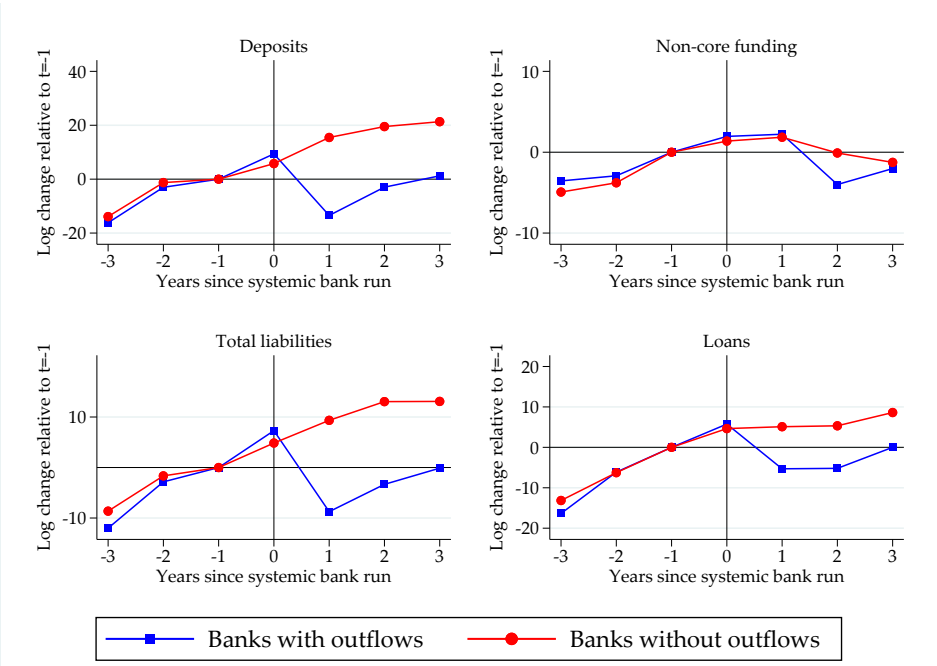
Figure 11: Which Banks Experience Deposit Flows During Systemic Bank Runs?



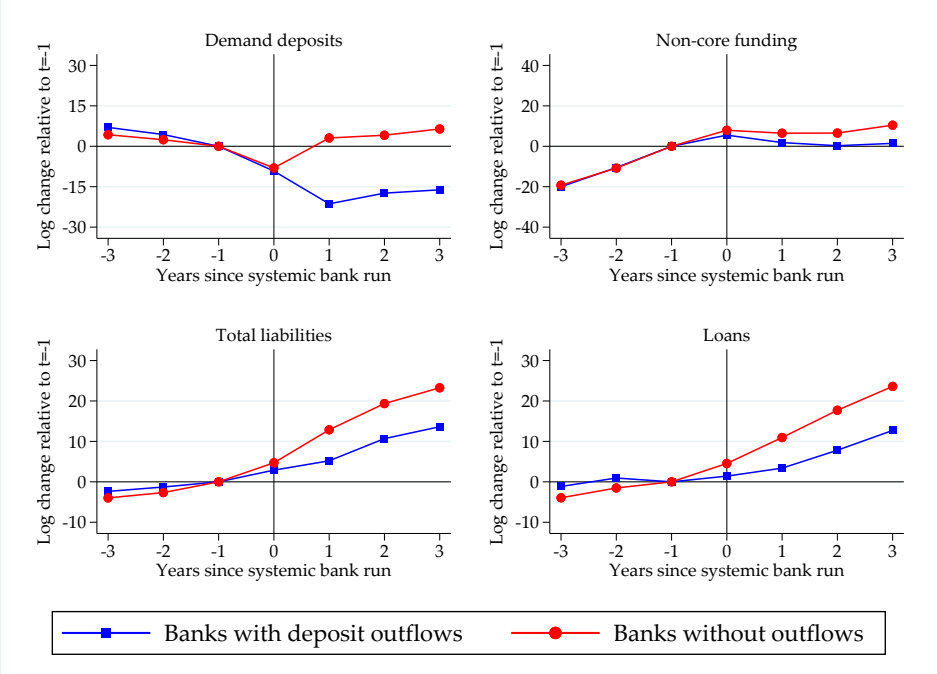
Notes: These binned scatter plots show the relationship between real deposit growth rates around systemic bank runs and pre-run balance sheet characteristics of US banks (averaged for $t-2$ and $t-1$). We calculate changes in deposits between year $t-1$ and t, with year t reflecting the date of the systemic bank run. The upper panel plots the results for the OCC dataset covering the period 1867-1904. The lower panel plots the results based on Call Reports data for the period 1976-2020.

Figure 12: Bank-Level Aftermath of Deposit Outflows Around Systemic Bank Runs

(a) US banks, 1867-1904



(b) US banks, 1976-2020



Notes: The figures plot the cumulative log changes in balance sheet items of US banks relative to the year before the systemic bank run. The blue lines refer to banks experiencing an outflow of deposits during a systemic run, and the red lines to banks experiencing inflows. The upper panel plots the results for the OCC dataset covering the period 1867-1904. The lower panel plots the results based on Call Reports data for the period 1976-2020.

Tables

Table 1: Comparing the Bank Run Chronology with Other Crisis Lists

Dataset	Crisis definition	Narrative only	No. of countries	No. of events	Start Year	End Year	Obs.
Reinhart and Rogoff (2009)	Banking crisis	Yes	68	303	1800	2014	12,606
Laeven and Valencia (2018)	Banking crisis	Yes	156	151	1970	2017	7,488
Jordà et al. (2017)	Banking crisis	Yes	18	88	1870	2020	2,668
Baron et al. (2021)	Bank equity crash	No	46	262	1870	2016	4,279
Baron et al. (2021)	Banking crisis	Mixed	46	224	1870	2016	6,089
Baron et al. (2021)	Banking panic	Mixed	46	192	1870	2016	6,089
JKMS	Bank run	Yes	184	308	1800	2023	25,820
JKMS	Deposit contraction	No	179	3,293	1801	2022	13,597
JKMS	Systemic bank run	No	179	165	1801	2022	13,597

Notes: This table compares the coverage of the JKMS bank run chronology introduced in this paper with existing lists of banking crises. "Narrative only" refers to chronologies that do not incorporate statistical indicators to identify crisis episodes, such as deposit growth rates (this paper) and bank equity returns (Baron et al., 2021). "Mixed" refers to chronologies that incorporate statistical data for a sub-sample but not all crises.

Table 2: The JKMS Bank Run List

Country	Year	Fund. run	Systemic run	Deposit gr.	Affected deposits	Banking crisis	BVX panic	Country	Year	Fund. run	Systemic run	Deposit gr.	Affected deposits	Banking crisis	BVX panic
Afghanistan	2010	No	No	> 0				Bosnia-Herzegovina	2008	Yes	No	> 0		No	
Albania	2008	Yes	Yes	-0.7	Demand	No		Brazil	1864	Yes	No	> 0		No	
Antigua and Barbuda	2009	No	Yes	-25.1	Demand				1900	Yes	Yes	-19.4	Total	Yes	Yes
Argentina	1876	No				No	No		1914	No	Yes	-18.1	Demand	Yes	Yes
	1890	Yes				Yes	Yes		1990	No	No	> 0		Yes	Yes
	1914	Yes	Yes	-15.7	Total	Yes	Yes	Bulgaria	1996	Yes	No	> 0		Yes	
	1934	No	Yes	-5.1	Total	Yes	Yes		2014	No	Yes	-5.8	Time	No	
	1980	Yes	Yes	-19.1	Demand	Yes	Yes	Canada	1837	Yes				Yes	
	1985	Yes	No	> 0		Yes	Yes		1867	No	Yes	-6.7	Total	Yes	
	1989	Yes	No	> 0		Yes	Yes		1879	No	No	> 0		No	No
	1995	Yes	Yes	-4.7	Time	Yes	Yes		1893	No	Yes	-8.7	Demand	No	No
	2001	Yes	Yes	-19.2	Time	Yes	Yes		1914	Yes	Yes	-8.1	Demand	Yes	
Australia	1828	Yes				Yes			1921	No	Yes	-17.7	Demand	Yes	Yes
	1842	No	Yes	-13.8	Total	Yes			1924	No	Yes	-0.4	Time	Yes	No
	1843	No	Yes	-13.8	Total	Yes			1982	No	No	> 0		Yes	Yes
	1893	Yes	Yes	-12.4	Total	Yes	Yes		1996	No	No	> 0		No	No
	1931	Yes	Yes	-20.6	Total	Yes	Yes	Chile	1865	Yes	Yes	-50.9	Total	No	
	1974	Yes	Yes	-7.5	Demand	No	No		1878	No	Yes	-12.3	Total	Yes	Yes
	1989	No	No	> 0		Yes	Yes		1895	Yes	Yes	-15.5	Total	No	No
Austria	1873	Yes				Yes	Yes		1898	No	Yes	-2.4	Total	Yes	Yes
	1924	No	No	> 0		Yes	No		1907	Yes	Yes	-8.0	Total	Yes	Yes
	1931	No	Yes	-31.0	Total	Yes	Yes		1914	No	Yes	-2.3	Total	Yes	Yes
Bahrain	1990	Yes	Yes	-20.1	Time				1976	Yes	No	> 0		Yes	Yes
Belgium	1838	Yes	Yes	-39.2	Demand	Yes			1983	Yes	No	> 0		Yes	Yes
	1870	Yes				Yes	Yes	China	1903	No				No	
	1914	Yes	Yes	-24.5	Total	Yes	Yes		1916	Yes				No	
	1925	Yes	No	> 0		Yes	No		1921	Yes				Yes	
	1931	No	No	> 0		Yes	Yes		1928	No	No	> 0		No	
	1934	No	No	> 0		Yes	No		1930	Yes	Yes	-12.7	Total	Yes	
Belize	2016	Yes	Yes	-7.2	Time	No			1997	No	No	> 0		Yes	
Bolivia	1985	Yes	No	> 0		Yes			2019	No	No	> 0			
	1994	No	No	> 0		Yes			2022	No	No	> 0			

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Country	Year	Fund. run	Systemic run	Deposit gr.	Affected deposits	Banking crisis	BVX panic	Country	Year	Fund. run	Systemic run	Deposit gr.	Affected deposits	Banking crisis	BVX panic
Costa Rica	1987	No	Yes	-4.9	Demand	Yes			1891	Yes	Yes	-1.1	Total	Yes	Yes
	2004	No	Yes	-39.5	Time	No			1901	Yes	Yes	-0.3	Total	Yes	Yes
Cote d'Ivoire	2011	Yes	No	> 0		No			1911	Yes	No	> 0		No	No
Croatia	1998	Yes	Yes	-7.3	Demand	Yes			1914	Yes	No	> 0		Yes	Yes
Cyprus	1939	No							1929	Yes	Yes	-8.5	Total	Yes	Yes
Czech Republic	1923	Yes	Yes	-11.8	Total	Yes	Yes	Ghana	2015	Yes	No	> 0		No	
	1931	Yes	Yes	-13.6	Total	No	No	Greece	1931	Yes	Yes	-11.2	Total	Yes	Yes
	1939	No							2015	Yes	Yes	-47.6	Time	No	No
	1994	Yes	Yes	-0.4	Time	Yes	Yes	Hong Kong	1892	No	Yes	-12.5	Total	Yes	Yes
	2000	No	Yes	-1.5	Time	No	No		1961	No	No	> 0		No	No
Denmark	1908	Yes	Yes	-6.8	Demand	Yes	Yes		1965	Yes	No	> 0		Yes	Yes
	1922	Yes	Yes	-14.7	Demand	Yes	No		1982	No	Yes	-2.9	Demand	Yes	Yes
Dominican Republic	2003	No	No	> 0		Yes			1985	No	No	> 0		No	No
Ecuador	1998	Yes	Yes	-66.5	Time	Yes			1991	Yes	No	> 0		Yes	Yes
Egypt	1907	No				Yes	Yes		1998	No	Yes	-9.5	Demand	Yes	Yes
	1914	Yes				Yes	Yes		2008	No	No	> 0		No	No
	1931	No				Yes	Yes	Hungary	1873	Yes				Yes	Yes
Estonia	1998	No	Yes	-8.3	Demand	No			1930	No	Yes	-18.8	Total	Yes	Yes
	2008	Yes	Yes	-11.7	Demand	No			1931	Yes	Yes	-18.8	Total	Yes	Yes
Ethiopia	2016	No				No			1997	Yes	No	> 0		Yes	Yes
Finland	1900	Yes	No	> 0		Yes	Yes	Iceland	2008	Yes	Yes	-13.5	Time	Yes	Yes
	1939	Yes	Yes	-0.4	Total	Yes	No	India	1913	Yes	Yes	-3.3	Total	Yes	Yes
France	1805	Yes				Yes			2001	No	No	> 0		No	No
	1838	Yes				Yes		Indonesia	1991	No	Yes	-11.4	Demand	Yes	Yes
	1847	Yes				Yes			1992	No	Yes	-11.4	Demand	Yes	Yes
	1871	Yes				Yes	Yes		1997	Yes	No	> 0		Yes	Yes
	1881	Yes				Yes	Yes	Iran	2022	Yes					
	1889	No				Yes	Yes	Ireland	2008	Yes	Yes	-15.9	Demand	Yes	Yes
	1914	Yes				Yes	Yes	Italy	1893	No	Yes	-2.3	Total	Yes	Yes
	1930	Yes	Yes	-5.9	Total	Yes	Yes		1907	Yes	No	> 0		Yes	Yes
	1931	No	Yes	-5.9	Total	Yes	Yes		1914	Yes	Yes	-5.2	Total	Yes	Yes
	1932	No	Yes	-8.9	Total	Yes	Yes		1921	No	No	> 0		Yes	Yes
	1938	Yes	No	> 0		Yes	Yes		1930	Yes	Yes	-5.5	Total	Yes	Yes
Germany	1873	Yes	Yes	-9.5	Total	Yes	Yes	Jamaica	1996	Yes	Yes	-3.2	Demand	Yes	

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Country	Year	Fund. run	Systemic run	Deposit gr.	Affected deposits	Banking crisis	BVX panic	Country	Year	Fund. run	Systemic run	Deposit gr.	Affected deposits	Banking crisis	BVX panic
Japan	1871	No				Yes	Yes	Nicaragua	2000	No	Yes	-28.3	Demand	Yes	
	1900	No	Yes	-1.4	Demand	Yes	Yes	Nigeria	1996	No	No	> 0		Yes	
	1907	No	Yes	-14.8	Demand	Yes	Yes		2023	No					
	1920	Yes	Yes	-8.1	Time	Yes	Yes	Norway	1857	No	Yes	-19.3	Demand	No	
	1922	No	Yes	-2.6	Demand	Yes	Yes		1899	Yes	No	> 0		Yes	Yes
	1927	No	Yes	-3.2	Time	Yes	Yes		1914	Yes	No	> 0		Yes	Yes
	1997	Yes	No	> 0		Yes	Yes		1923	No	Yes	-16.2	Demand	Yes	No
Jordan	1989	Yes	Yes	-2.7	Demand	Yes			1931	Yes	Yes	-9.3	Demand	Yes	Yes
Kazakhstan	2014	No	No	> 0		No		Pakistan	2008	No	Yes	-8.4	Demand	No	
Kenya	2016	No	Yes	-9.7	Time	No		Panama	1987	Yes	Yes	-30.5	Demand	Yes	
	2022	No	No	> 0				Paraguay	1997	Yes	Yes	-2.7	Demand	Yes	
Kuwait	2008	No	No	> 0		No			2002	No	Yes	-4.6	Time	Yes	
Latvia	1931	Yes						Peru	1914	Yes	Yes	-33.7	Total	Yes	Yes
	2011	No	Yes	-19.7	Time	No		Philippines	1968	No	No	> 0		No	No
Lebanon	1966	No	Yes	-12.5	Demand				1974	No	No	> 0		No	No
Libya	2011	Yes	Yes	-22.5	Time	No			1977	No	No	> 0		No	No
Lithuania	1995	Yes	Yes	-14.0	Time	Yes			1981	No	Yes	-9.1	Demand	Yes	Yes
Macao	2005	Yes	Yes	-8.0	Demand				1983	Yes	Yes	-10.6	Demand	Yes	Yes
Malaysia	1985	No	Yes	-1.7	Demand	Yes	Yes		2000	No	Yes	-0.5	Demand	No	No
	1997	No	Yes	-14.3	Demand	Yes	Yes	Poland	1926	No	No	> 0		No	
Mexico	1883	Yes				Yes	Yes		2018	No	Yes	-5.3	Time		
	1913	Yes				Yes	Yes	Portugal	1876	Yes				Yes	Yes
	1921	No				Yes	Yes		1891	Yes				Yes	Yes
	1931	No	Yes	-27.3	Total	Yes	No		1920	Yes	No	> 0		Yes	Yes
Montenegro	2008	No	Yes	-27.1	Demand				1923	Yes	Yes	-21.1	Total	Yes	Yes
Myanmar	2003	No	Yes	-74.4	Demand	Yes			1930	Yes	Yes	-15.7	Demand	Yes	Yes
	2021	Yes							1935	No	Yes	-0.9	Demand	No	No
Nepal	2006	No	No	> 0		No		Qatar	2017	Yes	Yes	-7.7	Time		
	2011	No	Yes	-5.3	Demand	No		Romania	1931	Yes	Yes	-43.3	Total	Yes	
Netherlands	1914	Yes	No	> 0		Yes	Yes	Russia	1859	Yes				No	
	1921	No	Yes	-13.4	Total	Yes	No		1875	No	Yes	-18.3	Total	Yes	Yes
	2009	No	Yes	-5.4	Time	Yes	Yes		1899	No	Yes	-2.2	Total	Yes	Yes
New Zealand	1893	No	Yes	-3.5	Total	Yes	No		1905	Yes	Yes	-13.5	Total	No	No
	1988	No	No	> 0		Yes	Yes		1914	Yes	No	> 0		No	

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Country	Year	Fund. run	Systemic run	Deposit gr.	Affected deposits	Banking crisis	BVX panic	Country	Year	Fund. run	Systemic run	Deposit gr.	Affected deposits	Banking crisis	BVX panic
	1998	Yes	Yes	-7.8	Demand	Yes	Yes		2023	No					
	2004	Yes	No	> 0		No	No	Taiwan	1985	No	No	> 0		Yes	Yes
	2008	No	Yes	-2.7	Demand	Yes	Yes		1995	Yes	Yes	-17.2	Total	Yes	Yes
	2022	Yes							1998	No	No	> 0		Yes	No
Serbia	1993	No				No			2000	No	No	> 0		Yes	No
	2008	No	Yes	-6.0	Demand	No			2007	No				No	No
Singapore	1974	No	No	> 0		No	No	Thailand	1984	No	Yes	-13.8	Demand	Yes	Yes
South Africa	1890	No				Yes	Yes		1996	No	Yes	-16.3	Demand	Yes	Yes
	1997	No	No	> 0		No	No		2014	Yes	No	> 0		No	No
	2002	Yes	No	> 0		No	No	Trinidad-Tobago	1939	Yes					
South Korea	1950	Yes				No			1988	No	Yes	-20.2	Demand	No	
	1961	Yes	Yes	-52.9	Time	No	No	Turkey	1895	No				No	No
Spain	1864	No	Yes	-15.8	Total	No			1914	Yes				Yes	Yes
	1913	Yes	Yes	-13.8	Time	Yes	Yes		1931	Yes	Yes	-3.4	Demand	Yes	Yes
	1920	No	No	> 0		Yes	Yes		1981	Yes	No	> 0		Yes	Yes
	1924	No	Yes	-12.5	Demand	Yes	Yes		1991	Yes	No	> 0		Yes	Yes
	1931	Yes	Yes	-20.3	Demand	Yes	Yes		2001	No	No	> 0		Yes	Yes
	1994	No	No	> 0		No	No	Uganda	1999	Yes	No	> 0		No	
St Vincent & Grenadines	2013	No	No	> 0				Ukraine	1998	Yes	No	> 0		Yes	
Sweden	1808	Yes	No	> 0		No			2008	Yes	Yes	-17.0	Time	Yes	
	1817	No	Yes	-3.8	Total	No			2014	Yes	Yes	-8.1	Time	Yes	
	1857	No	No	> 0		No		United Arab Emirates	1990	Yes	Yes	-14.4	Demand		
	1878	Yes	Yes	-4.1	Total	Yes	Yes	United Kingdom	1815	Yes				Yes	
	1907	No	No	> 0		Yes	Yes		1820	Yes				No	
	1912	No	No	> 0		No	No		1825	Yes				Yes	
	1932	No	Yes	-2.1	Demand	Yes	No		1840	Yes	Yes	-11.2	Total	No	
	1939	Yes	Yes	-1.8	Demand	No			1847	Yes	Yes	-38.9	Total	Yes	
	1992	Yes	No	> 0		Yes	Yes		1857	Yes	Yes	-2.7	Total	Yes	
Switzerland	1859	No	No	> 0					1866	Yes	Yes	-12.6	Total	Yes	
	1865	No	Yes	-7.3	Total				1878	Yes	Yes	-3.3	Total	Yes	Yes
	1870	Yes	Yes	-5.5	Total	Yes	Yes		1914	Yes	No	> 0		Yes	Yes
	1914	Yes	No	> 0		Yes	Yes		1973	Yes	Yes	-21.2	Demand	Yes	Yes
	1931	No	Yes	-5.7	Time	Yes	Yes		2007	No	Yes	-2.2	Demand	Yes	Yes
	1991	Yes	Yes	-8.1	Demand	Yes	Yes	United States	1814	Yes	Yes	-10.0	Total	Yes	

Continued on the next page

Country	Year	Fund. run	Systemic run	Deposit gr.	Affected deposits	Banking crisis	BVX panic	Country	Year	Fund. run	Systemic run	Deposit gr.	Affected deposits	Banking crisis	BVX panic
	1819	Yes	No	> 0		Yes		Zimbabwe	2003	Yes	No	> 0		No	
	1833	Yes	No	> 0		No			2016	Yes	Yes	-9.9	Time	No	
	1837	No	Yes	-23.2	Total	Yes									
	1841	No	Yes	-18.5	Total	Yes									
	1854	Yes	Yes	-1.3	Total	No									
	1857	Yes	Yes	-17.7	Total	Yes									
	1873	Yes	No	> 0		Yes	Yes								
	1884	Yes	Yes	-1.2	Total	Yes	Yes								
	1893	Yes	Yes	-4.4	Total	Yes	Yes								
	1896	Yes	Yes	-1.0	Total	No	No								
	1907	No	Yes	-4.2	Total	Yes	Yes								
	1929	Yes	Yes	-6.7	Demand	Yes	Yes								
	1930	Yes	Yes	-19.3	Time	Yes	Yes								
	1932	Yes	Yes	-19.3	Time	Yes	Yes								
	1974	No	No	> 0		No	No								
	1982	No	Yes	-11.4	Demand	Yes	Yes								
	1983	Yes	No	> 0		Yes	Yes								
	1984	No	No	> 0		Yes	Yes								
	1985	No	No	> 0		Yes	Yes								
	1991	No	Yes	-4.7	Time	Yes	No								
	1992	No	Yes	-4.7	Time	Yes	No								
	2007	No	Yes	-6.0	Demand	Yes	Yes								
	2008	Yes	Yes	-5.1	Demand	Yes	Yes								
	2023	No													
Uruguay	1866	Yes				No									
	1890	Yes				No									
	1898	Yes				Yes									
	1964	Yes	Yes	-28.3	Time	No									
	1982	Yes	Yes	-7.4	Demand	Yes									
	2002	Yes	Yes	-27.0	Time	Yes									
Venezuela	1993	No	No	> 0		Yes	Yes								
	2009	Yes	Yes	-42.7	Time	Yes	Yes								
Vietnam	2012	No	No	> 0		No									
	2022	No	Yes	-5.0	Total										

Table 3: How Frequent Are Bank Runs?

	Pre-1933		Post-1933	
	Run prob.	Share systemic	Run prob.	Share systemic
Average	4.9	75.7	1.3	55.3
By region:				
East Asia and Pacific	3.6	92.3	2.7	44.7
Europe and Central Asia	5.2	67.6	1.5	66.7
Latin America and Caribbean	3.6	91.7	1.3	64.5
Middle East and North Africa	N/A	N/A	0.6	85.7
North America	10.6	81.0	6.2	45.5
South Asia	1.3	100.0	1.0	40.0
Sub-Saharan Africa	0.0	0.0	0.3	20.0
By income level:				
Advanced economies	6.3	80.9	1.6	54.5
Emerging economies	4.5	70.0	1.3	55.7
By financial development:				
Low	4.8	68.8	0.6	35.3
Medium	6.6	76.0	1.6	64.6
High	5.8	69.6	2.0	50.0
By deposit insurance:				
No	4.9	75.7	0.9	52.1
Yes	N/A	N/A	2.4	58.8

Notes: This table summarizes bank run probabilities for two subperiods: before 1933 (and, as such, before the introduction of deposit insurance) and after 1933. The share of systemic bank runs indicates what fraction of bank runs was accompanied by a contraction in outstanding deposits. We determine income levels based on real GDP per capita in PPP terms, where countries with median values in the top quartile in any given decade are treated as advanced economies and the remainder as emerging economies. Financial development is defined as the ratio of credit to GDP (taken from Müller and Verner, 2024), where we split countries into the low, medium, and high categories based on the tercile they fall in for any given decade. All values are in percent.

Table 4: Probabilities of Bank Runs, Banking Crises, and Banking Panics

	Probabilities of bank runs			
	Narrative bank run	Deposit contraction	Systemic bank run	Non-systemic run
Unconditional	1.9	12.5	1.2	0.7
Conditional on a banking crises	47	67	33	15
Conditional on a banking panics	65	70	46	22

	Probabilities of banking crises	Probabilities of banking panics
Unconditional	2.7	3.5
Conditional on a narrative bank run	56	44
Conditional on a deposit contraction	14	8
Conditional on a systemic bank run	61	47
Conditional on a non-systemic bank run	48	39

Notes: This table plots unconditional and conditional probabilities of bank runs, banking crises, and banking panics. The top panel shows both the unconditional and the conditional probabilities of a narrative bank run, deposit contraction, systemic bank run (i.e., a narrative run accompanied by a deposit contraction), and non-systemic bank run (i.e., a narrative run without a deposit contraction). For conditional probabilities, we consider run events happening within ±2 years of a crisis or panic. The bottom panel shows both the unconditional and the conditional probabilities of a banking crisis and a banking panic, where we again consider a window of ±2 years for conditional probabilities. The dates of banking crises are defined by combining several chronologies as described in Section 2.5, where we take dates from Baron et al. (2021), Laeven and Valencia (2018), Jordà et al. (2017), and Reinhart and Rogoff (2009), in that order of priority. The dates of banking panics are from Baron et al. (2021).

Table 5: Bank Runs and Output Losses

	ΔGDP^r_t	ΔGDP^r_{t+2}	ΔGDP^r_{t+4}
Deposit Contractions w/o Runs	-0.845***	-2.653***	-2.852***
	(0.235)	(0.433)	(0.508)
Non-Systemic Runs	-1.185**	-2.854**	-1.935
	(0.409)	(0.980)	(1.342)
Systemic Runs	-4.194***	-8.414***	-9.208***
	(0.918)	(1.041)	(1.380)
R^2	0.127	0.194	0.241
Observations	8539	8539	8430
Countries	177	177	177
Systemic Runs	83	83	82
Deposit Contractions	935	935	929
Non-Systemic Runs	54	54	53

Notes: This table reports the estimated output losses from the following panel regression: $\Delta Y_{i,t+h} = \alpha_i^h + \beta_1^h \mathbf{1}[\Delta D_{i,t} < 0] + \beta_2^h \mathbf{1}[Run_{i,t}^{Systemic}] + \beta_3^h \mathbf{1}[Run_{i,t}^{Nonsystemic}] + \sum_{k=1}^{3} \gamma^{k,h} \Delta Y_{i,t-k} + \epsilon_{i,t}^h$, where $h \in [0, 2, 4]$ and α_i denotes country fixed effects. $\mathbf{1}[\Delta D_{i,t} < 0]$ is an indicator variable for deposit contractions, i.e., periods where the year-on-year growth in outstanding nominal deposits $\Delta D_{i,t}$ is negative in the absence of narrative bank runs, $\mathbf{1}[Run_{i,t}^{Systemic}]$ is an indicator variable for systemic bank runs, i.e., narrative bank runs accompanied by deposit contractions, and $\mathbf{1}[Run_{i,t}^{Nonsystemic}]$ is an indicator variable for non-systemic bank runs, i.e., narrative bank runs that are not accompanied by deposit contractions. Standard errors are double-clustered by country and year. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 6: Institutional Frameworks and the Likelihood of Runs Becoming Systemic

	Full sample			Excl. 2007-2011		
	(1)	(2)	(3)	(4)	(5)	(6)
Central bank exists	-0.25*			-0.25*		
	(0.14)			(0.15)		
Deposit insurance exists		-0.19			-0.27*	
		(0.12)			(0.14)	
DI with ex-ante funding			-0.23*			-0.30**
			(0.13)			(0.14)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Mean of DV	0.65	0.65	0.66	0.65	0.65	0.65
Observations	170	170	167	155	155	152
R^2	0.28	0.28	0.28	0.28	0.28	0.29

Notes: This table reports the estimated coefficients from bivariate OLS regressions as in equation (5). The level of observation is a bank run *j* in country *i*. The dependent variable is an indicator variable that is equal to one for narrative bank runs that are systemic, meaning they are accompanied by deposit contractions, and zero for non-systemic bank runs, meaning they are not. *Mean of DV* indicates the mean of the dependent variable (the unconditional probability a run becomes systemic). The predictor variables X_{ij} are measured at the time of the bank run. All regressions include country fixed effects. Standard errors clustered by country are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Online Appendix for

"Two Centuries of Systemic Bank Runs"

November 2024

A Supplementary Figures, Tables, and Results

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A.1 Bank-Level Data Description and Cleaning Steps

For the bank-level analysis outlined in Section 5, we rely on two different bank-level datasets for the United States. The first dataset contains balance sheet data originally published by the Office of the Comptroller of the Currency (OCC) from Carlson et al. (2022), and the second dataset are the modern-day Call Reports published by the Federal Deposit Insurance Corporation (FDIC) and now maintained by the Federal Financial Institutions Examination Council (FFIEC). In Section A.19.2 of this Appendix, we extend our bank-level analysis to non-US banks using data from Orbis. In the following, we describe these three datasets in more detail and elaborate on how we cleaned the data step by step.

A.1.1 Office of the Comptroller of the Currency (OCC) Data

The OCC dataset covers the period of the national banking era at the annual frequency. The data cover the years from 1867 to 1904 and include over 100,000 individual balance sheets of national banks. The bank balance sheets were digitized using the methodology outlined in Correia and Luck (2023) and first used in Carlson et al. (2022). We made the following adjustments to the original dataset to control the potential influence of outliers:

1. We exclude observations with bank equity or total liabilities smaller than or equal to zero.
2. We exclude observations for which the difference between the asset and the liability side of banks is larger than 5%.
3. We winsorize the log differences for the following variables at the 0.5^{th} and 99.5^{th} percentiles:
    - Total liabilities
    - Non-core funding (proxied by non-deposit liabilities)
    - Deposits
    - Total assets
    - Loans.
4. We winsorize the following ratios at the 0.5^{th} and 99.5^{th} percentiles:
    - Debt-to-assets ratio
    - Profits-to-assets ratio
    - Non-core-funding-to-liabilities ratio.

Our final dataset contains 108,732 bank-year observations that cover 7,046 individual banks over 38 years.

A.1.2 Call Reports Data

The second dataset are the Call Reports, covering the period between 1976 and 2020, which allow us to analyze the bank-level implications of three more recent bank run episodes. We clean the raw data by applying the following steps:

1. We exclude observations with bank equity, total assets, total liabilities, or tier 1 capital smaller than or equal to zero.
2. We exclude negative observations in total loans, total deposits, time deposits, demand deposits, cash, non-core funding, interest income on loans, or interest expenses on deposits.
3. We only keep commercial banks in the dataset.
4. We winsorize the log differences for the following variables at the 1^{st} and 99^{th} percentiles:
    - Total liabilities
    - Non-core funding
    - Deposits
    - Demand deposits
    - Time deposits
    - Total assets
    - Loans.
5. We winsorize the following ratios at the 2^{nd} and 98^{th} percentiles:
    - Debt-to-assets ratio
    - Net-interest-income-to-assets ratio
    - Non-core-funding-to-liabilities ratio.

Finally, for the baseline analysis highlighted in Section 5, we annualize the Call Reports data to allow for a more straightforward comparison with the remainder of the analysis in the paper by keeping the fourth quarter values of all relevant stock variables. After applying these steps, our final dataset includes 424,066 bank-year observations with 20,621 unique banks.

A.1.3 Orbis Data

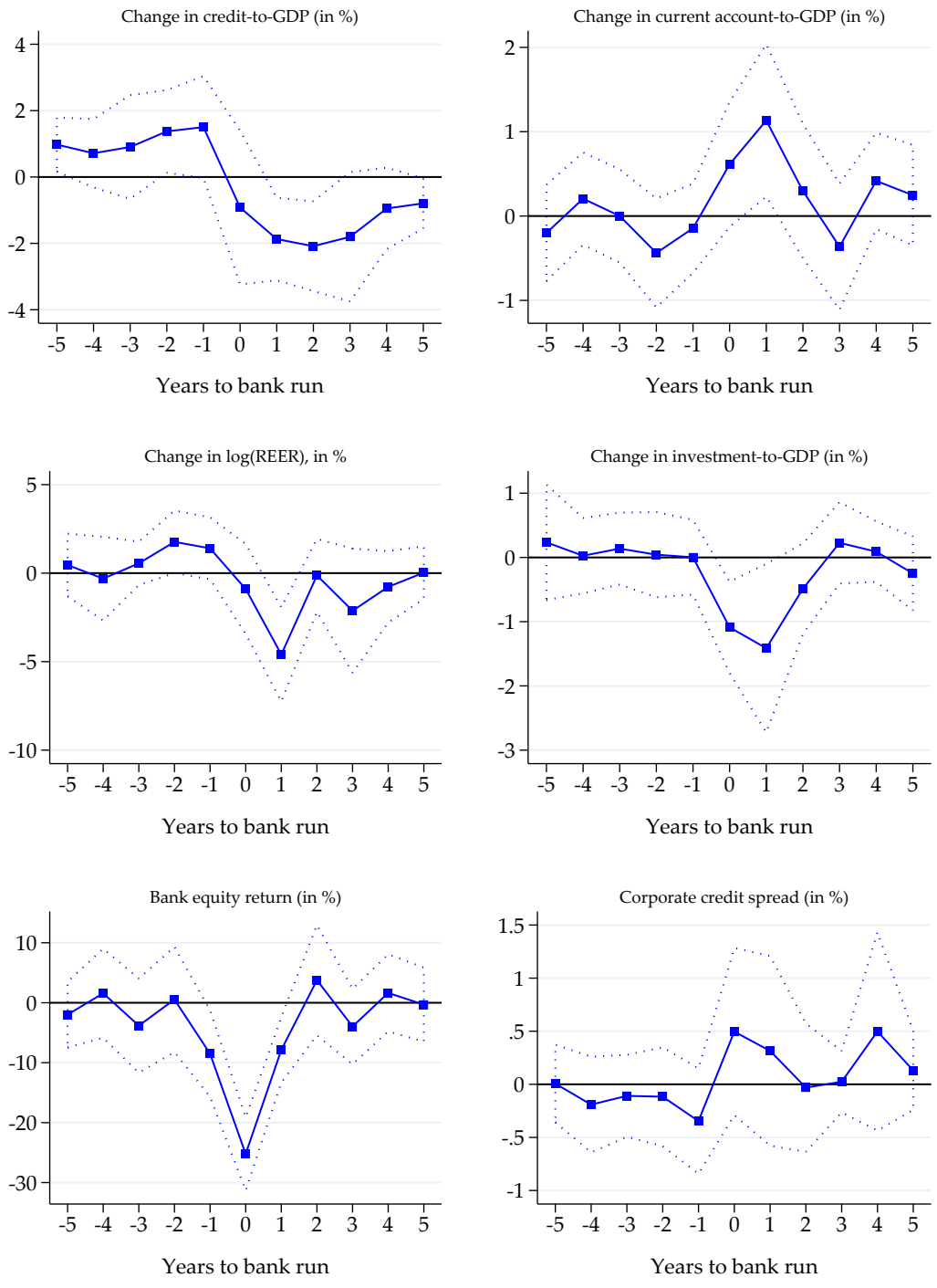
The dataset we use is a subset of the original Moody's Orbis dataset. We start with a sample of financial firms between 1990 and 2022. After applying the selection criteria that we describe in the following, the final dataset ranges from 2005 to 2020. We entirely focus on banks and drop all other financial companies (non-banks). Further, we drop all US banks from the sample since we already cover these banks in the more comprehensive Call Reports dataset. We then clean the raw dataset by following the steps outlined in Kalemli-Ozcan et al. (2015), namely:

1. We remove duplicates at the bank-year level.
2. We drop observations with missing currency units.
3. We drop observations for which the original BvD country code and the ISO code contradict each other.
4. We remove large jumps in total assets that do not originate from changes in the measurement units.
5. We harmonize the units in which the variables are reported across time and banks.
6. We drop observations for which the reported currency coincides with neither the domestic currency, currencies of neighboring countries in the same region, the US dollar, nor the euro.
7. We transform the currencies in which each bank's balance sheet items are measured to domestic currency.
8. We drop bank-year observations for which either assets, operational income, net income, or employment are missing.
9. We drop observations with negative values for employment, assets, total liabilities, equity, deposits, loans, leverage, or other securities.
10. We drop observations before 2005 due to poor data coverage for banks outside the US.
11. We eliminate bank-year observations with a leverage (debt-to-equity) larger than 10,000%, a debt-to-assets ratio smaller than 40%, or where the difference between the asset and the liability side is larger than 5%.
12. We winsorize the log differences for the following variables at the 2^{nd} and 98^{th} percentiles:
    - Total liabilities
    - Non-core funding
    - Deposits
    - Assets
    - Loans.
13. We winsorize the following ratios at the 2^{nd} and 98^{th} percentiles:
    - Debt-to-assets ratio
    - Profit-to-assets ratio
    - Non-core-funding-to-liabilities ratio.

After applying these cleaning steps, we are left with 66,104 bank-year observations that include 8,841 unique banks across 134 countries. Out of these countries, 20 experienced a bank run between 2005 and 2020. The total number of bank runs overlapping with the Orbis sample is 21.

A.2 The Macroeconomic Environment of Bank Runs

Figure A.1: The Macroeconomic Environment Around Bank Runs



Notes: The figures report the results of the following event study regression: $\Delta Y_{i,t} = \alpha_i + \sum_{k=-5}^{5} \beta^k \mathbf{1}_{i,t+k}^{run} + \epsilon_{i,t}$, where $\mathbf{1}_{i,t+k}^{run}$ is one for country-year observations with (narrative) bank runs from our run chronology. Standard errors are double-clustered by country and year.

A.3 Characteristics of Bank Runs and Banking Crises

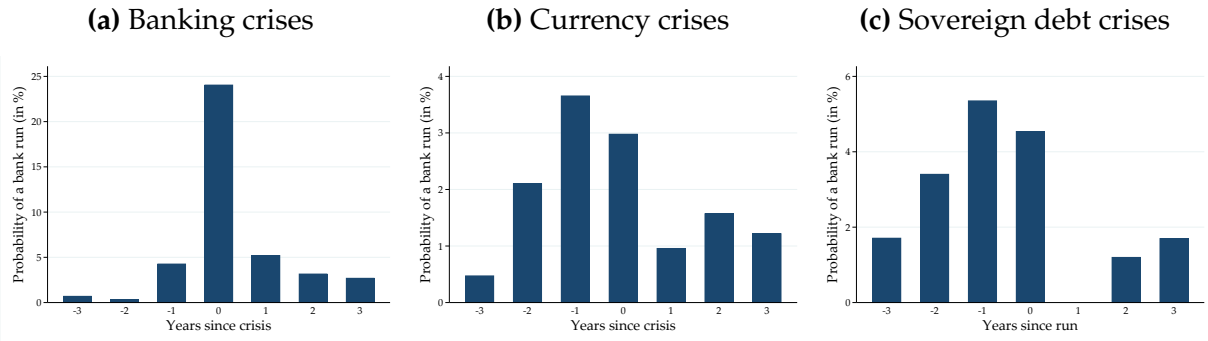
Table A.1: Characteristics of Bank Runs and Banking Crises

	Systemic runs	Non-systemic runs	Deposit contractions	Any banking crisis	BVX panics
Peak-to-trough values (in %)					
Real GDP	-5.2	-2.2	-3.1	-5.6	-5.2
Credit to GDP	-14.1	-10.7	-11.4	-11.5	-9.7
Deposits to GDP	-12.0	-5.6	-12.0	-10.3	-6.2
Current account to GDP	6.1	5.1	6.9	5.2	4.5
log(REER)	-17.2	-13.0	-9.9	-20.7	-14.2
Investment to GDP	-22.5	-13.4	-17.2	-20.1	-20.4
Bank equity returns	-0.4	-0.7	-0.4	-0.6	-0.6
Corp. credit spread	2.0	1.0	1.0	1.7	1.7
Interventions					
Guarantees	53.7	42.1	40.9	37.5	52.9
Nationalization	43.8	31.6	25.9	32.1	42.2
Recapitalization	36.7	34.2	27.1	28.4	35.5
Liquidity support	88.8	81.6	74.8	80.0	79.5
Bank holidays or deposit freezes	25.3	15.8	11.6	14.2	13.8
Restructuring	38.0	42.1	33.7	41.8	40.1
Asset purchase program	24.1	18.4	18.1	19.3	18.4
Observations	136	72	1514	322	204

Notes: This table reports mean peak-to-trough values for selected variables around systemic runs (i.e., narrative runs accompanied by deposit contractions), non-systemic runs (i.e., a narrative run without a deposit contraction), deposit contractions, banking crises, and banking panics (two years before vs. two years after the respective event).

A.4 The Overlap of Bank Runs and Financial Crises

Figure A.2: The Probability of a Bank Run Around Financial Crises



Notes: The figures plot the probability of a bank run around periods of (other) financial crises. We define the dates of financial crises by combining several chronologies as described in Section 2.5. Banking crisis dates are taken from Baron et al. (2021), Laeven and Valencia (2018), Jordà et al. (2017), and Reinhart and Rogoff (2009), in that order of priority. Dates for currency and sovereign debt crises are from Laeven and Valencia (2018) and Reinhart and Rogoff (2009). Banking panics are from Baron et al. (2021).

Table A.2: Bank Runs Conditional on Financial Crises — Different Crisis Measures

	Number of crises	Narrative bank run prob.	Deposit contraction prob.	Systemic bank run prob.	Non-systemic bank run prob.
Banking crises					
Combined chronology	353	0.50	0.81	0.37	0.17
Reinhart and Rogoff (2009)	301	0.52	0.75	0.39	0.17
Laeven and Valencia (2018)	151	0.32	0.74	0.24	0.14
Jordà et al. (2017)	88	0.63	0.89	0.46	0.20
Baron et al. (2021)	224	0.64	0.82	0.44	0.22
Baron et al. (2021) panics	192	0.71	0.82	0.49	0.25
Currency crises					
Combined chronology	543	0.16	0.65	0.13	0.07
Reinhart and Rogoff (2009)	628	0.16	0.64	0.12	0.07
Laeven and Valencia (2018)	239	0.16	0.56	0.09	0.10
Sovereign debt crises					
Combined chronology	270	0.17	0.71	0.17	0.07
Reinhart and Rogoff (2009)	245	0.19	0.66	0.18	0.10
Laeven and Valencia (2018)	140	0.22	0.64	0.15	0.10

Notes: This table summarizes the probabilities of narrative bank runs, deposit contractions, systemic runs (i.e., narrative runs accompanied by deposit contractions), or non-systemic runs (i.e., narrative runs without deposit contractions) within three years of a financial crisis. For each type of financial crisis we report the probabilities for our three measures of combined chronologies and the probabilities when using the original chronologies from the literature. We define the dates of our three chronology measures by combining several chronologies as described in Section 2.5. Banking crisis dates are taken from Baron et al. (2021), Laeven and Valencia (2018), Jordà et al. (2017), and Reinhart and Rogoff (2009), in that order of priority. Dates for currency and sovereign debt crises are from Laeven and Valencia (2018) and Reinhart and Rogoff (2009). Banking panics are from Baron et al. (2021).

Table A.3: Banking Crises Conditional on Bank Runs— Different Crisis Measures

	Number of runs	Banking crisis JKMS	Banking crisis R&R	Banking crisis L&V	Banking crisis JST	Banking crisis BVX	Banking panics BVX
Narrative runs	308	0.72	0.72	0.53	0.68	0.84	0.81
Deposit contractions	1690	0.23	0.27	0.20	0.29	0.35	0.31
Systemic runs	165	0.78	0.82	0.62	0.74	0.89	0.86
Non-systemic runs	91	0.62	0.59	0.43	0.57	0.76	0.71

Notes: This table summarizes the probabilities of different types of banking crises within three years of either a narrative bank run, a deposit contraction, a systemic run (i.e., a narrative run accompanied by a deposit contraction), or a non-systemic run (i.e., a narrative run without a deposit contraction). We report the probabilities when using our measure of combined banking crisis chronologies followed by the probabilities using the original banking crisis chronologies from the literature. We define the dates of our banking crisis chronology by combining several chronologies as described in Section 2.5. Banking crisis dates are taken from Baron et al. (2021), Laeven and Valencia (2018), Jordà et al. (2017), and Reinhart and Rogoff (2009), in that order. Banking panics are from Baron et al. (2021).

Table A.4: Predicting Bank Runs With Financial Crises

	Dependent variable:			
	Narrative bank run	Systemic bank run	Deposit contraction	Non-systemic run
Banking crisis	0.303***	0.216***	0.159***	0.084***
	(0.045)	(0.035)	(0.030)	(0.018)
Currency crisis	0.014	0.007	0.011	0.005
	(0.008)	(0.007)	(0.022)	(0.007)
Sovereign debt crisis	0.014	0.020	0.009	0.004
	(0.011)	(0.011)	(0.029)	(0.009)
Country FE	Yes	Yes	Yes	Yes
# Countries	161	156	156	156
# Run episodes	268	148	1,250	79
Observations	17,043	10,500	10,500	10,500
R^2	0.14	0.11	0.02	0.04
AUC	0.71	0.72	0.52	0.65

Notes: The table summarizes the estimated coefficients of the following panel regression: $\mathbf{1}_{i,t}^{run,j} = \alpha_i + \beta^{bcrisis}\mathbf{1}_{i,t}^{bcrisis} + \beta^{curr}\mathbf{1}_{i,t}^{curr} + \beta^{sovDebt}\mathbf{1}_{i,t}^{sovDebt} + \epsilon_{i,t}$, where α_i denotes country fixed effects and $\mathbf{1}_{i,t}^{run,j}$ is an indicator variable for a bank run of type j: narrative bank runs from our chronology, systemic runs (i.e., narrative runs accompanied by deposit contractions), deposit contractions, or non-systemic runs (i.e., narrative runs without deposit contractions). The indicator variables on the right-hand side are (i) any banking crisis, (ii) any currency crisis, and (iii) any sovereign debt crisis. Standard errors are double-clustered by country and year.

A.5 Comparing Precursors of Runs and Other Crises

A large literature studies the precursors of financial crises. Financial factors such as credit growth, capital inflows, or real exchange rate appreciations are widely considered to contribute to a build-up of vulnerabilities that can expose the financial system to shocks (see, e.g., Kaminsky and Reinhart, 1999; Gourinchas and Obstfeld, 2012; Schularick and Taylor, 2012). A related strand of literature links the outbreak of bank runs directly to the business cycle (see, e.g., Gorton, 1988; Calomiris and Gorton, 1991).

To understand how these patterns differ for the case of bank runs, we estimate a set of predictive panel regressions that take the following form:

$$Bank\ run_{i,t} = \alpha_i + \beta X_{i,t-4\to t-1} + \epsilon_{i,t}, \tag{A.1}$$

where $Bank\ run_{i,t}$ is an indicator variable that equals one for the first year a country i experiences a bank run event (or, analogously, another type of banking crisis) in year t. $X_{i,t}$ is the predictor variable, where we consider the growth rate of real GDP between four years to one year before the run/crisis occurs, and the changes between four years to one year before the run/crisis in the following variables: bank equity returns, the credit spread, credit-to-GDP, and deposits-to-GDP. α_i denotes country fixed effects. We evaluate the performance of the predictors using univariate regressions. We double-cluster standard errors by country and year.

We are particularly interested in the ability of these different predictors to distinguish between periods of crisis and calm. We base our evaluation on the value of the Area Under the Curve of the Receiver Operating Characteristic (ROC) curve that we report in Table A.5. For our analysis, we use the list of bank runs from our chronology, systemic bank runs, and the list of banking crises as the events that we try to predict by using a given predictor $\Delta X_{i,t-4,t-1}$.

The ROC is defined as the ratio of predicted true positives to predicted false positives for a specific probability threshold setting when using one of the business cycle indicators. The area under the resulting ROC curve (AUC) measures the overall performance of the classifier. A model with an AUC of 0.5 suggests no ability to discriminate between crisis times and other periods equivalent to flipping a coin. The higher the AUC value the better the classifier performs.

Contractions in variables related to the financial cycle—such as deposits-to-GDP, credit-to-GDP, or higher credit spreads—predict bank runs, and in particular systemic ones, better than business cycle indicators such as the growth rate of real GDP or bank equity returns. The latter are relatively more informative about banking crises. These results indicate that bank runs and banking crises may have different drivers. We find evidence that bank runs tend to follow a withdrawal of funds from the banking system, in line with Diamond and Dybvig (1983) and Gorton (2012). For banking crises, in turn, our results can be interpreted as evidence that an erosion of bank equity results in distress in the banking system, which would be in line with He and Krishnamurthy (2013) and Brunnermeier and Sannikov (2014). The results on the role of deposit contractions also strongly support our strategy to use them for identifying periods of systemic bank runs since these run periods are indeed more likely to be accompanied by changes in deposits than one would observe during banking crises identified in the literature.

Table A.5: What Predicts Runs, What Predicts Crises?

	Narrative bank runs AUC	Systemic bank runs AUC	Banking crises AUC
Real GDP growth, $t-4$ to $t-1$	0.510	0.510	0.560
Bank equity returns change, $t-4$ to $t-1$	0.590	0.580	0.610
Credit spread change, $t-4$ to $t-1$	0.590	0.610	0.490
Credit-to-GDP change, $t-4$ to $t-1$	0.620	0.650	0.580
Total Deposits-to-GDP change, $t-4$ to $t-1$	0.560	0.600	0.560

Notes: This table reports the estimated Area Under the Curve (AUC) for a variety of early warning models that use different predictors $\Delta X_{i,t-4,t-1}$ for the classification of narrative bank runs, systemic bank runs (i.e., narrative runs accompanied by deposit contractions), or banking crises. These results are based on univariate specifications as in (A.1), such that each cell refers to the result of one empirical model.

A.6 Bank Runs and Deposit Contractions—Robustness

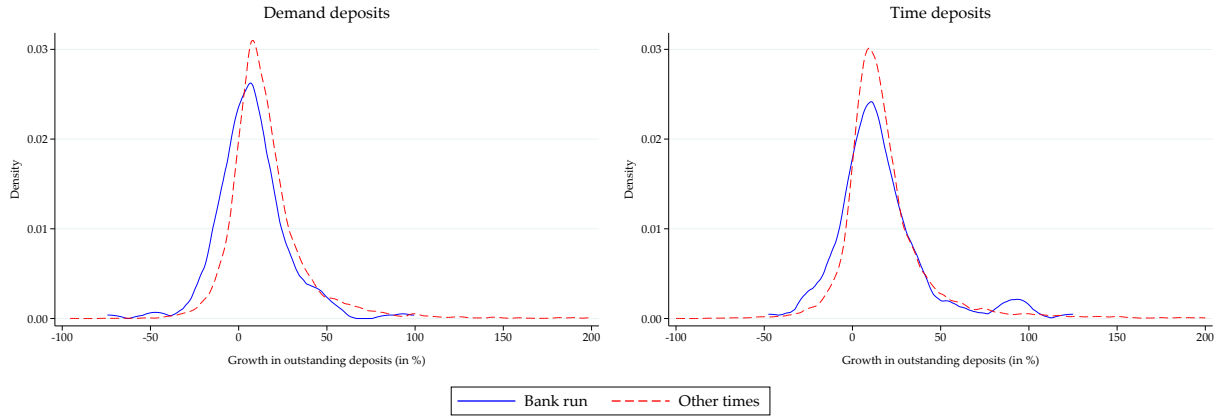
In this section, we study the dynamics of deposit contractions around bank runs in more detail. Section 3.2 of the paper shows that bank runs coincide with large contractions in total deposits (see Figure 3). Here, we zoom in on the dynamics of demand deposits and time deposits.

First, we visualize the density of nominal demand deposit growth rates and nominal time deposit growth rates. In Figure A.3, we plot the distribution of growth rates of both types of deposits around bank run episodes against the distribution of growth rates during normal, i.e., non-bank run, times. We observe a clear shift to the left in the distribution of demand and time deposit growth rates during run periods. Bank runs from our chronology thus coincide with runs on both types of deposits. During an average bank run, there is a 31.3% probability that nominal demand deposits contract, and a 20.2% probability that nominal time deposits contract.

To better understand the timing of these deposit contractions, we run an event study regression. In Figure A.4, we visualize the behavior of log(nominal demand deposits) and log(nominal time deposits) for a time window of ±5 years around a run episode. Bank runs are accompanied by sudden and severe contractions in demand deposits. The timing of the withdrawal coincides with the reported year of the run. Demand deposits recover quickly in the years following the run. In contrast, the outflow of time deposits is more prolonged, and time deposits also expand significantly before the run. When the run begins, there is a steady decline in time deposits that is persistent, continuing until up to three years after the narrative year of the run. Below, we show that both runs on demand and time deposits are followed by large contractions in real GDP.

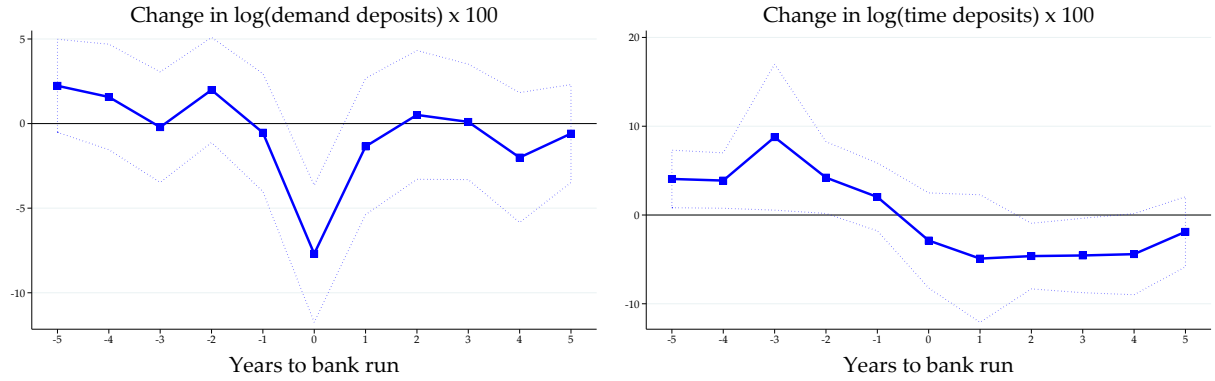
Taking stock, these results suggest that both demand and time deposits can exhibit runs. Our systemic run classification thus reflects periods of contractions in nominal deposits in either type. To test whether the deposit contractions around runs are driven by large deflationary episodes, Figure A.5 plots the density of real growth rates in total deposits, demand deposits, and time deposits. We again find a clear shift to the left for real deposit growth rates around bank run episodes. Bank runs coincide with contractions in both real and nominal deposits, which is further confirmed in Figure A.6, where we plot the impulse response functions of these different deposit growth rates. We show in Section A.8 that the macroeconomic aftermath of systemic runs is similar when classifying systemic runs using contractions in real, rather than nominal, deposits.

Figure A.3: Distributions of Demand Deposits and Time Deposits Growth Rates



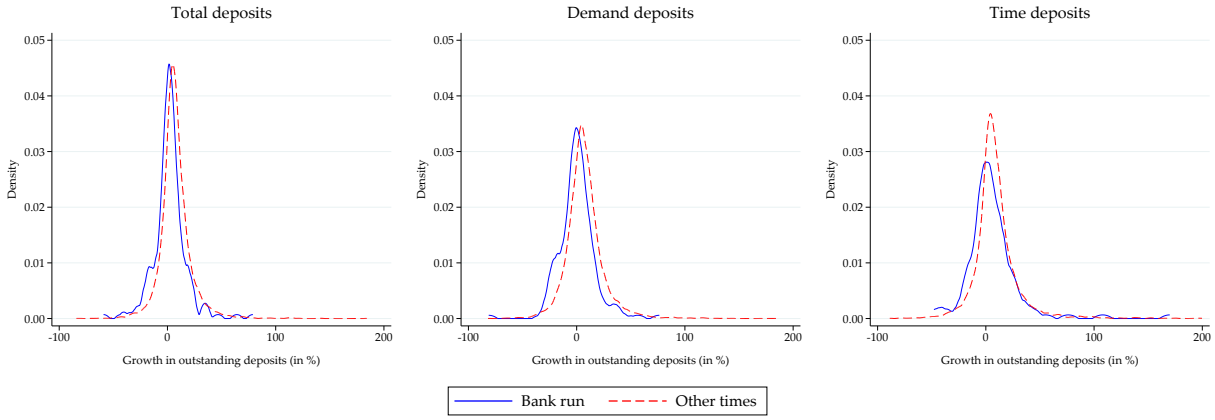
Notes: These figures plot the distributions of nominal growth rates for both demand deposits and time deposits during periods of bank runs vs. other times. We winsorize nominal growth rates at 200% to abstract from the influence of major inflation episodes.

Figure A.4: Contractions of Demand Deposits and Time Deposits Around Runs



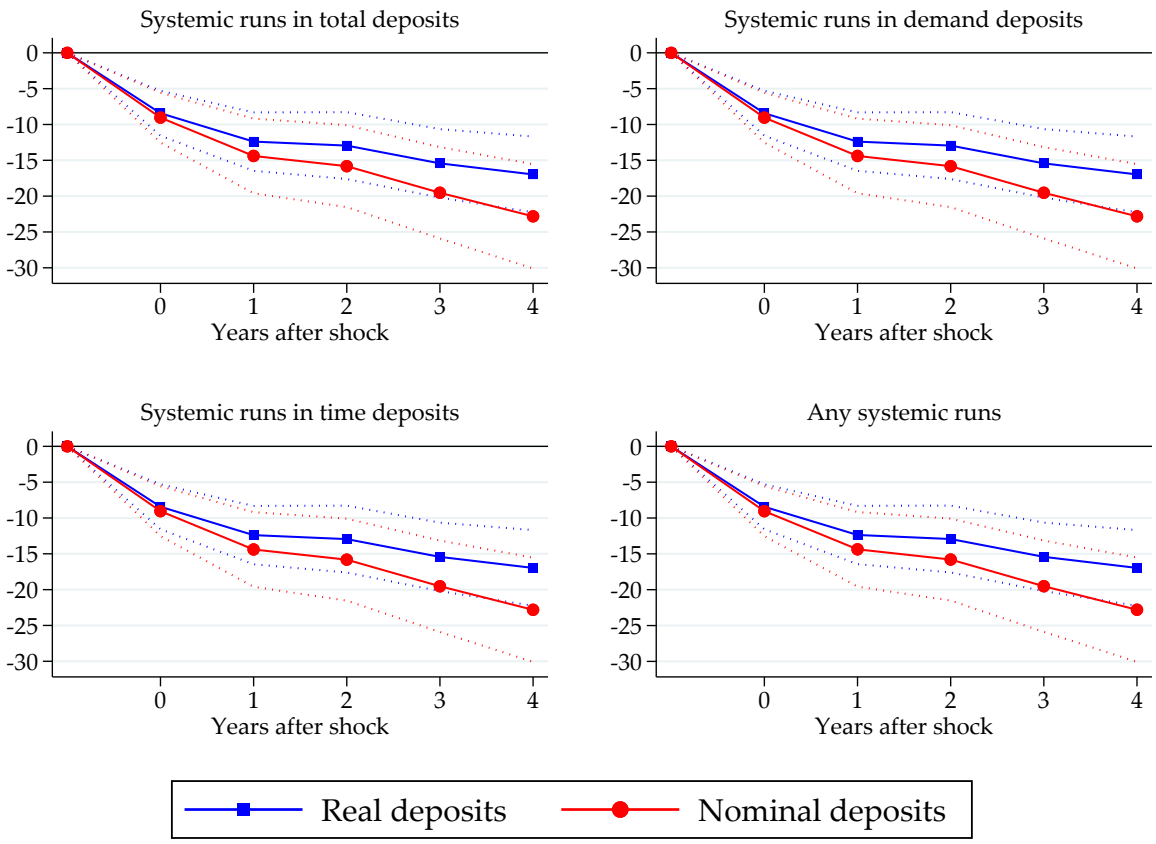
Notes: These figures plot the estimates of an event study specification relating log(nominal demand deposits) and log(nominal time deposits) to the exact year a bank run starts. We specify the following event study regression: $\Delta Y_{i,t} = \alpha_i + \sum_{k=-5}^{5} \beta^k \mathbf{1}_{i,t+k}^{run} + \epsilon_{i,t}$, where $\mathbf{1}_{i,t+k}^{run}$ is one for country-year observations for which we have evidence of bank runs from our run chronology. Standard errors are double-clustered by country and year.

Figure A.5: Distributions of Real Deposit Growth Rates



Notes: These figures plot the distributions of real growth rates of total deposits, demand deposits, and time deposits during periods of bank runs vs. other times.

Figure A.6: Real and Nominal Deposits Around Systemic Bank Runs on Different Deposit Categories



Notes: The figures plot the impulse response function of real total deposit growth rates and nominal total deposit growth rates to a systemic bank run in either (i) total deposits, (ii) demand deposits, (iii) time deposits or (iv) any one of the three different deposit categories: total deposits, demand deposits, and time deposits. The dotted bands depict 95% confidence bands based on standard errors double-clustered by country and year.

A.7 The Average Output Losses from Bank Runs—Robustness

In this section, we consider robustness checks for the macroeconomic aftermath of runs documented in Section 4.2. We focus on the robustness of the local projections from the baseline regression equation (2). Figure A.7 plots the results.

The blue lines depict the baseline results from the main body of the paper. The red lines are based on the same set of control variables but we only allow for one lag. The green lines refer to a specification with the same set of control variables but six lags. For the specification visualized by the purple lines, we again use three lags of lagged macroeconomic control variables, as in our baseline specification, but extend the set of variables to include lagged values of real demand deposit growth rates, real time deposit growth rates, and real growth rates of credit.

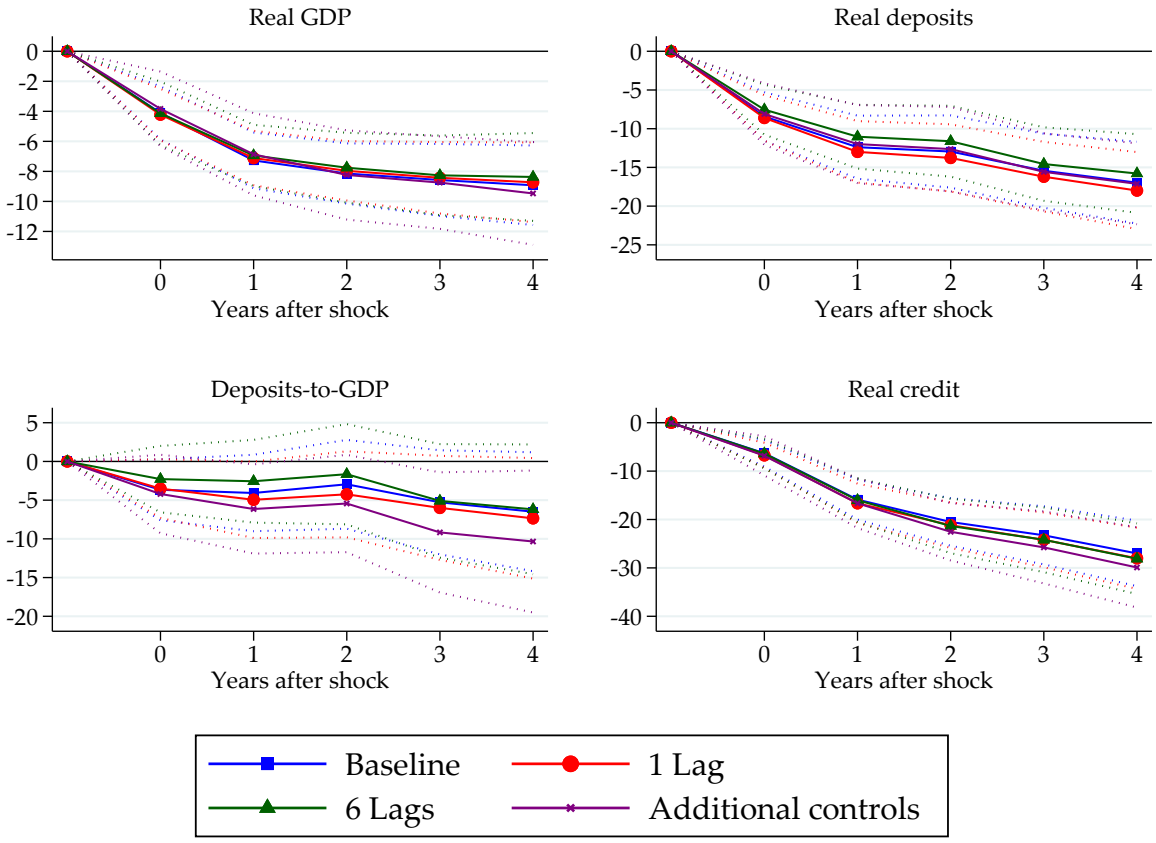
We find that the estimated macroeconomic aftermath of bank runs is robust to changes in the number of lags and the inclusion of the above-mentioned additional control variables. The persistent output losses shown in the local projections imply a trend shift in GDP after a systemic bank run. These findings are furthermore robust to the inclusion of year fixed effects (Figure A.8) and without controlling for lagged changes in log real credit (Figure A.9). The macroeconomic aftermath depicted in Figure A.9 by excluding real credit probe at the same time for robustness to the inclusion of additional systemic bank run episodes before 2016. The real credit variable covers 179 countries for the period 1870 to 2016. Excluding the lagged changes in log real credit from regression (2) allows us to include 13 additional systemic bank runs.[1] We prove with our analysis that the depicted macroeconomic aftermaths are neither affected by the inclusion of these additional systemic runs nor by the exclusion of credit as a control variable.

In Figure A.10, we further consider in detail the path of real GDP around systemic bank runs depending on the type of deposits experiencing a contraction. We find that systemic bank runs are associated with similar output losses regardless of which deposit category experiences a run.

Finally, we split the sample into high-income vs. low-income countries in Figure A.11, and find a somewhat stronger response for high-income countries, in line with the literature (e.g., Laeven and Valencia, 2018).

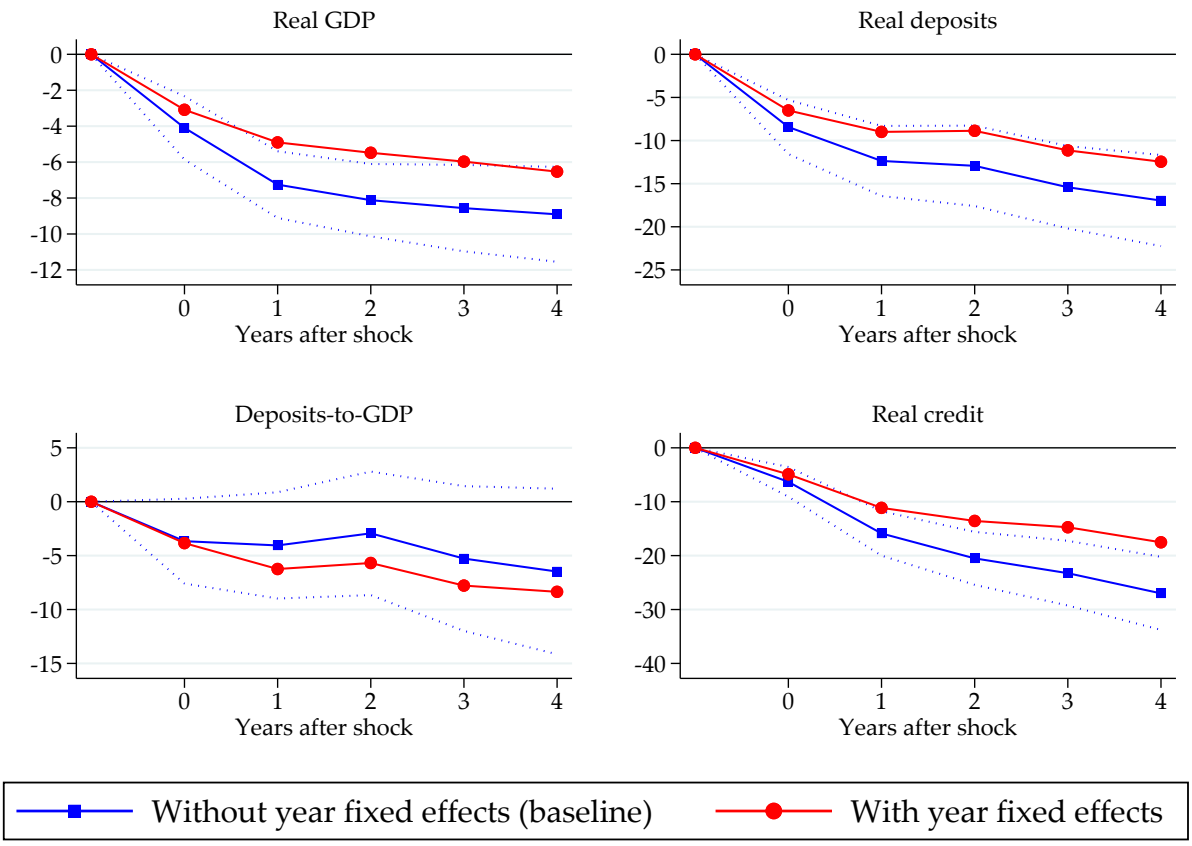
[1] Excluding also the lagged change in log real deposits and the lagged change in deposits-to-GDP as controls from regression equation (2) would allow us to include two additional systemic runs on top.

Figure A.7: Macroeconomic Aftermath of Systemic Bank Runs—Robustness



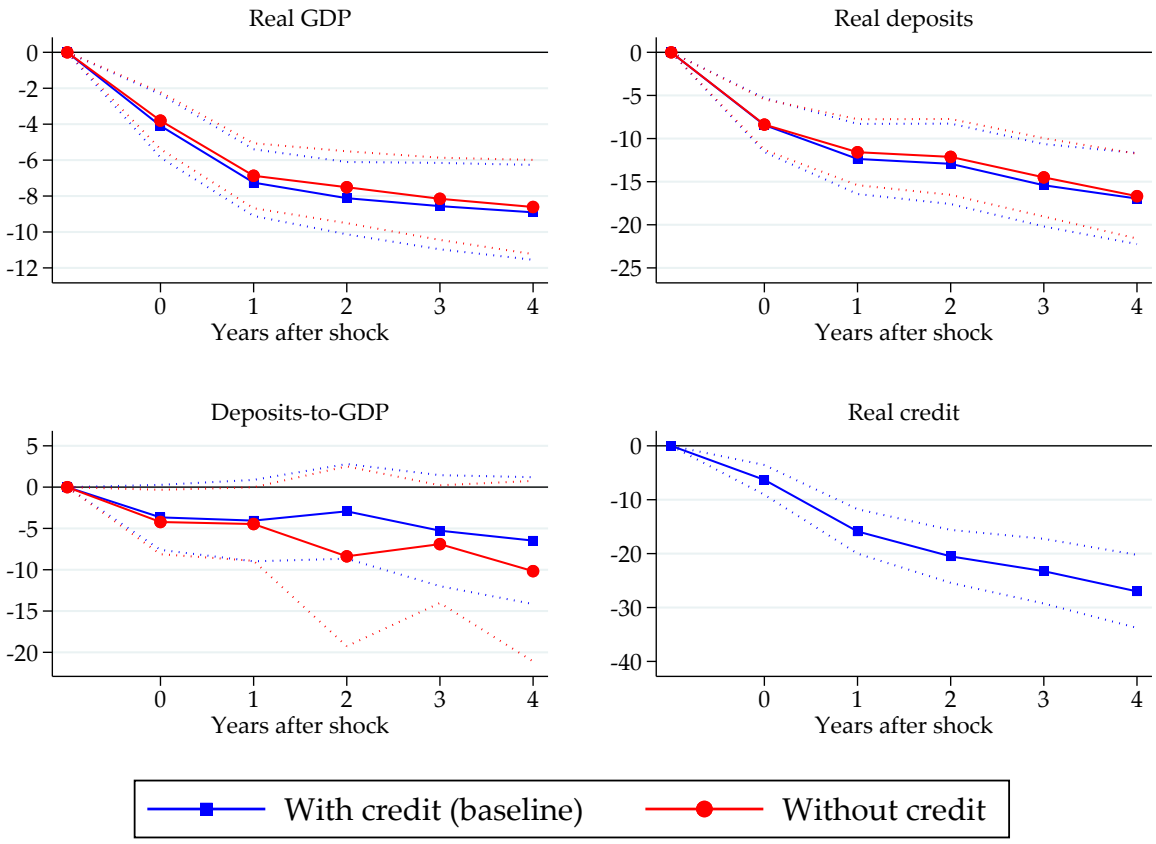
Notes: The figures plot the impulse response function of real GDP growth rates, real deposit growth rates, changes in deposits-to-GDP, and changes in credit-to-GDP to a systemic bank run in any one of the three different deposit categories: total deposits, demand deposits, and time deposits. The estimates are based on the local projection specified in (2), and are probed for robustness to (i) the reduction of lags to one lag of real GDP growth rates, real deposit growth rates, real credit growth rates, and changes in deposits-to-GDP (red lines), and (ii) an increase in the number of lags to six lags (green lines) of the same control variables. In addition, we show the impulse responses when (iii) including additional macroeconomic controls (purple lines). The set of additional controls includes three lags of real demand deposit growth rates, real time deposit growth rates, and real growth rates of credit. The blue lines depict the baseline results from the main body of the paper, with three lags of the following variables: real GDP growth rates, real deposit growth rates, real credit growth rates, and changes in deposits-to-GDP. The dotted bands depict 95% confidence bands based on standard errors double-clustered by country and year.

Figure A.8: Macroeconomic Aftermath of Systemic Bank Runs—Year Fixed Effects



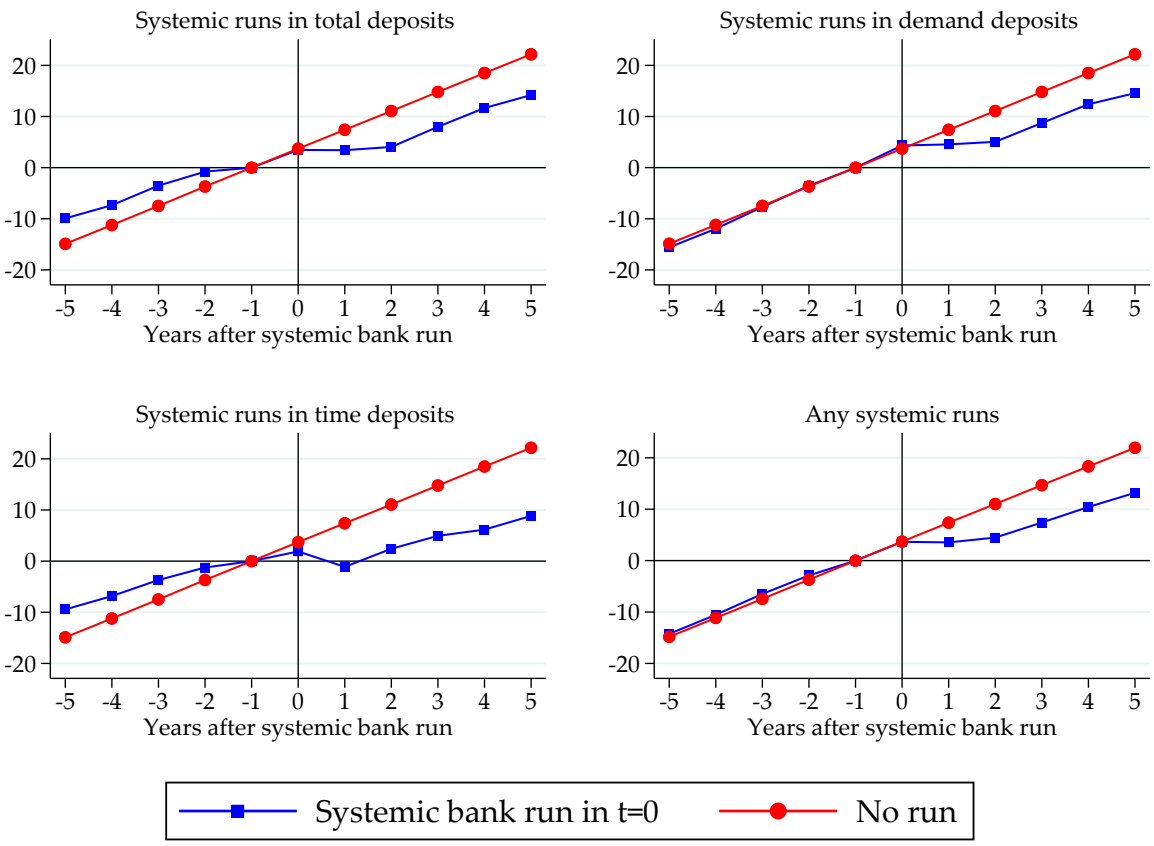
Notes: The figures plot the impulse response function of real GDP growth rates, real deposit growth rates, real credit growth rates, and changes in deposits-to-GDP to a systemic bank run in any one of the three different deposit categories: total deposits, demand deposits, and time deposits. The estimates are based on the local projection specified in (2), and are probed for robustness to the inclusion of both country fixed effects and year fixed effects (red lines). The blue lines depict the baseline results from the main body of the paper, without year fixed effects. The dotted bands depict 95% confidence bands based on standard errors double-clustered by country and year.

Figure A.9: Macroeconomic Aftermath of Systemic Bank Runs—Without Credit



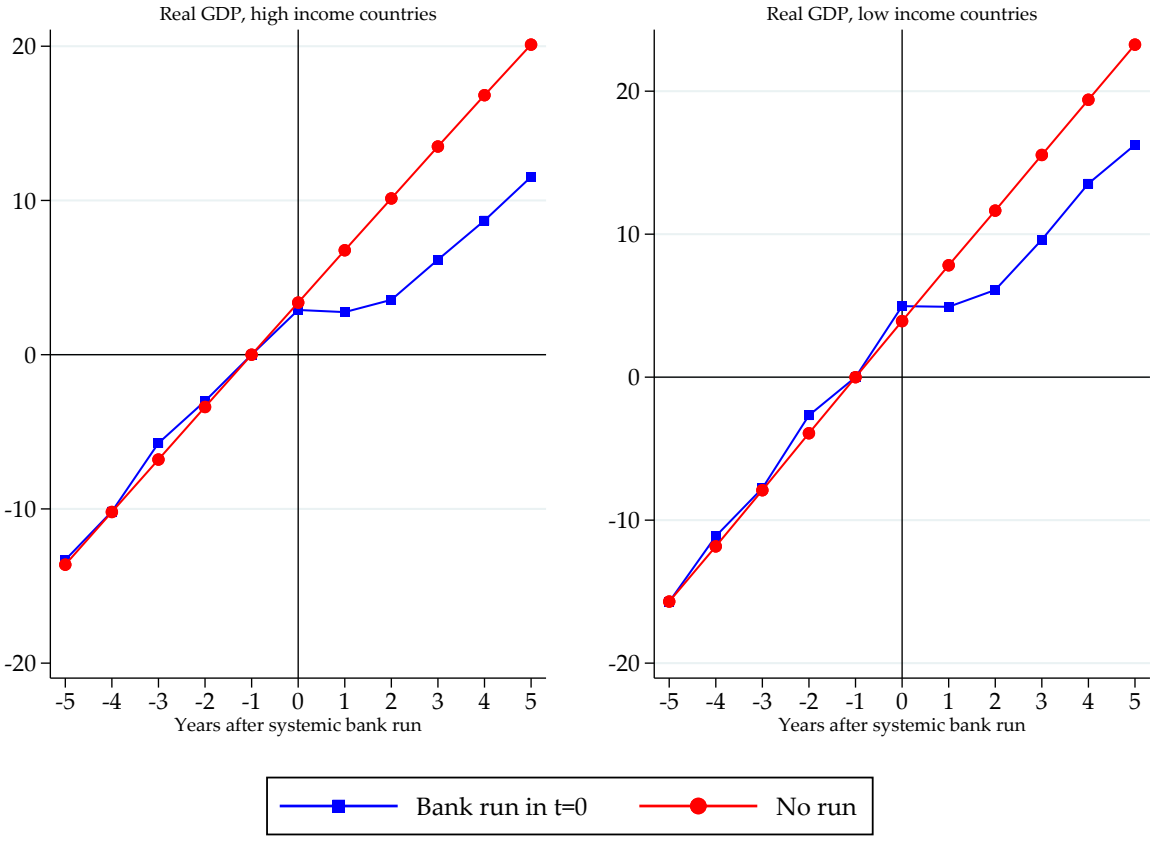
Notes: The figures plot the impulse response function of real GDP growth rates, real deposit growth rates, real credit growth rates, and changes in deposits-to-GDP to a systemic bank run in any one of the three different deposit categories: total deposits, demand deposits, and time deposits. The estimates are based on the local projection specified in (2), and are probed for robustness to the exclusion of three lags of credit growth rates as a control variable (red lines). The blue lines depict the baseline results from the main body of the paper. The dotted bands depict 95% confidence bands based on standard errors double-clustered by country and year.

Figure A.10: Path of Output Around Systemic Bank Runs on Different Deposit Categories



Notes: The figures plot the path of real GDP around systemic bank runs. Blue lines visualize real GDP around bank runs. In the first three panels, we differentiate between systemic runs on the following three deposit categories: (i) total deposits, (ii) demand deposits, and (iii) time deposits. In the fourth panel in the bottom right, we plot the real GDP path around systemic runs in any deposit category. The red lines depict the counterfactual path based on periods when no runs occurred.

Figure A.11: Path of Output Around Systemic Bank Runs By Income Groups



Notes: The figures plot the path of real GDP around systemic bank runs separately for high-income countries (left panel) and for low-income countries (right panel). Blue lines visualize real GDP around systemic bank runs, and red lines the counterfactual path based on periods when no runs occurred.

A.8 Output Responses for Alternative Systemic Run Definitions

Our baseline definition of a systemic bank run is the intersection of narrative evidence of a bank run with an aggregate outflow of nominal deposits from the banking sector (total deposits, demand deposits, or time deposits) within a one-year time window around the run. In this section, we evaluate the robustness of our baseline classification procedure by using alternative thresholds for quantifying drawdowns in aggregate deposits.

We first consider the responses of key macroeconomic outcomes to systemic runs when setting the quantitative threshold for determining systemic runs to be either (i) any contraction, (ii) a contraction of 5%, (iii) a contraction of 10%, or (iv) a contraction of 15%. Figure A.12 plots the set of impulse responses of real GDP growth, real deposit growth, real credit growth, and deposits-to-GDP to the respective alternative systemic bank run definitions using local projections. We make two observations. First, the adverse effects of systemic runs are stronger when conditioning on larger deposit contractions. Second, the magnitudes of the responses of all four variables are very similar and remain statistically significant.

In a second exercise, we define systemic runs by using the same four threshold values from the previous exercise, but using real instead of nominal deposit growth rates. Figure A.13 plots the results. The results do not meaningfully differ from those we obtain using nominal deposit growth rates.

One concern may be that conditioning on absolute values of negative growth rates (in percent) as threshold values for defining systemic runs may not account for heterogeneity in the volatility of deposit growth rates across countries. To address this concern, for the third exercise, we define systemic bank runs as the overlap of narrative run episodes with an indicator for growth in any type of nominal deposits that is (i) one standard deviation below the country mean, (ii) one-and-a-half standard deviations below the country mean, or (iii) two standard deviations below the country mean.

Figure A.14 plots the results. The magnitudes of the macroeconomic effects in response to systemic runs are all very similar. Under all specifications, we observe a significant drop in real GDP. A run with narrative evidence and a deposit growth rate two standard deviations below the country mean is rare, however, which results in wider error bands on the medium-to-long horizon.

As a fourth exercise, we again use the same absolute threshold values in percent as in the first exercise ($< 0\%$, $< -5\%$, $< -10\%$,$< -15\%$), but now detrend nominal deposit growth rates *by country* by using a three-year backward-looking moving average. The results in Figure A.15 show that the estimates are qualitatively similar.

For the fifth exercise, we vary the time window around bank runs that we use to classify systemic runs based on deposit contractions. We use two alternative definitions. The first alternative classifies a bank run as systemic only if there was a deposit contraction in any deposit category in the exact year for which we have narrative evidence of a run. The second alternative allows for a two-year window around the run (rather than a one-year window as in our baseline definition). Figure A.16 plots the set of impulse responses using the different definitions. We find somewhat stronger contractions in deposits when classifying runs as systemic when they are associated with a contemporaneous drop in deposits, but smaller effects in terms of GDP. The results for the systemic run definitions

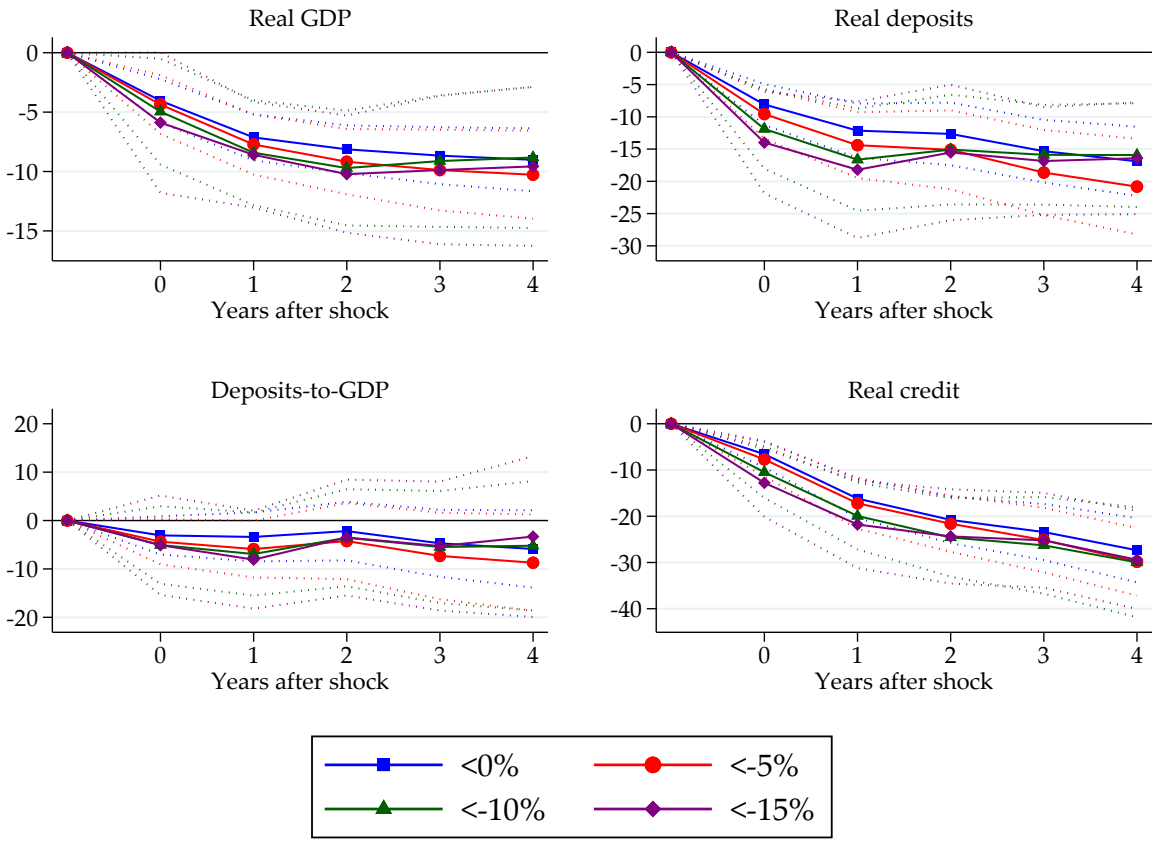
using a one-year or two-year window are nearly identical.

Another concern may be that some periods of aggregate deposit withdrawals are only visible in higher-frequency deposit data. For example, a bank run from our chronology that coincides with an aggregate deposit contraction in the month of the run might still be associated with a positive deposit growth rate in our annual data if multiple months of larger deposit inflows preceded the run. To address this concern, we classify bank runs as systemic by using monthly deposit growth rates. We then compare the macroeconomic aftermath under our baseline definition, which uses annual data, with the macroeconomic aftermath of narrative bank runs that coincide with monthly deposit contractions. For our analysis, we define episodes of monthly deposit contractions in two different ways: either (i) an episode of negative nominal year-on-year deposit growth rates in any one of the three deposit categories—total deposits, demand deposits, and time deposits—or (ii) an episode of nominal deposit growth rates below the 1st percentile of the deposit growth rate distribution in any one of the three different deposit categories.

We plot the results in Figure A.17. The macroeconomic aftermath of systemic runs classified using monthly deposit data does not differ much from that following systemic runs classified using annual deposit data.

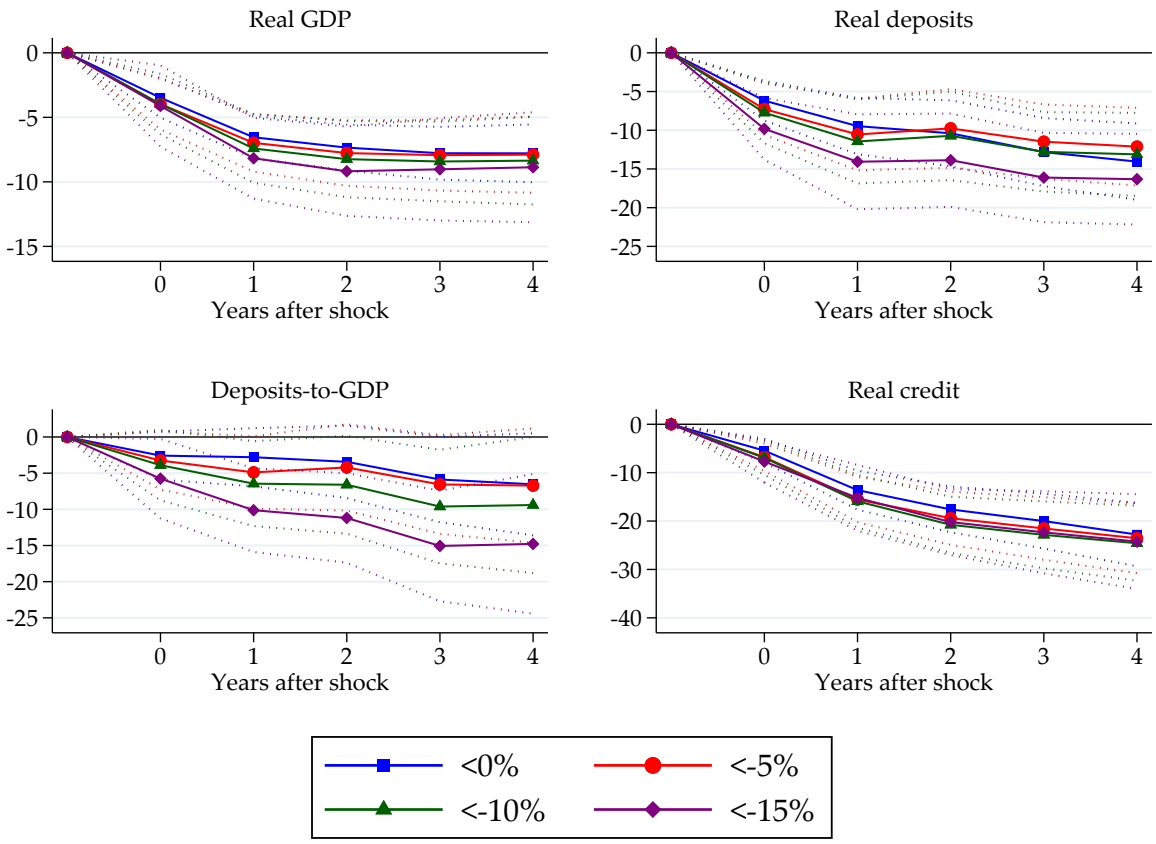
Finally, we focus on the subset of bank runs that coincide with contractions in the credit-to-deposit ratio. One concern may be that the observed contraction in real credit around systemic runs is not caused by liability-side disruptions (i.e. outflows of deposits). Instead, one may argue that the observed deposit outflows might be preceded by contractions in credit. To rule out the possibility that our main results are driven by asset-side disruptions preceding the bank run, we define a new category of bank runs: a narrative bank run from our chronology that coincides with any contraction in the credit-to-deposit ratio within a one-year time window around the year of the run. Figure A.18 compares the macroeconomic aftermath of a run that coincides with credit-to-deposit contractions with our baseline definition of systemic bank runs. Bank runs that coincide with contractions in the credit-to-deposit ratio are characterized by deposit outflows and output losses that are 50% smaller compared to systemic runs that coincide with contractions in nominal deposits. We do not observe a significant difference in the contraction of real credit between both run classifications. We take these findings as evidence that our systemic run definition–narrative bank runs from our chronology that coincide with contractions in aggregate deposits–indeed captures systemic liability-side disruptions of a country's banking system that are not triggered by the asset side of banks.

Figure A.12: Macroeconomic Aftermath of Systemic Bank Runs—Absolute Thresholds



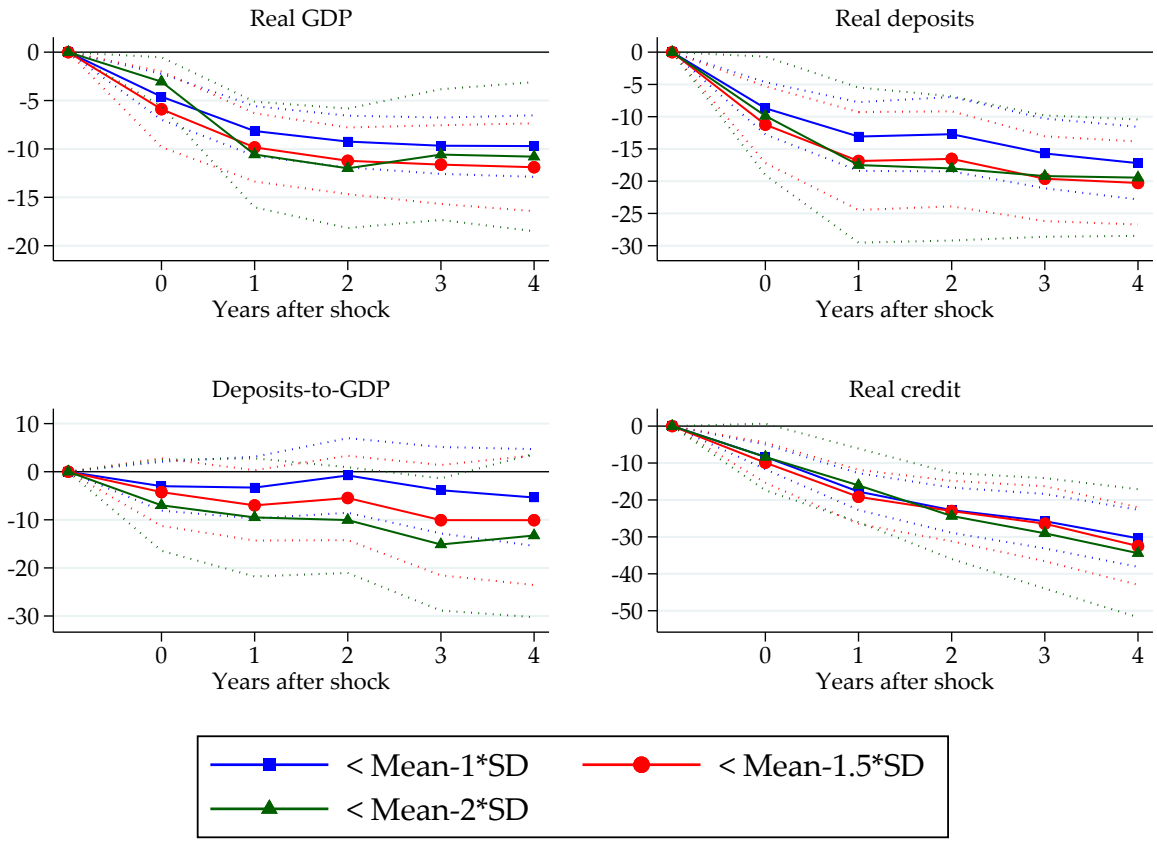
Notes: The figures plot the impulse response function of real GDP growth rates, real deposit growth rates, real credit growth rates, and changes in deposits-to-GDP to a systemic bank run in any one of the three different deposit categories: total deposits, demand deposits, and time deposits. The estimates are based on the local projection specified in (2), and are probed for robustness to changes in our definition of systemic bank runs. We define systemic bank runs as a narrative run accompanied by either (i) a nominal deposit contraction (blue lines), (ii) a nominal deposit contraction larger than 5% (red lines), (iii) a nominal deposit contraction larger than 10% (green lines), or (iv) a nominal deposit contraction larger than 15% (black lines). The dotted bands depict 95% confidence bands based on standard errors double-clustered by country and year.

Figure A.13: Macroeconomic Aftermath of Systemic Bank Runs—Real Deposit Growth Rates



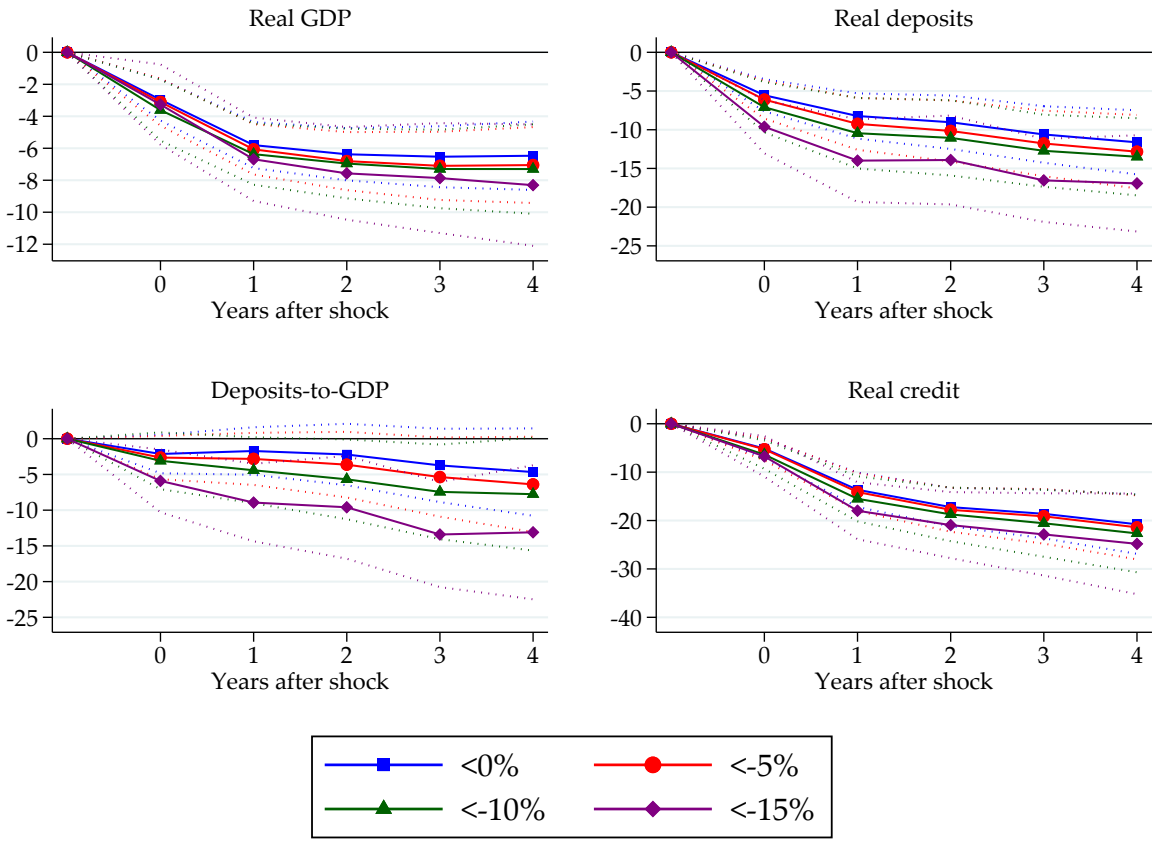
Notes: The figures plot the impulse response function of real GDP growth rates, real deposit growth rates, real credit growth rates, and changes in deposits-to-GDP to a systemic bank run in any one of the three different deposit categories: total deposits, demand deposits, and time deposits. The estimates are based on the local projection specified in (2), and are probed for robustness to changes in our definition of systemic bank runs. We define systemic bank runs as a narrative run accompanied by either (i) a real deposit contraction (blue lines), (ii) a real deposit contraction larger than 5% (red lines), (iii) a real deposit contraction larger than 10% (green lines), or (iv) a real deposit contraction larger than 15% (black lines). The dotted bands depict 95% confidence bands based on standard errors double-clustered by country and year.

Figure A.14: Macroeconomic Aftermath of Systemic Bank Runs—Relative Thresholds



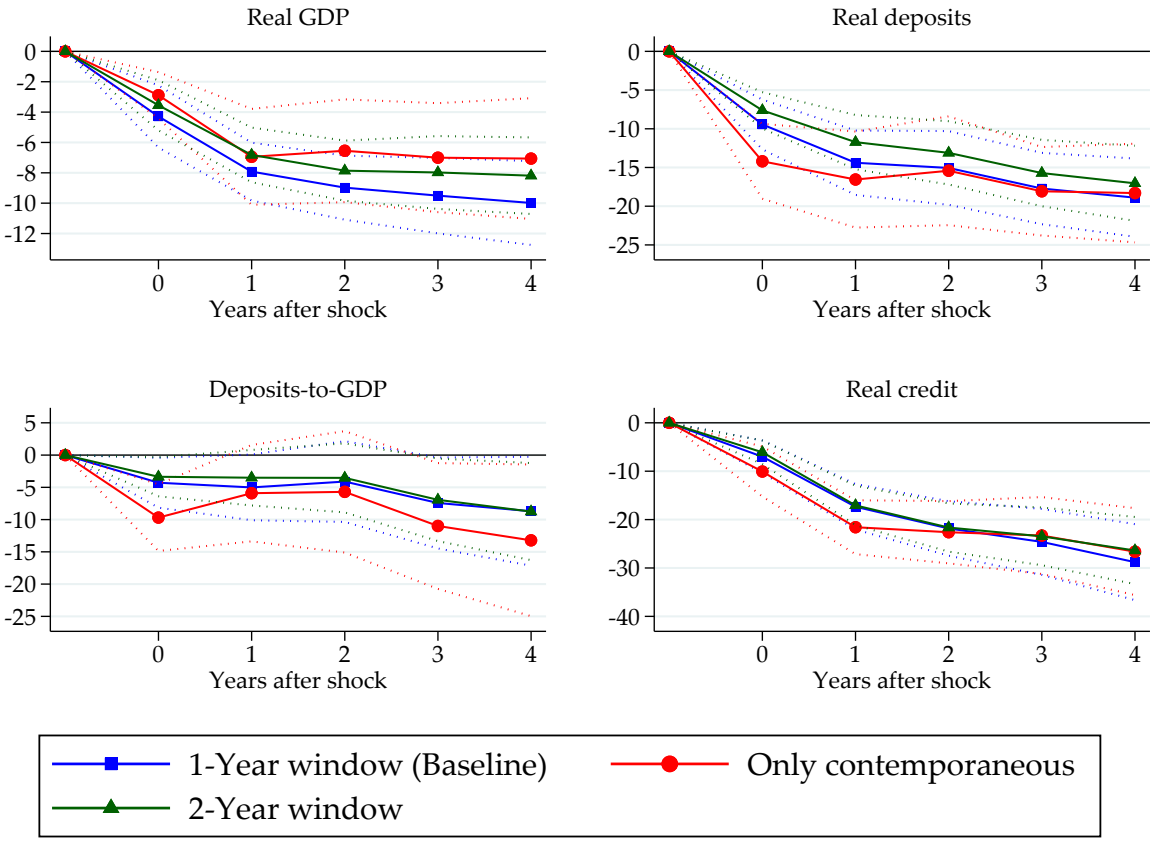
Notes: The figures plot the impulse response function of real GDP growth rates, real deposit growth rates, real credit growth rates, and changes in deposits-to-GDP to a systemic bank run in any one of the three different deposit categories: total deposits, demand deposits, and time deposits. The estimates are based on the local projection specified in (2), and are probed for robustness to changes in our definition of systemic bank runs. We define systemic bank runs as a narrative run accompanied by either (i) a nominal deposit growth rate one standard deviation below the country's mean growth rate (blue lines), (ii) a nominal deposit growth rate one-and-a-half standard deviations below the country's mean growth rate (red lines), or (iii) a nominal deposit growth rate two standard deviations below the country's mean growth rate (green lines). The dotted bands depict 95% confidence bands based on standard errors double-clustered by country and year.

Figure A.15: Macroeconomic Aftermath of Systemic Bank Runs—Detrended Deposits



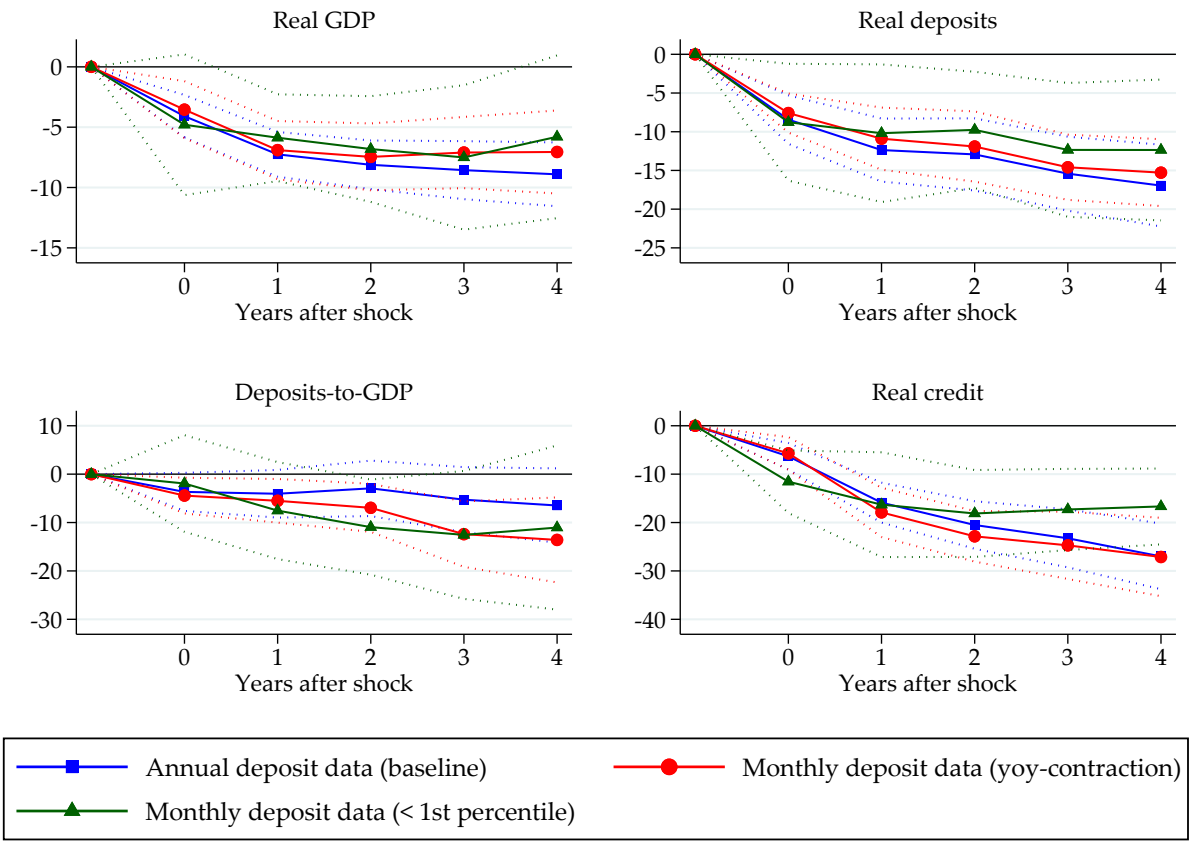
Notes: The figures plot the impulse response function of real GDP growth rates, real deposit growth rates, real credit growth rates, and changes in deposits-to-GDP to a systemic bank run in any one of the three different deposit categories: total deposits, demand deposits, and time deposits. The estimates are based on the local projection specified in (2), and are probed for robustness to changes in our definition of systemic bank runs. We define systemic bank runs as a narrative run accompanied by either (i) a nominal contraction in detrended deposits (blue lines), (ii) a nominal contraction in detrended deposits larger than 5% (red lines), (iii) a nominal contraction in detrended deposits larger than 10% (green lines), or (iv) a nominal contraction in detrended deposits larger than 15% (black lines). The dotted bands depict 95% confidence bands based on standard errors double-clustered by country and year.

Figure A.16: Macroeconomic Aftermath of Systemic Bank Runs—Alternative Time Windows



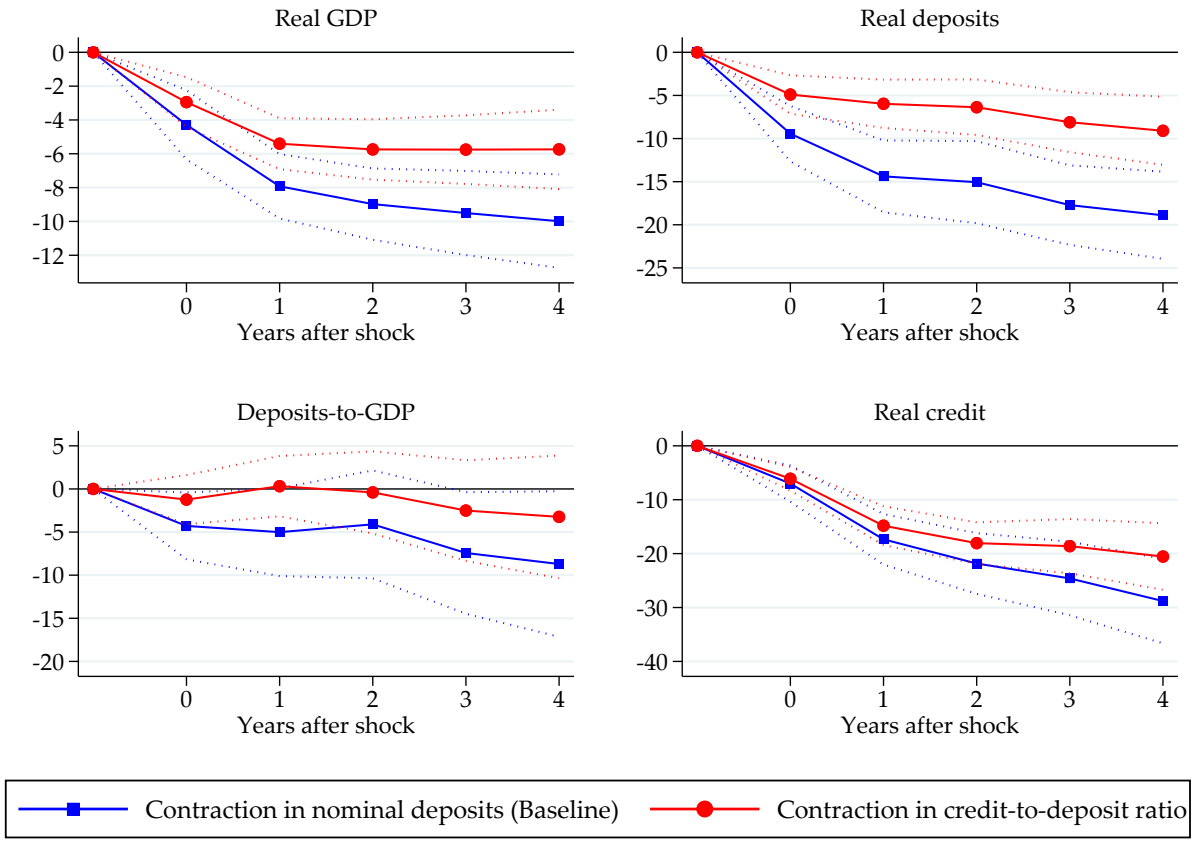
Notes: The figures plot the impulse response function of real GDP growth rates, real deposit growth rates, real credit growth rates, and changes in deposits-to-GDP to a systemic bank run in any one of the three different deposit categories: total deposits, demand deposits, and time deposits. The estimates are based on the local projection specified in (2), and are probed for robustness to changes in our definition of systemic bank runs. We define systemic bank runs as a narrative run accompanied by either (i) a nominal deposit contraction within one year around the run (blue lines), (ii) a nominal deposit contraction in the same year of the run (red lines), or (iii) a nominal deposit contraction within two years around the run (green lines). The dotted bands depict 95% confidence bands based on standard errors double-clustered by country and year.

Figure A.17: Macroeconomic Aftermath of Systemic Bank Runs—Monthly Deposits



Notes: The figures plot the impulse response function of real GDP growth rates, real credit growth rates, and real deposit growth rates, changes in deposits-to-GDP to a systemic bank run in any one of the three different deposit categories: total deposits, demand deposits, and time deposits. The estimates are based on the local projection specified in (2), and are probed for robustness to changes in our definition of systemic bank runs. We define systemic bank runs as a narrative run accompanied by either (i) a nominal deposit contraction within one year using annual-frequency data (blue lines), (ii) a nominal year-on-year deposit contraction using monthly-frequency data (red lines), or (iii) a nominal deposit growth rate below the 1st percentile using monthly-frequency data (green lines). The dotted bands depict 95% confidence bands based on standard errors double-clustered by country and year.

Figure A.18: Macroeconomic Aftermath of Systemic Bank Runs—Credit-to-Deposit



Notes: The figures plot the impulse response function of real GDP growth rates, real credit growth rates, and real deposit growth rates, changes in deposits-to-GDP to a systemic bank run in any one of the three different deposit categories: total deposits, demand deposits, and time deposits. The estimates are based on the local projection specified in (2), and are probed for robustness to changes in our definition of systemic bank runs. We define systemic bank runs as a narrative run accompanied by either (i) a nominal deposit contraction within one year (blue lines), or (ii) a contraction in the credit-to-deposit ratio within one year (red lines). The dotted bands depict 95% confidence bands based on standard errors double-clustered by country and year.

A.9 Conflicts and Natural Disasters

One concern with our analysis of bank runs is that major unrelated events, such as wars between countries, intra-state conflicts, or major natural disasters, may be a confounding factor. The concern is that while we document large output contractions after bank runs, part of this pattern could originate from the aforementioned political and environmental shocks rather than a panic among depositors (see, e.g., Baron and Dieckelmann, 2022). In this section, we investigate the robustness of the macroeconomic outcomes after systemic runs when controlling simultaneously for (i) inter-state wars, (ii) intra-state conflicts (e.g., civil wars), and (iii) large natural disasters.

For this purpose, we construct an indicator variable $\mathbf{1}_{i,t}^{conflicts}$ measuring whether a country experienced either inter-state or intra-state conflicts based on the "Correlates of Wars" dataset (Sarkees and Wayman, 2010). This indicator variable takes the value of one if a country i experienced a conflict in a given year t or the previous two years. We also construct an indicator variable for whether a country experienced a large natural disaster in a specific year or the previous two years, $\mathbf{1}_{i,t}^{ndisasters}$, based on the EM-DAT database (Delforge et al., 2023).

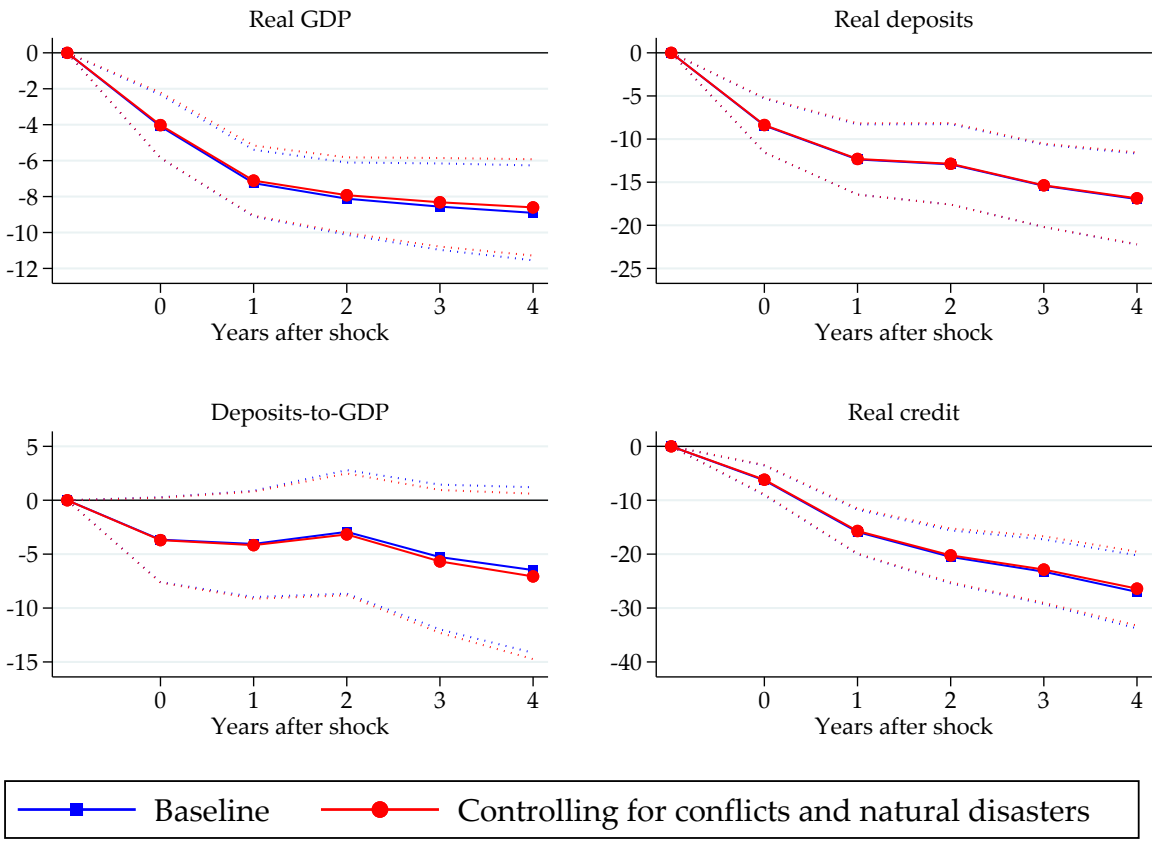
We extend the baseline local projection specification (2) from the main body of the paper by adding these indicator variables:

$$\Delta Y_{i,t+h} = \alpha_i^h + \beta^{run,h}\mathbf{1}_{i,t}^{run} + \beta^{confl,h}\mathbf{1}_{i,t}^{conflicts} + \beta^{ndis,h}\mathbf{1}_{i,t}^{ndisasters} + \sum_{k=1}^{3}\gamma^{k,h}\Delta\mathbf{X}_{i,t-k} + \epsilon_{i,t}^h \text{ with } h \in [0,4], \tag{A.2}$$

where i subscripts countries, t years, and h the forecast horizon. $Y_{i,t}$ denotes an outcome of interest, such as real GDP. The indicator variable $\mathbf{1}_{c,t}^{run}$ is equal to one for any systemic bank runs in either one of the three different deposit categories: total deposits, demand deposits, or time deposits. α_i denotes country fixed effects.

Figure A.19 plots the impulse responses of real GDP, real deposits, real credit, and deposits-to-GDP to a systemic bank runs when controlling simultaneously for natural disasters and conflicts. There is almost no difference compared to our baseline specification.

Figure A.19: Macroeconomic Aftermath of Systemic Bank Runs—Controlling for Conflicts and Natural Disasters



Notes: The figures plot the impulse response function of real GDP growth rates, real deposit growth rates, real credit growth rates, and changes in deposits-to-GDP to a systemic bank run in any one of the three different deposit categories: total deposits, demand deposits, and time deposits. The estimates are based on the local projection specified in (A.2), including controls for large natural disasters and conflicts (red lines). The blue lines depict the baseline results based on (2) from the main body of the paper, not controlling for conflicts and large natural disasters.The dotted bands depict 95% confidence bands based on standard errors double-clustered by country and year.

A.10 The Intensive Margin of Deposit Withdrawals

To capture differences in the severity of bank runs, we next leverage the intensive margin of aggregate deposit withdrawals. We measure the degree of contractions in nominal deposits around each bank run episode as the minimum deposit growth rate across the three deposit categories: (i) total deposits, (ii) demand deposits, and (iii) time deposits. For this purpose, we augment our local projection framework to estimate the impulse response of real GDP to bank runs associated with different negative deposit growth rates:

$$\Delta Y_{i,t+h} = \alpha_i^h + \sum_{j=1}^{4} \beta_j^h \mathbf{1}[d_{i,t} \in B_j] + \sum_{k=1}^{3} \gamma^{k,h} \Delta \mathbf{X}_{i,t-k} + \epsilon_{i,t}^h \text{ with } h \in [0,4], \tag{A.3}$$

where $\mathbf{1}[d_{i,t} \in B_j]$ is an indicator denoting whether country i's nominal deposit growth rate is within bin j, α_i denotes country fixed effects, and $Y_{i,t}$ denotes real GDP for country i in year t. As before, $\mathbf{X}_{i,t-k}$ includes three lags of real GDP growth, real deposit growth rates, real credit growth rates, and changes in the deposits-to-GDP ratio.

The top panel of Figure A.20 shows that the extent of deposit withdrawals during a bank run is highly informative about the future path of real GDP. When narrative bank runs are accompanied by a deposit contraction of more than 20%, their aftermath is typically a deep and long-lasting recession of -19.3% in real GDP. Smaller outflows of deposits are associated with milder consequences, with the smallest extent of withdrawals coinciding with the lowest output losses. These patterns highlight the crucial distinction between bank runs that are systemic in nature, i.e., those associated with a large drop in aggregate deposits, and non-systemic runs.

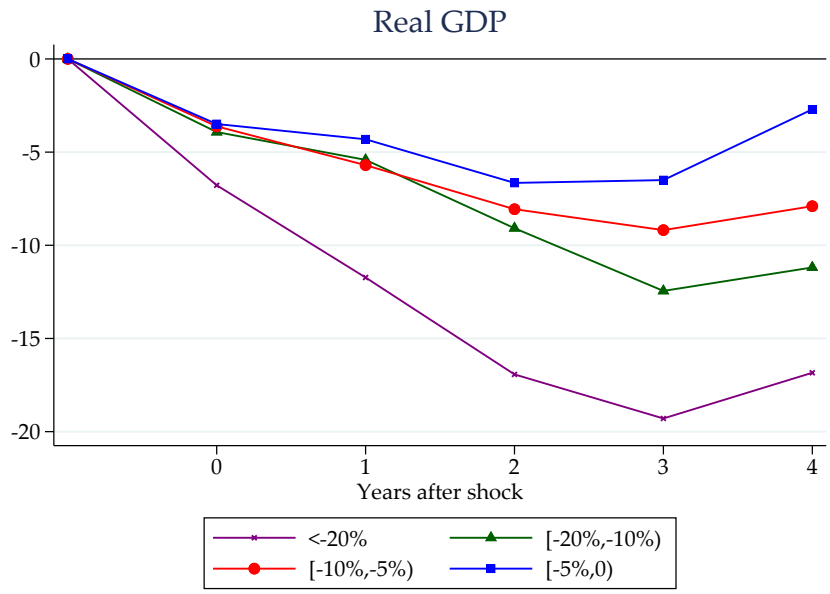
To consider the role of the liability side of banks' balance sheets in economic fluctuations independent of a depositor panic, we also ask whether variations in deposit growth rates are predictive of future growth outside of bank run episodes. Looking at deposit growth rates directly without relying on our new bank run chronology addresses a reasonable objection that, despite our best efforts, our list of runs is bound to be incomplete. Of course, this issue is not unique to our work; it also applies to any other narrative chronology of banking crises. On the other hand, the downside of a purely statistical approach is that whether the banking sector's deposits expand or contract has a myriad of reasons, only some of which may be related to potentially unobserved run events missing from our chronology.

The bottom panel of Figure A.20 plots the estimates from (A.3), where we exclude observations within a ± three-year window around bank runs. Compared to those in the top panel, the coefficients are now considerably, almost by order of magnitude, smaller. This points to the idea that deposit contractions are predictive of real economic outcomes particularly when accompanied by a bank run.

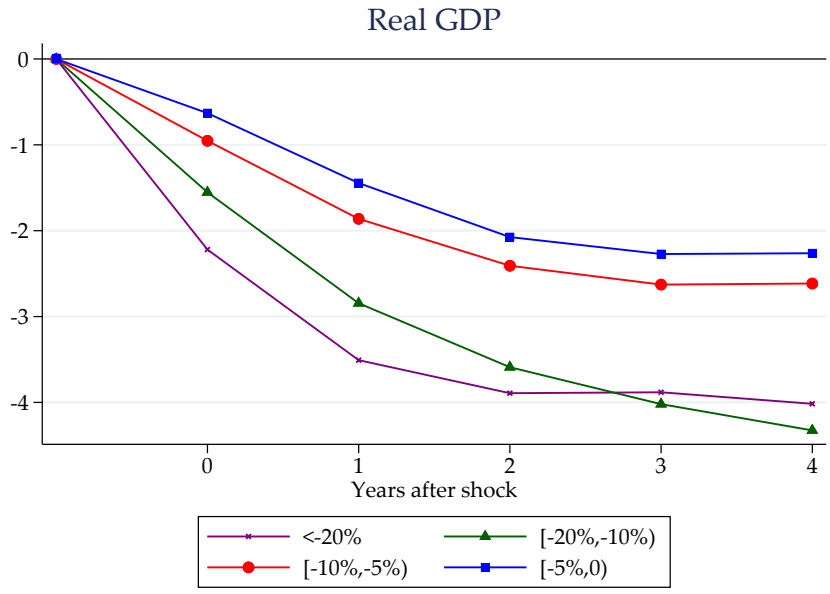
A.11 Comparing Output Losses from Bank Runs, Banking Crises, and Widespread Bank Failures

Figure A.20: Deposit Contractions and Output Paths Around and Outside Bank Runs

(a) Around Bank Runs



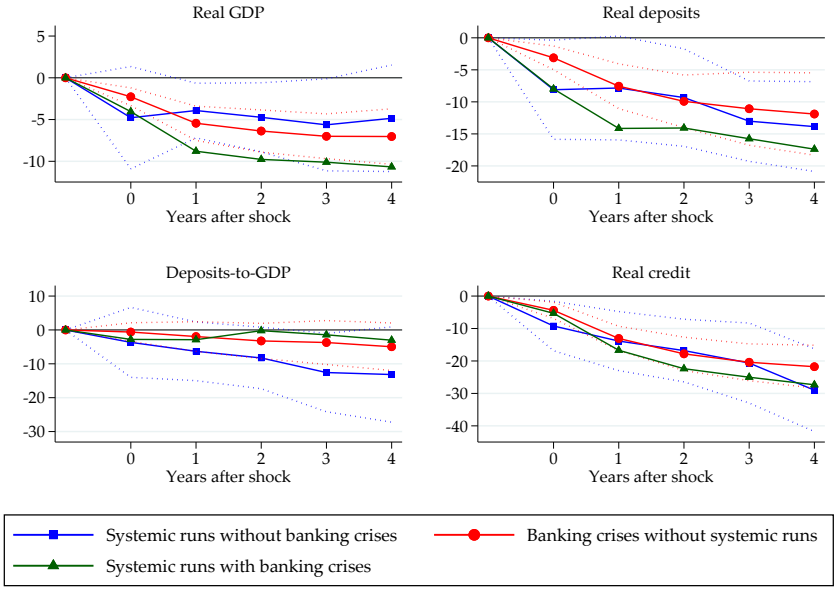
(b) Outside of Bank Runs



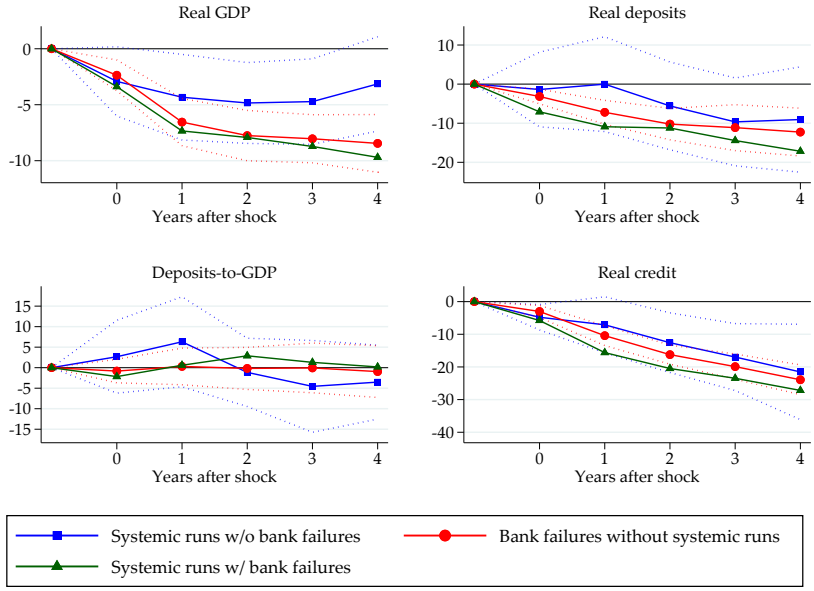
Notes: The figures plot the impulse response function of the one-year difference in logged real GDP to (narrative) bank runs for different percentiles measuring the degree of nominal deposit contractions. The top panel measures the contraction in deposits around each bank run episode. The bottom panel excludes observations within a ± three-year window around bank runs. We measure the contraction in deposits for each year as the minimum deposit growth rate across the three deposit categories: (i) total deposits, (ii) demand deposits, and (iii) time deposits. We detrend each of the three deposit growth rates using the backward-looking three-year moving average. The estimates are based on the local projection specified in equation (A.3).

Figure A.21: Macroeconomic Aftermath of Runs, Crises, and Failures

(a) Banking crises

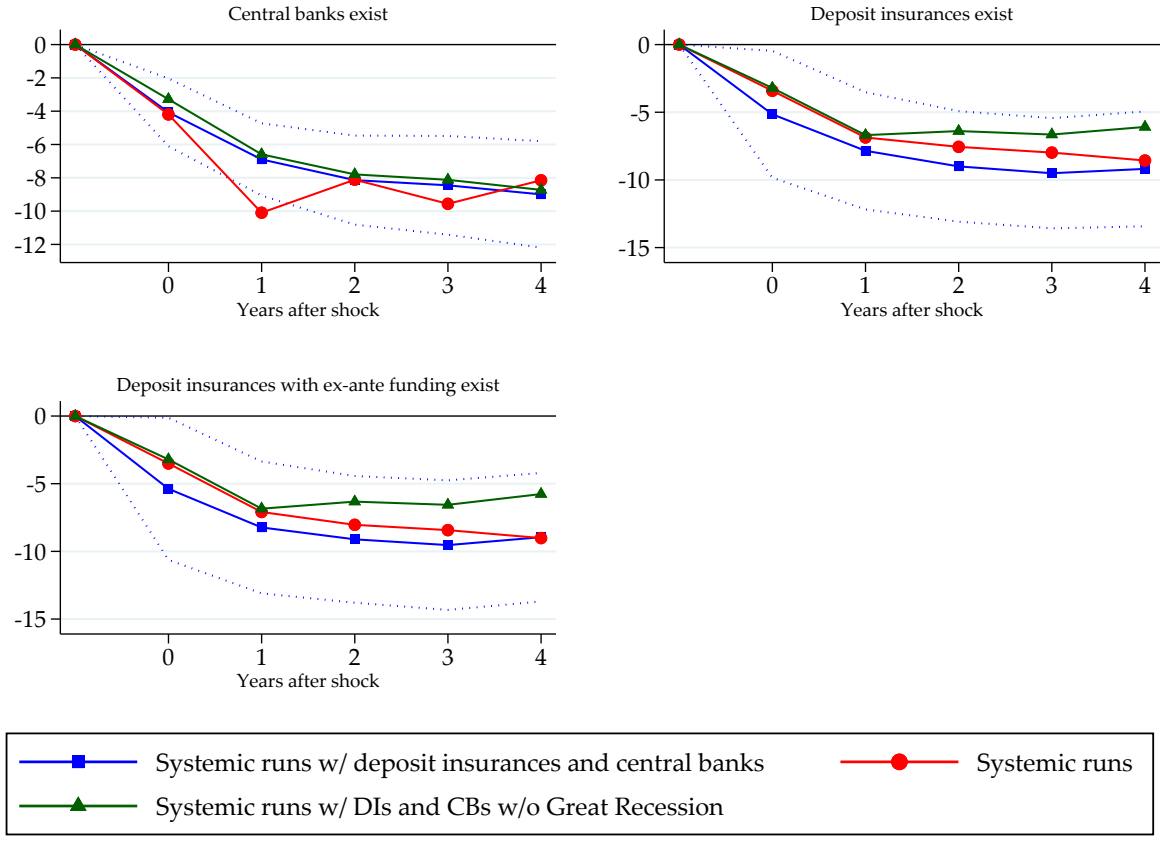


(b) Widespread bank failures



Notes: The figures plot the impulse response function of real GDP growth rates, real deposit growth rates, real credit growth rates, and changes in deposits-to-GDP both within and outside of episodes of low levels of bank solvency. Panel (a) focuses on the overlap of systemic bank runs with episodes of banking crises. Panel (b) focuses on the overlap of systemic bank runs with episodes of widespread bank failures based on estimations from equation (2), where each line comes from a separate regression.

Figure A.22: The Role of Deposit Insurance and a Lender of Last Resort



Notes: These figures plot how real GDP around systemic runs varies with different types of institutional framework in the banking sector both for the entire sample (blue lines and red lines) and for a sample excluding the years around the Great Recession (green lines). We consider the following institutional framework: central bank existence, the existence of a deposit insurance, and the existence of deposit insurance that require ex-ante funding. When excluding the years around the Great Recession we exclude all observations *pm* 5 years around 2007. The estimates are based on the local projection specified in equation (4). The blue bands depict 95% confidence bands based on standard errors double-clustered by country and year.

A.12 Deposit Insurance, Central Banks, and Output Losses Around Systemic Runs

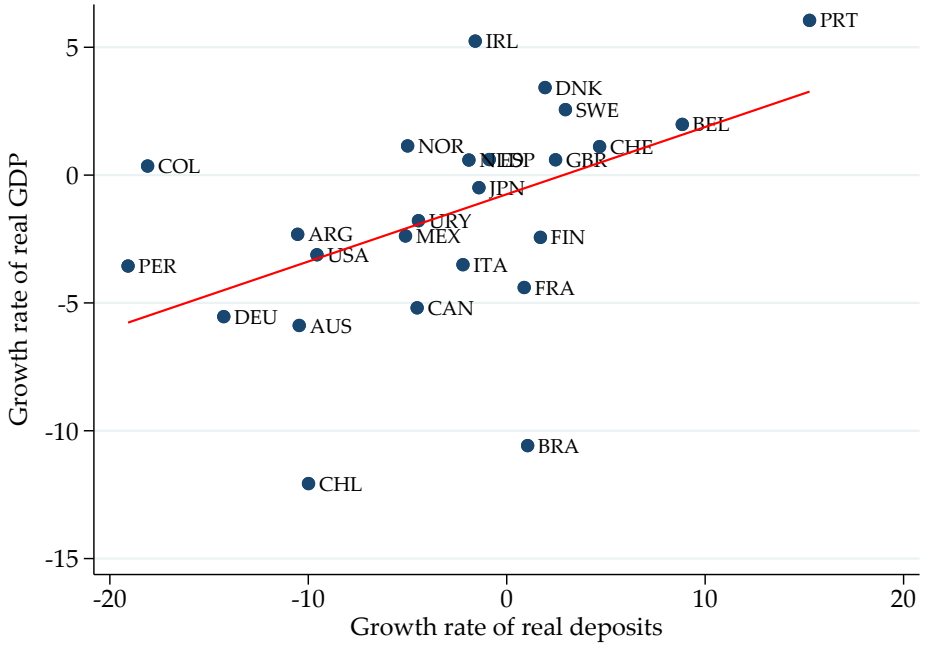
Table A.6: Deposit Insurance, Central Banks, and Output Losses Around Systemic Runs

	ΔGDP^r_t	ΔGDP^r_{t+2}	ΔGDP^r_{t+4}	ΔGDP^r_t	ΔGDP^r_{t+2}	ΔGDP^r_{t+4}	ΔGDP^r_t	ΔGDP^r_{t+2}	ΔGDP^r_{t+4}
Systemic Runs	-4.175***	-8.034***	-8.145***	-3.500***	-8.368***	-9.714***	-3.561***	-8.453***	-9.793***
	(1.390)	(2.949)	(2.765)	(0.649)	(1.227)	(1.758)	(0.648)	(1.227)	(1.771)
Systemic Runs × CBs Exist	0.895	0.241	-0.578						
	(1.593)	(3.375)	(3.371)						
Central Banks (CBs) Exist	-0.507	-1.751	-4.368**						
	(0.540)	(1.503)	(2.064)						
Systemic Runs × DIs Exist				0.296	1.979	3.631			
				(1.435)	(2.458)	(3.145)			
Deposit Insurances (DIs) Exist				-0.198	-1.943	-5.667***			
				(0.399)	(1.337)	(1.729)			
Systemic Runs × DIs With Ex-Ante Funding Exist							0.357	2.130	4.031
							(1.568)	(2.641)	(3.321)
Deposit Insurances (DIs) With Ex-Ante Funding Exist							-0.0885	-1.744	-5.765***
							(0.441)	(1.491)	(1.993)
R^2	0.121	0.199	0.265	0.129	0.201	0.273	0.127	0.196	0.266
Observations	7010	7010	6901	6960	6960	6855	6894	6894	6789
Countries	177	177	177	174	174	174	172	172	172
Systemic Runs	65	65	64	65	65	64	64	64	63

Notes: This table reports the output losses around systemic runs under different types of institutional framework in the banking sector. We exclude the years around the Great Recession by excluding all observations *pm* 5 years around 2007. For the institutional framework we include central bank existence, the existence of deposit insurance, and the existence of deposit insurance that requires ex-ante funding. The estimates are based on the local projection specified in equation (4). Standard errors are double-clustered by country and year. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

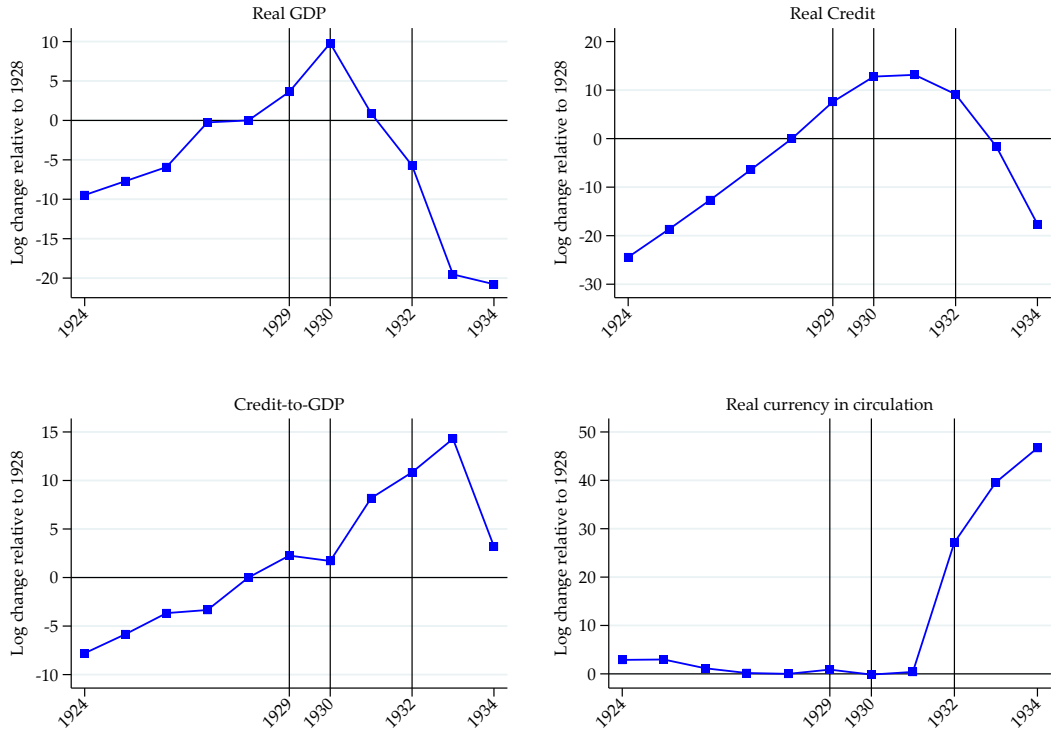
A.13 Case Studies: The Great Depression around the Globe

Figure A.23: Real Deposit Flows and Real GDP During the Great Depression



Notes: This figure plots the mean growth rate of real GDP against the growth rate of real total deposits for the period of the Great Depression (1929-1931).

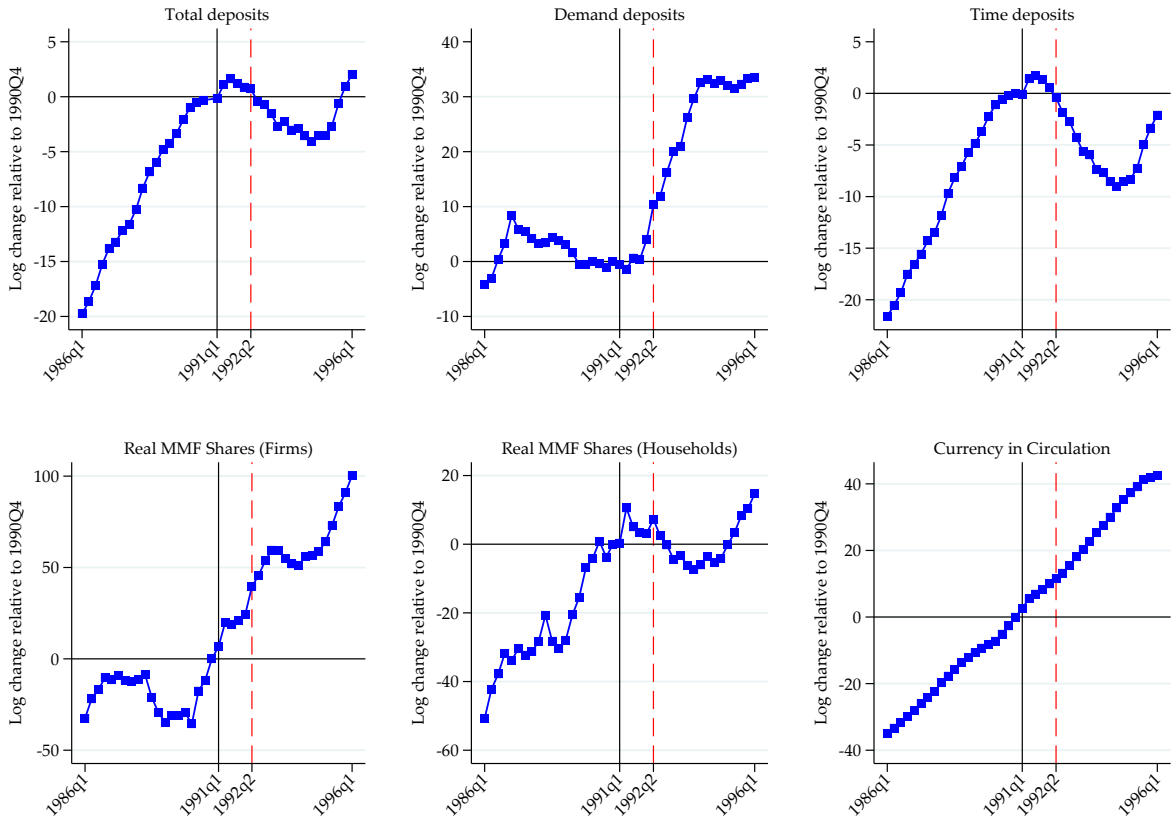
Figure A.24: US Macroeconomic Variables Around the Great Depression



Notes: The figure visualizes the path of real GDP, real loans, credit-to-GDP, and the real total currency in circulation around the three bank runs during the period of the Great Depression. The first wave of runs in 1929 within the banking system of Florida is visualized as a solid vertical line. The second wave of bank runs started with the run on the bank Caldwell and Company of Nashville in 1930, and the third wave of bank runs started in 1932. Both events are marked as solid vertical lines.

A.14 Case Study: Early 1990s Runs in the United States

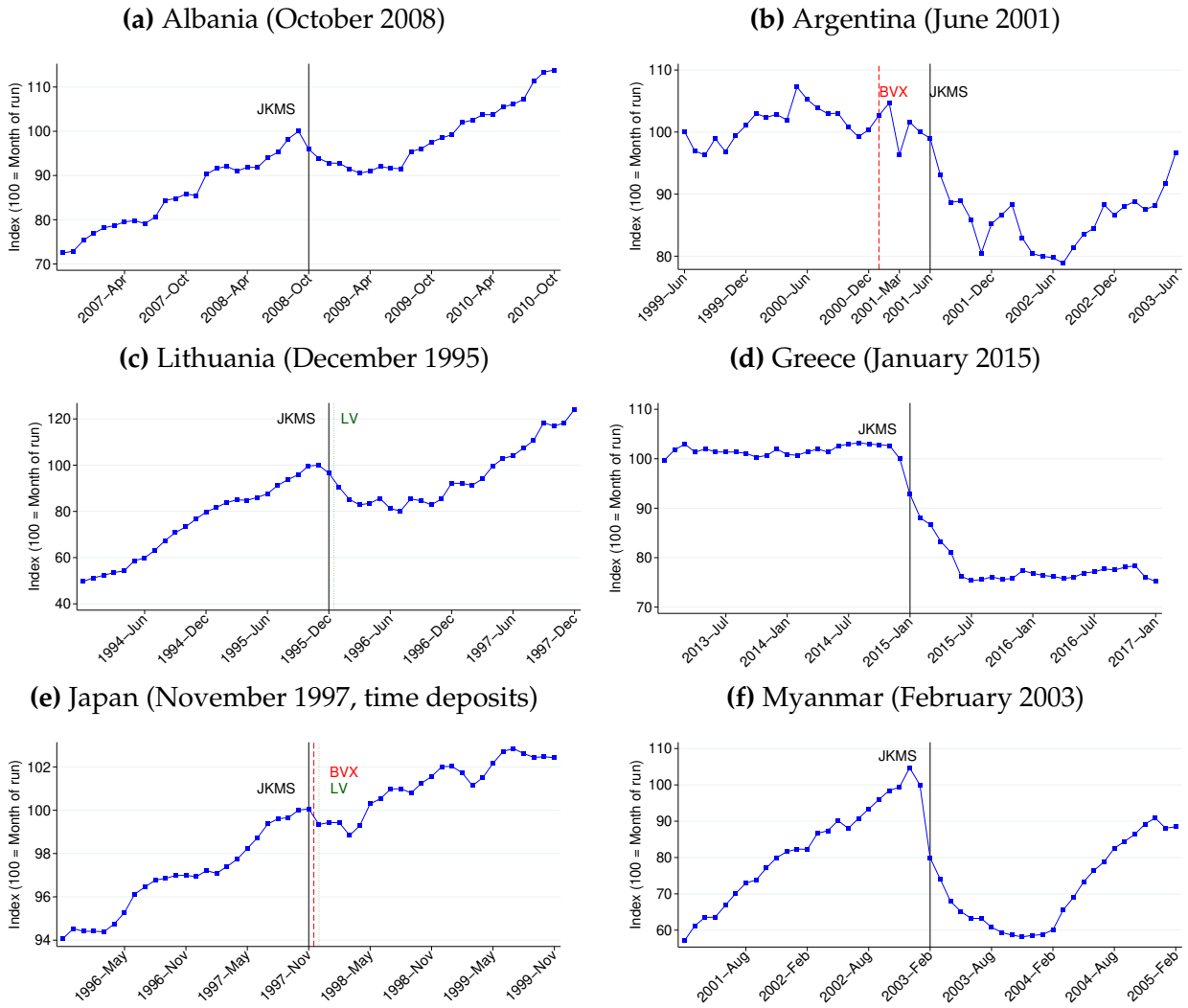
Figure A.25: The 1991 Run on the Bank of New England



Notes: The figure visualizes the path of different types of deposits, money mutual fund shares, and currency in circulation around the run on the Bank of New England in the United States in 1991. The run event is shown as a solid vertical line in 1991Q1. In 1992Q2 there was a second bank run on the Metro North State Bank, marked as a dashed (red) vertical line.

A.15 Case Study: Deposit Contractions and Bank Runs in Monthly Data

Figure A.26: Case Studies of Deposit Contractions Around Bank Runs in Monthly Data

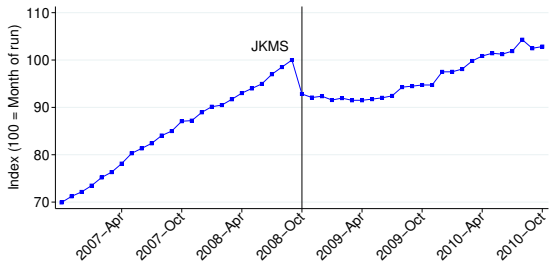


Notes: These figures plot outstanding deposits in the 24 months around a bank run (indexed by 100). Unless otherwise indicated, deposits refer to the total outstanding deposits of the banking sector. The vertical lines indicate the incidence of a bank run according to our chronology (JKMS) or a banking crisis as classified by Baron et al. (2021, abbreviated as BVX) and Laeven and Valencia (2018, abbreviated as LV).

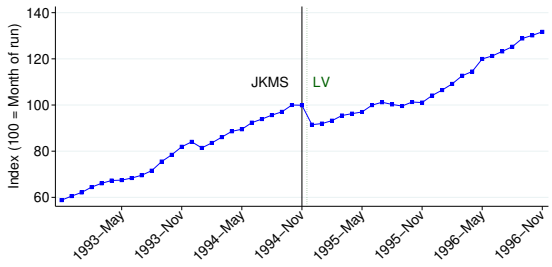
A.16 Additional Monthly Case Studies

Figure A.27: Additional Case Studies of Monthly Deposit Contractions

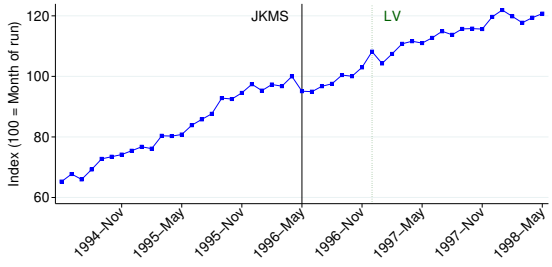
(a) Bosnia (October 2008)



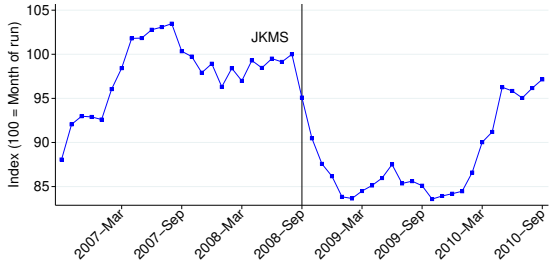
(b) Bolivia (November 1994, time deposits)



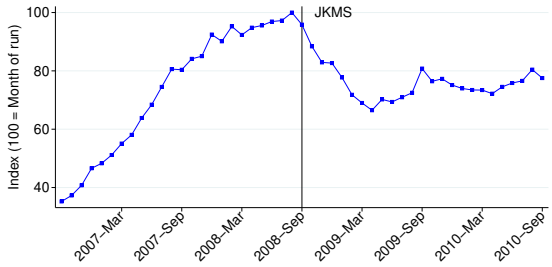
(c) Jamaica (May 1996)



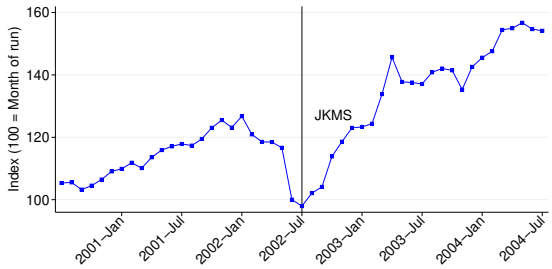
(d) Estonia (September 2008, demand deposits)



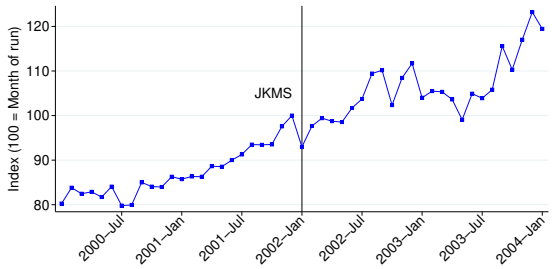
(e) Montenegro (September 2008)



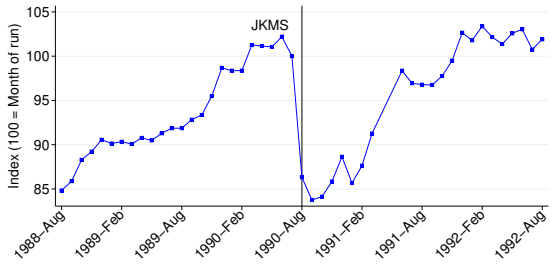
(f) Paraguay (July 2002)



(g) South Africa (January 2002, demand dep.)



(h) United Arab Emirates (August 1990)



Notes: These figures plot outstanding deposits in the 24 months around a bank run (indexed by 100). Unless otherwise indicated, these deposits refers to total outstanding deposits of the banking sector. The vertical lines indicate the incidence of a bank run according to our chronology (JKMS) or a banking crisis as classified by Baron et al. (2021, abbreviated as BVX) and Laeven and Valencia (2018, abbreviated as LV).

A.17 Where Does Money Flow During Bank Runs? Evidence from Higher Frequency Data

What happens to the overall flow of funds in the economy during bank runs, and where do withdrawn deposits end up? We now investigate these issues by analyzing two systemic bank run episodes in the United States: the Great Depression and the early 1990s recession. Leveraging higher-frequency data, we provide insights into the movement of funds during these pivotal events.

We focus on the exact timing of deposit contractions during the Great Depression. Because deposit insurance was not introduced until 1934, this episode also lends itself as a comparison group to more recent run episodes, where we will focus on the financial distress associated with the early 1990s recession.

We obtain monthly and quarterly data on deposits, money market mutual fund investments, currency in circulation, and macroeconomic variables from FRED. The results below suggest that the inflow of deposits into the US banking system slows down before a bank run. Runs on individual banks are then the starting point of massive aggregate deposit outflows. The outflow of funds out of the banking system, in turn, are accompanied by a flight into safer assets, meaning currency historically and money market funds in recent decades.

Bank runs during the Great Depression. We first study deposit flows around the three distinct bank run episodes in the wake of the Great Depression in the United States. While the bank runs in July 1929, November 1930, and November 1932 follow each other closely, we consider them as separate run episodes. Figure A.28a plots the dynamics of deposits and currency in circulation around the three waves of bank runs.[2] For a detailed description of these events, see Appendix B.

The first bank runs took place in July 1929, three months before the Great Crash in October 1929, when there were widespread runs in the Florida banking system due to the citrus crop failure. While we find limited changes in key macroeconomic variables around the Florida bank runs in July 1929, there is a noticeable slowing of inflows of aggregate deposits into the banking system after a longer expansionary phase. The month after Black Thursday in October 1929 marks a short period of inflows of demand deposits that reversed in 1930, turning into a total decline of about 5% until the end of 1930. It is not until November 1930, one month after Black Thursday, that we observe a contraction in total deposits, mainly because time deposits remained stable.

In November 1930, depositors ran on the bank Caldwell and Company of Nashville, which was the starting point of widespread runs on multiple banks across the United States. This run event is visualized as a red dashed line in Figure A.28a. These runs were accompanied by a massive contraction of deposits by more than 35% relative to mid-1929, and deposits only stabilized around this lower level in mid-1932. Immediately following the runs, and corresponding quantitatively to the outflow of deposits, there was

[2]Note that we do not have monthly data on real outcomes and credit. Figure A.24 in the Online Appendix shows output losses, credit, and real currency in circulation around the bank runs during the Great Depression at annual frequency.

an increase of currency in circulation, with annual growth rates in excess of 20% in 1931. This indicates that depositors withdrew their money in exchange for cash.

November 1932 saw a third wave of bank runs following concerns about a devaluation of the dollar after the election of Franklin D. Roosevelt. Figure A.28a visualizes these runs with an orange dotted line. Again, we observe a strong decline in all types of deposits and an additional sharp increase in currency in circulation.

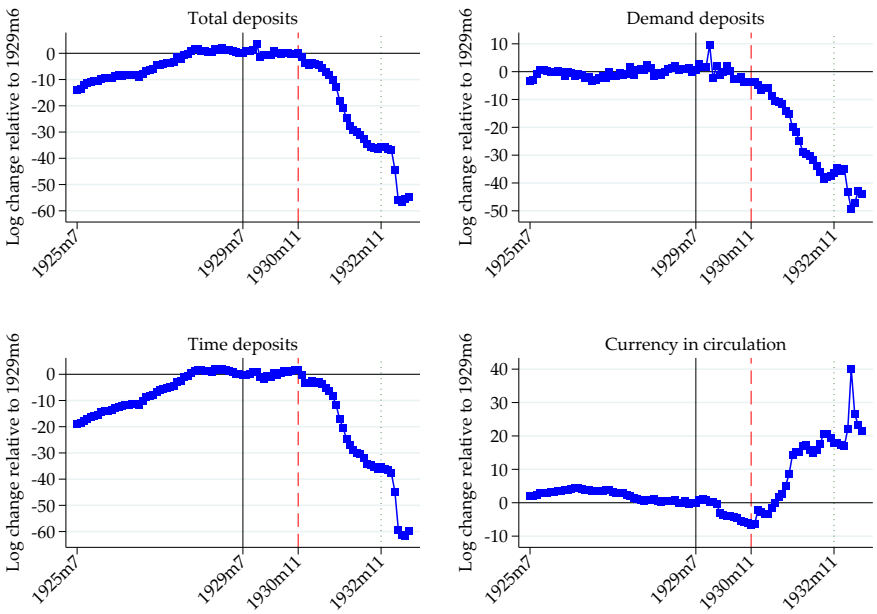
A key takeaway from the bank runs during the Great Depression is that runs can be preceded by a slowing of deposit inflows, or even an outflow of aggregate deposits, starting multiple months before the actual run events unfold. Bank runs are then followed by more severe contractions far surpassing the previous slowing of inflows. The increase in currency in circulation indicates that depositors flee into assets they perceive to be safer. In the specific setting of the Great Depression, it is unlikely that this increase in nominal currency in circulation is due to inflation, as the period from 1930 to 1932 was rather characterized by deflationary pressure. As depicted in Figure A.24 in the Online Appendix, real currency in circulation increased even more in 1932. Our interpretation is instead that the increase in cash holdings is due to a depositor panic.

Modern-day runs. Next, we turn to two more recent bank run episodes as case studies of bank runs under the existence of a deposit insurance fund. First, we focus on the run on Silicon Valley Bank in March 2023. We visualize the aggregate flow of funds around the run in Figure A.28b. We find that the run was preceded by a withdrawal of time deposits starting around four months prior. Precisely one month before the run, we observe a withdrawal of demand deposits that accelerated in March 2023 when the run on Silicon Valley Bank occurred. Within a one-year time window around the run, total deposits declined by around 10% from peak to trough. We also observe a strong inflow into money market fund shares from both firms and households starting in the first quarter of 2023, the quarter of the Silicon Valley Bank run. Prior to the run, we observe that firms had reduced their money market fund positions. This U-shaped pattern lends support to the idea that the run on Silicon Valley Bank was a significant driving force underlying the inflow into money market mutual funds. See also Cipriani et al. (2024) for a high-frequency analysis of the 2023 regional banking using daily data.

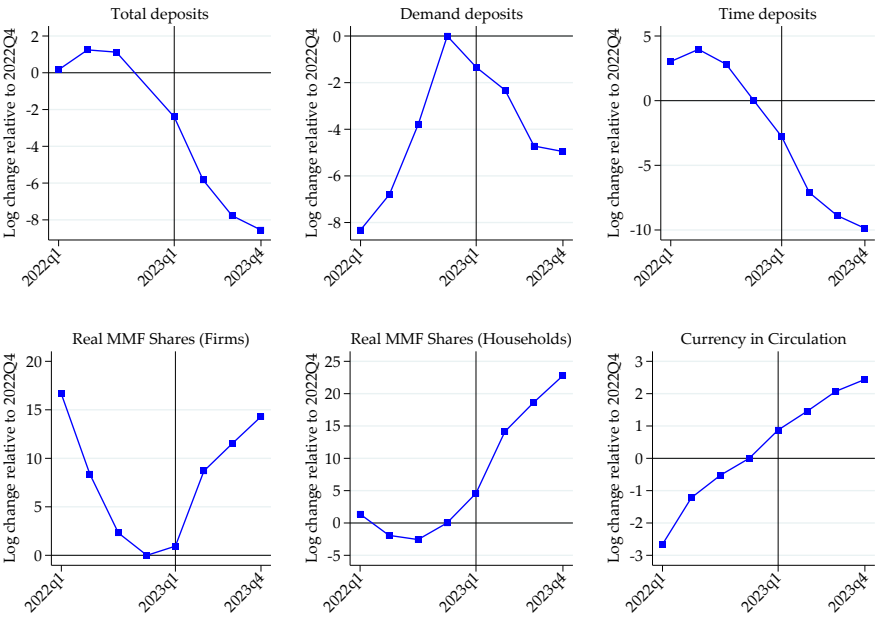
We also investigate an episode of two runs that occurred in the early 1990s. In January 1991, the Bank of New England faced a mass withdrawal of deposits. In Figure A.25 in the Online Appendix, we plot the aggregate patterns of deposits, mutual fund shares, and currency holdings relative to the the fourth quarter of 1990, the quarter before the run started. Demand deposits were already contracting around a year before the run on Bank of New England started, which was then accompanied by a clear further drop in time deposits. This further contraction was likely amplified by a second bank run on Metro North State Bank in April 1992, indicated as a red dashed line, following rumors that the bank would be closed by regulators. Strikingly, the deposit contraction is driven entirely by time deposits while demand deposits increase, as to firms' holdings of money market fund shares. Perhaps because of its lesser role relative to the Great Depression, we find limited movement in the amount of currency in circulation.

Figure A.28: Flight to Safety During Runs: The Great Depression vs. Silicon Valley Bank

(a) The Great Depression



(b) The 2023 Run on Silicon Valley Bank



Notes: These figures visualize different measures of deposits, currency in circulation, and money market fund shares around bank runs during the Great Depression (Panel A) and on Silicon Valley Bank in 2023 (Panel B). For the Great Depression, the first wave of runs in July 1929 in Florida is visualized as a solid black line. The second wave of bank runs started with the run on the bank Caldwell and Company of Nashville in November 1930, marked as a dashed (red) vertical line. The third wave of bank runs started in November 1932, marked as a dotted (orange) line. The run on Silicon Valley Bank is indicated by a solid black line in 2023Q1.

A.18 Crisis Interventions and the Likelihood of Systemic Runs

Table A.7: What Predicts Whether Runs Become Systemic?

	Liability guarantees	National.	Recapital.	Liquidity support	Bank holiday	Restruct.	Asset purchases
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Full sample							
β	0.13	-0.06	-0.06	0.01	0.28**	-0.10	-0.01
	(0.12)	(0.13)	(0.14)	(0.41)	(0.11)	(0.12)	(0.14)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean of DV	0.67	0.67	0.65	0.66	0.66	0.64	0.64
Observations	132	127	111	159	104	133	100
R^2	0.28	0.31	0.27	0.25	0.32	0.29	0.38
Panel B: Excl. 2007-11							
β	0.14	-0.09	-0.09	0.04	0.34***	-0.09	-0.07
	(0.13)	(0.14)	(0.15)	(0.43)	(0.12)	(0.12)	(0.16)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean of DV	0.67	0.66	0.64	0.66	0.66	0.63	0.63
Observations	123	116	100	146	99	120	93
R^2	0.27	0.32	0.26	0.25	0.33	0.29	0.39

Notes: This table reports the estimated coefficients from bivariate OLS regressions as in equation (5). The level of observation is a bank run j in country i. The dependent variable is an indicator variable that is equal to one for narrative bank runs that are systemic, meaning they are accompanied by deposit contractions, and zero for non-systemic bank runs, meaning they are not. *Mean of DV* indicates the mean of the dependent variable (the unconditional probability a run becomes systemic). The predictor variables X_{ij} are listed in the top row and refer to interventions within a window of ±2 years of the bank run. All regressions include country fixed effects. Standard errors clustered by country are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

A.19 Bank-Level Appendix

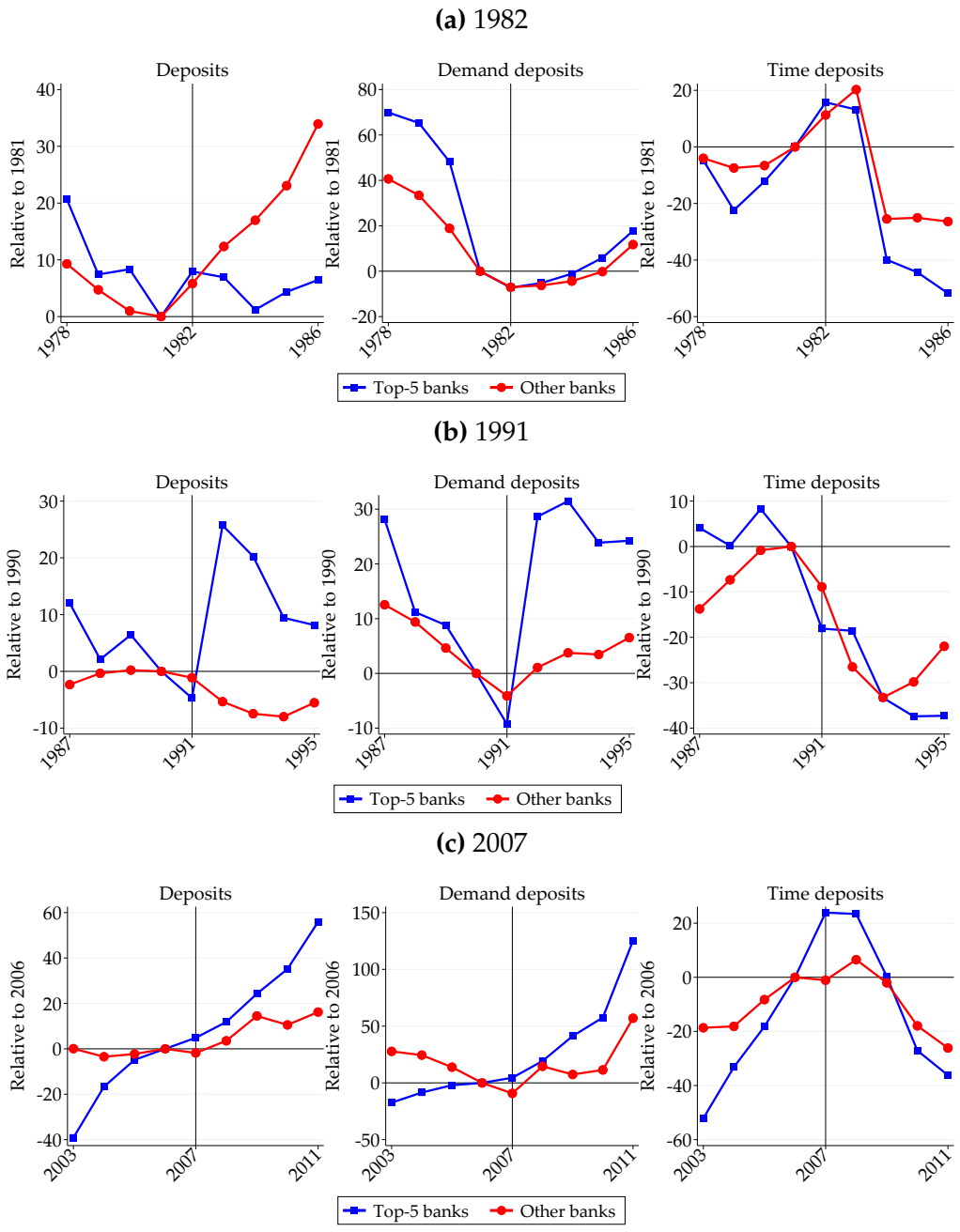
A.19.1 US Bank-Level Evidence

Table A.8: Bank-Level Summary Statistics for US Banks

	Mean	Median	S.D.	P10	P90	Obs.
Panel A: OCC data (1867-1904)						
Total assets gr.	5.39	3.28	15.25	-10.28	22.67	100,241.00
Loans gr.	7.29	3.95	22.46	-14.29	30.55	100,235.00
Total liabilities gr.	7.47	4.45	22.09	-15.30	32.33	100,242.00
Total deposits gr.	10.30	6.10	30.33	-21.19	44.29	100,218.00
Non-deposit liabilities gr.	8.62	1.62	38.13	-22.21	42.14	100,241.00
Bank size	13.06	12.92	0.91	11.99	14.32	100,673.00
Debt to assets	0.67	0.68	0.11	0.52	0.82	107,645.00
Panel B: Call Reports (1976-2020)						
Total assets gr.	5.01	2.45	13.38	-6.48	17.83	387,201.00
Loans gr.	6.50	3.53	19.10	-11.01	24.38	335,484.00
Total liabilities gr.	5.32	2.40	14.97	-7.02	18.85	387,202.00
Total deposits gr.	5.18	2.22	15.02	-7.11	18.70	387,026.00
Demand deposits gr.	4.29	1.10	23.04	-18.46	28.47	386,077.00
Non-deposit liabilities gr.	13.36	4.19	49.41	-31.79	63.20	289,788.00
Bank size	10.70	10.60	1.08	9.37	12.14	380,183.00
Debt to assets	0.91	0.91	0.03	0.87	0.93	407,088.00

Notes: This table summarizes the bank-level variables for banks in the United States. Panel A reports the statistics for the OCC dataset covering the period 1867-1904. Panel B reports the statistics for the Call Reports data for the period 1976-2020. All growth rates are reported in real terms.

Figure A.29: Bank-Level Deposit Flows Around Systemic Runs in the US



Notes: The figures plot the path of total, demand, and time deposits around systemic bank runs using US bank-level data. The blue lines depict the combined deposits of the five largest US banks at the time of each run, indexed to one year before the systemic run. The red lines depict the combined deposits of all other banks, also indexed to one year prior to the run.

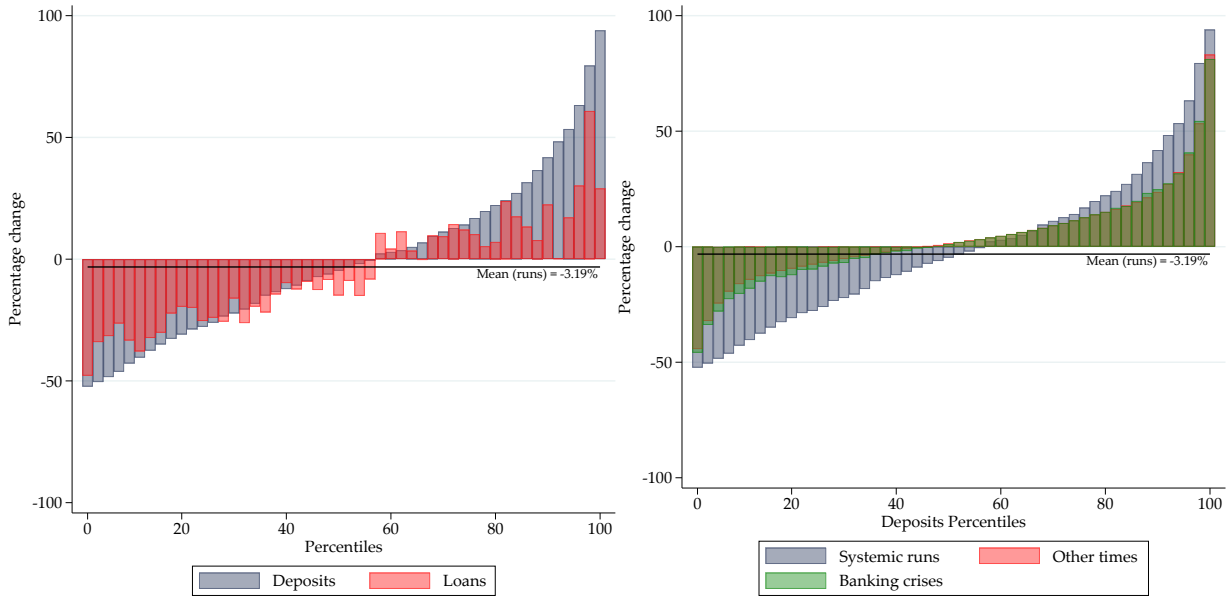
A.19.2 International Bank-Level Evidence

Table A.9: Bank-Level Summary Statistics for Non-US Banks from Orbis

	Mean	Median	S.D.	P10	P90	Obs.
Total assets gr.	3.19	1.66	15.56	-13.46	21.51	54,009.00
Loans gr.	3.72	2.01	18.99	-15.07	23.62	52,628.00
Total liabilities gr.	3.43	1.66	17.53	-14.53	23.12	54,000.00
Total deposits gr.	4.19	1.92	20.45	-15.21	25.16	52,460.00
Non-deposit liabilities gr.	4.26	-1.47	35.97	-30.27	41.48	52,454.00
Bank size	19.43	18.80	3.10	16.16	24.15	54,009.00
Debt to assets	0.88	0.91	0.11	0.78	0.95	63,446.00

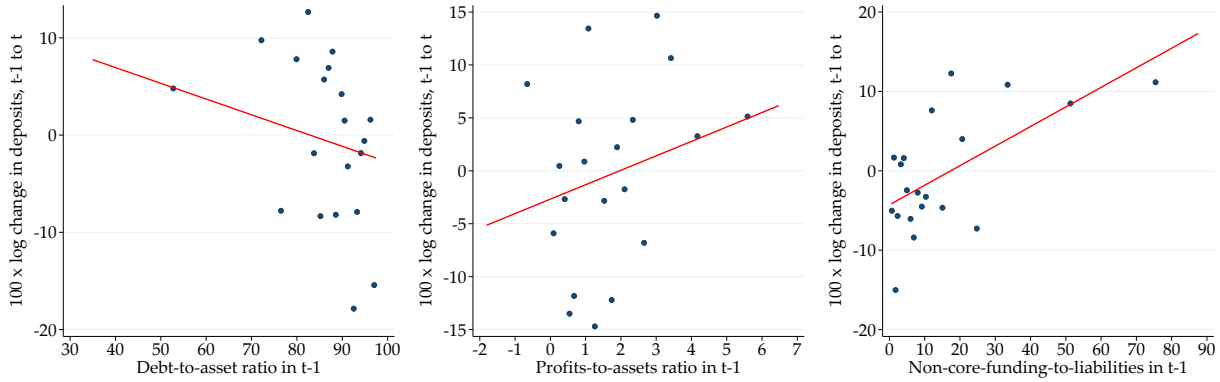
Notes: This table summarizes the bank-level variables for banks outside the United States. We report the statistics for the Orbis dataset covering the period 2005-2020. All growth rates are reported in real terms.

Figure A.30: Dispersion in Deposit Growth During Systemic Bank Runs (Non-US Banks)



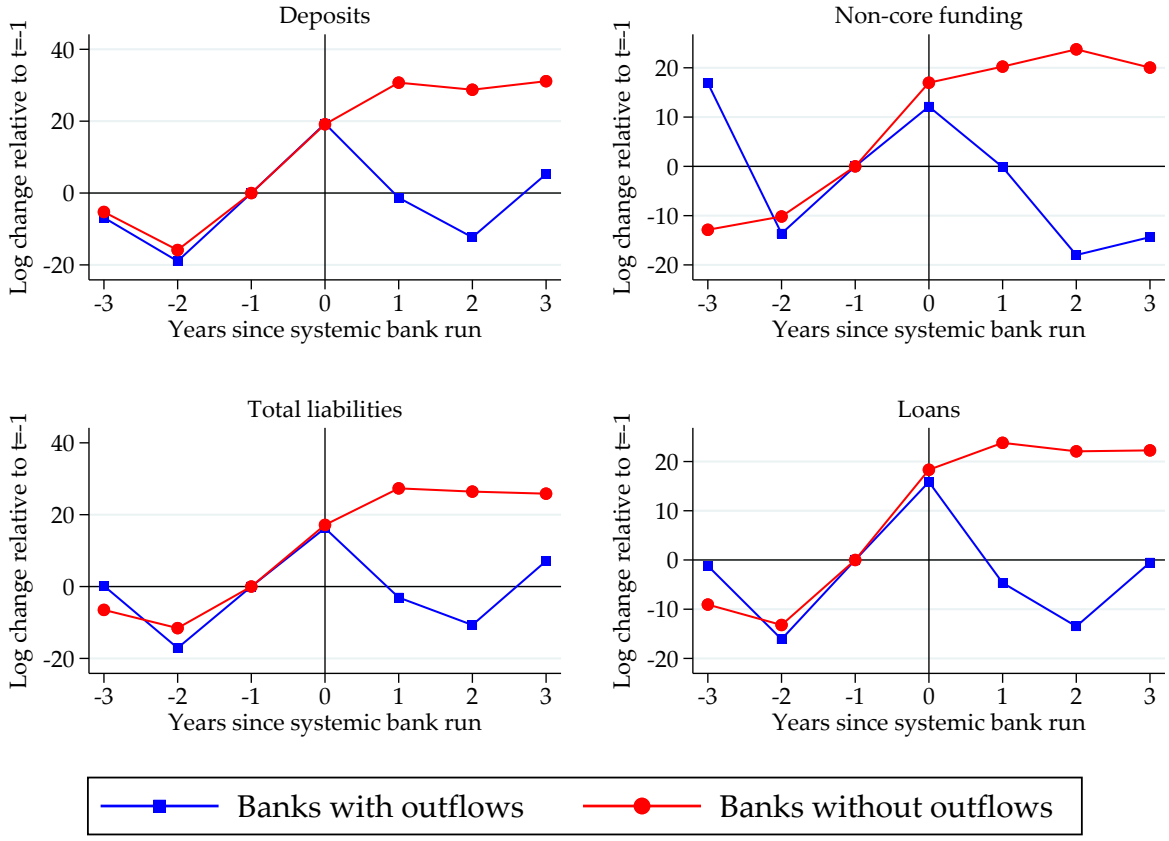
Notes: These figures plot bank-level growth rates of real deposits and real loans outside of the United States during periods of systemic bank runs, periods of banking crises, and other times outside of episodes of runs and banking crises in the United States across percentile bins of real deposit growth rates. The figures are based on the Orbis dataset, covering the period 2005-2020. The black solid line indicates the average deposit growth rate in the sample.

Figure A.31: The Correlates of Deposit Flows During Systemic Bank Runs (Non-US Banks)



Notes: The figures present binscatter plots of the relationship between real deposit growth rates during systemic bank runs and pre-run balance sheet characteristics of non-US banks. We calculate the changes in deposits between period $t-1$ and t, with period t defining the date of the systemic bank run. The results are based on the Orbis dataset, covering the period 2005-2020.

Figure A.32: Bank-Level Event Studies Around Systemic Bank Runs (Non-US Banks)



Notes: The figures plot the cumulative log changes in balance sheet items of banks outside of the US relative to the year before the systemic bank run. The blue lines refer to banks experiencing an outflow of deposits during a systemic run, and the red lines to banks experiencing inflows. The results are based on the Orbis dataset, covering the period 2005-2020.

A.20 Banking Crisis Definitions in Canonical Papers

Baron et al. (2021)

Banking crisis

> "Our conceptual definition of a banking crisis is an episode in which the banking sector's ability to intermediate funds is severely impaired. Because equity holders are the first to suffer losses from a banking crisis that damages banks' intermediation capacity, we assume that conceptually, a large bank equity decline is necessary for a banking crisis."

Panics

> "By panics, we mean episodes of severe and sudden withdrawals of funding by bank creditors from a significant part of the banking system. We assume that panics are a subset of banking crises, because not all banking crises necessarily feature panics."

Bank equity crash

> "We define a 'bank equity crash' as an annual bank equity decline of over 30%. We separate these bank equity crashes into panic versus non-panic episodes based on a systematic reading of the narrative evidence for each of these episodes. We define panics as episodes of severe and sudden withdrawals of funding by bank creditors from a significant part of the banking system, which could include withdrawals of funding from insolvent banks or illiquid but fundamentally solvent banks."

Laeven and Valencia (2018)

Systemic Banking Crisis

> "In a systemic banking crisis, a country's corporate and financial sectors experience a large number of defaults and financial institutions and corporations face great difficulties repaying contracts on time. As a result, non-performing loans increase sharply and all or most of the aggregate banking system capital is exhausted. This situation may be accompanied by depressed asset prices (such as equity and real estate prices) on the heels of run-ups before the crisis, sharp increases in real interest rates, and a slowdown or reversal in capital flows. In some cases, the crisis is triggered by depositor runs on banks, though in most cases it is a general realization that systemically important financial institutions are in distress.

A banking crisis as an event that meets two conditions:

1. Significant signs of financial distress in the banking system (as indicated by significant bank runs, losses in the banking system, and/or bank liquidations).

2. Significant banking policy intervention measures in response to significant losses in the banking system."

Reinhart and Rogoff (2009)

"We mark a banking crisis by two types of events:

1. bank runs that lead to the closure, merging, or takeover by the public sector of one or more financial institutions and

2. if there are no runs, the closure, merging, take-over, or large-scale government assistance of an important financial institution (or group of institutions) that marks the start of a string of similar outcomes for other financial institutions."

Jordà et al. (2017)

Banking distress

> "An episode of banking distress is coded as a systemic banking crisis if it is characterized by major bank failures, banking panics, substantial losses in the banking sector, significant recapitalization, and/or significant government intervention. Importantly, this definition excludes the failures or losses of individual/small banks without systemic implications from being coded as a crisis episodes."

A.21 Comparison with Banking-Panic Dates from Baron et al. (2021)

Table A.10: Bank runs in JKMS that are *not* classified as panics in Baron et al. (2021)

ISO	Year	Classified as crisis in Baron et al. (2021)	Description of discrepancy
ARG	1876		Sufficient evidence of a bank run
AUS	1974	Yes	While recorded as a banking crisis by Baron et al. (2021), they do not treat it as a panic: "Although there was stress in the banking system, there is no further indication in the literature for a banking crisis (in the strict sense of a "bank") in or around 1974." We marked it as run because there is evidence of runs on building societies in New South Wales, Victoria, Queensland, and South Australia, according to a publication by the Reserve Bank of Australia.
AUT	1924	Yes	Sufficient evidence of a bank run
BEL	1925	Yes	Sufficient evidence of a bank run
BEL	1934		Sufficient evidence of a bank run
CAN	1893		Sufficient evidence of a bank run
CAN	1996		Sufficient evidence of a bank run
CHL	1895		Sufficient evidence of a bank run
COL	1982	Yes	Sufficient evidence of a bank run
CZE	1931	Yes	Sufficient evidence of a bank run
DEU	1911		Sufficient evidence of a bank run
ESP	1994	Yes	Baron et al. (2021) classified ESP 1991 as a banking crisis, but not as a panic. The source cited by Baron et al. (2021) is The New York Times (1993), which does not record the bank run in 1994. Baron et al. (2021) argue that, aside from Banesto's funding issues, there is no evidence of a broader banking panic, and the crisis was resolved with a government bailout.
HKG	1961		Sufficient evidence of a bank run

Table A.10 (continued)

ISO	Year	Classified as crisis in Baron et al. (2021)	Description of discrepancy
HKG	2008	Yes	Baron et al. (2021) mentioned that there was a "classic depositor run" on the Bank of East Asia in September 2008, but they do not treat that as either a crisis or panic because of relatively quick regulatory action by the Hong Kong Monetary Authority. Because the evidence of a run is clear, we treat it as a run episode.
NLD	1921	Yes	Sufficient evidence of a bank run
PHL	1968		Sufficient evidence of a bank run
PHL	1977		Sufficient evidence of a bank run
PHL	2000	Yes	Sufficient evidence of a bank run
PRT	1935		Sufficient evidence of a bank run
RUS	1905		Sufficient evidence of a bank run
SGP	1974		Baron et al. (2021) record this as an episode of a 30% or larger decline in bank equity prices but do not treat it as a narrative crisis or panic. We have evidence of a bank run in 1974.
SWE	1932	Yes	Sufficient evidence of a bank run
TUR	1895		Sufficient evidence of a bank run
TWN	1998	Yes	Sufficient evidence of a bank run
TWN	2000	Yes	Sufficient evidence of a bank run
TWN	2007	Yes	Sufficient evidence of a bank run
USA	1896		Sufficient evidence of a bank run
USA	1974	Yes	Sufficient evidence of a bank run
USA	1991	Yes	Sufficient evidence of a bank run
USA	1992	Yes	Sufficient evidence of a bank run
ZAF	1997		Sufficient evidence of a bank run
ZAF	2002		Sufficient evidence of a bank run

Table A.11: Banking panics in Baron et al. (2021) that are *not* classified as bank runs

ISO	Year	Wholesale funding run?	Description of discrepancy
ARG	1930		Baron et al. (2021) include Argentina in 1930 as a panic to be conservative. However, Conde (2010) explicitly states that bank runs were averted by early regulatory intervention. Due to the insufficient evidence of an actual run, we decided not to include this case in our database.
AUT	2008	Yes	Insufficient evidence of a retail bank run, despite clear issues with regard to interbank funding.
BEL	1876		Baron et al. (2021) included the Belgium 1876 case as a panic to be conservative. Only the fear of a run was recorded by Buyst and Myers, and we have found no other evidence of a bank run.
BEL	1883		Insufficient evidence of a run
BEL	1939		Insufficient evidence of a run
BEL	2008	Yes	Insufficient evidence of a retail bank run, despite the global drying up of interbank liquidity.
BRA	1890		Demand deposits drop was due to withdrawal of notes out of circulation. The banking crisis was triggered by high inflation and a collapse of the exchange rate. Demand deposits plummeted by 50%, according to Triner (2000).
BRA	1929		Insufficient evidence of a run
BRA	1985		Insufficient evidence of a run
CHE	2008	Yes	Insufficient evidence of a retail bank run, despite the global drying up of interbank liquidity.
CHL	1925		Baron et al. (2021) included Chile 1925 case as a panic to be conservative, since the second largest bank Banco Español de Chile failed and was restructured in 1925-1926. However there is no sufficient evidence of a retail bank run during this time.
CHL	1931		Insufficient evidence of a run
COL	1931		According to White (1997), the confidence of local depositors was generally maintained, and the drop in deposits likely resulted from foreign outflows.
DNK	1877		Insufficient evidence of a run

Table A.11 (continued)

ISO	Year	Wholesale funding run?	Description of discrepancy
DNK	1885		Insufficient evidence of a run
DNK	2008	Yes	Insufficient evidence of a retail bank run, despite the global drying up of interbank liquidity.
ESP	1882		Insufficient evidence of a run
ESP	1890		Insufficient evidence of a run
FIN	1990	Yes	Insufficient evidence of a retail bank run, despite clear issues with regard to interbank funding.
FRA	2008	Yes	Insufficient evidence of a retail bank run, despite clear issues with regard to interbank funding.
GBR	1890		Insufficient evidence of a run, which was likely averted due to early regulatory action.
GBR	1991	Yes	According to Basel Committee on Banking Supervision (2004), despite a reshuffling of deposits from smaller banks to larger ones, there is insufficient evidence of an all-out run. As such, any additional liquidity issues may also have stemmed from interbank funding issues.
GRC	2008		While Greece experienced a major financial crisis that would later be associated with bank runs (in 2015), we found no evidence that these runs already started in 2008. Instead, there was a drying up of wholesale funding liquidity around that time.
HUN	2008	Yes	Insufficient evidence of a retail bank run, despite the global drying up of interbank liquidity.
ISL	1920		Insufficient evidence of a run
ISL	1930		Insufficient evidence of a run
ITA	1873		Insufficient evidence of a run
ITA	1889		Insufficient evidence of a run
ITA	2008	Yes	Despite the drying up of global interbank liquidity, we have found no evidence of retail bank runs.
JPN	1882		Insufficient evidence of a run
JPN	1890		Insufficient evidence of a run

Table A.11 (continued)

ISO	Year	Wholesale funding run?	Description of discrepancy
KOR	1997	Yes	According to Kim (2006), in late 1997, Korea encountered severe liquidity problems as foreign banks, especially American and Japanese ones, stopped renewing loans. This situation forced the Korean government to deplete its limited foreign currency reserves to cover short-term financial obligations. Facing escalating financial instability, Korea sought IMF assistance in November 1997. The initial bailout agreement with the IMF, reached on December 3, 1997, promised a $58.4 billion package, with funds disbursed conditionally over an extended period. However, the initially available funds were insufficient, prompting renegotiations and a restructuring deal by March 1998 that restructured nearly 95% of Korea's short-term debt.
LUX	2008	Yes	Despite the drying up of global interbank liquidity, we have found no evidence of retail bank runs.
MEX	1893		Insufficient evidence of a run
MEX	1981		Despite well-documented fears of a bank run (The New York Times (1981)), we did not find sufficient evidence of the actual occurrence of runs
NLD	1907		Insufficient evidence of a run
NOR	1987		Insufficient evidence of a run
NOR	2008	Yes	Despite the drying up of global interbank liquidity, we have found no evidence of retail bank runs.
PER	1876		In the 1876 banking case in Peru, there's no explicit mention of a bank run occurring. According to Carlos Marichal (2023), and Zegarra (2013), a severe financial strain and a critical liquidity situation reported by several banks to the government, which led to the suspension of the redemption of banknotes for specie. This governmental intervention effectively prevented potential widespread bank runs by maintaining public confidence and avoiding immediate cash withdrawals from the banks.
PER	1931		Insufficient evidence of a run
PRT	2008	Yes	Despite the drying up of global interbank liquidity, we have found no evidence of retail bank runs.

Table A.11 (continued)

ISO	Year	Wholesale funding run?	Description of discrepancy
RUS	1995	Yes	Considerable evidence of a wholesale bank run and drying up of liquidity, but insufficient evidence of a retail bank run.
SWE	2008	Yes	Despite the drying up of global interbank liquidity, we have found no evidence of retail bank runs.
TUR	1994		Insufficient evidence of a run
USA	1890	Yes	Insufficient evidence of a retail bank run, despite clear issues with regard to interbank funding.
VEN	1981		Insufficient evidence of a run
ZAF	1881		Insufficient evidence of a run

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B.1 Afghanistan

September, 2010

In 2010, Afghanistan experienced a bank run. Around $155 million in deposits were withdrawn from Afghanistan's largest bank in just two days. Afghan government employees, including teachers, soldiers and policemen, lined up outside Kabul Bank branches across the country to demand their money amid rumors that Kabul Bank had violated the country's banking laws by providing hundreds of millions of dollars in loans to influential insiders, including President Hamid Karzai and others with close ties to his government. The bank's chairman admitted that more than $160 million of the bank's assets had been used to buy luxury villas and two residential towers in Dubai, according to an article on NBC News.

Sources: Isikoff (2010), McLeod (2016), The New York Times (2010b), The Guardian (2011a), The New York Times (2010a)

B.2 Albania

October, 2008

In 2008, Albania experienced a bank run that wiped several hundred million euros of deposits from the banking system. The global financial crisis had previously affected the credibility of the banking system in Albania, according to Erebara (2009a). Many experts blame the bad loans on poor lending practices in the past, arguing the global financial crisis had only exacerbated the situation. Following the collapse of Lehman Brothers in the US, Albania faced a bank run. Outstanding bank deposits fell from 700 billion leks (€5.7 billion) in September 2008 to 638 billion leks (€4.9 billion) in February 2009.

Sources: Erebara (2009a), Fullani (2010), Erebara (2009b)

B.3 United Arab Emirates

August, 1990

In August 1990, the United Arab Emirates experienced a bank run. Between 15 and 30 per cent of customer deposits were transferred out of the UAE as a result of the uncertainty following Iraq's invasion of Kuwait in August 1990, according to a report on photius.com.

At least two banks required cash injections from the central bank to maintain liquidity, but confidence and deposits gradually returned. A further crisis rocked the UAE banking sector in 1991 when the Luxembourg-registered Bank of Credit and Commerce International (BCCI) was closed in most of the sixty-nine countries in which it operated.

Sources: Coutsoukis (2004), U.S. Congress (1992), Euromoney (2019b)

B.4 Argentina

May, 1876

In 1876, Argentina experienced a severe bank run, primarily in Buenos Aires and Santa Fe. The crisis led the Banco de La Provincia to suspend the convertibility of its notes, reflecting a deep liquidity crisis. At the same time, the Rosario government liquidated the local branch of the London Bank. In response to these financial upheavals, the Argentine government declared the notes of Banco Nacional and Banco de la Provincia as legal tender, an emergency measure to restore financial stability.

Sources: Metrick and Schmelzing (2021), Goodhart and Delargy (1998)

March, 1890

In March 1890, Argentina experienced bank runs. Banco Nacional, Italian Bank of the River Plate, Banco de La Provincia de BA, and Banco Hipotecario Nacional failed. By 1890 Argentina was heavily indebted and unable to roll over existing debt, most of which was only repayable in gold. A severe public debt crisis ensued. In the first quarter of 1890, the Banco de La Provincia and the Banco Nacional were hit by a run that finally triggered a full-fledged banking crisis. In 1891, the Bank of the River Plate suffered severe runs and later failed. The Bank of the River Plate also suffered a run, but received liquidity from Baron Rothschild, as described by Baron et al. (2021).

Sources: Baron et al. (2021), Reinhart and Rogoff (2009b), Metrick and Schmelzing (2021), Goodhart and Delargy (1998), Mitchener and Weidenmier (2008)

July, 1914

In July 1914, Argentina experienced bank runs when the outbreak of the war at the end of July 1914 was accompanied by a dramatic flight to liquidity around the globe. Many Argentine banks faced severe pressure as international depositors demanded liquidity. According to Nakamura and Zarazaga (2001), "total deposits at Argentine banks fell by nearly 20 percent. The brunt of the hardship fell on the private banks, which lost over 45 percent of their deposits." The crisis was precipitated by a land price boom fueled by heavy speculation and increasing private indebtedness. Large amounts of credit were extended by European banks. Banco Frances failed in August 1914 (Lough and Field, 1916). In 1912, depositors started to withdraw up to 20% of total deposits from banks in response to real economic disturbances (Nakamura and Zarazaga, 2001). Paolera and Taylor (2001)

call this crisis "the worst recession in Argentine history" (p. 190), as described in Baron et al. (2021).

Sources: Nakamura and Zarazaga (2001), Lough and Field (1916), Paolera and Taylor (2001), Baron et al. (2021)

September, 1934

In 1934, Argentina experienced bank runs. There was a government-induced merger of four smaller banks after these runs, according to Metrick and Schmelzing (2021)'s description. The book "The Political Economy of Argentina in the Twentieth Century" by Cortés (2009) dates bank runs to have occurred in July 1934.

Sources: Metrick and Schmelzing (2021), Cortés (2009), Baron et al. (2021), Laeven and Valencia (2018)

March, 1980

In March 1980, Argentina experienced bank runs following the failure of the Banco de Intercambio Regional, according to the description of Reinhart and Rogoff (2009a). Banco de Intercambio Regional, Banco de los Andes, Banco Oddone, Banco International, and at least 64 more banks failed.

Sources: Sims and Romero (2013), Reinhart and Rogoff (2009a), Baliño (1991), Laeven and Valencia (2018), Baron et al. (2021)

May, 1985

In May 1985, Argentina experienced bank runs when the first half of the 1980s saw an inflation and public debt crisis that forced the government to adopt drastic reform measures in 1985, known as the "Plan Austral". In late 1983, Argentina received IMF loans, but these were suspended in March 1985 when Argentina failed to meet several economic targets. The resulting economic turmoil and hyperinflation led to severe banking distress and bank runs, forcing the Central Bank of Argentina to close several banks in May 1985. As a result, dollar deposits were frozen for 120 days.

Sources: Sims and Romero (2013), Baron et al. (2021)

April, 1989

In April 1989, Argentina experienced bank runs. Laeven and Valencia (2018) say this was a banking crisis and date the panic to December 1989 when deposits were frozen. Stabilization policies caused a public debt crisis and hyperinflation that resulted in major bank distress (Beckerman, 1995). As a result, "nonperforming assets accounted for 27 percent of the aggregate portfolio and 37 percent of the portfolios of state banks. Failed banks held 40 percent of financial system assets", according to the description in Baron

and Dieckelmann (2022).

Sources: Sims and Romero (2013), Laeven and Valencia (2018), Beckerman (1995), Baron and Dieckelmann (2022)

January, 1995

In 1995, Argentina experienced bank runs. Following the devaluation of the Mexican peso in late 1994, there was a wave of uncertainty concerning the sustainability of the currency board in Argentina. This uncertainty, in turn, led to widespread deposit runs and large capital outflows. Peso deposits fell by more than 15 per cent between late December and January 1995. Private sector deposits were used to fund illiquid banks via public Banco de la Nacion. Throughout this episode, at least 40 banks failed (almost one third of total banks).

Sources: Guidotti et al. (2016), Laeven and Valencia (2018), Baron et al. (2021), Reinhart and Rogoff (2009a)

June, 2001

In mid-2001, Argentina had accumulated significant fiscal imbalances and was experiencing competitiveness problems following the Brazilian crisis. The restructuring of public debt and the announcement of a change in the parity under the convertibility plan (from a peg to the dollar to a basket of the US dollar and the euro) triggered bank runs, which intensified in the second half of the year, leading to a deposit freeze, a bank holiday, riots and major political instability in December 2001, as described by Laeven and Valencia (2018).

Sources: Laeven and Valencia (2018), Guidotti et al. (2016), BBC (2001a), BBC (2001b), Ennis and Keister (2009)

B.5 Antigua

February, 2009

In 2009, the Bank of Antigua suffered a classic bank run in February 2009. Hundreds of customers lined up outside the bank to withdraw their money. Texas billionaire Allen Stanford and his Bank of Antigua were under investigation for an $8 billion fraud. The US Securities and Exchange Commission (SEC) filed civil charges against Stanford for what it called a fraud "of shocking proportions" in the sale of $9.2 billion in securities that "promised ... improbably high interest rates", according to a report of CNN (2009).

Sources: CNN (2009), The Guardian (2009), Reuters (2009a), International Monetary Fund (2010a)

B.6 Australia

December, 1828

In 1828, Australia experienced a run on the Bank of New South Wales, and the bank sought government assistance. In late 1827 and early 1828, divisions among the Bank of New South Wales's management and shareholders further undermined the bank and public confidence in it. In its weakened state, the Bank of New South Wales was ill placed to withstand the colony's slide into depression in late 1827, according to Fitz-Gibbon and Gizycki (2001).

Sources: Fitz-Gibbon and Gizycki (2001), Metrick and Schmelzing (2021)

December, 1842

In 1842, Australia experienced bank runs when the Colonial Bank's losses in the first half of 1842 led its owners to question whether the bank should be wound up. This triggered a run that cut the bank's note circulation by half and deposits by a third. In an environment where shareholders themselves were under pressure to get cash, they opted to cut their losses and close the bank. In each case, note holders and depositors were quickly repaid.

Sources: Fitz-Gibbon and Gizycki (2001)

May, 1843

In May 1843, Australia experienced bank run on the Savings Bank of New South Wales because of rumors that the Governor, after examining the bank's securities, had declared them to be worthless (Fitz-Gibbon and Gizycki, 2001). There was also concern that the trustees had lost money in the failure of the Bank of Australia.

Sources: Fitz-Gibbon and Gizycki (2001)

April, 1893

In April 1893, the London Chartered Bank of Australia suffered a £300,000 bank run as part of the 1893 banking crisis. This run caused the bank to close abruptly on 26 April, although it was generally considered to be in a satisfactory position and had just announced a proposed dividend. A voluntary winding-up order was granted in London in mid-May, while discussions on reconstruction continued. The process of negotiating and approving a reconstruction plan, which would see a new institution, the London Bank of Australia, take over the assets, liabilities and operations of the Bank, continued through June and July. It reopened under the new name and structure in Australia on 7 August and in London on 8 August, according to The Sydney Morning Herald (1893c).

Sources: Goodhart and Delargy (1998), The Sydney Morning Herald (1893a), The Sydney Morning Herald (1893b) The Sydney Morning Herald (1893c), Reinhart and Rogoff (2009b)

April, 1931

In April 1931, Australia experienced bank runs amid a balance of payments crisis, according to the description of Baron and Dieckelmann (2022). The Federal Deposit Bank and State Savings Bank of Western Australia suffered runs following a run on another government savings bank.

Sources: Baron and Dieckelmann (2022), Fitz-Gibbon and Gizycki (2001), The Advertiser (1931), Cava and Price (2021)

October, 1974

In October 1974, the failure of multiple property financiers precipitated runs on building societies in several states, particularly in South Australia and Queensland.

Sources: Fitz-Gibbon and Gizycki (2001), Metrick and Schmelzing (2021)

February, 1989

In 1989, Australia experienced runs on several non-bank institutions. The banking industry experienced its worst losses since the 1890s. The State Bank of Victoria and the State Bank of South Australia suffered large losses, and state governments provided significant capital injections in the resolution of these problems, according to the description in Baron and Dieckelmann (2022). Several banks began to suffer large depositor withdrawals, but the Reserve Bank issued statements declaring that it believed the banks were generally safe and that it was prepared to intervene to provide "liquidity" and deposit guarantees, which then effectively stopped the runs.

Sources: Baron and Dieckelmann (2022), Dieckelmann (2021)

B.7 Austria

May, 1873

In May 1873, Austria experienced bank runs with massive depositor withdrawals according to the description in Baron and Dieckelmann (2022). The number of banks and banking firms dropped from 141 in 1873 to 45 in 1878. Depending on the source, it is reported that up to 100 banks failed or disappeared during this time. This is the well-known "Gründerkrach" banking crisis. Reinhart and Rogoff (2009a) date it to May 1873. Jobst and Rieder (2016) reports massive depositor withdrawals and bank runs.

Sources: Baron and Dieckelmann (2022), Reinhart and Rogoff (2009a), Goodhart and Delargy (1998), Jobst and Rieder (2016), Rieder (2014)

May, 1924

In May 1924, Austria experienced a bank run when the Allgemeine Depositenbank ran into difficulties due to speculation on the French franc, which led to its liquidation after heavy withdrawals. Some 40,000 savers lost part of their deposits according to the description of Baron and Dieckelmann (2022). The Austro-Polnische Bank, Austro-Orientbank, and the private Union Bank failed. Later, in 1927, Unionbank and Verkehrsbank failed and were merged with Creditanstalt. Biedermannbank failed in 1927. In 1924 the number of joint stock banks in Vienna dropped from 66 to 36.

Sources: Baron and Dieckelmann (2022), Kangas (2019)

May, 1931

In 1931, Austria experienced a bank run. When Creditanstalt, the country's largest bank, announced financial difficulties, foreign creditors and domestic depositors started a run on the bank. With all potential sources of liquidity exhausted, the only remaining source was the state. Bodencreditanstalt, the second largest bank, failed in 1929 and was merged with Creditanstalt. When it became clear to the management of Creditanstalt in early 1931 that the pyramid scheme that the Austrian banking sector had become could no longer be sustained, they turned to the authorities for support. They did not do so because they had lost the confidence of their foreign or domestic creditors and depositors, and the flight of capital had triggered this reaction. They were forced to do so because there was no new liquidity behind which to hide the years of insolvency. Creditanstalt failed on May 11, 1931.

Sources: Baron and Dieckelmann (2022), Kangas (2019), Kindleberger (1986), Bernanke and James (1990)

B.8 Belgium

December, 1838

In 1839, Belgium experienced a significant bank run that primarily affected the Banque de Belgique, the country's second largest financial institution. This crisis, triggered by the threat of war with the Netherlands and exacerbated by the Banque de Belgique's mismanagement of its note issuance and investments in illiquid assets, reached a critical point in December 1838. Unable to redeem its bank notes during the panic, the bank was compelled to suspend payments on December 17, 1838, and subsequently had to close its doors. Troops were deployed amid fears of the bank being plundered by angry depositors (Buyst and Maes, 2008). The government eventually stepped in with a bailout to prevent the bank's liquidation. Accordingly, we classify this episode as a bank run, in alignment with the view of Ugolini (2021).

Sources: Mardini and Schuler (2014), Buyst and Maes (2008), Ugolini (2021), Reinhart and Rogoff (2009a)

1870

In 1870, Belgium experienced a bank run triggered by fears of war between France and Prussia. The Belgian Finance Minister and the governor of the National Bank of Belgium (NBB) hastily relocated the bank's metal reserves, inciting a public panic. This led to a surge of people demanding to convert their notes into coins at the NBB, which reacted by closing most of its counters and significantly reducing discount transactions, causing widespread public outrage.

Sources: Buyst and Maes (2008)

July, 1914

In 1914, Belgium experienced bank runs when the country's invasion by German troops caused panic and a significant demand for cash. The result of this panic was people losing faith in banknotes and wanting to exchange them for coins, causing a run on National Bank branches in late July 1914, according to Luyten (2014).

Sources: Luyten (2014), Dieckelmann (2021), Baron and Dieckelmann (2022)

1925

In 1925, Belgium experienced a bank run triggered by fears of currency devaluation. This crisis was compounded by the continued depreciation of the Belgian franc, which led to severe financing issues for firms and banks, prompting the government to secure loans in US dollars to back the faltering currency and banking system.

Sources: Jordà et al. (2017)

May, 1931

In 1931, Belgium experienced bank runs caused by rumors about the potential failure of Banque de Bruxelles, the country's second largest bank. This event triggered significant withdrawals from all banks in Belgium, according to Bernanke and James (1990).

Sources: Bernanke and James (1990), Baron and Dieckelmann (2022), Jordà et al. (2017)

December, 1934

According to Jordà et al. (2017), there is narrative evidence of a wave of deposit withdrawals following the bankruptcy of Banque Belge du Travail. Towards the end of 1934, rumors about further bank failures led to mass deposit withdrawals.

Sources: Jordà et al. (2017)

B.9 Bulgaria

January, 1996

In 1996, Bulgaria experienced bank runs due to depreciation of its currency amid a failure of the government to heed the foreign debt deferment deal that had been negotiated by the previous administration. The ensuing plummeting of Bulgaria's credit rating caused runs on its banks.

Sources: Kovatchevska (2000), The Sofia Globe (2018), Bulgarian National Bank (1996), Laeven and Valencia (2018)

June, 2014

In 2014, Bulgaria experienced runs on two of its banks according to an article from The New York Times (2014). The first was KTB bank, a bank with a strong political connections involved in a feud of its majority stakeholder (Tsvetan Vassilev) with Delyan Peevski. The trigger of the run at KTB was the unfolding of latent war between the two individuals and Peevski deciding to withdraw its money from KTB. Allies of Vassilev retaliated by spreading rumors about FiB's solvency which then caused another run on FiB.

Sources: The New York Times (2014)

B.10 Bahrain

August, 1990

In August 1990, Bahrain experienced a significant deposits withdrawal due to the Iraqi invasion of Kuwait and the cutting of vital Western and Japanese credit lines. In Bahrain, private customers are believed to have sent abroad 30 to 40 percent of their deposits in commercial banks, or $1.1 billion to $1.5 billion, according to The New York Times (1990)

Sources: The New York Times (1990)

B.11 Bosnia and Herzegovina

October, 2008

The 2008 Bosnia and Herzegovina bank run, a significant financial crisis, occurred amidst economic stress and declining financial stability. In October 2008, about 12% of bank deposits were withdrawn, causing substantial financial strain. This crisis was a part of wider economic challenges, including unsustainable growth, fiscal imbalances, and vulnerability to the global financial crisis. Stability was restored quickly through liquidity support from foreign parent banks and effective central bank measures like reducing minimum reserve requirements, highlighting the financial system's fragility in economic downturns.

Sources: Commission of the European Communities (2009)

B.12 Belize

April, 2016

In 2016, Belize experienced a bank run triggered by a US tax evasion crack down on banks around the world, including on Belize Bank Internasional (BBI). According to The Guardian (2016), in April, BBI management informed the supreme court of Belize it had received unprecedented withdrawal requests. Tough US anti-tax evasion laws had increased compliance costs for BBI's partners, prompting Bank of America and Commerzbank to terminate relationships with the bank. The departure of these partner banks in many instances left BBI struggling to maintain basic services for account holders, and ultimately triggered a run on its deposits.

Sources: The Guardian (2016), Carribean News (2016), Torbati (2016)

B.13 Bolivia

January, 1985

In 1985, Bolivia experienced a bank run triggered by the "de-dollarization" program, which consisted of converting all obligations contracted in dollars or with value maintenance into national currency, including deposits in the banking system, at the exchange rate determined by the government on a given day. This measure created a mismatch in the banking system, hurting creditors and those with deposits in foreign currency in the banking system, but favoring debtors. The policy of de-dollarization failed because dollar transactions actually increased, and the government had to refinance debts and deposits in dollars with currency creation, thus increasing inflation, according to Kehoe et al. (2019). The program also generated a bank run and a subsequent government bailout of the banks.

Sources: The New York Times (1985b), Kehoe et al. (2019)

November, 1994

In 1994, Bolivia experienced a bank run as two banks, comprising 11% of the total banking system assets, shut down. Subsequently, in 1995, 4 out of the 15 domestic banks, accounting for 30% of the banking system assets, encountered liquidity issues and grappled with a substantial increase in nonperforming loans.

Sources: Guerschanik Calvo (2005), Latin America Digital Beat (1995), Laeven and Valencia (2018), Reinhart and Rogoff (2009a)

B.14 Brazil

September, 1864

In 1864, Brazil experienced a bank run due to the fall of Souto and Company (a bank) which prompted runs on all the banking houses, according to Marchant (1950). The streets

in Brazil were full of people trying to withdraw their money. The panic's effects were so considerable that the Bank of Brazil lost its right to issue paper money, which henceforth became a function exclusively of the Treasury.

Sources: Marchant (1950), Banco do Brasil (2004)

September, 1900

In 1900, Brazil experienced bank runs due to the withdrawal from circulation and devaluation of domestic currency. This reduction in the money supply in the economy provoked a bank panic in 1900 that considerably damaged the Brazilian banking system that had slowly evolved since mid-century, according to Topik (2007). A run on banks in Rio de Janeiro in September and October of that year led many financial institutions to fail.

Sources: Topik (2007), Triner (1999), Reinhart and Rogoff (2009a), Metrick and Schmelzing (2021)

August, 1914

In July 1914, deposit runs led to the closure of stock exchanges across countries in Latin America, including Brazil, according to Baron et al. (2021).

Sources: Baron et al. (2021), Reinhart and Rogoff (2009a), Metrick and Schmelzing (2021)

March, 1990

In March 1990, Brazil experienced a bank run due to economic instability and hyperinflation, eroding public confidence in the financial system. The government responded by freezing bank accounts and implemented reforms aimed at curbing hyperinflation by reducing the money supply. These measures temporarily stopped the bank run but caused significant public dissatisfaction and severe economic disruptions, according to Ennis and Keister (2009).

Sources: Ennis and Keister (2009)

B.15 Canada

March, 1837

In 1837, Canada experienced runs when banks were ordered to suspend convertibility beyond the value of their own capital stock until 1839, amid runs in Canada and New York. Lower Canadian banks had already suspended deposits before this government intervention in May, according to Metrick and Schmelzing (2021).

Sources: Metrick and Schmelzing (2021), Foot and Buckner (2016), Calomiris and Gorton (1991), Bunbury (1995), Breckenridge (1895)

September, 1867

In September 1867, Canada experienced a run on the Commercial Bank of Canada which acquired $1,770,000 in 30-year bonds in 1866 but delayed their sale, leading to suspicions about the bank's stability, especially after learning it provided security to major depositors. This distrust culminated in a deposit run. More bank runs occurred in October, according to Breckenridge (1895) and Artemiw (2017).

Sources: Breckenridge (1895), Artemiw (2017)

May, 1879

In May 1879, Canada experienced a series of bank runs and failures, primarily concentrated in Montreal. These runs began with the suspension of the Mechanics' Bank on May 28th, followed by La Banque Jacques Cartier on June 16th. The situation worsened in August when the Consolidated Bank suspended payments on August 1st, leading to a domino effect. The Exchange Bank and La Banque Ville Marie followed suit on August 7th and 8th, respectively. Panic spread to other banks, notably in Hamilton and Sarnia, with the Exchange Bank of Canada and the City and District Savings Bank in Montreal experiencing significant runs, the latter seeing withdrawals estimated at $500,000. Additional banks like the Banque de St. Hyacinthe, Banque de St. Jean, Banque d'Hochelaga, Molson's Bank, and the Bank of Hamilton were also affected by rumors or actual runs. This series of events culminated in October with the failure of the Bank of Liverpool.

Sources: Baron et al. (2021), Breckenridge (1895), The New York Times (1879)

May, 1893

In July 1893, Canada experienced a significant bank run, specifically targeting the Commercial Bank of Manitoba. Supported initially by a guarantee fund, other banks in Manitoba continued accepting its notes after suspension, averting public panic and note devaluation. However, the bank's risky business practices and susceptibility to local economic conditions led to a steady increase in debts from 1892. A major withdrawal of deposits began in May 1893, escalating in June, with the bank attempting to manage this by issuing notes to depositors. By mid-September, the public had redeemed most of the bank's notes, but with circulation reduced from $419,135 in July to just $31,835 by November's end, and only $4,130 left in its vaults, the bank could no longer redeem its paper and was compelled to suspend operations. This collapse was a culmination of the bank's risky strategies, mounting debts, and a severe run on deposits (Breckenridge, 1895).

Sources: Breckenridge (1895)

August, 1914

In 1914, Canada experienced multiple bank runs at the onset of World War I. The Home Bank of Canada experienced runs on August 4, 1914 before the war was declared. The

Bank of Vancouver suspended payments on 14 December 1914, according to Baron et al. (2021) and other sources.

Sources: Baron et al. (2021), Metrick and Schmelzing (2021), CBC News (2008), Canada War Museum (2008), Turley-Ewart (2004), Curtis (1947), Powell (2010)

December, 1921

In December 1921, the small bank La Banque Nationale faced large difficulties with the result of sporadic bank runs and millions of deposits that were withdrawn. It was not until the end of 1923 that the situation became more quiet.

Sources: Baron et al. (2021), Metrick and Schmelzing (2021)

October, 1924

In 1924, some solvent Canadian banks, such as the Dominion and the Imperial Bank, experienced runs. Between October 12 and 15, hundreds of depositors crowded into Dominion Bank branches in Toronto to shut down their accounts and rescue their money. The banking system was in great difficulty as a result of sporadic bank runs and millions of deposits were withdrawn.

Sources: Baron et al. (2021), Metrick and Schmelzing (2021), Bordo and Redish (1996)

July, 1982

In July 1982, the failures of the Canadian Commercial Bank of Edmonton and the Northland Bank coincided with deposit runs. The Mercantile Bank of Canada also suffered a run and was taken over by the National Bank. The Canadian Commercial Bank of Edmonton and the Northland Bank ultimately failed in 1985. Over 20 trust companies and mortgage corporations failed as well. In 1986 the Bank of British Columbia had to be rescued and was bought by HSBC.

Sources: Baron et al. (2021), Powell (2010)

June, 1996

In June 1996, Canada experienced bank runs when the Calgary-based Security Home Mortgage Corporation failed. The failure affected some 2,600 Canadians and $42 million in deposits. The company closed its doors, and customers were alarmed to learn that they would not have immediate access to their savings, according to an article by the Canada Deposit Insurance Corporation (2022).

Sources: Canada Deposit Insurance Corporation (2022), Hardbacon (2023)

B.16 Chile

1865

In September 1865, Chile experienced a run on Banco de Chile and five other deposit-taking institutions due to Chile's declaration of alliance with Peru in a war against Spain, according to Brock (2016).

Sources: Brock (2016), Metrick and Schmelzing (2021)

January, 1878

In July 1887, Chile experienced a run on Banco Nacional de Chile. A potential reason might have been comments made by the Finance Minister in front of Congress. These comments indicated that, in the event of a bank's collapse, demand deposits could be considered as subordinated debt, according to Brock (2016). The government declared all bank notes legal tender amid run on Banco Nacional de Chile.

Sources: Brock (2016)

February, 1895

According to Metrick and Schmelzing (2021), Chile experienced widespread bank runs in 1895 amid the country's transition to the gold standard, which prompted considerable uncertainty about the value of the currency.

Sources: Metrick and Schmelzing (2021), Brock (2016)

July, 1898

In 1898, Chile experienced a bank run in Santiago triggered by mounting financial distress. By early July, panic among depositors led to a massive withdrawal of funds from Santiago's banks. This crisis forced the government to declare a moratorium on July 11th, and by August, the government guaranteed all bank note issuance.

Sources: Brock (2016)

December, 1907

In 1907, Chile saw widespread bank runs, including on Mobiliario Bank. To stem these runs, the government intervened with "grant facilities" and further liquidity support.

Sources: Baron et al. (2021), Metrick and Schmelzing (2021)

July, 1914

In July 1914, Chile experienced bank runs that led to the closure of stock exchanges across several countries in Latin America, according to the description of Baron et al. (2021). Reinhart and Rogoff (2009a) also consider this to be a systemic banking crisis.

Sources: Baron et al. (2021), Reinhart and Rogoff (2009a), Bordo et al. (1999)

June, 1976

According to Kaufman (1992), the sharp fall in world copper prices led to a recession in Chile in 1975 and a significant withdrawal of deposits from the financial system, particularly impacting SINAP (Sistema Nacional de Ahorros y Préstamos), a key financial intermediary. This crisis arose partly because the government's financial stability was questioned, leading to a loss of depositor confidence and SINAP's insolvency caused by an inability to cover withdrawals with the sale of long-term loans. The government's response to SINAP's crisis included freezing 60-day deposits and allowing only limited monthly withdrawals of US$ 100 per account, offering the remainder in long-term bonds at a reduced market value.

Sources: Baron et al. (2021), Kaufman (1992)

January, 1983

Chile experienced bank runs in 1983 shortly after Chile inked a deal with the IMF for urgent financial support, which led depositors to rapidly withdraw cash from Chilean banks. The liquidity crisis forced the government to place seven banks and one financiera, which jointly accounted for 40% of Chilean deposits, under temporary resolution.

Sources: Laeven and Valencia (2018)

B.17 China

February, 1903

In February 1903, Tongshang Bank faced a severe bank run after the discovery of counterfeit notes. After the news of counterfeit currency spread, money houses refused to accept Tongshang Bank's notes. Despite efforts to reassure the public by displaying the fake notes and extending business hours, the panic persisted. Sheng Xuanhuai, overseeing the situation from Beijing, directed immediate cash withdrawals and obtained 700,000 yuan from HSBC using gold and silver as collateral. The crisis deepened when a Japanese individual was caught with counterfeit notes at HSBC, leading to an investigation that uncovered a larger counterfeiting ring in Osaka, Japan. The incident significantly undermined Tongshang Bank's credibility, leading to massive financial losses and the closure of several branches. The crisis culminated in Tongshang Bank withdrawing and destroying

all existing notes and issuing new notes in early 1905.

Sources: Sheng (2014), Yan and Yi (2008), The Straits Times (1903), Goh (2020), Rodrigo and Rodrigo (2021)

May, 1916

In 1916, China experienced bank runs when the Republican government, under Yuan Shikai, faced fiscal challenges and suspended bank note convertibility between the Bank of China and the Bank of Communications. According to Ma (2012), widespread financial disruptions across the country were seen.

Sources: Ma (2012)

November, 1921

On November 15, 1921, both the Bank of China and the Bank of Communications in Beijing faced a bank run, largely due to the Beiyang government's financial policies and the repercussions of the 1916 suspension of currency convertibility, according to China Banking and Insurance News (2021).

Sources: Gou (2016), Hao (2019), Pan (2014), China Banking and Insurance News (2021), Ma (2012), Kan (2012)

December, 1928

On December 10, 1928, the Sino-Japanese joint venture, Zhonghua Huiye Bank, suspended operations after experiencing a bank run, leading to widespread panic, rumors, and subsequent runs on several other banks in Beijing and Tianjin, according to Gou (2016).

Sources: Gou (2016), Ma (2012)

1930

According to Viana (2022) and Metrick and Schmelzing (2021), there were bank runs on several institutions between 1930 and 1932, including the Sinhua Trust Savings in 1930, SHCS in 1931, and the National Industrial Bank of China in 1932. We assign these events to the first year, which is 1930.

Sources: Viana (2022), Metrick and Schmelzing (2021)

1997

In the wake of the 1997 Asian Financial Crisis, there were widespread runs on banks in Guangdong province that quickly spread nationwide. The trigger for these runs was a series of scandals involving local officials and a manager at the China Construction Bank,

as well as concerns about the financial situation of rural credit cooperatives. Up to 70% of the banking system's assets were deemed insolvent and banks faced severe liquidity issues. 50% of all loans became underperforming, causing severe liquidity problems for banks.

Sources: Caprio and Klingebiel (2002), China Ministry of Finance (2014), Cousin (2011), The Washington Post (1997)

November, 2019

In November 2019, two bank runs were recorded by articles published by Reuters. In the first case at Yichuan Rural Commercial Bank in Henan Province, the investigation of the bank's former chairman led to a wave of depositors withdrawing their funds due to concerns over the bank's stability. The second bank run at Yingkou Coastal Bank was sparked by rumors of a crisis at the bank, leading to a surge in customers withdrawing their deposits. Yingkou Coastal Bank, a small financial institution predominantly reliant on customer deposits, faced heightened depositor anxiety. This situation mirrored wider concerns affecting small Chinese banks, partly due to the government's previous takeover of Baoshang Bank. In response, Yingkou Coastal Bank increased its deposit interest rates to attract and retain customers, a move that raised questions about its long-term financial stability. The bank also visibly stacked bundles of cash at teller counters to manage withdrawals and reassure customers. Local government officials intervened to ease concerns and stabilize the situation, marking a shift from the central government's direct involvement in similar past incidents. This incident at Yingkou Coastal Bank reflected the broader challenges faced by small banks in China amid rumors and fears about their solvency.

Sources: Reuters (2019)

April, 2022

According to Liu (2022), China experienced a wave of bank runs in April 2022 triggered by a freezing of deposits worth 40 billion yuan ($6 billion) and affecting 400,000 depositors. These bank runs started from three rural village and town banks (VTBs) in Henan province. Three more runs on VTBs happened within a month, including two in the neighboring Anhui province. Five of the six troubled VTBs have the same major shareholder bank, Xuchang Rural Commercial Bank. Not being able to withdraw their life savings led to protests by depositors, triggered panic over the solvency of small banks, and increased the nationwide risk of runs on small banks.

Sources: Liu (2022)

October, 2023

In October 2023, a bank run occurred at Cangzhou Bank, a regional bank in Cangzhou, Hebei Province, China, driven by concerns over the debt crisis of Evergrande Group, a

major real estate company that defaulted in 2021. The situation was aggravated by circulating images and videos of depositors queuing for withdrawals, which led to a panic. Local authorities responded by arresting several individuals for allegedly spreading false rumors about the bank's financial troubles related to Evergrande. The Cangzhou government also released statements to reassure the public about the safety of their deposits. This incident is indicative of the broader challenges facing China's financial sector amid an ongoing real estate crisis.

Sources: Shan (2023)

B.18 Colombia

July, 1923

In 1923, Colombia experienced several bank runs. This episode was triggered by an initial run on Banco Lopez on July 15, 1923. Banco Lopez had only been founded in 1919 and took heavy losses due to its exposure to the highly volatile coffee export market. This event gave rise to the founding of the Banco de la Republica, the country's central bank.

Sources: La Opinión (2023), Metrick and Schmelzing (2021)

July, 1982

In July 1982, Colombia experienced a bank run on Banco Nacional. The bank ran into financial difficulties in 1981 when the companies and owners of Grupo Colombia began to default on their debts. Despite this, the bank continued to lend money to the same companies and owners. When the fraud at Financiera Furatena was discovered in June 1982, the public launched a run on Banco Nacional. The run forced the bank into liquidation later that year. Another run began on the Banco del Estado in August 1982, forcing its bailout and nationalisation in October 1982. This episode is also classified as a banking crisis by Laeven and Valencia (2018), Baron et al. (2021), and Reinhart and Rogoff (2009a), although Baron et al. (2021) do not classify it as a banking panic.

Sources: Laeven and Valencia (2018), Baron et al. (2021), Reinhart and Rogoff (2009a), Hernandez et al. (2022)

June, 1998

Colombia experienced a systemic banking crisis in 1998 that was also accompanied by a bank run, according to Steiner and Barajas (2000). Because these authors do not give a precise date for the run event, we follow the timing in Laeven and Valencia (2018) and Baron et al. (2021) who date the start of the crisis to June 1998 when the first bank failure occurred.

Sources: Laeven and Valencia (2018), Baron et al. (2021), Reinhart (2002), Steiner and Barajas (2000)

B.19 Costa Rica

November, 1987

In 1987, Costa Rica experienced bank runs following the collapse of Consorcia Cretiticia, which triggered a wider financial crisis. Reinhart and Rogoff (2009a) also consider this to be a systemic banking crisis.

Sources: Reinhart and Rogoff (2009a), Metrick and Schmelzing (2021), Bordo et al. (2001)

August, 2004

In August 2004, Costa Rica experienced a bank run on BAC San José due to a false rumor that regulators had intervened with the bank because of solvency issues, according to El Financiero (2023) and Al Día, Nacionales (2004). The rumors were apparently spread on purpose to hurt the business of what was then Costa Rica's largest bank.

Sources: El Financiero (2023), Al Día, Nacionales (2004)

B.20 Cyprus

1939

Cyprus experienced localized bank runs and uncertainty regarding the position of the Bank of Cyprus, prompting the government to order banking holidays.

Sources: Metrick and Schmelzing (2021)

B.21 Czechoslovakia

May, 1923

In May 1923, Czechoslovakia experienced bank runs when bank failures led to widespread withdrawals of deposits from smaller banks across the country.

Sources: Baron et al. (2021)

May, 1931

The Creditanstalt Bank of Vienna's collapse in May 1931 started the Great Depression in Europe, triggering runs on Austrian Banks, and spread to banks in Hungary, Czechoslovakia, Romania, Poland and Germany. Bernanke and James (1990) also report deposit withdrawals.

Sources: Bernanke and James (1990), Baron et al. (2021), Reinhart and Rogoff (2009a)

June, 1994

Czechoslovakia experienced multiple bank runs between 1994 to 2000 during its transformation to market economy. The first notable bank run occurred in 1994 following the collapse of Banka Bohemia, due to fraudulent activities. This incident exposed the financial system's fragility and led to the establishment of partial deposit insurance. Subsequently, the failures of Česká Banka and AB Banka in 1995 prompted further runs. These events triggered a broader restructuring aimed at small banks, which were a significant source of vulnerability within the banking sector.

Sources: Laeven and Valencia (2018), Baron et al. (2021)

June, 2000

In 2000, the Czech Republic experienced a significant bank run involving Investiční a Poštovní Banka (IPB), the third-largest bank at that time. Operational troubles led to a swift run on deposits, and the Czech National Bank was compelled to place IPB under forced administration, followed by a hasty sale to Československá obchodní banka (ČSOB). This event marked a critical point in the Czech banking sector's post-communist transformation, highlighting the ongoing need for regulatory improvements and effective governance to sustain depositor confidence.

Sources: Baron et al. (2021)

B.22 Germany

October, 1873

The "Gründerkrach" of 1873 was characterised by significant funding withdrawals and numerous bank failures. Rieder (2017) provides a detailed discussion of these events, including the failure of Quistorpsche Vereinsbank. Other banks that failed during this period include Allgemeine Depositenbank, Elberfelder Disconto- und Wechselbank, Unionbank, Dresdner Handelsbank, Sächsischer Bankverein, Sächsische Kreditgesellschaft, Thüringische Bank, and Stuttgarter Bank. The Berliner Bankverein, Berliner Wechslerbank, Frankfurter Bankverein, and the Niederlausitzer Bank were liquidated between 1876 and the 1880s.

Sources: Jordà et al. (2017), Baron et al. (2021), Metrick and Schmelzing (2021), Rieder (2017), Friedman and Schwartz (1963)

September, 1891

In September 1891, Germany experienced bank runs as part of a broader banking crisis. According to Baron et al. (2021), such deposit withdrawals occurred in Berlin specifically, likely related to the failures of C. W. Schnöckel, Hirschfeld & Anton Wolf, Hermann Friedländer & Sommerfeld, and Eduard Maass. This interpretation is also supported by

the description of this episode in Metrick and Schmelzing (2021).

Sources: Baron et al. (2021), Metrick and Schmelzing (2021)

June, 1901

In June 1901, Germany experienced bank runs. Two mortgage banks failed in the autumn of 1900. Pommersche Hypotheken Bank, Mortgage Bank of Mecklenburg-Strelitz failed and were saved by discount banks in 1901. Preussische Hypothekenaktienbank, Deutsche Grundschuldbank, Dresdner Creditanstalt and Leipziger Bank failed in 1901 as well, followed by some other smaller banks.

Sources: Baron et al. (2021)

September, 1911

In September 1911, Germany experienced bank runs during the Agadir Crisis, which sparked a severe stock market plunge in Berlin. The Reichsbank assisted banks with considerable resources, but two banks in Goettingen still failed. The exact extent of the crisis is unclear, but it is estimated to have been far above 4 million Mark, according to the description by Metrick and Schmelzing (2021).

Sources: Metrick and Schmelzing (2021)

July, 1914

According to Baron et al. (2021), who cite Holtfrerich (1980), German banks experienced severe bank runs at the beginning of World War I in July 1914, although these runs were not associated with major bank failures.

Sources: Baron et al. (2021), Holtfrerich (1980)

August, 1929

According to the description of Baron et al. (2021), Germany experienced a severe banking crisis in the summer of 1931, which worsened the economic slump caused by the Great Depression. The crisis was triggered by the collapse of Danatbank, one of Germany's four big universal banks, which had invested heavily in foreign bonds and suffered huge losses. The failure of Danatbank sparked a wave of panic and withdrawals from other banks, leading to the closure of more than 40 banks and the suspension of payments by the Reichsbank, Germany's central bank. Bernanke and James (1990) report first bank runs and failures of smaller banks in August 1929, which we treat as the start date of the run. Jordà et al. (2017) also report widespread deposit withdrawals in 1930 and 1931, starting in June 1930.

Sources: Baron et al. (2021), Bernanke and James (1990), Jordà et al. (2017)

B.23 Denmark

February, 1908

According to Baron et al. (2021), Metrick and Schmelzing (2021), and Jordà et al. (2017), Denmark experienced bank runs starting in February 1908 following the failure of Københavns Grundejerbank.

Sources: Baron et al. (2021), Metrick and Schmelzing (2021), Jordà et al. (2017)

September, 1922

According to Baron et al. (2021), Denmark experienced a bank run following the collapse of the major bank Landmandsbanken in September 1922.

Sources: Baron et al. (2021), Metrick and Schmelzing (2021), Jordà et al. (2017)

B.24 The Dominican Republic

April, 2003

In April 2003, the Dominican Republic experienced bank runs triggered by the collapse of Banco Intercontinental (BANINTER), the country's second largest commercial bank at the time. BANINTER was involved in a fraud and corruption scandal involving several politicians and businessmen, including former President Hipólito Mejía. The bank run led to a wider banking crisis and severe recession, including a sharp devaluation of the Dominican peso.

Sources: Laeven and Valencia (2018), Metrick and Schmelzing (2021), Freedom House (2003), The Dominican Republic (2006)

B.25 Ecuador

April, 1998

In April 1998, Ecuador experienced deposit runs following the closure of Solbanco, a smaller institution. The closure led to runs on other banks including two of the three largest banks. The resulting systemic liquidity crunch due to the contagion developed into a full-fledged banking crisis in August 1998. The situation worsened through 1999, compelling the government to freeze bank deposits and ultimately adopt the U.S. dollar as the official currency in 2000. Metrick and Schmelzing (2021) additionally report bank runs in early 2000, but these seem to be part of the same episode.

Sources: Metrick and Schmelzing (2021), Laeven and Valencia (2018), Reinhart and Rogoff (2009a), Jácome (2004), Ennis and Keister (2009)

B.26 Egypt

May, 1907

In May 1907, Egypt experienced bank runs that triggered a panic, according to Baron et al. (2021) and Metrick and Schmelzing (2021).

Sources: Baron et al. (2021), Metrick and Schmelzing (2021), Hu (2020)

July, 1914

In July 1914, Egypt experienced bank runs after the closure of the stock exchange following the beginning of World War I.

Sources: Baron et al. (2021), Metrick and Schmelzing (2021)

July, 1931

In July 1931, Egypt experienced bank runs on the Cairo and Alexandria branches of the Deutsche Orientbank.

Sources: Baron et al. (2021), Reinhart and Rogoff (2009a), Bernanke and James (1990)

B.27 Estonia

October, 1998

The shutdown of EVEA Bank and ERA Bank in 1998, with EVEA Bank collapsing due to its significant investments in Russian eurobonds and the ensuing major losses amid the Russian financial market's downfall, involved bank runs. EVEA Bank's collapse, followed by a swift loss of depositor confidence in ERA Bank, prompted a rush of withdrawals that led to ERA Bank's subsequent closure, demonstrating a classic liquidity crisis triggered by a rapid erosion of trust among depositors.

Sources: International Monetary Fund (1999a)

September, 2008

In September 2008, Swedbank's Estonian branch experienced a bank run triggered by depositor concerns over the bank's financial stability. These concerns were fueled by a regional financial crisis, notably in the real estate market, and the broader global financial crisis which eroded trust in financial institutions. Swedbank's high exposure to real estate loans heightened fears of potential defaults as property prices fell. In response, Sweden's central bank, Riksbank, expanded acceptable collateral for Swedbank, helping stabilize the subsidiary.

Sources: Metrick and Schmelzing (2021), OECD (2011), International Monetary Fund (2009)

B.28 Ethiopia

January, 2016

In January 2016, Ethiopia experienced a bank run after the Commercial Bank of Ethiopia (CBE) approved a $2 billion letter of credit request. In such cases, importers are required to deposit a certain percentage in birr with the bank. Over the next few weeks, a bank run occurred as individuals withdrew large sums of money from other banks to deposit in the CBE, according to Kflip (2023).

Sources: Kflip (2023)

B.29 Finland

November, 1900

In November 1900, Finland's Maanviljelyspankki bank experienced a bank run triggered by the recession at the beginning of the century, which was exacerbated by the bank's reckless expansion, aggressive interest rate competition, and fraudulent practices. The resulting bankruptcy marked the first time depositors in a Finnish commercial bank faced losses. The crisis prompted the Finnish state to stabilize the banking sector by depositing funds in banks, according to Herrala (1999).

Sources: Baron et al. (2021), Herrala (1999), Reinhart and Rogoff (2009a), Metrick and Schmelzing (2021), Jordà et al. (2017)

November, 1939

In 1939, the outbreak of the Winter War, triggered by the unexpected aggression of the Soviet Union, led to widespread bank runs in Finland. This financial turmoil escalated into a banking panic, prompting the Bank of Finland to impose restrictions on deposit withdrawals.

Sources: Reinhart and Rogoff (2009a), Baron et al. (2021), Metrick and Schmelzing (2021), Herrala (1999)

B.30 France

August, 1704

In August 1704, reports of the French military's defeat at the Battle of Blenheim triggered a bank run on the Caisse d'Escompte, exacerbating a severe liquidity crisis following currency devaluations. In response, a royal decree suspended the operations of the Caisse

d'Escompte until April 1705 and recapitalised the bank through new tax allocations.

Sources: Metrick and Schmelzing (2021), Félix (2018)

May, 1720

In 1715, under the regency of the Duke of Orléans, France was on the verge of financial collapse and turned to the Scottish economist John Law for solutions. Law founded the Banque Générale Privée in 1716, advocated a switch from metallic to paper currency, and acquired the Mississippi Company, an integral part of France's colonial trade. He proposed to issue shares in the company in exchange for government bonds to reduce the public debt inherited from the reign of Louis XIV, sparking speculative investment and a surge in public interest. The French government printed vast amounts of paper money to capitalise on this trend, which soon led to severe inflation and the devaluation of both currency and bonds. The stock of the Mississippi Company, which was tied to the national economy, collapsed in 1720, triggering a market crash in France and a widespread bank run that eventually led to a significant market collapse.

Sources: Metrick and Schmelzing (2021), Beattie (2023), Encyclopaedia Britannica (1998), Narron and Skeie (2014)

October, 1783

At the beginning of the French financial and debt crisis (1783-1788), the Caisse d'Escompte experienced a bank run in October 1783. An official decree allowed the Caisse to suspend convertibility until 1 January 1784. This crisis in France was due to the large debts incurred during its participation in the Seven Years' War (1756-1763) and the American Revolution (1775-1783), which led to severe financial turmoil.

Sources: Metrick and Schmelzing (2021)

September, 1789

According to White (1995), France experienced bank runs due to further instability at the Caisse d'Escompte. Finance Minister Necker authorised the bank to suspend payments in the event of a run, and both the run and the suspension occurred in September 1789.

Sources: Metrick and Schmelzing (2021), White (1995)

September, 1805

In September 1805, the Banque de France faced a bank run triggered by rumors of a depletion of French silver reserves due to Napoleon's military campaigns. The bank was faced with a substantial debt of 68 million francs and only 0.782 million francs in specie. This crisis forced the Banque de France into partial suspension. In response, Napoleon nationalised the bank's operations, injected 45 million francs of private capital and received

some support from the treasury to stabilise it. The victory at Austerlitz in December 1805 helped to restore confidence in France's financial stability.

Sources: Reinhart and Rogoff (2009a), Metrick and Schmelzing (2021)

December, 1838

According to Buyst and Maes (2008) and Reinhart and Rogoff (2009a), there were several bank runs in Paris in 1838 and 1839 following the failure of the Banque de Belgique.

Sources: Reinhart and Rogoff (2009a), Buyst and Maes (2008)

February, 1847

In 1847, bank runs occurred against a backdrop of economic challenges in France, including an agricultural and cyclical crisis, which caused overstocked businesses to accumulate debt and delay payments. The runs were triggered by an increased demand for credit and a decline in debt payments to banks, leading some banks, such as Bontoux and Delhante in Lyon, to suspend payments. Other bank runs took place during the revolutions of 1848, when France was already facing a deep financial crisis and weakened money markets. The outbreak of the revolution caused panic, the stock exchange was closed and share prices plummeted, leading to a widespread withdrawal of funds from banks. Some 250 banks suspended payments between February and April, and the Bank of France had to suspend cash payments on its banknotes. Despite measures to restore confidence, financial fragility persisted and the subsequent recovery was slow.

Sources: Reinhart and Rogoff (2009a), Bonin (2000), Alessio Moro and Tedde (2013)

1871

In 1871, France experienced bank runs during the Franco-Prussian War, according to Baron et al. (2021).

Sources: Baron et al. (2021)

January, 1881

In 1881 and 1882, France experienced bank runs due to the collapse of the Banque de Lyon and the Union Generale. The crisis was primarily caused by a credit boom driven by stock market speculation but Baron et al. (2021) also considers this as a banking crisis.

Sources: Baron et al. (2021)

March, 1889

In 1889, a speculative bubble in the copper market led to a bank run in France. Led by the industrialist Secrètan, who sought to monopolise the market, speculation relied heavily on bank loans and guarantees. The collapse in copper prices led to significant losses for banks, particularly Comptoir d'Escompte (CdE), which faced insolvency and a subsequent bank run following the suicide of its chairman. To alleviate the crisis, the Bank of France provided a 100 million franc loan to the CdE, which helped to prevent a wider financial disaster.

Sources: Reinhart and Rogoff (2009a), Baron et al. (2021), Jordà et al. (2017), Hautcoeur et al. (2014)

October, 1930

In October 1930, the beginning of the French banking crisis was marked by runs on provincial banks, signalling wider systemic financial instability. This turmoil was part of the wider global economic downturn that began with the stock market crash in the United States in 1929. The crisis in France was exacerbated by the country's adherence to the gold standard until 1936, which led to a deep recession, falling prices, rising unemployment and a deterioration in the competitiveness of French firms. Notable failures included local banks such as Banque Adam, the Oustric Group and Banque Renauld, as well as the regional Banque d'Alsace-Lorraine and the national Banque Nationale de Crédit between 1930 and 1931. The crisis culminated in the rescue of a major investment bank, the Banque de l'Union Parisienne, by the Bank of France and Parisian banks in 1932.

Sources: Reinhart and Rogoff (2009a), Baron et al. (2021), Jordà et al. (2017), Lacoue-Labarthe (2005), Bernanke and James (1990)

September, 1931

In September 1931, France experienced bank runs when depositors began withdrawing their funds from the BNC (Banque Nationale de Crédit) due to the shaky situation of Comptoir Lyon-Alemand, another bank, according to Lacoue-Labarthe (2005)). Despite government bailouts, BNC went into liquidation after withdrawals reduced its deposits by 53.7%. This run on BNC triggered a panic that affected several other banks, including the Comptoir d'escompte de Reims and the Banque syndicale de Paris, leading to their closure. By November, several long-established provincial banks had failed, and by the end of 1931, according to Lescure (2005), some 230 banks had failed in these financial panics.

Sources: Baron et al. (2021), Lacoue-Labarthe (2005), Lescure (2005)

February, 1932

In 1932, France experienced bank runs as the financial distress of the Banque de l'Union Parisienne and the restructuring of the BNC in 1932 marked another stage of the banking crisis in France, according to Lacoue-Labarthe (2005). Despite government support, the BNC was forced to close following a bank run in February 1932, leading to its amicable liquidation and the creation of a new bank, the National Bank of Commerce and Industry. Rumors of heavy losses at the Banque de l'Union Parisienne because of investments in Hungary led to withdrawals of 600 million francs, and the bank merged with the Crédit Mobilier Français in May. Crédit du Nord also took over the troubled Banque Générale du Nord in May 1934, a move that ultimately strengthened the bank. The crisis also led to the closure of branches throughout the country, with the total number of branches falling by more than 15% between 1931 and 1932.

Sources: Lacoue-Labarthe (2005), Reinhart and Rogoff (2009a)

September, 1938

According to Baron et al. (2021), France experienced bank runs in 1938 because of the impeding war in Europe. There is evidence of large deposit withdrawals of around 4 billion francs in numerous bank runs on savings banks in the month of September alone.

Sources: Baron et al. (2021)

B.31 Great Britain

May, 1696

In 1696, Britain experienced a bank run when goldsmiths ran on the newly established Bank of England in May.

Sources: Metrick and Schmelzing (2021)

1707

In 1707, the Bank of England experienced a bank run triggered by rumors of a French invasion, as described by Metrick and Schmelzing (2021).

Sources: Metrick and Schmelzing (2021)

November, 1745

In 1745, as described by Metrick and Schmelzing (2021), England experienced bank runs as a result of the Highlanders' advance.

Sources: Metrick and Schmelzing (2021)

June, 1772

In June 1772, banks in Scotland, particularly the Ayr Bank, experienced significant bank runs, which quickly spread to England and other parts of Europe, signaling a broader financial crisis. The economic background was characterized by speculative investments in East India Company stock, among other ventures. The immediate trigger was the collapse of Neale, James, Fordyce, and Down, a London bank, due to the heavy losses incurred by partner Alexander Fordyce in stock speculations.

Sources: Kenny et al. (2021), Neal (1991), Scottish Centre for Global History (2021)

May, 1815

According to Kenny et al. (2021), banks in the United Kingdom experienced severe bank runs from 1815 to 1816. This financial crisis occurred during a period of economic adjustment following the end of the Napoleonic Wars, transitioning the economy from wartime to peacetime conditions. Reinhart and Rogoff (2009a) date the crisis from 1815-1817, noting speculation in agriculture, a general depression in property prices, and widespread bank failures.

Sources: Kenny et al. (2021), Reinhart and Rogoff (2009a)

May, 1820

In 1820 and 1821, the United Kingdom experienced several episodes of bank runs and a wider banking crisis, according to Kenny et al. (2021). We date the start of this episode to May 1820. Kenny and Turner (2019) find that the crisis in Ireland began in late May with the closure of Roches' Bank and Leslie's Bank, which quickly triggered a run on the Cork Savings Bank. In June 1820, the Caledonian Mercury reported bank runs in Scotland. This episode is not mentioned in Reinhart and Rogoff (2009a).

Sources: Kenny et al. (2021), Kenny and Turner (2019), Reinhart and Rogoff (2009a)

December, 1825

The 'Panic of 1825' has been described as one of the world's first international financial crises (see, e.g., Olmstead-Rumsey, 2019). It followed a major boom in credit and speculation in the preceding years, which came to a crashing halt with the drying up of money market liquidity in mid-December, followed by runs on many London banks. Specifically, the panic began on 12 December 1825, when the London bank Pole, Thornton & Co. suspended payments, which in turn triggered panic among depositors at Pole's correspondent banks. By the end of that year, these spillovers were particularly damaging to small "country banks", 30 of which were declared bankrupt by the end of December (and 41 more the following year). Reinhart and Rogoff (2009a) also date this as a banking crisis, referring to it as the "Panic in London".

Sources: Olmstead-Rumsey (2019), Reinhart and Rogoff (2009a), Fulmer (2022)

December, 1840

There are several reports of runs during the banking crisis of the late 1830s. Kenny et al. (2021) refer to this episode as the "crisis of 1840-41", while others date it to the late 1830s (e.g., Turner, 2014). Reinhart and Rogoff (2009a) put the starting date at 1837. While there were several newspaper reports of bank runs in 1840 and 1841, we date the start of this episode to December 1839, when the Truro & St. Columb Bank (Turner & Co) experienced a run and was subsequently taken over, according to Kenny et al. (2021).
Sources: Kenny et al. (2021), Turner (2014), Reinhart and Rogoff (2009a)

October, 1847

The United Kingdom experienced a banking crisis in 1847, caused by the collapse of a speculative boom in railway shares. The crisis led to bank runs that "accelerated" in October, according to Metrick and Schmelzing (2021). After lending freely between January and September, the Bank of England (BoE) stopped lending against shares and treasury bills in October. The Panic of 1847 led to a bank run in London in October 1847, when several large merchant banks and discount houses faced liquidity problems and could not meet their obligations. As described in detail on the basis of primary sources in Kenny et al. (2021), the bank run spread to other cities and regions, causing many banks to fail or suspend payments.

Sources: Kenny et al. (2021), Metrick and Schmelzing (2021)

November, 1857

In 1857, the United Kingdom experienced bank runs. Private assistance was given to the Western Bank, but it failed along with the City Bank of Glasgow (which was temporarily suspended), as described by Metrick and Schmelzing (2021). These events "caused a run on the other banks", according to an article in the Liverpool Mail at the time, as quoted in the appendix by Kenny et al. (2021). The incidence of runs is also mentioned by Reinhart and Rogoff (2009a) to have happened in Glasgow, Liverpool and London.

Sources: Metrick and Schmelzing (2021), Kenny et al. (2021), Reinhart and Rogoff (2009a), Riddiough and Thompson (2012)

May, 1866

In 1866, the UK experienced bank runs following the unexpected failure of Overend, Gurney & Co, which triggered a systemic banking crisis. Overend & Gurney had been the largest player in the London interbank market at the time. An article in the Banker's Magazine at the time, quoted in Xu (2022), provides clear evidence of runs: "It is impossible to describe the terror and anxiety that seized men's minds ... a run immediately began on all the banks, the magnitude of which ... can hardly be imagined." Overend & Gurney's

failure followed a speculative boom in the 1860s. The bank's surprise collapse was due to the fact that it had expanded away from its core business as a discount house rather than a retail bank, into riskier investments without adequate collateral, and had systematically misled its investors about its financial position.

Sources: Xu (2022), Kenny et al. (2021), The House of Commons (2008)

September, 1878

In 1878, the United Kingdom experienced bank runs starting in late September, when the collapse of the City of Glasgow Bank triggered a wider panic that affected several other banks. While Kenny et al. (2021) do not classify this episode as a systemic banking crisis, their appendix reports clear evidence of runs in, among others, the South Wales Daily News, the Belfast Telegraph and the Cardiff Times.

Sources: Baron et al. (2021), Kenny et al. (2021), The House of Commons (2008)

July, 1914

In 1914, the UK faced bank runs as part of a wider financial crisis triggered by the outbreak of World War I. Austria's ultimatum to Serbia on 23 July was a key triggering event, likely causing a stock market crash and runs on savings banks. The ensuing panic also led to a run on the Bank of England as depositors sought to exchange their notes for gold. A major campaign in the run-up to the opening of the banks on 7 August helped to prevent a further escalation of the runs. Although not counted as a banking crisis by Kenny et al. (2021), who describe the savings bank runs in the Appendix, evidence of runs is also discussed in Roberts (2014) and Baron et al. (2021). Reinhart and Rogoff (2009a) also treat this episode as a banking crisis.

Sources: Kenny et al. (2021), Roberts (2014), Baron et al. (2021), Reinhart and Rogoff (2009a)

July, 1973

In 1973, the UK experienced the so-called "Secondary Banking Crisis" and there is some evidence that this episode was accompanied by bank runs. As described by Baron et al. (2021), there were bank runs at "some of the fringe banks". Bank of England (1978) also mentions "a run on deposits". In the course of the crisis, many finance companies and secondary banks failed or were rescued, amid widespread intervention such as Operation Lifeboat. 1973 is also marked as a banking crisis by Jordà et al. (2017) and Duca et al. (2017).

Sources: Baron et al. (2021), Bank of England (1978), Jordà et al. (2017), Duca et al. (2017), Reid (1982)

September, 2007

In September 2007, the UK experienced a bank run on mortgage lender Northern Rock. The run followed a report on the BBC evening news that the bank had asked the Bank of England for help, and the central bank announced emergency liquidity support the next day. The bank was eventually nationalised in February 2008. In the course of the wider banking crisis that followed, several other banks received government bailouts.

Sources: Baron et al. (2021), Jordà et al. (2017), The House of Commons (2008), Shin (2009), Reuters (2008c)

B.32 Ghana

September, 1931

Ghana experienced bank runs from 2015 to 2018. This phase was characterized by a substantial number of bank failures, with 20 percent of banks collapsing between August 2017 and August 2018. The financial turmoil incurred a significant cost to the nation, amounting to GH¢9.9 billion (about $2.2 billion), which represented approximately 3.5% of Ghana's GDP, according to Antwi (2020).

Sources: Antwi (2020)

B.33 Greece

September, 1931

In September 1931, Greece experienced bank runs. During this period, 17 of the smaller banks failed or closed, but the larger banks survived.

Sources: Baron et al. (2021), Christodoulakis (2012)

January, 2015

In 2015, Greece experienced bank runs when people withdrew their money due to the political and economic uncertainty caused by the debt crisis and the referendum on the terms of the government bailout. The Greek government imposed capital controls in June 2015 to prevent the banking system from collapsing, limiting the amount of cash withdrawals and transfers. The Bank of Greece reported that household and business deposits fell to €133.7 billion in April 2015, the lowest level in a decade. Greek banks also relied heavily on emergency liquidity assistance from the European Central Bank, which reached €86.7 billion by the end of June 2015.

Sources: Financial Times (2015), The Guardian (2015), Forbes (2015), HuffPost (2015)

B.34 Hong Kong

March, 1892

In March 1892, Hong Kong experienced a bank run on the New Oriental Bank Corporation, which failed three months later, triggering a second wave of bank runs on other banks.

Sources: Baron et al. (2021), Sheehan (2018), Matlach (2010)

June, 1961

In June 1961, Hong Kong experienced a bank run on the Liu Kong Hing Bank that lasted for several days. The run was blamed on malicious rumors spread by rivals of the bank's managing director, Liu Po-sang. The basis of the rumors was that the bank was under police investigation.

Sources: South China Morning Post (2008)

January, 1965

In January 1965, Hong Kong experienced a bank run after new prudential regulations and a property downturn hit local Chinese banks with large exposures to unfinished property projects and other illiquid assets. The bank run continued in phases throughout the year, with one in January, three in April and four in November.

Sources: Cole et al. (1995), Hoffner (2022), Chan (1998)

September, 1982

In September 1982, Hong Kong experienced a significant bank run on the Hang Lung Bank, triggered by public misperceptions and rumors. The incident began when an elderly woman, mistakenly believing that she could cash in a gold certificate from a local jeweller at any bank, was refused at Hang Lung Bank, leading her to publicly claim that the bank had run out of money. This caused widespread panic and a rush to withdraw funds, despite the bank's strong financial position with a liquidity ratio well above the required regulatory threshold. The situation was eventually stabilised by swift actions by the bank and the Hong Kong authorities, who worked hard to dispel rumors and restore public confidence.

Sources: South China Morning Post (2008), The Business Times (1982)

June, 1985

In September 1985, the Overseas Trust Bank (OTB), the third largest local bank in Hong Kong at the time, experienced a bank run triggered by loan losses and heavy exposure to a speculative property market. The crisis heightened concerns about the stability of Hong

Kong's banking system, causing a loss of confidence among investors and depositors. In response, the Hong Kong government took over OTB to prevent a broader economic crisis, leading to significant reforms in the banking sector to enhance regulatory oversight and improve risk management practices.

Sources: South China Morning Post (2008), Bruner (2008), Li (1999)

July, 1991

In July 1991, Hong Kong experienced bank runs, following the failure of the BCCI Group subsidiary on Standard Chartered Bank, Dao Heng Bank, International Bank of Asia, First Pacific Bank, and Citibank Hong Kong and protests by depositors (no deposit insurance scheme). These runs subsided after several days, according to Baron et al. (2021).

Sources: Baron et al. (2021), Metrick and Schmelzing (2021), Li (1999), Times (1991)

January, 1998

In January 1998, Hong Kong experienced bank run on Peregrine Investment Holdings, following the spread of rumours triggered by the Asian financial crisis in 1997 adversely affected confidence in individual banks and the system as a whole, resulting in a short and temporary run on a local bank, according Baron et al. (2021)

Sources: Baron et al. (2021), Metrick and Schmelzing (2021), International Monetary Fund (1998)

September, 2008

In September 2008, Bank of East Asia, Hong Kong's fifth-largest bank by assets, experienced a bank run after rumors spread about the bank's financial health given its exposure to the ongoing US financial crisis. The run eased after reassurances from officials and the purchase of shares by a high-profile tycoon helped calm panicked depositors, according to Man-ki (2008).

Sources: Man-ki (2008)

B.35 Croatia

March, 1998

In March 1998, Croatia experienced bank runs as a result of the failure of the country's fifth largest bank, Dubrovacka (5% of total assets). The problems at Dubrovacka bank triggered political turmoil, which in turn triggered runs on other banks perceived to be indirectly related to the institution. In July 1998, the sixth largest bank ran into problems, and several medium and small institutions also experienced liquidity problems in the

autumn of 1998 and early 1999.

Sources: Laeven and Valencia (2018)

B.36 Hungary

July, 1873

In July 1873, Hungary experienced bank runs and massive withdrawals by depositors during the Austria-Hungarian "Gründerkrach". Also see B.7.

Sources: Rieder (2017)

October, 1930

In October 1930, Hungary experienced a smaller bank run than the one that followed in 1931, but it seems to have been large enough to be considered a separate panic, according to the documentation in Baron et al. (2021).

Sources: Baron et al. (2021)

July, 1931

In July 1931, Hungary faced significant bank runs, particularly in Budapest, as a result of the collapse of the Creditanstalt bank in Vienna, which marked the spread of the Great Depression in Europe. The crisis centred on the General Credit Bank, with depositors rapidly withdrawing their funds amid growing financial uncertainty. This led the Hungarian government to declare a bank holiday to stop all banking operations and stabilise the situation. The crisis was further intensified by the withdrawal of foreign investments, leading to a standstill agreement with foreign creditors to manage the escalating financial instability.

Sources: Macher (2015), Bernanke and James (1990)

February, 1995

According to Barisitz (2007), due to the banking crisis in 1991-1995, Hungary experienced a depositor run on the sixth largest bank Postabank in 1997, which later failed and was partially privatized.

Sources: Barisitz (2007), Baron et al. (2021)

B.37 Iceland

September, 2008

In 2008, Iceland experienced a major banking crisis, which also featured bank runs. In March 2008, runs occurred at Landsbanki's Icesave and Kaupthing's Edge. In late September 2008, Glitnir Bank received a capital injection from the government, which was strongly opposed by a major shareholder, a media magnate, and the resulting media campaign against the bailout triggered a bank run. On 3 October 2008, there were further runs after Professor Gylfi Magnusson said in a radio interview that Iceland's banks were "technically bankrupt".

Sources: BBC (2016a), Fenton (2021), Einarsson et al. (2015), University of ICeland (2018)

B.38 Indonesia

July, 1991

In July 1991, Indonesia experienced a bank run at Bank Danamon. The event was triggered by rumors of operational difficulties at the bank. This situation led to a small run on the bank as customers withdrew their funds due to concerns about the bank's stability. In order to stabilise the situation, the Indonesian government had to step in. This incident was part of a series of financial difficulties experienced by various banks in Indonesia in the early 1990s, which pointed to underlying weaknesses in the country's financial sector.

Sources: Moreno et al. (1998), Montgomery (1997), Simorangkir (2012)

November, 1992

In November 1992, Bank Summa became insolvent due to a significant portion of its loans turning non-performing, with a notable concentration in the real estate sector. Alarmingly, 70% of these bad loans were made to related parties, far exceeding legal lending limits. The situation at Bank Summa led to a severe liquidity crisis by 1992, necessitating emergency liquidity support from Bank Indonesia. Despite efforts to stabilize the bank, including a memorandum of understanding in which the owners committed to repay nonperforming connected loans and recapitalize the bank, the owners failed to meet their commitments. The bank's financial condition continued to deteriorate, leading to Bank Indonesia's decision not to grant any additional liquidity support and eventually to revoke Bank Summa's license in December 1992.

Sources: Baron et al. (2021), Reinhart and Rogoff (2009a), Kovanen et al. (2001), South China Morning Post (1999)

November, 1997

During 1997-1999, Indonesia experienced bank runs during the Asian Financial Crisis. We date the beginning of these runs as November 1997 as reported by Euromoney (2019a),

which is also supported by data on bank-level deposit outflows reported in Simorangkir (2012). This event is also classified as a systemic banking crisis by Reinhart and Rogoff (2009a).

Sources: Euromoney (2019a), Simorangkir (2012), Reinhart and Rogoff (2009a), Laeven and Valencia (2018), Baron et al. (2021), Enoch et al. (2001), Watanabe (1998), BBC (1998)

B.39 India

November, 1913

In 1913, India experienced a major bank run that had a significant impact on the country's financial system. This event, often referred to as the "Indian Banking Panic of 1913", was triggered by the failure of the Bank of Bombay and the subsequent rumors and panic that led to a widespread crisis.

Sources: Punjab National Bank (n.d.), Palat (2011), Agrawal (2018), Indian Vagabond (2019)

March, 2001

In March 2001, a significant bank run occurred in Gujarat, India, primarily involving a large cooperative bank. This event was triggered by a fraud case where the bank had extended loans to stockbrokers without appropriate collateral. The immediate aftermath saw a ripple effect as the panic spread, leading to runs on other cooperative banks in the region.

Sources: Iyer and Puri (2012),

B.40 Ireland

September, 2008

In 2008, Ireland experienced a severe financial crisis that led to significant upheaval in the banking sector. There is evidence of runs on, among others, Anglo Irish Bank, where "depositors made massive withdrawals" (Chu, 2014). Baudino et al. (2020) also stress the widespread nature of runs on Irish banks and cite September as the beginning of deposit withdrawals. This episode is also classified as a systemic banking crisis by Jordà et al. (2017), Laeven and Valencia (2018), and Reinhart and Rogoff (2009a). Baron et al. (2021) treat this as a banking panic.

Sources: Jordà et al. (2017), Laeven and Valencia (2018), Reinhart and Rogoff (2009a), Baron et al. (2021), International Monetary Fund (2018a), Baudino et al. (2020), Raidió Teilifís Éireann (2009), Chu (2014), Whelan (2013)

B.41 Iran

December, 2022

In 2022, Iran experienced bank runs due to a severe currency devaluation, which led to customers withdrawing their money from banks (widely supported by nationwide protests).

Sources: Nova News (2022), Iran International (2022a), Iran International (2022b), Witte (2022)

B.42 Ivory Coast

February, 2011

In February 2011, Ivory Coast experienced bank runs amid rumors of a cash shortage in a political crisis in the country, according to an article from The Guardian (2011c). The British bank Standard Chartered suspended operations in Ivory Coast, joining two other banks, BICICI and Citibank, and the regional stock exchange. Two months after a contested presidential election that led the incumbent leader Laurent Gbagbo to refuse to cede power, international financial pressure supported his opponent, Alassane Ouattara, after troops seized the regional stock exchange.

Sources: The Guardian (2011c), CBS News (2011), The Guardian (2011b)

B.43 Italy

November, 1893

The Banque Générale Française and Crédit Mobilier experienced significant bank runs starting in November 1893, which triggered similar runs on at least 10 other local banks, according to Gigliobianco and Giordano (2010). This event is also considered as a systemic banking crisis by Reinhart and Rogoff (2009a) and Jordà et al. (2017).

Sources: Gigliobianco and Giordano (2010), Baron et al. (2021), Reinhart and Rogoff (2009a), Jordà et al. (2017)

September, 1907

According to Vercelli (2022), the 1907 banking crisis in Italy was accompanied by bank runs on the large mixed banks Banca Commerciale Italiana, Credito Italiano, and Società Bancaria Italiana. That said, these runs were relatively isolated, as there were no runs on cooperative banks, ordinary credit banks, and postal banks. Baron et al. (2021) date a banking panic to occur in September 1907.

Sources: Vercelli (2022), Baron et al. (2021), Jordà et al. (2017), Reinhart and Rogoff (2009a), Metrick and Schmelzing (2021)

July, 1914

At the beginning of World War I, Italy experienced widespread bank runs as part of a broader banking panic as classified by Baron et al. (2021). Reinhart and Rogoff (2009a) also report this event as a systemic banking crisis.

Sources: Baron et al. (2021), Reinhart and Rogoff (2009a)

November, 1921

According to Baron et al. (2021) and Jordà et al. (2017), the runs on Banca Italiana di Sconto and Banco di Roma triggered a larger financial panic, leading to the liquidation of the former and the bailout of the latter.

Sources: Baron et al. (2021), Jordà et al. (2017)

December, 1930

According to Bernanke and James (1990) and Jordà et al. (2017), In December 1930, Italy experienced a bank run involving its three largest banks. This financial turmoil was set against the backdrop of the international financial crisis that began in the United States in 1929, and Italy's adherence to the gold standard, which facilitated substantial capital outflows and deflation. The bank run caused widespread panic, leading to a significant reorganization and takeover of frozen industrial assets by the government in April 1931, aimed at stabilizing the situation.

Sources: Baron et al. (2021), Jordà et al. (2017), Bernanke and James (1990), Gigliobianco and Giordano (2010)

B.44 Jamaica

May, 1996

Jamaica experienced severe bank runs in 1996-97 in the context of a systemic banking crisis. Depositors withdrew their savings from weak local institutions and placed them in branches of foreign banks. Banks that experienced runs included Century National Bank, Citizens Bank, and Eagle Bank. The previous boom had been accompanied by rapid growth in the less regulated parts of the financial sector and poor supervision.

Sources: International Monetary Fund (1999b), Swaby (2011), George (2022)

B.45 Jordan

August, 1989

According to Laeven and Valencia (2018), Jordan experienced a bank run in 1989 after the country's third-largest bank failed.

Sources: Laeven and Valencia (2018)

B.46 Japan

August, 1871

According to Shizume and Tsurumi (2016), the "exchange companies" (kawase-gaisha) were a prototype of modern commercial banks and started operating in 1869. However, they soon experienced runs, and all but one institution (in Yokohama) closed down. Because Shizume and Tsurumi (2016) do not explicitly date this event, only specifying that the runs happened "soon" after the kawase-gaisha were set up in 1869, we stick with the dating in Baron et al. (2021), who classify this episode as narrative evidence for bank runs in 1871. This is also consistent with the crisis dating in Jordà et al. (2017).

Sources: Shizume and Tsurumi (2016), Baron et al. (2021), Jordà et al. (2017)

December, 1900

In December 1900, a suspension at Kyushu Ninth Bank was associated with localized bank runs in the Kyushu area, followed by further runs and a full-fledged banking crisis in early 1901. Both Metrick and Schmelzing (2021) and Jordà et al. (2017) classify this as an episode characterized by runs and panic, which is further supported by the discussion in Smitka (1998) and Juro Teranishi (1978).

Sources: Metrick and Schmelzing (2021), Jordà et al. (2017), Smitka (1998), Juro Teranishi (1978)

February, 1907

According to Baron et al. (2021) and Jordà et al. (2017), a run on Nagoya Bank in February 1907 triggered a broader panic, which was associated with subsequent failures of several banks, including the One Hundred Thirty-Eight Bank. In total, 42 banks were affected by runs.

Sources: Baron et al. (2021), Jordà et al. (2017)

April, 1920

After the end of the First World War, the Japanese wartime boom ended with major banking sector disruptions. According to Metrick and Schmelzing (2021), bank runs started in April 1920 following the collapse of Masuda Bank in Osaka, which triggered bank runs in several other regions. Both Jordà et al. (2017) and Baron et al. (2021) also discuss the prevalence of bank runs.

Sources: Metrick and Schmelzing (2021), Jordà et al. (2017), Baron et al. (2021), Shizume (2009)

February, 1922

According to Baron et al. (2021), the failure of Ishii Corporation, a lumber company, triggered a wave of bank runs. First concentrated in Kochi Prefecture and the Kansai region, the runs spread across the country starting in October and developed into a broader banking crisis (Shizume (2009)). This episode is also classified as a systemic banking crisis in 1923 by Reinhart and Rogoff (2009a).

Sources: Baron et al. (2021), Shizume (2009), Reinhart and Rogoff (2009a)

March, 1927

In 1927, following the Great Kanto Earthquake, the Japanese banking sector experienced several bank runs following a spike in disaster-related non-performing loans. Several sources mention the occurrence of bank runs, including Baron et al. (2021) and Jordà et al. (2017).

Sources: Baron et al. (2021), Jordà et al. (2017), National Graduate Institue for Policy Studies (n.d.)

November, 1997

According to several sources, the 1997 banking crisis in Japan was accompanied by runs. Karube (2017) states that, after the failures of Hokkaidō Takushoku Bank, Sanyō Securities, and Yamaichi Securities, "on November 26 the run on banks followed". The occurrence of runs is also mentioned several times in a "post-mortem" document on the crisis by the BIS (Nakaso, 2001). Also in line with this interpretation, Enoch et al. (2001) mentions that "the perception of weakness in other banks in the system prompted depositors to more aggressively withdraw their funds from weakened depository institutions".

Sources: Karube (2017), Nakaso (2001), Enoch et al. (2001)

B.47 Kazakhstan

February, 2014

In 2014, Kazakhstan experienced bank runs when large numbers of depositors gathered outside Kaspi Bank, Alians Bank, and Centrcredit Bank to withdraw their money. According to media reporting, the initial trigger were general worries about currency devaluation fuelled by social media rumors about the health of the banks.

Sources: Recknagel (2014), International Monetary Fund (2018b), Lillis (2014)

B.48 Kenya

April, 2016

In 2016, Chase Bank Kenya, a mid-sized bank unrelated to the US bank with the same name, experienced a run due to "inaccurate social media reports" after chairman Zafrullah Khan and group managing director Duncan Kabui stepped down following concerns over the credibility of the bank's financials. The fallout was prompted by a restatement of financial results showing a more than doubling of "insider loans" made by the bank. The bank was put into receivership.

Sources: Quartz (2019), Gathaiya (2017), Business Daily (2016)

October, 2022

In 2022, First Community Bank (FCB) experienced a bank run when a large number of customers withdrew their money. The run followed reports of a disruption in the bank's services, prompting FCB to halt withdrawals. FCB was eventually acquired by Premier Bank.

Sources: Citizen Digital (2022), Business Daily (2022)

B.49 South Korea

June, 1950

In 1950, South Korea experienced a "heavy run on deposits" following the outbreak of the Korean War. The immediate trigger was the outbreak of the Korean War. In response, the newly established Bank of Korea limited deposit withdrawals to 10,000 won per week and 30,000 won per month per household.

Sources: Lee, ed (2010), Metrick and Schmelzing (2021)

May, 1961

In 1961, South Korea experienced "massive bank runs" after the May coup, according to Metrick and Schmelzing (2021). After the coup, the military government of Park Chung-Hee gradually nationalised commercial banks.

Sources: Lee, ed (2010), Metrick and Schmelzing (2021)

B.50 Kuwait

October, 2008

In October 2008, Kuwait's Gulf Bank experienced a bank run after suffering losses on derivatives trading caused by the fall of the euro against the dollar. The bank was subse-

quently bailed out by the government, as were several other banks.

Sources: Financial Times (2008a), Euromoney (2009)

B.51 Lebanon

October, 1966

On 13 October 1966, Lebanon's largest bank, Intra Bank, collapsed after depositors rushed to withdraw their money amid rumors about the bank's solvency. At the time, Intra had a market share of 38% of all deposits, owned nine other banks and controlled 35 other companies. When the bank lost $70 million in one day, leaving only $330,000 in its vaults, the run spread to other banks, prompting the Lebanese cabinet to declare a bank holiday and the stock exchange to close. The bank's founder, Yousef Beidas, blamed the Lebanese government's slow response and the central bank's unwillingness to provide liquidity support on the fact that he had made powerful political enemies.

Sources: Time Magazine (1966), Bzeih (2023)

B.52 Libya

February, 2011

During the Libyan revolution, which began in February 2011, there were widespread bank runs across the country. To counter this, the Central Bank of Libya imposed a cash withdrawal limit of LD750 per person per month. The Central Bank of Libya reported that the total amount of cash withdrawn reached LD7 billion.

Sources: Hancock (2012), World Bank Group (2020)

B.53 Lithuania

December, 1995

In 1995, during Lithuania's transition period, and following the introduction of a currency board the previous year, the country experienced a systemic banking crisis, including runs on struggling private banks. The first and third largest private banks, Innovation Bank and Litimpeks Bank, were closed in December 1995, triggering large deposit withdrawals from other institutions. The long-term result of the 1995 episode was that three large Nordic banking groups ended up owning most of the banking sector (SEB, Swedbank and Luminor).

Sources: Laeven and Valencia (2018), China-CEE Institute (2020)

B.54 Latvia

July, 1931

In 1931, Latvia experienced runs on the Bank of Liepaja and the Riga International Bank, mainly as a result of the ongoing Great Depression of 1930.

Sources: Metrick and Schmelzing (2021)

December, 2011

In 2011, rumors of financial instability led to bank runs at Latvia's Swedbank and Latvijas Krajbanka Bank. This came at the heels of large-scale depositor withdrawals following the failure of Parex Bank during the Global Financial Crisis, which left the financial sector in a vulnerable state.

Sources: Associated Press (2011), Heath (2012), Sandstrom (2011)

B.55 Macau

September, 2005

In September 2005, Macau experienced a bank run following the announcement of impending US sanctions against Banco Delta Asia, a Macau-based bank owned by the Delta Asia Financial Group. As a result, the Macau government invoked a banking law to replace the bank's board with government appointees.

Sources: Wan (2005), The Economist (2005)

B.56 Mexico

March, 1883

In March 1883, Mexico experienced a bank run on the Banco Nacional Mexicano amid mounting pressures in the financial system, marking the beginning of the panic.

Sources: Baron et al. (2021), Reinhart and Rogoff (2009a), Metrick and Schmelzing (2021), Conant (1909)

November, 1913

In November 1913, Mexico experienced a bank run following the imposition of a compulsory war tax on deposits. The banks were hit even harder because they were the main creditors of the federal government, which defaulted on its debts in 1913. The panic was well under way by the time specie convertibility was suspended in November 1913, as documented in Baron et al. (2021).

Sources: Baron et al. (2021)

December, 1921

Baron et al. (2021) describe a significant systemic banking crisis in Mexico beginning in December 1921, when the Compañía Bancaria de París y México suffered a severe outflow of deposits. This financial instability continued with a subsequent wave of panic and bank runs following the collapse of the Banque Française du Mexique in November 1922.

Sources: Baron et al. (2021), Reinhart and Rogoff (2009b)

July, 1931

In July 1931, Mexico experienced a significant bank run, notably affecting Credito Español de Mexico and Banco Nacional de México. This event occurred during the global economic downturn of the Great Depression, which led to widespread financial instability. According to the documentation in Bernanke and James (1990), payments were suspended after a deposit run on these major banks.

Sources: Baron et al. (2021), Bernanke and James (1990)

B.57 Myanmar

February, 2003

In February 2003, Myanmar experienced a bank run on Asia Wealth Bank, which spread to other major private banks. These runs began following the collapse of small finance companies and widespread rumors about the liquidity of major banks. It led banks to experience liquidity issues and an outright shortage of kyat (the national currency).

Sources: The Economist (2003), Turnell (2003)

2021

In February 2021, Myanmar experienced a bank run following a military coup. Branches of Myawaddy Bank in Yangon saw unusually high numbers of customers withdrawing money this week, despite only being open for a few hours in the morning, after anti-coup protesters called for a boycott of military-related businesses. There was widespread concern that the demand for cash across the country could cause the bank to collapse.

Sources: The Irrawaddy (2021), Margulies (2021), Oo and Crispin (2021), Pakistan Today (2021)

B.58 Montenegro

September, 2008

In September 2008, a substantial bank run occurred in Montenegro triggered by the global financial crisis following the collapse of Lehman Brothers, leading to depositors withdrawing about 30% of their holdings from Montenegrin banks. The impact was notably severe on Prva Banka, a major lender. To stabilize the financial system, the Montenegrin government guaranteed all personal and business deposits without limit and provided Prva Banka with a 44 million euros emergency liquidity loan in December 2008.

Sources: Tanner (2011), Central Bank of Montenegro (2010)

B.59 Malaysia

July, 1985

According to Sheng (1989), Malaysia experienced bank runs on branches of a large domestic bank, following the collapse of the Overseas Trust Bank (OTB) in Hong Kong. The failure of Setia Timor Credit and Leasing in September and closure of the stock exchange in December prompted further runs.
Sources: Sheng (1989), Baron et al. (2021), Reinhart and Rogoff (2009a)

September, 1997

In September 1997, Malaysia experienced a bank run on MBF Finance after news spread throughout Malaysia that the elderly Mr Loy, the founder of MBF Finance, was ill. The company experienced a run on its 120 branches across Malaysia.

Sources: Kaplan and Ke (1998), The New York Times (1999), Pura (1999), Central Bank of Malaysia (1999)

B.60 Nigeria

March, 1996

In 1996, Nigeria experienced a bank run on the Allied Bank of Nigeria after the clearing system was suspended due to the bank's overdrawn current account with the Central Bank of Nigeria, non-performing loans, and large-scale fraud. This triggered a run on the bank as most branches were bombarded by depositors trying to withdraw their funds.

Sources: Nigeria Deposit Insurance Corporation (2020)

February, 2023

In 2023, Nigeria experienced a bank run due to a shortage of new banknotes as the central bank replaced old notes. Restrictions on cash withdrawals and businesses refusing to

accept old notes led to long queues outside banks waiting for new notes.

Sources: Osae-Brown and Adamu (2023), PYMNTS (2023), Adebayo (2023), BBC (2023b), BBC (2023a)

B.61 Nicaragua

August, 2000

In August 2000, Interbank, the largest bank in Nicaragua, was seized due to the finding the management had committed fraud. Despite the announcement of full depositor protection, a bank run on other institutions occurred and continued until the Interbank was resolved in October 2000.

Sources: Laeven and Valencia (2018)

B.62 The Netherlands

July, 1914

In July 1914, the Netherlands experienced a bank run following the outbreak of the First World War. At the Rijkspostspaarbank, the national postal savings bank, more than a million guilders were withdrawn on 30 July. On the following two days, the figure rose to two and a half and almost five million guilders respectively. Banks responded by refusing to accept deposits. The government extended the period within which a bank had to honour a request for payment of deposits from two weeks to six months and allowed interim withdrawals of no more than 25 guilders per week.

Sources: Baron et al. (2021), van Zenden (1998), Euwe (2012)

1921

A significant number of banks failed between 1921 and 1922, including reports of runs on smaller banks in 1921 (Stellinga et al., 2021). To avert a potential system-wide collapse, the authorities intervened to rescue several banks and prevent a more widespread bank run in 1922.

Sources: Baron et al. (2021), Stellinga et al. (2021)

October, 2009

In October 2009, the Dutch bank DSB experienced a major bank run when customers withdrew about one sixth of the institution's deposits. The run was triggered when Pieter Lakeman, a lawyer claiming to represent a collective of aggrieved clients in financial distress due to their investments in DSB financial products, appeared on Dutch public television and urged all depositors to participate in a mass withdrawal from the bank.

In response to Lakeman's appeal, thousands of depositors heeded the call and withdrew their liquid deposits en masse.

Sources: Dutchnews (2009)

B.63 Norway

1857

In 1857, several banks experienced runs and banks curtailed lending. Following the bursting of the railway bubble in the United States in 1857, many banks had been hit because of low liquidity and high discount rates.

Sources: Gerdrup (2007)

June, 1899

In the summer of 1899, Norway experienced significant bank runs as part of a wider banking crisis. The immediate trigger for these runs was a combination of factors: the failure of Chr. Christophersen, a large, highly leveraged non-financial company, which triggered a crash in asset markets, and the resulting rumors about the financial health of Oslo's banks. This was compounded by the fact that Norges Bank had low banknote reserves as a result of an extensive credit expansion and vulnerability to gold outflows. These events undermined public confidence in the banking system and caused depositors to rush to withdraw their funds from banks, especially those perceived as weak, thereby exacerbating the crisis.

Sources: Gerdrup (2007)

August, 1914

According to Eitrheim et al. (2016), the onset of World War I triggered bank runs in Norway in July and August. Withdrawals began in an orderly fashion but quickly escalated into a bank run, particularly noticeable by August 1, with significant queues forming outside banks like Christiania Sparebank before opening hours. Despite the panic, the system-wide impact was minimized due to commercial and savings banks imposing withdrawal limits. The situation stabilized following the declaration of a general debt moratorium on August 4, which helped to subside the panic throughout the month.

Sources: Baron et al. (2021), Eitrheim et al. (2016)

April, 1923

In April 1923, Norway experienced a bank run when Den norske Handelsbank was forced to suspend payments, followed by a run on the Foreningsbanken. The withdrawal of deposits was accelerated by the Act of 24 March (the Bank Administration Act), as it induced

many depositors to withdraw funds from banks that did not seem safe enough and to deposit them in banks under public administration or in banks abroad, according to Baron et al. (2021) and Metrick and Schmelzing (2021).

Sources: Baron et al. (2021), Metrick and Schmelzing (2021)

October, 1931

Following the abandonment of the gold standard in 1931, Norway's banking system experienced stress, triggering a bank run on Den norske Creditbank (DnC). Initially, DnC was believed to be experiencing liquidity problems, but by November 5, 1931, it became evident that the bank was also facing solvency issues. This revelation led the bank to propose a comprehensive rescue plan to Norges Bank, including measures such as a write-down of share capital to NOK 11 million. The bank requested a deposit of NOK 50 million from Norges Bank, without collateral and uncallable for three years, to stabilize its operations. Additionally, DnC sought a public declaration to secure the bank's operation, indicating the severity of its financial distress and the need for substantial support to avert failure.

Sources: Baron et al. (2021), Metrick and Schmelzing (2021), Jordà et al. (2017), Lie (2020)

B.64 Nepal

November, 2006

In November 2006, Nepal experienced a bank run when depositors flocked to branches of the Nepal Bangladesh Bank Limited across the country to withdraw their money following newspaper reports that the bank was on the verge of bankruptcy. In two days, the bank's Nepalgunj branch paid out 80 million rupees in cash to its depositors, according to The Himalayan (2016) and Niraula (2020).

Sources: The Himalayan (2016), Niraula (2020)

June, 2011

In June 2011, a liquidity crisis severely affected five financial institutions in Nepal, including People's Finance Limited (PFL) and Vibor Bikas Bank (VBB). PFL had to close due to insufficient liquidity to pay depositors. VBB faced a crisis when it was unable to secure interbank funding, but was supported by Nepal Rastra Bank (NRB) with a loan of 500 million rupees. VBB's move to seek support from NRB caused panic among depositors and policymakers, who feared a Lehman Brothers-like collapse amid concerns about excessive credit exposure to the real estate and construction sectors.

Sources: The World Bank (2014a)

B.65 New Zealand

September, 1893

In September 1893, New Zealand experienced a run on the Auckland Savings Bank. Customers withdrew more than £41,000, the equivalent of about $8 million in today's money, because of unfounded rumors about the bank's bad investments. According to Lewis (2015), the rumors were started by an eccentric woman called Margaret Sanders, who was ridiculed by young people for her peculiar behaviour and clothing. When she stumbled outside the bank after being pushed by youths and a large crowd gathered, it was falsely assumed there was a run on the bank, which triggered an (actual) run by depositors.

Sources: Lewis (2015), Hunt (2009), The Star Newspaper (1893)

August, 1988

New Zealand experienced a bank run in August 1988, when the United Building Society faced heavy deposit withdrawals, according to Hunt (2009). This event is also reported as a crisis by Baron et al. (2021), Reinhart and Rogoff (2009a) and Metrick and Schmelzing (2021).

Sources: Baron et al. (2021), Reinhart and Rogoff (2009a), Metrick and Schmelzing (2021), Hunt (2009)

B.66 Pakistan

September, 2008

In September 2008, Pakistan experienced bank runs following rumors in the media about the potential failure of several financial institutions, according to an IMF working paper by Farooq and Zaheer (2015). The deposit withdrawals led to a severe liquidity crunch. Demand deposits in the banking sector continuously fell over a period of seven weeks. In just three weeks, demand deposits declined by 4 percent or 131 billion Pakistani Rupees. The panic was contained within about two months through central bank interventions aimed at restoring liquidity in the banking sector.

Sources: Farooq and Zaheer (2015), Farooq Tirmizi (2018)

B.67 Panama

March, 1987

In March 1988, Panama experienced a run on its banks, following the U.S. move to increase financial pressure on the regime of Gen. Manuel Antonio Noriega. Private Panamanian banks decided not to open next day because they lacked the cash to handle an expected

surge in withdrawals. One of the few banks that opened for business, Citibank, experienced a run as customers lined up to make withdrawals.

Sources: The Washington Post (1988b), The Washington Post (1988a), Los Angeles Times (1988), The New York Times (1988)

B.68 Peru

August, 1914

According to Baron et al. (2021), who cite Roberts (2014), on July 31 and August 1, 1914, Peru experienced significant bank runs at both Banco del Peru y Londres and the German Bank. In an effort to avert the collapse of these financial institutions, the Peruvian government declared a moratorium and implemented additional measures which ultimately prevented the banks from failing.

Sources: Baron et al. (2021), Roberts (2014)

B.69 Philippines

August, 1968

According to Patrick and Moreno (1982) and several newspaper articles at the time, there were widespread bank runs in the Philippines in 1968, including on many savings banks (such as Provident Savings Bank). The run on the Overseas Bank of Manila, which ultimately closed in August 1968, although it was later re-opened under a different name. The run was accompanied by a widespread panic, prompting President Marcos to call for calm among the population.

Sources: Patrick and Moreno (1982), The New York Times (1968), Business World (2017), Lamberte (1989), Philippine Supreme Court (1981)

June, 1974

In 1974, the collapse of Continental Bank precipitated a system-wide bank run, which later spread to other banks. Continental Bank had borrowed heavily in the money market and was involved in lending to affiliates and real estate projects. When the bank's president was arrested for alleged misappropriation of deposits and other irregularities, a run ensued, and the central bank decided to close the institution entirely. To avert a broader crisis, the central bank extended emergency loans and assured the public it would cover any liquidity problems.

Sources: Patrick and Moreno (1982), Dohner and Ponciano Intal (1989), Lamberte (1989), Baron et al. (2021)

March, 1977

In March 1977, General Bank and Trust Company (Genbank) experienced a run and was subsequently declared insolvent. The bank had already experienced a severe liquidity crisis during the time of the Continental Bank failure. Genbank was subsequently sold off and quickly reopened as Allied Bank.

Sources: Patrick and Moreno (1982), Lamberte (1989)

January, 1981

In January 1981, the Philippines experienced a bank run following the disappearance of well-known business magnate Dewey Dee, who had borrowed heavily in the commercial paper market and left behind an estimated ₱500-800 million of debt. These news sent a wave of panic through the system, especially among money market investors and small depositors, causing commercial paper borrowers to default on a large scale. Small depositors shifted their deposits to large commercial banks, perceived as sounder financial institutions. The panic also spread to the thrift banking system that, while small, saw an increase in the number of failed institutions.

Sources: Dohner and Ponciano Intal (1989), Nascimento (1991), Lamberte (1989)

August, 1983

In October 1983, Philippines experienced widespread bank runs following the announcement of a moratorium on external debt payments to foreign commercial banks. This came at the heels of the panic that had affected other parts of the financial system starting in 1981 at the heels of the "Dewey Dee affair". By the end of this bank run episode, the largest government-owned banks DBP and PNB were among the hardest hit and had to be restructured; several private banks were shut down completely. These banking problems lasted several years, which included bank runs on Marcos-connected banks as reported by the L.A. Times at the time, as well as the collapse of PISO Bank and Manila Bank in 1987.

Sources: Nascimento (1991), Lamberte (1989), Los Angeles Times (1986)

April, 2000

In 2000, Urban Bank faced a bank run and was closed by the central bank on April 26, 2000. Following the Urban Bank closure, two medium-sized banks, International Exchange Bank (iBank) and the Philippine Bank of Communications (PBCom) in Davao City were also hit by bank runs.

Sources: Mallari and A. (2000), Philippine Daily Inquirer (2000), Ebias (2000), Go (2000)

B.70 Poland

July, 1926

According to Bernanke and James (1990), bank runs caused three large banks to suspend payments, causing a crisis that continued through to 1927.
Sources: Bernanke and James (1990)

November, 2018

According to several news reports and a press release by the European Union, Getin Noble Bank experienced a bank run in 2018. In the run-up to the event, the bank had been struggling with low profitability since 2016, leading to the depletion of its capital base. In 2018, the bank experienced a run when around €2.25 billion (PLN 10.7 billion) in deposits were withdrawn in less than three weeks, partially because of worries about risks associated with its mortgage loans denominated in Swiss francs. Both the Getin Noble Bank collapse and failure of Idea Bank were tied to allegations of corruption against the financial regulator KNF, involving Leszek Czarnecki, the owner of both Getin Noble and Idea Bank.

Sources: European Commission (2002), Krajewski et al. (2018), S&P Global (2022), Krasuski and Krajewski (2018)

B.71 Portugal

May, 1876

Following strong growth in the number of banks over the preceding decades, Portugal experienced a banking crisis in 1876. The crisis, initially triggered by bank losses on Spanish securities that depreciated in value during the preceding Spanish Financial Crisis, gradually spread from the North of the country. The resulting liquidity shortage caused bank runs starting in May 1876 (Silva, 2019, p. 8). Baron et al. (2021) classify this as a banking crisis reaching its climax in August 1876 that also featured bank runs.

Sources: Silva (2019)

May, 1891

Portugal experienced a systemic banking crisis starting in 1890, beginning with problems at one of the country's largest banks, Montepia Geral. By May 1851, the "whole banking system was facing a bank run" (Branco et al., 2012, p. 6). Baron et al. (2021) classify this as a banking crisis, as do Reinhart and Rogoff (2009a) and Jordà et al. (2017).

Sources: Branco et al. (2012), Baron et al. (2021), Reinhart and Rogoff (2009a), Jordà et al. (2017)

1920

In 1920, Portugal experienced a banking crisis amidst high inflation following the First World War. Reinhart and Rogoff (2009a), Jordà et al. (2017), and Baron et al. (2021) all classify this episode as a banking crisis. Baron et al. (2021) explicitly mention the incidence of bank runs.

Sources: Reinhart and Rogoff (2009a), Jordà et al. (2017), Baron et al. (2021)

1923

Portugal experienced a banking crisis that also featured bank runs in 1923, as outlined by Baron et al. (2021). Jordà et al. (2017) call this episode a "banking panic". Several factors, including foreign demand shocks and tight monetary policy, were associated with the panic and a subsequent recession.

Sources: Jordà et al. (2017), Baron et al. (2021), Reis (1995)

November, 1930

In November 1930, the banking house of Henrique Figueira da Silva on the island of Madeira suspended payments, which created widespread panic and bank runs. The ensuing crisis, largely caused by the global Great Depression that started in the United States, was accompanied with several bank failures.

Sources: Baron et al. (2021), Jordà et al. (2017), Reinhart and Rogoff (2009a)

January, 1935

In January 1935, Portugal experienced bank run on the Banco Micaelense. Shortly after, Banco do Faial suspended payments in April 1935. There was also a temporary suspension of payments by the Caixa Económica and further bank closures. While these events unfold in the Azores, we count them as a Portuguese bank run.

Sources: Lopes and Sequeira Dias (2010)

B.72 Paraguay

1995

The 1995 Paraguayan bank run was initiated by a combination of factors, including economic uncertainty and disruptions within the payments system, rather than a recession. This crisis led to the closure or absorption of 15 out of 19 locally owned banks. Efforts by the government to stabilize the situation, such as honoring deposits without a pre-existing

guarantee and providing loans, were unable to prevent a systemic run on deposits, causing widespread financial distress.

Sources: International Monetary Fund (2000), Ostalecka (2008)

July, 2002

In July 2002, Paraguay experienced a severe bank run following the collapse of Banco Aleman, according to an IMF Article IV consultation report. The run on Banco Aleman, owned by an Argentine-Uruguayan consortium, was triggered following reporting of losses at a Paraguyan mutual fund affiliated with the group. During the period from June to August, dollar deposits declined by more than 20% and local currency deposits by 12%. While the central bank stepped in to provide liquidity support, there were widespread banking issues, including at the state-owned national development bank (BNF).

Sources: International Monetary Fund (2003)

B.73 Qatar

October, 2017

In October 2017, Qatar experienced major deposit outflows of non-residents in the aftermath of the economic blockade imposed by Saudi Arabia, Bahrain, the United Arab Emirates, and Egypt. Until the end of 2017, these outflows amounted to around 13% of Qatar's GDP, and the share of non-resident to total deposits dropped from 25 to 17 percent in a short time period. The Qatari banking sector was swiftly downgraded by rating agencies such as Moody's, but quickly recovered because of a large-scale liquidity injection by the government.

Sources: Gillet (2019), Ali (2020), Financial Times (2018)

B.74 Romania

May, 1931

In 1931, Romania experienced bank runs at the heels of the German banking crisis, which spread from Austria to Hungary but also Romania. We date the start of runs as May 1931, in line with the descriptions in Schuker (1974) and Dominique and Nikolay (2022). Several banks experienced runs, including the Banca de Scont, Banca de Credit Roman and Banca Romaneasca.

Sources: Reinhart and Rogoff (2009a), Dominique and Nikolay (2022), Schuker (1974), Gavrilă (n.d.), Ferguson and Temin (2001), Temin (2008)

B.75 Russia

June, 1859

In June 1859, Russia experienced "panic and a run on deposits" (Hoch, 1991) when the 1857 crisis led to the collapse of the banking system and a wave of defaults. The Russian State Bank was founded in 1860 coming out of the liquidation of the State Loan Bank and Credit Note Bureau.

Sources: Metrick and Schmelzing (2021), Hoch (1991)

October, 1875

In October 1875, Russia experienced bank runs, according to both Baron et al. (2021) and Metrick and Schmelzing (2021). The Moscow Commercial Loan Bank failed in 1875, and the Merchant Bank and Mutual Credit Society were rescued by the government. This episode is also coded as a systemic banking crisis by Reinhart and Rogoff (2009a).

Sources: Baron et al. (2021), Metrick and Schmelzing (2021), Reinhart and Rogoff (2009a)

August, 1899

According to Lychakov (2018), 23 out of 40 banks experienced "acute retail and wholesale depositor runs" in 1899, including the Russian Trade and Industrial Bank, which had to be rescued by the State Bank. Petersburg Private Commercial Bank failed and was restructured by a consortium of foreign banks. Petersburg-Azov Bank collapsed in 1902 and Petersburg-Moscow Bank failed in 1904. Moscow International Trade Bank, Orel Commercial Bank, and South Russian Industrial Bank were deemed too important too fail and were also put under control of the State Bank.

Sources: Baron et al. (2021), Lychakov (2018)

1905

During the Russian revolution in 1905, there were runs on savings banks and government orders to limit gold withdrawals, according to Metrick and Schmelzing (2021).
Sources: Metrick and Schmelzing (2021)

July, 1914

In July 1914, Russia experienced bank runs with the outbreak of World War I, characterized by massive deposit withdrawals, according to Metrick and Schmelzing (2021).

Sources: Metrick and Schmelzing (2021)

August, 1998

Russia experienced bank runs starting in August 1998 after a massive devaluation of the Ruble. Through a variety of measures, the authorities were able to ultimately stop the run. Nevertheless, nearly 720 banks, representing half of those in operation, ultimately ended up insolvent.

Sources: Laeven and Valencia (2018), Reinhart and Rogoff (2009a), Baron et al. (2021), Niinimäki (2002), Pyle et al. (2013), Schoors (2003)

July, 2004

Following a longer period of banking sector issues that had started with the 1998 crisis, Russia experienced bank runs in July 2004 starting with massive withdrawals from Guta Bank, Russia's then-22nd largest bank. Within less than a month, depositors had withdrawn 10bn roubles (£188m), causing a liquidity crunch that quickly spread to other private institutions.

Sources: European Central Bank (2004), The Guardian (2004), Los Angeles Times (2004), Financial Review (2004), Bloomberg (2004), Chernykh and Mityakov (2016)

October, 2008

In October 2008, Russia experienced banks runs triggered by massive deposit withdrawals of 3.5 billion roubles ($134.2 million) in only two weeks at Globex bank. Baron et al. (2021) also classify this as a "panic", and it is classified as a banking crisis in Laeven and Valencia (2018) and Reinhart and Rogoff (2009a).

Sources: Baron et al. (2021), Reinhart and Rogoff (2009a), Bank of Russia (2009), The Economist (2008), Reuters (2008d), Financial Times (2008b)

February, 2022

In Feburary 2022, Russia experienced bank runs after the ruble dropped dramatically at the beginning of Russia's invasion of Ukraine. There were reports of lines at ATMs and around buildings in Moscow as well as at Russian banks in Europe as depositors rushed to withdraw cash.

Sources: Turak (2022), Schilling et al. (2022)

B.76 Singapore

October, 1974

In October 1974, Singapore experienced a bank run on Chung Khiaw Bank Limited, then part of The United Overseas Bank Limited (UOB) Group. Due to rumors that the financial

health of banks in Singapore had taken a hit, Chung Khiaw was rumored to face liquidity issues and could run out of money soon. Bank officials had to reassure the crowds not to panic, but it was not until 10.30pm before the last customer made a successful withdrawal of deposits.

Sources: Remember Singapore (2014), The Straits Times (1974a), The Straits Times (1974b), The Straits Times (1974c)

B.77 Serbia

March, 1993

In March 1993, Serbia experienced a bank run when thousands of Serbs queued to retrieve their funds from Dafiment Private Bank. The run followed a deposit freeze by another private bank, Jugoskandik, after its president, Jezdimir Vasiljevic, fled the country. In both cases, the banks had initially lured depositors with sky-high deposit rates, which subsequently turned out to be unsustainable.

Sources: The Washington Post (1993)

October, 2008

According to an IMF country report, Serbia experienced a bank run in October 2008 when depositors quickly withdrew around 18% of the banking sector's total deposits (mostly savings deposits) within a time span of only six weeks. The run was predominantly due to "retail" depositors.

Sources: International Monetary Fund (2010b)

B.78 Spain

June, 1864

In 1864, the Bank of Spain experienced a bank run after the government involved it in the sale of public properties. Concerns about the solvency of the government led to a tumultuous run, leading the Bank to limit the convertibility of banknotes into specie.

Sources: Alessio Moro and Tedde (2013)

December, 1913

Starting in December 1913, Spain experienced a series of bank runs, including on the Credito de la Union Minera. These runs were triggered by concerns surrounding the outbreak of World War I.

Sources: Baron et al. (2021), Metrick and Schmelzing (2021), Jordà et al. (2017)

December, 1920

In 1920, there is a run on the Banco de Barcelona, which ultimately failed, triggering a further wave of runs on other institutions requiring intervention by the authorities.

Sources: Baron et al. (2021), Metrick and Schmelzing (2021), Jordà et al. (2017)

September, 1924

In September 1924, Spain experienced bank runs that began in the summer of 1924, became acute towards the end of 1924 and lasted until September 1925, according to Baron et al. (2021) and Jordà et al. (2017).

Sources: Baron et al. (2021), Jordà et al. (2017)

April, 1931

In April 1931, Spain experienced bank runs that forced considerable central bank intervention, according to Baron et al. (2021) and Metrick and Schmelzing (2021). Jordà et al. (2017) also call this a "panic".

Sources: Baron et al. (2021), Metrick and Schmelzing (2021), Jordà et al. (2017)

January, 1994

In January 1994, Spain experienced a bank run after Banco Espanol de Credito Banesto was taken over by the Bank of Spain when it discovered a huge capital shortfall in the bank's finances. Thousands of customers rushed to withdraw their money, according to Counsell (1994).

Sources: Counsell (1994)

B.79 Sweden

1709

In 1709, a deposit outflow at the lending bank forced the Riksbank to suspend convertibility of the lending bank deposits. The cause was the Swedish loss in 1708 at the battle against the Russians at Poltava in present-day Ukraine.

Sources: Metrick and Schmelzing (2021), Rodney Edvinsson, ed (2018)

1745

In 1745, Sweden experienced a bank run. As described by Metrick and Schmelzing (2021), a bank run forces the Riksbank's exchange bank to make deposits and banknotes incon-

vertible.

Sources: Rodney Edvinsson, ed (2018)

February, 1808

In February 1808, at the onset of the Finnish War, a conflict between Russia and Sweden over the control of Finland, Sweden experienced bank runs in Stockholm, and spread across the country upon news of the Russian attack reaching the depositors, and more severe runs were recorded in 1809. The war lasted until 1809 and resulted in Russia's annexation of Finland, leading to the creation of the Grand Duchy of Finland as an autonomous buffer state.

Sources: Metrick and Schmelzing (2021), Kuusterä and Tarkka (2011)

1817

In 1817, a government audit revealed that Malmoe Diskont was insolvent, triggering a bank run that also spread to Gothenburg Diskont and Gota kanalbolagets. Malmoe was granted an emergency loan by the central bank but was ultimately shut down. While Metrick and Schmelzing (2021) date this event to occur in 1815, a Riksbank publication dates it to 1817, and we use this date.

Sources: Metrick and Schmelzing (2021), Fregert (2022)

December, 1857

In 1857, Sweden experienced a bank run on the country's first savings bank, Stockholms Enskilda Bank. The bank had been the first in Europe to issue banknotes in 1661. This triggered widespread deposit withdrawals among other savings bank.

Sources: Wetterberg and Mikiver (2018)

December, 1878

Sweden experienced a major banking crisis in 1878 at the heels of the economic boom of the 1870s. Sweden's largest commercial bank at the time, Stockholms Enskilda Bank, suffered a run because of its large exposure to railway bonds in 1878. Ögren (2003), Baron et al. (2021), and Jordà et al. (2017) agree that the crisis featured bank runs and failures; Reinhart and Rogoff (2009a) also count this as a banking crisis.

Sources: Baron et al. (2021), Reinhart and Rogoff (2009a), Jordà et al. (2017), Ögren (2003)

October, 1907

In October 1907, Sweden experienced bank runs, in the process of which 16 banks went bankrupt or were reorganized. Among the failed banks were Aktiebolaget Stockholms Kreditbank (1907), AB Sundsvalls Köpmansbank (1910), AB Sundsvalls folkbank (1910), AB Hudiksvalls Folkbank (1910), AB Linköpingsbank (taken over, 1910), AB Gäfle handelsbank (reorganized, 1910), Halmstads Bankaktiebolag (taken over, 1911), AB Sollefteå folkbank (merged, 1911), and Bankaktiebolaget Stockholm Öfre Norrland (taken over, 1911).

Sources: Baron et al. (2021), Reinhart and Rogoff (2009a), Jordà et al. (2017), Grodecka-Messi et al. (2021)

1912

In 1912, Sweden's Aktiebolaget Stockholms folkbank experienced a bank run and a subsequent payment suspension. Confidence in the bank only returned in 1914.

Sources: Kenny et al. (2023)

March, 1932

In March 1932, Skandinaviska Kreditaktiebolaget faced a bank run following losses on its exposure to the Kreuger industrial and financial group. The bank had been the group's largest creditor. Jordà et al. (2017) also count this as a crisis, although they do not mention runs.

Sources: Lonnborg et al. (2011), Baron et al. (2021), Reinhart and Rogoff (2009a), Jordà et al. (2017)

September, 1939

According to Metrick and Schmelzing (2021), there were "minor bank runs" in September 1939 after the outbreak of war in Europe, and banks turned to the Riksbank for emergency discounts. There was a jump in Riksbank discounting from 13 million to 197 million SEK during Sep-Dec 1939. We still count this as an episode of bank runs, because we use deposit data to quantify how "minor" the runs were.

Sources: Metrick and Schmelzing (2021)

April, 1992

In April 1992, Gota Bank, the fourth largest bank in Sweden, experienced a bank run when SEK 2 billion, or 5% of its deposits, were withdrawn in one week, triggered by an announcement from its parent company that it was unwilling and unable to support the bank any further. This episode is also classified as a systemic banking crisis by Baron et

al. (2021), Jordà et al. (2017), Laeven and Valencia (2018), and Reinhart and Rogoff (2009a).

Sources: Makhija (2022), Baron et al. (2021), Jordà et al. (2017), Laeven and Valencia (2018), Reinhart and Rogoff (2009a), Englund (2015), Urwitz (1998)

B.80 Switzerland

April, 1859

In 1859, there was a run on Banque Générale Suisse in Geneva; the bank faced withdrawals of 75% of all deposits. The bank had to suspend payments in 1859 and was liquidated in 1869.

Sources: Metrick and Schmelzing (2021), Gerlach and Kugler (2018), Jöhr (1915)

1865

In 1865, Banque Cantonale du Valais faced liquidity problems. The eventual run and closure happened in 1870. According to Gerlach and Kugler (2018), the run on Banque Cantonale du Valais was caused by bad investments, causing a political scandal involving the resignation of several local government members.

Sources: Gerlach and Kugler (2018), Jöhr (1915)

July, 1870

There was a banking crisis in Switzerland in 1870, caused by the inability to obtain supply of coin from France, leading to runs and a rush to convert notes for coin. Both Baron et al. (2021) and Metrick and Schmelzing (2021) consider this to be an episode characterized by runs.

Sources: Baron et al. (2021), Metrick and Schmelzing (2021), Conant (1915)

March, 1914

In July 1914, Switzerland experienced bank runs amid a panic caused by the outbreak of World War I, which led to large-scale deposit withdrawals until the central bank intervened.

Sources: Baron et al. (2021), Reinhart and Rogoff (2009a), Bachmann et al. (1932)

July, 1931

In July 1931, the failure of Banque de Geneve caused deposit runs in Geneva. Many banks were restructured. 3 major Swiss banks required direct assistance from the government and SNB. Federal government directly deposited CHF 20M at Diskountbank to provide

assistance due to lack of liquidity.

Sources: Baron et al. (2021), Baumann (2007)

June, 1991

In 1991, amid a major banking crisis, regional savings banks such as Spar & Leihkasse Thun in particular faced bank runs. Jordà et al. (2017) consider this as a systemic banking crisis, characterized by a regional bank crisis fund and large-scale interventions by the central bank. By the end of the crisis episodes, around half of the 200 regional banks had disappeared.

Sources: Jordà et al. (2017)

March, 2023

In March 2023, Switzerland experienced a significant bank run involving Credit Suisse, one of its major financial institutions. The run was triggered by a combination of factors, including deep concerns about the bank's financial stability and a series of internal scandals. These internal issues, which involved a spying scandal and the collapse of significant investment funds like Archegos Capital and Greensill Capital, eroded investor and customer confidence. Additionally, the broader financial market instability, particularly following the collapse of Silicon Valley Bank in the U.S., further heightened the sense of insecurity among the bank's customers, leading to the massive withdrawal of 61 billion Swiss francs (about £55 billion) in the first quarter of the year. This situation ultimately led to a rescue takeover by UBS, another Swiss banking giant, in a deal overseen by Swiss authorities to stabilize the financial system.

Sources: Bhardwaj (2023), The Independent (2023), BBC (2023c), CNN (2023)

B.81 Thailand

August, 1984

In August 1984, Thailand experienced a bank run on The Asia Trust Bank, following mismanagement and internal conflicts, which prompted the Ministry of Finance to take over the ownership and management of the bank. Reinhart and Rogoff (2009a) explicitly mention the incidence of runs starting in 1983.

Sources: Reinhart and Rogoff (2009a), Baron et al. (2021), Laeven and Valencia (2018), Sundaravej and Trairatvorakul (1989), Johnston (1989)

May, 1996

In May 1996, Thailand's Bangkok Bank of Commerce experienced a bank run and the Ministry of Finance took control of the institution. Further runs ensued, including on the

finance companies that had fueled the rapid increase in real estate credit. Quickly after these events evolved into the Asian financial crisis when Thailand floated its currency in July 1997, sparking panic across Asia by October 1997.

Sources: Baron et al. (2021), Laeven and Valencia (2018), Vanikkul (2007), Laplamwanit (1999), Moreno et al. (1998), Charles Adams and Donald J. Mathieson and Garry Schinasi (1998)

February, 2014

In February 2014, Thailand experienced a bank run when the Government Savings Bank (GSB) lent 5 billion baht to the Bank for Agriculture and Agricultural Cooperatives, a bank that runs the government's rice programme, and was nearing insolvency. This decision led to a run on the GSB as depositors were either worried about the stability of the GSB or unwilling to see their money used to help the government, according to an article by Reuters.

Sources: Reuters (2014a), Bangkok Post (2014), The Nation (2014)

B.82 Trinidad and Tobago

1939

According to Wai (2010), Trinidad and Tobago's Barclays Bank DCO suffered a run on its San Fernando operations after the announcement that Britain was going to war with Germany in 1939.

Sources: Wai (2010)

1988

In 1988, Trinidad and Tobago experienced a bank run following the closure of the Worker's Bank (WB), according to Wai (2010). The run was prompted by a rumor about the impeding collapse of the National Commercial Bank of Trinidad and Tobago (NCB), which led to an abrupt withdrawal of approximately TT$100 million within ten days. The chairman of NCB speculated that this bank run was deliberately instigated by the established banking hierarchy to eliminate the last remaining "black" bank.

Sources: Wai (2010)

B.83 Turkey

October, 1895

During October 1895, the Ottoman Imperial Bank (the country's only local bank) faced a major run after the bank's shares had tumbled in London and then the Galata Bourse due to the firm's exposure to crashing South African gold mining stocks. Fear of an insolvency

of the bank triggered the run, which may have been related to what has been called the "Armenian crisis", although this is not entirely clear.

Sources: Davutyan (2023), Metrick and Schmelzing (2021), The Argus (1895)

July, 1914

The outbreak of World War I triggered bank runs in the Ottoman Empire. Triggered by an initial run on the local branches of the Wiener Bankverein, panic ensued, leading to runs on other banks as well, including Imperial Ottoman Bank, Oriental Deutschebank, Credit Lyonnais, Bank of Salonika, and the National Bank of Turkey. The run on several of these institutions, including Imperial Ottoman Bank, was caused by the fact that they were majority-owned by French and British interests.

Sources: Baron et al. (2021), Autheman (2018), Roberts (2014)

July, 1931

In July 1931, the Turkish branches of Deutsche Bank experienced a run in response to developments in Germany, according to the company's historical documents and Bernanke and James (1990). This incident is also documented by Reinhart and Rogoff (2009a) and Baron et al. (2021), while Metrick and Schmelzing (2021) speak of "financial volatility".

Sources: Historical Association of Deutsche Bank (2009)

December, 1981

Turkey experienced a systemic banking crisis around 1980-82, with existing chronologies disagreeing about the exact dates. An interest rate liberalization in 1980 created a large industry of brokers, which also attracted fraudsters. When Cevher Özden, owner of Turkey's largest brokerage house Banker Kastelli, fled to Switzerland in late June 1982 following the impeding collapse of the institution, this caused widespread runs. By 1984, several major banks had failed.

Sources: Metrick and Schmelzing (2021), Kaminsky (2006), The Washington Post (1982), Gormez (2022), Silverman (2022), The New York Times (1982a)

January, 1991

In January 1991, following the start of the Gulf War in the previous year, Turkey experienced severe bank runs. As a reaction, the government guaranteed all deposits.

Sources: Kaminsky (2006), Reinhart and Rogoff (2009a)

February, 2001

Turkey experienced banks runs in February 2001 following failure of the largest "Special Finance House", Ihlas Finance. The immediate trigger was an announcement that the deposits of special finance houses would not be covered by the Deposit Insurance Fund, which led depositors to withdraw their funds. Kuwait Turk Evkaf Special Finance House (KTEFH) saw the largest amount of withdrawals among these.

Sources: Baron et al. (2021), Reinhart and Rogoff (2009b), Laeven and Valencia (2018), Starr and Yilmaz (2007)

B.84 Taiwan

February, 1985

In August 1985, a corruption scandal involving Tenth Credit Cooperative revealed that the chairman was using deposits to speculate in stocks and real estate. Announcements questioning the solvency of the institution led to a run, causing a drop of 6.18 billion yuan in only 5 days. This initial run had knock-on effects and caused massive deposit withdrawals at other institutions. The Cathay Investment and Trust Company, also owned by Cathay, also suffered from withdrawals as a result of involvement in a wider corruption scandal.

Sources: Baron et al. (2021), United Daily News Taiwan (2023), The Central News Agency (2023), The New York Times (1985c), Lee (1998)

July, 1995

In July 1995, Taiwan experienced bank runs following the failure of the Chanuga Fourth Credit Union. Ye Chuanshui, general manager of Changhua Fourth Credit Cooperative, misappropriated more than NT$2.8 billion in members' deposits, the news about which triggered a run that also spread to several other institutions. The Chanuga Cooperative was ultimately taken over by the Cooperative Bank of Taiwan.

Sources: Baron et al. (2021), Chinese Television News (1995), Mandy (1995), Lee (1998)

November, 1998

Starting in November 1998, Taiwan experienced bank runs, starting with massive withdrawals at Central Bill Finance Company, Hung-Fu Bill Finance Company, and Taichung Business Bank. Sporadic runs continued to occur in 1999, and several failures were largely resolved through arranged mergers.

Sources: Baron et al. (2021), Montgomery (2002), Montgomery (2003)

January, 2000

Taiwan experienced several bank runs in 2000. In April, it was revealed that Zhongxing Bank had engaged in illegal over-lending, leading to a run by its depositors. The amount of abnormal withdrawals exceeded 13 billion. Other institutions that experienced runs were Taiwan Development and Trust Corporation as well as Overseas Chinese Bank. Although these runs came at the heels of a previous episode of banking problems starting in November 1998, they appear to be a separate episode, and we thus classify them as a distinct event.

Sources: Yahui (2000), Chinese Television News (2000), Montgomery (2002)

January, 2007

In January 2007, Taiwan experienced a bank run when Rebar and Jiashihua, two companies under the Rebar Group, filed a petition for reorganization on December 29, 2006. These news were delayed until January 4, 2007, and then triggered a run on Rebar Group's subsidiary China Commercial Bank. In order to avoid a systemic crisis, the government provided liquidity to support the withdrawal of cash by drawers. However, the amount of withdrawals within a single week still amounted to NT$50 billion.

Sources: Wei et al. (2007), Risk (2007), Financial Times (2007)

B.85 Uganda

May, 1999

In May 1999, Uganda experienced a bank run on the Housing Finance Company of Uganda (HFCU), a non-bank financial institution partly owned by the government, which followed the closure of four insolvent institutions. Brownbridge (2002) stresses that this was the only serious run on a (sound) financial institution during this period, and even this run was quickly brought under control by the government's public announcement that HFCU was safe.

Sources: Brownbridge (2002)

B.86 Ukraine

August, 1998

Starting in August 1998, Ukraine experienced bank runs as public confidence in the banking system deteriorated following the Russian crisis. In December, some banks imposed a $500 per day withdrawal limit to stem deposit outflows.

Sources: Laeven and Valencia (2018), Taran (2012)

September, 2008

In September 2008, Ukraine experienced a bank run on its sixth largest bank, Prominvestbank. After experiencing internal problems, there were rumors about the bank's insolvency, causing massive deposit withdrawals and a panic among customers. As a result, several other banks (both large and small) faced runs.

Sources: Shestak (2013), Taran (2012)

February, 2014

In February 2014, Ukraine experienced bank runs accompanied by a drop in bank deposits by 7 per cent of deposits, or 30 billion hryvnias ($3.3 billion), between 18 and 20 February. Because of these runs, central bank reserves dwindled, and the central bank considered lending to five of the country's banks to prevent further runs when a large number of customers withdraw money at the same time. The runs happened against the backdrop of violent insurgencies especially in the Donetsk and Luhansk regions.

Sources: CNBC (2014), NBC News (2014), Reuters (2014b), Gillet (2020), Metrick and Schmelzing (2021)

B.87 Uruguay

June, 1866

In June 1866, Uruguay experienced widespread bank runs following the collapse of Overend & Gurney. Maua Bank was on the verge of collapse and supported by the government by allowing the bank the suspension of convertibility for six months.

Sources: Metrick and Schmelzing (2021), Steinberg (2018)

July, 1890

The Baring Crisis of 1890 led to severe financial repercussions in Uruguay, including a bank run. The National Bank of Uruguay, which had the power to print and issue paper money backed by English pounds, faced difficulties when its notes were refused by other banks, leading to a suspension of specie payments and subsequent panic and bank runs. This event was part of a larger financial crisis that affected not only Uruguay but also other countries in Latin America. The crisis was a result of questionable fiscal and monetary policies, draining the banking system of specie, and provoking multiple banks to experience runs beginning in July 1890.

Sources: Mitchener and Weidenmier (2008), Currency History (2016)

September, 1898

In September 1898, Uruguay experienced bank runs to redeem banknotes due to a government decree to reduce the circulation of notes. These events were part of a broader pattern of financial instability in Latin America during the late 19th century, with Uruguay's financial struggles contributing to the global financial crisis of the 1890s.

Sources: Reinhart and Rogoff (2009a), Metrick and Schmelzing (2021)

April, 1964

In April 1964, Uruguay experienced bank runs following problems at Banco Regional. After Banco Regional was taken over by BROU, the bank run spread to other banks, including the Transatlantic Bank of Uruguay and other private banks in December 1964.

Sources: Vaz (1988), Oddone and Marandino (2019), Metrick and Schmelzing (2021)

September, 1982

In September 1982, Uruguay was hit by a wave of bank runs triggered by the nationalization of banks in Mexico. After a brief halt of the runs they flared up again in November, driven by fears of a systemic banking collapse, the abrupt end of the fixed exchange rate policy by the Central Bank of Uruguay due to a scarcity of dollars, and soaring dollar exchange rates. The situation was worsened by political unrest marked by the ruling party's losses in elections and the Finance Minister stepping down. Discrepancies between what was publicly known and private realities eroded trust, hastening the flight from the Uruguayan peso.

Sources: Vaz (1988), Laeven and Valencia (2018), Reinhart and Rogoff (2009a), Metrick and Schmelzing (2021)

January, 2002

In 2002, Uruguay experienced sustained bank runs. In an environment of highly dollarised deposits, many of which were held by non-residents (especially from Argentina), the imposition of capital controls and deposit freezes in December 2001 caused liquidity issues at the two largest private banks, Banco Galicia Uruguay (BGU) and Banco Comercial (BC), which were particularly exposed to Argentina. This triggered a first round of runs, with BGU hit particularly hard. By May, bank runs had also expanded to public banks.

Sources: Laeven and Valencia (2018), Reinhart and Rogoff (2009a), Metrick and Schmelzing (2021), Kaminsky (2006), Oddone and Marandino (2019)

B.88 United States of America

April, 1814

According to Reinhart and Rogoff (2009a) and Metrick and Schmelzing (2021), there were widespread bank runs in New Orleans, including on the Planter's Bank, Bank of New Orleans, and Louisiana Bank; also see Calomiris and Gorton (1991). Panic ensued among merchants, planters, and other citizens as they rushed to exchange paper bank notes for specie. The panic was likely related to the ongoing trade embargoes and blockades during the War of 1812. Bordo and Wheelock (1998) quote Thorp (1926) as describing this episode as being characterized by "financial chaos".

Sources: Reinhart and Rogoff (2009a), Metrick and Schmelzing (2021), Calomiris and Gorton (1991), Keyes (2013), Bordo and Wheelock (1998), Thorp (1926)

May, 1819

In 1819, the contractionary monetary policies of the Second Bank of the United States amplified the effects of declining crop prices and land values. State banks throughout the nation suspended specie redemptions and many were forced into insolvency. The Second Bank lacked the ability to serve as a lender of last resort, which allowed bank runs to spread. Bordo and Wheelock (1998) quote Buckingham Smith, Walter and Arthur Harrison Cole (1935) in stressing that "[b]anks with extended loans to speculators were now confronted with a demand for specie". According to Rothbard (1962), "New England ... was the only area little touched by bank failures or runs". Thorp (1926) dates the panic to May 1819, which we follow here.

Sources: Bordo and Wheelock (1998), Reinhart and Rogoff (2009a), Metrick and Schmelzing (2021), Calomiris and Gorton (1991), Zeretsky (1996), Chambers and Higgins (2023), Rothbard (1962), Buckingham Smith, Walter and Arthur Harrison Cole (1935)

October, 1833

In November 1833, the United States experienced bank runs and suspensions in several states, including New York, Pennsylvania, Georgia, New Jersey, and Virginia, according to Metrick and Schmelzing (2021). Jalil (2015) documents many mentions of bank runs in the Niles Weekly Register, and Thorp (1926) also classifies this as a panic. These runs came at the heels of a political decisions by President Andrew Jackson, a fierce opponent of the Bank of the United States, who decided to withdraw the government deposits from the quasi-central bank, precipitating runs.

Sources: Metrick and Schmelzing (2021), Jalil (2015), Thorp (1926), Zeretsky (1996)

May, 1837

In 1837, the United States experienced bank runs following first signs of distress in New Orleans and New York in March and April (see Metrick and Schmelzing, 2021; Jalil, 2015). Severe bank runs in New York in May led to a suspension of specie payments, following the publication of an investigation by the New York Bank Commissioners in the New York Herald into a fraudulent scheme run by the president of Mechanics Bank, a major Wall Street bank. An initial run on Mechanis Bank quickly spread to other institutions involved in the scheme and eventually led to a general run on all banks in New York City.

Sources: Metrick and Schmelzing (2021), Jalil (2015), Hilt and Liang (2020), Zeretsky (1996), Reinhart and Rogoff (2009a), Bordo et al. (1999), Calomiris and Gorton (1991)

April, 1841

Jalil (2015) documents mentions of bank runs in the Niles Weekly Register in 1842, followed by reports of bank failures, and further reports on a banking panic with runs in New Orleans. There is also evidence of isolated runs in March 1842 in Philadelphia, which in turn followed a series of bank runs in April 1841 in several states prompted by the suspension of specie payments at the Second Bank of the United States (also see Reinhart and Rogoff, 2009a). We thus treat April 1841 as the start date of this bank run episode. While Jalil (2015) only classifies this episode as a "minor banking panic". For the purpose of our dataset, however, what matters is that there is clear narrative evidence of any run, and we thus treat it as a period where runs occurred.

Sources: Jalil (2015), Reinhart and Rogoff (2009a)

September, 1854

Starting in September 1854, the United States experienced bank runs emanating from the interior (especially West and Northwest). The runs followed reports about widespread fraud in the stock market involving several major railroad shares. The panic subsequently also reached New York, triggering a general run on savings banks in January 1855 (Jalil, 2015). In February 1855, after the parent company of Page, Bacon & Co. failed due to speculation in railroad shares, this led to panics in San Francisco, resulting in massive withdrawals from the bank, with $600k being withdrawn in a single day out of the $2M in deposits the bank held. The panic spread to several other banks and led to their failure.

Sources: Jalil (2015), Dematos (2023), Thorp (1926), Gráda and White (2003)

September, 1857

In 1857, United States experienced bank runs following the failure of the Ohio Life Insurance and Trust Company due to mismanagement and fraudulent activities in August. Given Ohio Life's role in the market for margin loans, and given its large depositor base, this event created panic among banks, leading to a first set of runs in September, including

on the Bank of Pennsylvania. These runs reached "dramatic" proportions in New York City in October (Jalil, 2015), and banking was suspended entirely on October 14 in New York and throughout New England.

Sources: Jalil (2015), Gráda and White (2003), Calomiris and Gorton (1991), Bordo et al. (1999), Reinhart and Rogoff (2009a), The New York Times (2001), Fulfer (2022), Library of Congress (nodate), Klitgaard and Narron (2015)

September, 1873

In 1873, the United States experienced bank runs following the collapse of Jay Cooke Bank, which in turn came at the heels of a stock market crash in Vienna that led investors to dump their American railroad bonds. The banking crisis was the result of a debt-driven railway boom that had come to a standstill. The closure of Jay Cooke, one of the most prestigious merchant banks, on 18 September shocked the city and triggered a widespread panic. On that day, and intensifying until 20 September, depositors rushed to withdraw their funds in a series of bank runs in New York City. Several prominent banks failed and the New York Stock Exchange was closed for 10 days for the first time ever.

Sources: Baron et al. (2021), Reinhart and Rogoff (2009a), Metrick and Schmelzing (2021), Jalil (2015), Jordà et al. (2017), Fulmer (2022)

May, 1884

The United States experienced several bank runs in 1884. These events started when, on 8 May 1884, the brokerage firm Grant and Ward failed amid heavy losses on speculative investments, which in turn led to the closure of its large creditor Marine National Bank. Soon after, the Second National Bank experienced a run when it was discovered that its president had embezzled $3 million and fled to Canada. Another run on Metropolitan National Bank triggered by rumors about fraudulent conduct with depositor funds by the bank's president led to its collapse, even though it later turned out that these rumors had been false. By putting a halt to the publication of bank statistics in order to avoid further runs, the New York Clearinghouse Association likely stopped these in their tracks.

Sources: Jalil (2015), Sprague (1910), Richardson and Sablik (2015), Hoffner and Steffen (2022), Baron et al. (2021)

June, 1893

In 1893, the United States experienced bank runs, which started in May and became especially pronounced over the months of June, July, and August. This instability arose for two key reasons. First, the Sherman Silver Purchase Act of 1890 led to a decrease in the gold reserves maintained by the U.S. Treasury, which fell to about $100 million from $190 million in 1890. This fall in gold reserves raised concerns at home and abroad that the United States might be forced to abandon the gold standard, which prompted some

depositors to withdraw bank notes and convert them into gold. Second, different from many other bank runs during this period, there was already a sign of slowing economic activity in the run-up to 1893, with newspapers mentioning an "existing depression". As such, fear of weakened bank balance sheets due to reports of failures and bankruptcies led to a stock market crash and deposit withdrawals, causing widespread bank runs.

Sources: Rothbard (1962), Reinhart and Rogoff (2009a), Jordà et al. (2017), Jalil (2015), Sprague (1910), Baron et al. (2021), Carlson (2005), Grossman (2010)

December, 1896

According to Jalil (2015), the failure of the National Bank of Illinois triggered runs on other institutions in the region in December 1896, although the panic was overall short-lived and apparently isolated to the midwest. This episode is also classified as a panic by, among others, Long and Summers (1984) and Calomiris and Gorton (1991).

Sources: Jalil (2015), Long and Summers (1984), Calomiris and Gorton (1991)

October, 1907

In October 1907, the United States experienced runs on a group of New York banks that were involved in speculating in the commodities market by misappropriating bank funds. Following a collapse in copper prices, the news caused widespread panic in New York. The subsequent failure of Knickerbocker Trust Company led to a spread of runs across the entire country.

Sources: Jalil (2015), Baron et al. (2021), Sprague (1910), Jordà et al. (2017), Constitutional Rights Foundation (2012)

July, 1929

In July 1929, there were widespread runs in Florida when a Mediterranean fruit fly epidemic destroyed the state's citrus crop. Doubts about farmers' ability to repay their loans, and a lack of response from Congress about compensating them for their losses, triggered bank runs on institutions in citrus-growing areas and the failure of a key correspondent group headquartered in Tampa, Citizens Bank and Trust Company, which served as a regional financial center. While the Federal Reserve Bank of Atlanta was able to halt the panic by providing member banks with currency, these runs foreshadowed the more widespread runs in the following year.

Sources: Carlson et al. (2010), Metrick and Schmelzing (2021)

November, 1930

In 1930, the United States experienced bank runs following the collapse of Caldwell and Company of Nashville, Tennessee in November, the largest financial holding company in

the South. These runs quickly became widespread, causing hundreds of banks to ultimately suspend operations in just a few weeks. While these panics came at the heels of the more localized runs in Florida in the previous year, they were entirely separate events, so we code them as such.

Sources: Jordà et al. (2017), Baron et al. (2021), Richardson (2013)

November, 1932

Following the election of Franklin D. Roosevelt as president in November 1932 led to rumors of a possible devaluation of the dollar and heightened concerns about the stability of the currency. Widespread bank runs ensued, first locally in the Fall of 1932 (Kindleberger and Aliber, 2005, p. 212), with a banking holiday declared in Nevada on 31 October, and then nationwide. The situation worsened in February 1933 with massive deposit withdrawals among panic and the failure of thousands of banks, leading President Roosevelt to declare a nationwide bank holiday in March. We date this event to start in November 1932 given the importance of the presidential election in triggering many runs. While this event quickly followed the 1930 series of bank runs, it was a separate event, divided by a period of relative calm characterized by bank failures but no outright panics.

Sources: Kindleberger and Aliber (2005), Federal Deposit Insurance Corporation (2018), Silber (2009), Jaremski et al. (2023), Reinhart and Rogoff (2009a)

May, 1974

In May 1974, Franklin National Bank experienced rapid deposit withdrawals, characterized as a "run" by McKinley (2014), following the reveal of massive losses on its foreign exchange trading book. The bank was declared insolvent in October, having lost half of its deposits.

Sources: McKinley (2014), The New York Times (1974), Time Magazine (2014)

July, 1982

In July 1982, Penn Square Bank experienced a "full-scale run" according to reporting on NPR, after it was revealed that it took major losses on large risky loans, particularly to the oil industry. Amid the drop in oil prices and rumors of the bank's problems, a panic ensued, leading to a run on the bank's deposits on 2 July. Three days later, the bank was declared insolvent.

Sources: The New York Times (1982b), Wertz (2012)

November, 1983

In November 1983, there were bank runs in Nebraska after the forced closure of the Commonwealth Savings Company and the failure of the state-level deposit insurer NDIGC.

Sources: Metrick and Schmelzing (2021), The New York Times (1985a), Chen et al. (2020)

May, 1984

Starting on 8 May 1984, there was a sudden run on Continental Illinois National Bank. Despite being the seventh largest commercial bank in the US in 1984, Continental's reputation had been tarnished by its acquisition of loans from Penn Square Bank, which had failed in 1982. By 1984, the bank was experiencing declining revenues and profitability. In May, rumors circulated about the bank's possible failure or forced merger, and despite Continental's denials, a sudden and rapid run on the bank occurred.

Sources: Baron et al. (2021), United States General Accounting Office (1997), Carlson and Rose (2016)

May, 1985

Beginning on 5 March 1985, the United States experienced "the most widespread run on depository institutions since the Great Depression" (United States General Accounting Office (1997), p. 47), triggered by the largest of Ohio's privately insured savings and loan institutions, Home State Savings Bank. Highlighting the limits of private (instead of federally-guaranteed) deposit insurance, there were widespread concerns the runs would spread to other states, especially other privately-insured banking systems. There were also widespread deposit withdrawals in Maryland, which also had privately insured savings and loans institutions. By declaring a state-wide bank holiday and putting temporary limits on deposit withdrawals, the panic was calmed, and most Ohio thrifts had reopened in June 1985 with federal deposit insurance.

Sources: United States General Accounting Office (1997), Robinson (2013)

January, 1991

In January 1991, the Bank of New England experienced massive deposit withdrawals within a short time period, following the revelation of $1.1 billion in losses for the year 1989. After a projected further loss of $450 million in the fourth quarter of 1990, the bank experienced mass withdrawals of $1 billion from depositors on 4 January 1991.

Sources: Banker & Tradesman (2022), McKinley (2014), The Canberra Times (1991), Basel Committee on Banking Supervision (2004)

April, 1992

In April 1992, Metro North State Bank in Kansas City, Missouri, experienced a bank run when depositors lined up outside the bank out of fear it was about to fail. The bank's chairman blamed the situation on an "unsubstantiated rumor" that regulators were about to close the bank, according to The New York Times (1992b). The run was, however, calmed

the next day.

Sources: The New York Times (1992b), The New York Times (1992a)

August, 2007

In August 2007, Countrywide Financial Corp, the third largest savings and loans bank in the US at the time, experienced a bank run. The fear driving the run was primarily Countrywide's exposure to risky subprime mortgages. When the housing bubble burst and subprime loans started defaulting, it led to significant financial strain. Panic among depositors spread, who rushed to withdraw their money.

Sources: Los Angeles Times (2007) Baron et al. (2021), Reinhart and Rogoff (2009b), Laeven and Valencia (2018)

March, 2008

In 2008, the United States experienced several bank runs on major institutions. One of the first was a run on the mortgage lender IndyMac Bank in late June after the publications of letters by Senator Charles E. Schumer to banking regulators that the bank was likely no longer viable, triggering a drop in 7.5% of deposits over the next days. In September, Washington Mutual (WaMu) depositors panicked when they heard the news of Lehman Brothers' bankruptcy on 15 September 2008, withdrawing $16.7 billion from their savings and checking accounts over the next 10 days (more than 11% of WaMu's total deposits). Wachovia, the fourth largest bank in the United States at the time, lost $5 billion of deposits in a single day on 26 September 2008 when large depositors withdrew funds.

Sources: Amadeo (2021), CBS News (2008), Reuters (2008b), Reuters (2008a)

March, 2023

In March 2023, Silicon Valley Bank (SVB) experienced a major run and subsequently failed. SVB was known for providing lending and deposit services to venture capitalists and start-ups. It had invested heavily in US government bonds, which lost value when the Federal Reserve raised interest rates. The rate hike caused the bank's customers to withdraw their deposits, adding to SVB's financial stress. An attempt to raise funds through a share sale backfired when Founders Fund, a venture capital firm, advised its portfolio companies to withdraw their money from SVB. This led to a rapid outflow of $40 billion, a fifth of SVB's deposits, in a matter of hours. As this incident was accelerated by tweets from high-profile entrepreneurs, it has been dubbed "the first Twitter-fuelled bank run."

Sources: The Guardian (2023), Gompers (2023)

B.89 Saint Vincent and the Grenadines

January, 2013

A World Bank report states that the Saint Vincent Building and Loan Association (BLA), the largest mortgage lender in Saint Vincent and the Grenadines, "was able to weather a run on its deposits in 2013". The event occurred in January 2013 and followed the publication of a news report in The Vincentian highlighting governance and financial problems at the institution.

Sources: The Vincentian (2013), The World Bank (2014b)

B.90 Venezuela

November, 1993

In November 1993, the Venezuelan Central Bank warned of insolvency in multiple banks, leading to a climate of uncertainty. The president of Venezuela's second largest bank, Banco Latino, resigned on December 22, 1993, and fear of the bank's closure in January 1994 triggered a bank run, causing a wider banking crisis with runs on other troubled banks.

Sources: Baron et al. (2021), Laeven and Valencia (2018), Reinhart and Rogoff (2009a), BBC (2008), Trigo et al. (2007), Lucas (2023), Anido R. et al. (2014)

February, 2009

Venezuela experienced a banking crisis in 2009-10 that was also accompanied by runs. The crisis was initially triggered by a government crackdown on powerful financiers, including Arné Chacón and Ricardo Fernández Barrueco, amid concerns about their rapid wealth accumulation through close government ties. Several banks were seized among failing, contributing to fears of bank runs as depositors lined up to withdraw money. The first run was likely on Stanford Bank Venezuela in February 2009, which experienced an "online run" triggered by revelation of a massive fraud case by its Texan owner Allen Stanford and was seized by the government. The banking sector's problems continued, leading to a bank run on Banco Federal in June 2010, the country's 11th largest banks.

Sources: Associated Press (2009), The New York Times (2009), Reuters (2009b), Cancel and Pons (2010)

B.91 Vietnam

August, 2012

In 2012, the Vietnamese Asia Commercial Bank (ACB), one of the country's largest, experienced a run after the arrest of one of its founders, Nguyen Duc Kien. Depositors withdrew hundreds of millions of dollars within a short time span. The central bank,

however, quickly intervened to provide liquidity, apparently stemming pressure on other institutions.

Sources: BBC (2012), Ho (2012)

October, 2022

Saigon Commercial Bank (SCB) faced a major bank run after its founder Nguyen Duc Kien had been arrested on charges of "economic crimes" in a corruption probe. While a wider panic was contained, the incident was significant enough to be reported in the international news media and prompted a statement by Standard & Poor's regarding Vietnam's credit rating.

Sources: Nguyen (2022a), Nguyen (2022b), Bloomberg (2022), Boudreau (2022), Janssen (2023), Retail Banker International (2022)

B.92 South Africa

September, 1890

In 1890, there was a bank run on South Africa's The Natal Bank, once a major independent bank, triggered by the collapse of the Cape of Good Hope Bank. This initial run put further pressure on all banks. The Cape of Good Hope Bank's failure had followed a major bank robbery, which had caused the bank to suspend all payments.

Sources: Baron et al. (2021), Reinhart and Rogoff (2009a), Metrick and Schmelzing (2021), The Mercury (1890), The Bathurst Daily Free Press (1890)

September, 1997

In 1997, South Africa's The Islamic Bank Ltd (IBL) faced a bank run and ultimately collapsed, following a longer history of regulatory breaches and loan losses. These problems, along with adverse publicity, led to a bank run due to liquidity concerns.

Sources: Rahman and Zada (2016), Taliep et al. (2012), Nathie (2010)

January, 2002

In January 2002, South Africa experienced bank runs associated with the failures and closures of several small and medium-sized banks, including Regal Treasury Bank, New Republic Bank, and Saambou Bank. The latter in particular, South Africa's seventh largest bank at the time, faced a run by "desperate clients", as did the Board of Executors (BoE), the fifth largest bank. According to Havemann (2021), the 2002-03 crisis led to the closures of half of South Africa's banks.

Sources: Metrick and Schmelzing (2021), Havemann (2019), Havemann (2021), Independent Online (2008), Ginsberg (2002), Tjiane (2015)

B.93 Zimbabwe

May, 2003

During 2003, Zimbabwe faced repeated episodes of widespread bank runs, likely starting in May. Characterized by long queues of people waiting outside banks, among others in central Harare, there was widespread panic and banks limited cash withdrawals. The central bank, unable to print sufficient new cash to satisfy banks' demands for new notes, added to this panic.

Sources: The Independent (2013), Dzomira (2014), The Mail & Guardian (2003a), The Mail & Guardian (2003b), Makoni (2011), Kairiza (2009), Kupakuwana (2012)

May, 2016

In May 2016, Zimbabwe experienced bank runs due to a prolonged U.S. dollar shortage, with people fearing the replacement of dollars with new local currency. The panic caused daily cash withdrawal limits to drop rapidly, from 1,000 U.S. dollars to as low as 50 U.S. dollars in some cases. Many Zimbabweans, who vividly remembered the hyperinflation crisis of 2008, were wary of using the new "bond notes" introduced by the authorities.

Sources: Time Magazine (2016), CNN (2016), The Atlantic (2016), BBC (2016b), Kotze (2016)

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C The JMKS Database of Outstanding Deposits

Table B.1: Sources and Coverage for the Dataset on Outstanding Aggregate Deposits

Country	Total deposits		Demand deposits		Time deposits	
	Sources	Period covered	Sources	Period covered	Sources	Period covered
Afghanistan	IMF (IFS)	2006-2020	IMF (IFS)	2006-2020	IMF (IFS)	2006-2020
	IMF (IFS)	1958-1990	IMF (IFS)	1958-1990	IMF (IFS)	1958-1990
Albania	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1994-2000	IMF (IFS)	1994-2000	IMF (IFS)	1994-2000
	Pisha et al. (2014)	1926-1937	Pisha et al. (2014)	1926-1937	Pisha et al. (2014)	1926-1937
Algeria	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1964-2000	IMF (IFS)	1964-2000	IMF (IFS)	1964-2000
	Mitchell IHS	1943-1963	Mitchell IHS	1943-1963		
	Mitchell IHS	1938	Mitchell IHS	1938		
Angola	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1995-2000	IMF (IFS)	1995-2000	IMF (IFS)	1995-2000
	Mitchell IHS	1973	Mitchell IHS	1973	Mitchell IHS	1973
	Nunes et al. (2010)	1932-1972	Nunes et al. (2010)	1932-1972	Nunes et al. (2010)	1932-1972
Anguilla	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1990-2000	IMF (IFS)	1990-2000	IMF (IFS)	1990-2000
Antigua and Barbuda	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1975-2000	IMF (IFS)	1975-2000	IMF (IFS)	1975-2000
Argentina	IMF (IFS)	2010-2022	IMF (IFS)	2010-2022	IMF (IFS)	2010-2022
	IMF (IFS)	1960-2009	IMF (IFS)	1960-2009	IMF (IFS)	1960-2009
	Mitchell IHS	1926-1959	Mitchell IHS	1926-1959		
	Mitchell IHS	1903-1925	Mitchell IHS	1903-1925		
Armenia	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1992-2000	IMF (IFS)	1992-2000	IMF (IFS)	1992-2000
Aruba	IMF (IFS)	1986-2020	IMF (IFS)	1986-2020	IMF (IFS)	1986-2020
Australia	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000
	Mitchell IHS	1949	Mitchell IHS	1949		
	Mitchell IHS	1901-1948	Mitchell IHS	1901-1948		
	JST Macrohistory Database	1900	JST Macrohistory Database	1900		
	Mitchell IHS	1841-1899	Mitchell IHS	1841-1899		
Austria	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	Mitchell IHS	1999-2000	Mitchell IHS	1999-2000	Mitchell IHS	1999-2000
	IMF (IFS)	1997-1998	IMF (IFS)	1997-1998	IMF (IFS)	1997-1998
	IMF (IFS)	1953-1996	IMF (IFS)	1953-1996	IMF (IFS)	1953-1996
	Mitchell IHS	1949-1952	Mitchell IHS	1949-1952		
	Mitchell IHS	1923-1937	Mitchell IHS	1923-1937		
	Mitchell IHS	1920-1922	Mitchell IHS	1920-1922		
	Mitchell IHS	1918-1919	Mitchell IHS	1918-1919		
	Mitchell IHS	1913	Mitchell IHS	1913		
Azerbaijan	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1992-2000	IMF (IFS)	1992-2000	IMF (IFS)	1992-2000
Belgium	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	Mitchell IHS	1999-2000	Mitchell IHS	1999-2000	Mitchell IHS	1999-2000
	JST Macrohistory Database	1997-1998	JST Macrohistory Database	1997-1998	JST Macrohistory Database	1997-1998
	IMF (IFS)	1992-1996	IMF (IFS)	1992-1996	IMF (IFS)	1992-1996
	JST Macrohistory Database	1991	IMF (IFS)	1991	IMF (IFS); JST Macrohistory Database	1991
	IMF (IFS)	1969-1990	IMF (IFS)	1969-1990	IMF (IFS)	1969-1990
	Mitchell IHS	1968	Mitchell IHS	1968	Mitchell IHS	1968
	IMF (IFS)	1950-1967	IMF (IFS)	1950-1967	IMF (IFS)	1950-1967
	Mitchell IHS	1947-1949	Mitchell IHS	1947-1949		
	Mitchell IHS	1942-1946	Mitchell IHS	1942-1946		
	Mardinin and Schuer (2014)	1922-1941	Mardinin and Schuer (2014)	1922-1941		
	Mitchell IHS	1920-1921	Mitchell IHS	1920-1921		
	Mardinin and Schuer (2014)	1912-1919	Mardinin and Schuer (2014)	1912-1919		
	Mitchell IHS	1875-1911	Mitchell IHS	1875-1911		
	Mardinin and Schuer (2014)	1835-1851	Mardinin and Schuer (2014)	1835-1851	Mardinin and Schuer (2014)	1835-1851
Bahamas	IMF (IFS)	2010-2022	IMF (IFS)	2010-2022	IMF (IFS)	2010-2022
	IMF (IFS)	1969-2009	IMF (IFS)	1969-2009	IMF (IFS)	1969-2009

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Country	Total deposits		Demand deposits		Time deposits	
	Sources	Period covered	Sources	Period covered	Sources	Period covered
Bahrain	IMF (IFS)	1965-2015	IMF (IFS)	1965-2015	IMF (IFS)	1965-2015
Bangladesh	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1974-2000	IMF (IFS)	1974-2000	IMF (IFS)	1974-2000
	Mitchell IHS	1960-1971	Mitchell IHS	1960-1971		
Barbados	IMF (IFS)	2012-2022	IMF (IFS)	2012-2022	IMF (IFS)	2012-2022
	IMF (IFS)	2008-2009	IMF (IFS)	2008-2009	IMF (IFS)	2008-2009
	IMF (IFS)	1966-2007	IMF (IFS)	1966-2007	IMF (IFS)	1966-2007
Belarus	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	IMF (IFS)	1994-2000	IMF (IFS)	1994-2000	IMF (IFS)	1994-2000
Belize	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1976-2000	IMF (IFS)	1976-2000	IMF (IFS)	1976-2000
Benin	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000
	Mitchell IHS	1955-1959	Mitchell IHS	1955-1959		
Bhutan	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	IMF (IFS)	1983-2000	IMF (IFS)	1983-2000	IMF (IFS)	1983-2000
Bolivia	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2000-2022
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1949-2000
	Mitchell IHS	1945-1949	Mitchell IHS	1945-1949		
	Mitchell IHS	1936-1944	Mitchell IHS	1936-1944		
	Mitchell IHS	1913-1935	Mitchell IHS	1913-1935		
Bosnia and Herzegovina	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1997-2000	IMF (IFS)	1997-2000		
Botswana	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1972-2000	IMF (IFS)	1972-2000	IMF (IFS)	1972-2000
Brazil	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000
	Mitchell IHS	1947-1949	Mitchell IHS	1947-1949	Mitchell IHS	1947-1949
	IPEA (2010)	1901-1946	IPEA (2010)	1901-1946	IPEA (2010)	1901-1946
	IPEA (2010)	1852-1900				
Brunei Darussalam	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1999-2000	IMF (IFS)	1999-2000	IMF (IFS)	1999-2000
Bulgaria	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	IMF (IFS)	1991-2000	IMF (IFS)	1991-2000	IMF (IFS)	1991-2000
	Mitchell IHS	1939-1944				
	Mitchell IHS	1937-1938				
	Mitchell IHS	1922-1936				
	Mitchell IHS	1920-1921				
	SE European Monetary and Economic Statistics	1914-1919				
	Mitchell IHS	1913				
Burkina Faso	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2000-2022
	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000	IMF (IFS)	1959-2000
	Mitchell IHS	1955-1959	Mitchell IHS	1955-1959		
Burundi	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1964-2000	IMF (IFS)	1964-2000	IMF (IFS)	1964-2000
Cabo Verde	IMF (IFS)	2017-2022	IMF (IFS)	2017-2022	IMF (IFS)	2017-2022
	Banco de Cabo Verde; IMF (IFS)	2001-2016	Banco de Cabo Verde	2001-2016	IMF (IFS)	2001-2016
	Banco de Cabo Verde; IMF (IFS)	1976-2000	Banco de Cabo Verde	1976-2000	IMF (IFS)	1976-2000
	Banco de Cabo Verde	1974-1975	Banco de Cabo Verde	1974-1975		
	Banco de Cabo Verde; Nunes et al. (2010)	1971-1973	Banco de Cabo Verde	1971-1973	Nunes et al. (2010)	1971-1973
	Nunes et al. (2010)	1969-1970	Banco de Cabo Verde	1969-1970	Nunes et al. (2010)	1969-1970
	Banco de Cabo Verde; Nunes et al. (2010)	1943-1968	Nunes et al. (2010)	1943-1968	Nunes et al. (2010)	1943-1968
	Nunes et al. (2010)	1940-1942	Nunes et al. (2010)	1940-1942	Nunes et al. (2010)	1940-1942
	Nunes et al. (2010)	1939	Nunes et al. (2010)	1939		
	Nunes et al. (2010)	1933-1938	Nunes et al. (2010)	1933-1938	Nunes et al. (2010)	1933-1938
	Nunes et al. (2010)	1931-1932	Nunes et al. (2010)	1931-1932		
Cambodia	IMF (IFS)	2008-2022	IMF (IFS)	2008-2022	IMF (IFS)	2008-2022
	IMF (IFS)	1993-2007	IMF (IFS)	1993-2007	IMF (IFS)	1993-2007
	Mitchell IHS	1955-1973	Mitchell IHS	1955-1973		
Cameroon	IMF (IFS)	2001-2019	IMF (IFS)	2001-2019	IMF (IFS)	2001-2019
	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000

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Country	Total deposits		Demand deposits		Time deposits	
	Sources	Period covered	Sources	Period covered	Sources	Period covered
	Mitchell IHS	1945-1959	Mitchell IHS	1945-1959		
Canada	JST Macrohistory Database	2009-2020				
	IMF (IFS)	2001-2008	IMF (IFS)	2001-2008	IMF (IFS)	2001-2008
	JST Macrohistory Database	2000	JST Macrohistory Database	2000	JST Macrohistory Database	2000
	IMF (IFS)	1977-1999	IMF (IFS)	1977-1999	IMF (IFS)	1977-1999
	Historical Statistics of Canada	1913-1976	Historical Statistics of Canada	1913-1976	Historical Statistics of Canada	1913-1976
	Mitchell IHS	1871-1912	Mitchell IHS	1871-1912		
	Mitchell IHS	1870	Mitchell IHS	1870		
	JST Macrohistory Database	1867-1869	Mitchell IHS	1867-1869		
Central African Repulic IMF	(IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	IMF (IFS)	1963-2000	IMF (IFS)	1963-2000	IMF (IFS)	1963-2000
	IMF (IFS)	1960-1962	IMF (IFS)	1960-1962		
	Mitchell IHS	1955-1959				
Chad	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000
	Mitchell IHS	1957-1959	Mitchell IHS	1957-1960		
	Mitchell IHS	1956	Mitchell IHS	1956		
	Mitchell IHS	1955	Mitchell IHS	1955		
Chile	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	IMF (IFS)	1961-2000	IMF (IFS)	1961-2000	IMF (IFS)	1961-2000
	Mitchell IHS	1960	Mitchell IHS	1960		
	Mitchell IHS	1959	Mitchell IHS	1959		
	Mitchell IHS	1950-1958	Mitchell IHS	1950-1958		
	Mitchell IHS	1940-1949	Mitchell IHS	1940-1949		
	Mitchell IHS	1939	Mitchell IHS	1939		
	Mitchell IHS	1936-1938	Mitchell IHS	1936-1938		
	Mitchell IHS	1911-1935	Mitchell IHS	1911-1935		
	Mitchell IHS	1902-1910	Mitchell IHS	1902-1910		
	Díaz et al. (2010)	1860-1901	Díaz et al. (2010)	1860-1901		
China	IMF (IFS)	2019-2022	IMF (IFS)	2019-2022		
	IMF (IFS	) 1993-2018	IMF (IFS)	1993-2018		
	IMF (IFS)	1985-1992	IMF (IFS)	1985-1992		
	Mitchell IHS	1926-1948	Mitchell IHS	1926-1948		
Colombia	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1990-2000	IMF (IFS)	1990-2000	IMF (IFS)	1990-2000
	IMF (IFS)	1987-1988	IMF (IFS)	1987-1988	IMF (IFS)	1987-1988
	IMF (IFS)	1950-1985	IMF (IFS)	1950-1985	IMF (IFS)	1950-1985
	Mitchell IHS	1936-1949	Mitchell IHS	1936-1950		
	Mitchell IHS	1929-1935	Mitchell IHS	1929-1935		
	Mitchell IHS	1924-1928	Mitchell IHS	1924-1928		
Congo, Democratic Republic of the	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	IMF (IFS)	2000	IMF (IFS)	2000	IMF (IFS)	2000
	IMF (IFS)	1963-1995	IMF (IFS)	1963-1995	IMF (IFS)	1963-1995
Congo	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000
	Mitchell IHS	1955-1959	Mitchell IHS	1955-1959		
Costa Rica	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1997-2000	IMF (IFS)	1997-2000	IMF (IFS)	1997-2000
	IMF (IFS)	1996	IMF (IFS)	1996	IMF (IFS)	1996
	IMF (IFS)	1950-1995	IMF (IFS)	1950-1995	IMF (IFS)	1950-1995
	Mitchell IHS	1945-1949				
	Mitchell IHS	1933-1944				
Croatia	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1993-2000	IMF (IFS)	1993-2000	IMF (IFS)	1993-2000
Cyprus	IMF (IFS)	2005-2021	IMF (IFS)	2005-2021	IMF (IFS)	2005-2021
	IMF (IFS)	1988-2004	IMF (IFS)	1988-2004	IMF (IFS)	1988-2004
	IMF (IFS)	1987	IMF (IFS)	1987	IMF (IFS)	1987
	IMF (IFS)	1958-1986	IMF (IFS)	1958-1986	IMF (IFS)	1958-1986
	Mitchell IHS	1956-1957	Mitchell IHS	1956-1957	Mitchell IHS	1956-1957
Czechia	IMF (IFS)	2008-2021	IMF (IFS)	2008-2021	IMF (IFS)	2008-2021
	IMF (IFS)	1993-2007	IMF (IFS)	1993-2007	IMF (IFS)	1993-2007

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Country	Total deposits		Demand deposits		Time deposits	
	Sources	Period covered	Sources	Period covered	Sources	Period covered
	Mitchell IHS	1945-1949				
	Mitchell IHS	1920-1937				
Côte d'Ivoire	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000
Denmark	IMF (IFS)	2006-2021	IMF (IFS)	2006-2021	IMF (IFS)	2006-2021
	Abildgren (2006)	2001-2005	IMF (IFS)	2001-2005	IMF (IFS)	2001-2005
	IMF (IFS)	1987-2000	IMF (IFS)	1987-2000	IMF (IFS)	1987-2000
	Abildgren (2006)	1986	Mitchell IHS	1986	IMF (IFS); Mitchell IHS	1986
	IMF (IFS)	1950-1985	IMF (IFS)	1950-1985	IMF (IFS)	1950-1985
	Abildgren (2006)	1933-1949	Mitchell IHS	1933-1949		
	Abildgren (2006)	1921-1932	Mitchell IHS	1921-1932		
	Abildgren (2006)	1878-1920	Mitchell IHS	1878-1920		
	Abildgren (2006)	1876-1877	Abildgren (2006)	1876-1877		
	JST Macrohistory Database	1870-1874	Mitchell IHS	1870-1875		
	Mitchell IHS	1848-1869	Mitchell IHS	1848-1869		
Djibuti	IMF (IFS)	2002-2020	IMF (IFS)	2002-2020	IMF (IFS)	2002-2020
	IMF (IFS)	1984-2001	IMF (IFS)	1984-2001	IMF (IFS)	1984-2001
Dominica	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1975-2000	IMF (IFS)	1975-2000	IMF (IFS)	1975-2000
Dominican Republic	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000
	Mitchell IHS	1936-1949	Mitchell IHS	1936-1949		
Ecuador	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000
	Mitchell IHS	1948-1950	Mitchell IHS	1948-1949		
	Mitchell IHS	1936-1947	Mitchell IHS	1936-1947		
	Mitchell IHS	1928-1935	Mitchell IHS	1928-1935		
	Mitchell IHS	1912-1927	Mitchell IHS	1912-1927		
Egypt	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000
	Mitchell IHS	1947-1949	Mitchell IHS	1947-1950		
	Mitchell IHS	1939-1946	Mitchell IHS	1939-1946		
El Salvador	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000
	Mitchell IHS	1945-1950	Mitchell IHS	1945-1949		
	Mitchell IHS	1936-1944	Mitchell IHS	1936-1944		
	Mitchell IHS	1924-1935	Mitchell IHS	1924-1935		
	Mitchell IHS	1916-1919	Mitchell IHS	1916-1919		
Equatorial Guinea	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1985-2000	IMF (IFS)	1985-2000	IMF (IFS)	1985-2000
Eritrea	IMF (IFS)	2014-2022	IMF (IFS)	2014-2022	IMF (IFS)	2014-2022
	IMF (IFS)	1995-2001	IMF (IFS)	1995-2001	IMF (IFS)	1995-2001
Estonia	IMF (IFS)	2004-2021	IMF (IFS)	2004-2021	IMF (IFS)	2004-2021
	IMF (IFS)	1991-2003	IMF (IFS)	1991-2003	IMF (IFS)	1991-2003
Eswatini	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1970-2000	IMF (IFS)	1970-2000	IMF (IFS)	1970-2000
Ethiopia	IMF (IFS)	1963-2008	IMF (IFS)	1963-2008	IMF (IFS)	1960-2008
	Mitchell IHS; IMF (IFS)	1962	Mitchell IHS	1962		
	IMF (IFS)	1960-1961	IMF (IFS)	1960-1961		
	Mitchell IHS	1948-1959	Mitchell IHS	1948-1959		
Fiji	IMF (IFS)	2001-2021	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1961-2000	IMF (IFS)	1961-2000	IMF (IFS)	1961-2000
Finland	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	JST Macrohistory Database	1999-2000	JST Macrohistory Database	1999-2000	JST Macrohistory Database	1999-2000
	Mitchell IHS	1998	Mitchell IHS	1998	Mitchell IHS	1998
	IMF (IFS)	1991-1997	IMF (IFS)	1991-1997	IMF (IFS)	1991-1997
	JST Macrohistory Database	1990	Mitchell IHS	1990	JST Macrohistory Database; Mitchell IHS	1990
	IMF (IFS)	1950-1989	IMF (IFS)	1950-1989	IMF (IFS)	1950-1989
	JST Macrohistory Database	1939-1949	Mitchell IHS	1939-1949		
	JST Macrohistory Database	1938	JST Macrohistory Database	1938		
	JST Macrohistory Database	1918-1937	Mitchell IHS	1918-1937		

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Country	Total deposits		Demand deposits		Time deposits	
	Sources	Period covered	Sources	Period covered	Sources	Period covered
	JST Macrohistory Database	1873-1917	Mitchell IHS	1873-1917		
	Mitchell IHS	1862-1872	Mitchell IHS	1862-1872		
France	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	JST Macrohistory Database	1999-2000	Mitchell IHS	1999-2000	JST Macrohistory Database; Mitchell IHS	1999-2000
	JST Macrohistory Database	1997-1998	JST Macrohistory Database	1997-1998	JST Macrohistory Database	1997-2000
	IMF (IFS)	1978-1996	IMF (IFS)	1978-1996	IMF (IFS)	1978-1996
	JST Macrohistory Database	1977	Mitchell IHS	1977	JST Macrohistory Database; Mitchell IHS	1977
	IMF (IFS)	1950-1976	IMF (IFS)	1950-1976	IMF (IFS)	1950-1976
	Mitchell IHS	1944-1949	Mitchell IHS	1944-1949		
	Mitchell IHS	1938-1940	Mitchell IHS	1938-1940		
	Mitchell IHS	1919-1937	Mitchell IHS	1919-1937		
	Mitchell IHS	1900-1913	Mitchell IHS	1900-1913		
Gabon	IMF (IFS)	2001-2019	IMF (IFS)	2001-2019	IMF (IFS)	2001-2019
	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000
	Mitchell IHS	1955-1959	Mitchell IHS	1955-1959		
	Mitchell IHS	1954	Mitchell IHS	1954		
	Mitchell IHS	1950-1953	Mitchell IHS	1950-1953		
Gambia	IMF (IFS)	2017-2022	IMF (IFS)	2017-2022	IMF (IFS)	2017-2022
	IMF (IFS)	2001-2014	IMF (IFS)	2001-2014	IMF (IFS)	2001-2014
	IMF (IFS)	1964-2000	IMF (IFS)	1964-2000	IMF (IFS)	1964-2000
Georgia	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1995-2000	IMF (IFS)	1995-2000	IMF (IFS)	1995-2000
Germany	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	JST Macrohistory Database	1999-2000	Mitchell IHS	1999-2000	JST Macrohistory Database; Mitchell IHS	1999-2000
	JST Macrohistory Database	1998	JST Macrohistory Database	1998	JST Macrohistory Database	1998
	IMF (IFS)	1951-1997	IMF (IFS)	1951-1997	IMF (IFS)	1951-1997
	JST Macrohistory Database	1948-1950	Mitchell IHS	1948-1950	JST Macrohistory Database; Mitchell IHS	1948-1950
	JST Macrohistory Database	1938-1940				
	Mitchell IHS	1936-1937				
	Mitchell IHS	1923-1935				
	JST Macrohistory Database	1914-1920				
	Mitchell IHS	1913				
	Mitchell IHS	1878-1912				
	JST Macrohistory Database	1876-1877				
	Mitchell IHS	1869-1875				
	Mitchell IHS	1852-1862				
Greece	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	IMF (IFS)	2000	IMF (IFS)	2000	IMF (IFS)	2000
	IMF (IFS)	1953-1999	IMF (IFS)	1953-1999	IMF (IFS)	1953-1999
	Mitchell IHS	1946-1951				
	Mitchell IHS	1939				
	Mitchell IHS	1928-1938				
	Mitchell IHS	1918-1927				
	Lazaretou (2014)	1842-1917				
Grenada	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1970-2000	IMF (IFS)	1970-2000	IMF (IFS)	1970-2000
Guatemala	IMF (IFS)	2003-2022	IMF (IFS)	2003-2022	IMF (IFS)	2003-2022
	IMF (IFS)	2002	Mitchell IHS	2002	Mitchell IHS	2002
	IMF (IFS)	2001	IMF (IFS)	2001	IMF (IFS)	2001
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000
	Mitchell IHS	1936-1949				
Guinea	IMF (IFS)	2012-2021	IMF (IFS)	2012-2021	IMF (IFS)	2012-2021
	IMF (IFS)	1989-2011	IMF (IFS)	1989-2011	IMF (IFS)	1989-2011
Guinea-Bissau	IMF (IFS)	2003-2022	IMF (IFS)	2003-2022	IMF (IFS)	2003-2022
	IMF (IFS)	1990-2002	IMF (IFS)	1990-2002	IMF (IFS)	1990-2002
	Nunes et al. (2010)	1961-1973	Nunes et al. (2010)	1961-1973	Nunes et al. (2010)	1961-1973
	Nunes et al. (2010)	1959-1960	Nunes et al. (2010)	1959-1960	Nunes et al. (2010)	1959-1960
	Nunes et al. (2010)	1938-1958	Nunes et al. (2010)	1938-1958	Nunes et al. (2010)	1938-1958
	Nunes et al. (2010)	1934-1937			Nunes et al. (2010)	1934-1937
Guyana	IMF (IFS)	2000-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	IMF (IFS)	1955-2000	IMF (IFS)	1955-2000	IMF (IFS)	1955-2000

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Country	Total deposits		Demand deposits		Time deposits	
	Sources	Period covered	Sources	Period covered	Sources	Period covered
Haiti	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000
Honduras	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2000-2022
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1949-2000
	Mitchell IHS	1948-1949	Mitchell IHS	1948-1949		
	Mitchell IHS	1945-1947	Mitchell IHS	1945-1947		
	Mitchell IHS	1937-1944	Mitchell IHS	1937-1944		
Hong Kong	Hong Kong Monetary Authority	1997-2022	Hong Kong Monetary Authority	1997-2022	Hong Kong Monetary Authority	1997-2022
	Hong Kong Monetary Authority	1969-1996	Hong Kong Monetary Authority	1969-1996	Hong Kong Monetary Authority	1969-1996
	HKIMR (2009)	1954-1968	HKIMR (2009)	1954-1968	HKIMR (2009)	1954-1968
	HKIMR (2009)	1900-1940				
	HKIMR (2009)	1883-1898				
	HKIMR (2009)	1875-1881				
	HKIMR (2009)	1867-1873				
Hungary	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	IMF (IFS)	1982-2000	IMF (IFS)	1982-2000	IMF (IFS)	1982-2000
	Mitchell IHS	1946-1949	Mitchell IHS	1946-1949		
	Mitchell IHS	1939-1944	Mitchell IHS	1939-1944		
	Mitchell IHS	1925-1938	Mitchell IHS	1925-1938		
	Mitchell IHS	1913	Mitchell IHS	1913		
Iceland	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1951-2000	IMF (IFS)	1951-2000	IMF (IFS)	1951-2000
	Icelandic Historical Statistics	1891-1950	Icelandic Historical Statistics	1891-1950	Icelandic Historical Statistics	1891-1950
	Icelandic Historical Statistics	1886-1890			Icelandic Historical Statistics	1886-1890
India	IMF (IFS)	1960-2021	IMF (IFS)	1960-2021	IMF (IFS)	1960-2021
	Mitchell IHS	1950-1959	Mitchell IHS	1950-1959		
	Mitchell IHS	1948-1949	Mitchell IHS	1948-1949		
	Mitchell IHS	1946-1947	Mitchell IHS	1946-1947		
	Mitchell IHS	1942-1945	Mitchell IHS	1942-1945		
	Mitchell IHS	1939-1941	Mitchell IHS	1939-1941		
	Mitchell IHS	1913-1938	Mitchell IHS	1913-1938		
	Mitchell IHS	1881-1912	Mitchell IHS	1881-1912		
	SARBI	1870-1880	Mitchell IHS	1870-1880		
	SARBI	1868-1869	Mitchell IHS	1868-1869		
	SARBI	1856-1867				
	SARBI	1854-1855				
	SARBI	1852-1853				
Indonesia	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1980-2000	IMF (IFS)	1980-2000	IMF (IFS)	1980-2000
	Mitchell IHS	1972-1979	Mitchell IHS	1972-1979		
	Mitchell IHS	1971	Mitchell IHS	1971		
	Mitchell IHS	1970	Mitchell IHS	1970		
	Mitchell IHS	1968-1969	Mitchell IHS	1968-1969		
	Mitchell IHS	1965-1967	Mitchell IHS	1965-1967		
	Mitchell IHS	1959-1964	Mitchell IHS	1959-1964		
	Mitchell IHS	1953-1958	Mitchell IHS	1953-1958		
	Mitchell IHS	1948-1952	Mitchell IHS	1948-1952		
Iran	IMF (IFS)	1986-2016	IMF (IFS)	1986-2016	IMF (IFS)	1986-2016
	IMF (IFS)	1979-1984	IMF (IFS)	1979-1984	IMF (IFS)	1979-1984
	IMF (IFS)	1961-1977	IMF (IFS)	1961-1977	IMF (IFS)	1961-1977
	IMF (IFS); Mitchell IHS	1959	Mitchell IHS	1959	IMF (IFS)	1959
	IMF (IFS)	1950-1958	IMF (IFS)	1950-1958	IMF (IFS)	1950-1958
	Mitchell IHS	1948-1949	Mitchell IHS	1948-1949		
	Mitchell IHS	1947	Mitchell IHS	1947		
	Mitchell IHS	1937-1945	Mitchell IHS	1937-1945		
Iraq	IMF (IFS)	2004-2021	IMF (IFS)	2004-2021	IMF (IFS)	2004-2021
	IMF (IFS)	1950-1976	IMF (IFS)	1950-1976	IMF (IFS)	1950-1976
	Mitchell IHS	1936-1949	Mitchell IHS	1936-1949		
Ireland	Central Bank of Ireland	2003-2021	Central Bank of Ireland	2003-2021	Central Bank of Ireland	2003-2021
	Central Bank of Ireland	1999-2002	Central Bank of Ireland	1999-2002	Central Bank of Ireland	1999-2002
	Central Bank of Ireland	1998	IMF (IFS); Mitchell IHS	1998	Central Bank of Ireland; IMF (IFS); Mitchell IHS	1998

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Country	Total deposits		Demand deposits		Time deposits	
	Sources	Period covered	Sources	Period covered	Sources	Period covered
	Central Bank of Ireland	1997	IMF (IFS)	1997	IMF (IFS)	1997
	Central Bank of Ireland	1996	Central Bank of Ireland	1996	Central Bank of Ireland	1996
	Central Bank of Ireland	1995	IMF (IFS)	1995	Central Bank of Ireland; IMF (IFS)	1995
	Central Bank of Ireland; IMF (IFS)	1994	Central Bank of Ireland; IMF (IFS)	1994	Central Bank of Ireland; IMF (IFS)	1994
	IMF (IFS)	1982-1993	IMF (IFS)	1982-1993	IMF (IFS)	1982-1993
	Mitchell IHS	1981	Mitchell IHS	1981	Mitchell IHS	1981
	IMF (IFS)	1971-1980	IMF (IFS)	1971-1980	IMF (IFS)	1971-1980
	IMF (IFS); Mitchell IHS	1970	Mitchell IHS	1970	IMF (IFS)	1970
	IMF (IFS)	1950-1969	IMF (IFS)	1950-1969	IMF (IFS)	1950-1969
	Mitchell IHS	1937-1949				
	Mitchell IHS	1923-1936				
	Mitchell IHS	1921-1922				
	O'Rourke (1998)	1840-1920				
Israel	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1954-2000	IMF (IFS)	1954-2000	IMF (IFS)	1954-2000
	Mitchell IHS	1950-1953	Mitchell IHS	1950-1953		
Italy	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	JST Macrohistory Database	1998-2000	JST Macrohistory Database	1998-2000	JST Macrohistory Database	1998-2000
	IMF (IFS)	1962-1997	IMF (IFS)	1962-1997	IMF (IFS)	1962-1997
	Mitchell IHS	1958-1961	IMF (IFS)	1958-1961		
	Mitchell IHS	1956-1957	IMF (IFS)	1956-1957		
	Mitchell IHS	1938-1955				
	JST Macrohistory Database	1870-1937				
Jamaica	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1953-2000	IMF (IFS)	1953-2000	IMF (IFS)	1953-2000
	Mitchell IHS	1944-1952	Mitchell IHS	1944-1952		
Japan	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	JST Macrohistory Database	2000	IMF (IFS)	2000	IMF (IFS); JST Macrohistory Database	2000
	IMF (IFS)	1970-1999	IMF (IFS)	1970-1999	IMF (IFS)	1970-1999
	LTES database	1873-1969	LTES database	1873-1969	LTES database	1873-1969
Jordan	IMF (IFS)	2014-2022	IMF (IFS)	2014-2022	IMF (IFS)	2014-2022
	IMF (IFS)	1951-2013	IMF (IFS)	1951-2013	IMF (IFS)	1951-2013
Kazakhstan	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1997-2000	IMF (IFS)	1997-2000	IMF (IFS)	1997-2000
	IMF (IFS)	1993-1996				
Kenya	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1961-2000	IMF (IFS)	1961-2000	IMF (IFS)	1961-2000
	Mitchell IHS	1944-1960	Mitchell IHS	1944-1960		
	Mitchell IHS	1938	Mitchell IHS	1938		
Korea, Republic of	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1953-2000	IMF (IFS)	1953-2000	IMF (IFS)	1953-2000
	Historical Statistics of Korea	1950-1952	Historical Statistics of Korea	1950-1952	Historical Statistics of Korea	1950-1952
	Historical Statistics of Korea	1906-1948				
	Historical Statistics of Korea	1902-1905				
	Historical Statistics of Korea	1901				
	Historical Statistics of Korea	1900				
Kuwait	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1991-2000	IMF (IFS)	1991-2000	IMF (IFS)	1991-2000
	Mitchell IHS	1990	Mitchell IHS	1990	IMF (IFS)	1960-1989
	IMF (IFS)	1962-1989	IMF (IFS)	1962-1989		
	IMF (IFS)	1960-1961				
Kyrgyzstan	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1995-2000	IMF (IFS)	1995-2000	IMF (IFS)	1995-2000
Laos	IMF (IFS)	1989-2010	IMF (IFS)	1989-2010	IMF (IFS)	1989-2010
	IMF (IFS)	1987-1988			IMF (IFS)	1987-1988
Latvia	IMF (IFS)	2010-2021	IMF (IFS)	2010-2021	IMF (IFS)	2010-2021
	IMF (IFS)	1993-2008	IMF (IFS)	1993-2008	IMF (IFS)	1993-2008
Lebanon	IMF (IFS)	1964-2017	IMF (IFS)	1964-2017	IMF (IFS)	1964-2017
	IMF (IFS); Mitchell IHS	1963				
	Mitchell IHS	1950-1962				
Lesotho	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022

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Country	Total deposits		Demand deposits		Time deposits	
	Sources	Period covered	Sources	Period covered	Sources	Period covered
	IMF (IFS)	1971-2000	IMF (IFS)	1971-2000	IMF (IFS)	1971-2000
Liberia	IMF (IFS)	2007-2020	IMF (IFS)	2007-2020	IMF (IFS)	2007-2020
	IMF (IFS)	1998-2006	IMF (IFS)	1998-2006	IMF (IFS)	1998-2006
	World Bank WDI	1997	IMF (IFS); World Bank WDI	1997	IMF (IFS)	1997
	IMF (IFS)	1991-1996	IMF (IFS)	1991-1996	IMF (IFS)	1991-1996
	World Bank WDI	1989-1990	IMF (IFS); World Bank WDI	1989-1990	IMF (IFS)	1989-1990
	IMF (IFS)	1961-1988	IMF (IFS)	1961-1988	IMF (IFS)	1961-1988
Libya	IMF (IFS)	2014-2022	IMF (IFS)	2014-2022	IMF (IFS)	2014-2022
	IMF (IFS)	1958-2013	IMF (IFS)	1958-2013	IMF (IFS)	1958-2013
Lithuania	IMF (IFS)	2010-2021	IMF (IFS)	2010-2021	IMF (IFS)	2010-2021
	IMF (IFS)	1993-2008	IMF (IFS)	1993-2008	IMF (IFS)	1993-2008
Luxembourg	Banque Centrale du Luxembourg	2003-2022	Banque Centrale du Luxembourg	2003-2022	Banque Centrale du Luxembourg	2003-2022
	IMF (IFS)	2001-2002	IMF (IFS)	2001-2002	IMF (IFS)	2001-2002
	IMF (IFS)	1997	IMF (IFS)	1997	IMF (IFS)	1997
	IMF (IFS)	1994-1996	IMF (IFS)	1994-1996	IMF (IFS)	1994-1996
	IMF (IFS)	1993	IMF (IFS)	1993	IMF (IFS)	1993
	IMF (IFS)	1964-1992	IMF (IFS)	1964-1992	IMF (IFS)	1964-1992
	IMF (IFS)	1963	IMF (IFS)	1963	IMF (IFS)	1963
	IMF (IFS)	1950-1962	IMF (IFS)	1950-1962	IMF (IFS)	1950-1962
Macao	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1984-2000	IMF (IFS)	1984-2000	IMF (IFS)	1984-2000
	Nunes et al. (2010)	1940-1973	Nunes et al. (2010)	1940-1973	Nunes et al. (2010)	1940-1973
Madagascar	IMF (IFS)	2006-2022	IMF (IFS)	2006-2022	IMF (IFS)	2006-2022
	IMF (IFS)	1962-2005	IMF (IFS)	1962-2005	IMF (IFS)	1962-2005
	Mitchell IHS	1939-1961	Mitchell IHS	1939-1961		
Malawi	IMF (IFS)	2015-2022	IMF (IFS)	2015-2022	IMF (IFS)	2015-2022
	IMF (IFS)	1965-2014	IMF (IFS)	1965-2014	IMF (IFS)	1965-2014
Malaysia	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000
	Mitchell IHS	1947-1949	Mitchell IHS	1947-1949		
Maldives	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1976-2000	IMF (IFS)	1976-2000	IMF (IFS)	1976-2000
Mali	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000
North Macedonia	IMF (IFS)	2005-2022	IMF (IFS)	2005-2022	IMF (IFS)	2005-2022
	IMF (IFS)	2001-2004	IMF (IFS)	2001-2004	IMF (IFS)	2001-2004
	IMF (IFS)	1993-2000	IMF (IFS)	1993-2000	IMF (IFS)	1993-2000
Malta	IMF (IFS); Central Bank of Malta	2005-2021	Central Bank of Malta	2005-2021	IMF (IFS)	2005-2021
	IMF (IFS); Central Bank of Malta	2003-2004	Central Bank of Malta	2003-2004	IMF (IFS)	2003-2004
	Central Bank of Malta	1965-2002	Central Bank of Malta	1965-2002	Central Bank of Malta	1965-2002
	IMF (IFS)	1960-1964	IMF (IFS)	1960-1964	IMF (IFS)	1960-1964
Mauritania	IMF (IFS)	2012-2019	IMF (IFS)	2012-2019	IMF (IFS)	2012-2019
	IMF (IFS)	2005-2011	IMF (IFS)	2005-2011	IMF (IFS)	2005-2011
	Mitchell IHS	1992-2003	Mitchell IHS	1992-2003	Mitchell IHS	1992-2003
	Mitchell IHS	1991	Mitchell IHS	1991	Mitchell IHS	1991
	IMF (IFS)	1960-1990	IMF (IFS)	1960-1990	IMF (IFS)	1960-1990
Mauritius	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1952-2000	IMF (IFS)	1952-2000	IMF (IFS)	1952-2000
	Mitchell IHS	1940-1951	Mitchell IHS	1940-1951		
	Mitchell IHS	1913-1938	Mitchell IHS	1913-1938		
	Mitchell IHS	1901-1911	Mitchell IHS	1901-1911		
	Mitchell IHS	1887-1899	Mitchell IHS	1887-1899		
Mexico	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000
	Mitchell IHS	1939-1949	Mitchell IHS	1939-1949		
	Mitchell IHS	1931-1938	Mitchell IHS	1931-1938		
	Mitchell IHS	1925-1930	Mitchell IHS	1925-1930		
	Mitchell IHS	1903-1910	Mitchell IHS	1903-1910		
Moldova	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1991-2000	IMF (IFS)	1991-2000	IMF (IFS)	1991-2000
Mongolia	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022

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Country	Total deposits		Demand deposits		Time deposits	
	Sources	Period covered	Sources	Period covered	Sources	Period covered
	IMF (IFS)	1991-2000	IMF (IFS)	1991-2000	IMF (IFS)	1991-2000
Montenegro	IMF (IFS)	2013-2022	IMF (IFS)	2013-2022	IMF (IFS)	2013-2022
	IMF (IFS)	2002-2012	IMF (IFS)	2002-2012	IMF (IFS)	2002-2012
Montserrat	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1983-2000	IMF (IFS)	1983-2000	IMF (IFS)	1983-2000
Morocco	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1958-2000	IMF (IFS)	1958-2000	IMF (IFS)	1958-2000
	Mitchell IHS	1957	Mitchell IHS	1957		
	Mitchell IHS	1938-1956	Mitchell IHS	1938-1956		
Mozambique	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1984-2000	IMF (IFS)	1984-2000	IMF (IFS)	1984-2000
	Mardinin and Schuer (2014)	1941-1973	Mardinin and Schuer (2014)	1941-1973	Mardinin and Schuer (2014)	1941-1973
	Mardinin and Schuer (2014)	1932-1940	Mardinin and Schuer (2014)	1932-1940		
	Mardinin and Schuer (2014)	1930-1931	Mardinin and Schuer (2014)	1930-1931	Mardinin and Schuer (2014)	1930-1931
	Mardinin and Schuer (2014)	1926-1929	Mardinin and Schuer (2014)	1926-1929		
Myanmar	IMF (IFS)	2001-2020	IMF (IFS)	2001-2020	IMF (IFS)	2001-2020
	IMF (IFS)	1970-2000	IMF (IFS)	1970-2000	IMF (IFS)	1970-2000
	IMF (IFS)	1962-1969	IMF (IFS)	1962-1969	IMF (IFS)	1962-1969
	IMF (IFS)	1950-1961	IMF (IFS)	1950-1961	IMF (IFS)	1950-1961
	Mitchell IHS	1946-1949	Mitchell IHS	1946-1949		
	Mitchell IHS	1938-1939	Mitchell IHS	1938-1939		
Namibia	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2009-2022
	IMF (IFS)	1990-2000	IMF (IFS)	1990-2000	IMF (IFS)	2008
Nepal	IMF (IFS)	2001-2007	IMF (IFS)	2001-2007	IMF (IFS)	2001-2007
	IMF (IFS)	1990-2000	IMF (IFS)	1990-2000	IMF (IFS)	1990-2000
Netherlands	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	JST Macrohistory Database	1997-2000	JST Macrohistory Database	1997-2000	JST Macrohistory Database	1997-2000
	IMF (IFS)	1960-1996	IMF (IFS)	1960-1996	IMF (IFS)	1960-1996
	JST Macrohistory Database	1959	IMF (IFS)	1959	IMF (IFS); JST Macrohistory Database	1959
	IMF (IFS)	1950-1958	IMF (IFS)	1950-1958	IMF (IFS)	1950-1958
	JST Macrohistory Database	1937-1949	Mitchell IHS	1937-1949		
	JST Macrohistory Database	1900-1936				
New Zealand	IMF (IFS)	2013-2022	IMF (IFS)	2013-2022	IMF (IFS)	2013-2022
	Reserve Bank of New Zealand Banks	2011-2012				
	Reserve Bank of New Zealand Banks	2010	IMF (IFS)	2010	IMF (IFS); Reserve Bank of New Zealand Banks	2010
	Reserve Bank of New Zealand Banks	1998-2009	IMF (IFS)	1998-2009	IMF (IFS)	1998-2009
	IMF (IFS)	1988-1997	IMF (IFS)	1988-1997	IMF (IFS)	1988-1997
	IMF (IFS)	1987	IMF (IFS)	1987	IMF (IFS)	1987
	IMF (IFS)	1986	IMF (IFS)	1986	IMF (IFS)	1986
	IMF (IFS)	1950-1985	IMF (IFS)	1950-1985	IMF (IFS)	1950-1985
	Mitchell IHS	1936-1949	Mitchell IHS	1936-1949		
	Mitchell IHS	1857-1935	Mitchell IHS	1857-1935		
Nicaragua	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000
	Mitchell IHS	1940-1949	Mitchell IHS	1940-1949		
Nigeria	IMF (IFS)	1975-2022	IMF (IFS)	1975-2022	IMF (IFS)	1975-2022
	IMF (IFS); Mitchell IHS	1972-1974	Mitchell IHS	1972-1974	IMF (IFS)	1972-1974
	IMF (IFS)	1951-1971	IMF (IFS)	1951-1971	IMF (IFS)	1951-1971
	Mitchell IHS	1943-1950	Mitchell IHS	1943-1950		
Niger	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS); Mitchell IHS	1999-2000	Mitchell IHS	1999-2000	IMF (IFS)	1999-2000
	IMF (IFS)	1960-1998	IMF (IFS)	1960-1998	IMF (IFS)	1960-1998
	Mitchell IHS	1955-1959	Mitchell IHS	1955-1959		
Norway	Norges Bank	2014-2022	Norges Bank	2014-2022	Norges Bank	2014-2022
	IMF (IFS); Norges Bank	2006-2013	Norges Bank	2006-2013	IMF (IFS)	2006-2013
	Norges Bank	2001-2005	Norges Bank	2001-2005	Norges Bank	2001-2005
	Norges Bank	2000	IMF (IFS)	2000	IMF (IFS); Norges Bank	2000
	Norges Bank	1996-1999	Norges Bank	1996-1999	Norges Bank	1996-1999
	IMF (IFS)	1950-1995	IMF (IFS)	1950-1995	IMF (IFS)	1950-1995
	Eitrheim et al. (2004)	1875-1949	Mitchell IHS	1875-1949		
	Eitrheim et al. (2004)	1822-1874	Warren Weber Data	1822-1874		

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Country	Total deposits		Demand deposits		Time deposits	
	Sources	Period covered	Sources	Period covered	Sources	Period covered
	Warren Weber Data	1821	Warren Weber Data	1821		
Oman	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1972-2000	IMF (IFS)	1972-2000	IMF (IFS)	1972-2000
Pakistan	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000
	Mitchell IHS	1948-1949	Mitchell IHS	1948-1949		
Panama	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000
	Mitchell IHS	1939-1949	Mitchell IHS	1939-1949		
Papua New Guinea	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1973-2000	IMF (IFS)	1973-2000	IMF (IFS)	1973-2000
Paraguay	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1953-2001	IMF (IFS)	1953-2000	IMF (IFS)	1953-2000
	Mitchell IHS	1952	IMF (IFS)	1952		
	Mitchell IHS	1936-1951	Mitchell IHS	1936-1951		
	Mitchell IHS	1928-1935	Mitchell IHS	1928-1935		
Peru	IMF (IFS)	2006-2021	IMF (IFS)	2006-2021	IMF (IFS)	2006-2021
	IMF (IFS)	1950-2005	IMF (IFS)	1950-2005	IMF (IFS)	1950-2005
	Mitchell IHS	1948-1949	Mitchell IHS	1948-1949		
	Mitchell IHS	1914-1947	Mitchell IHS	1914-1947		
	Mitchell IHS	1897-1913	Mitchell IHS	1897-1913		
Philippines	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000
	Mitchell IHS	1945-1949	Mitchell IHS	1945-1949		
	Mitchell IHS	1937-1941	Mitchell IHS	1937-1941		
	Mitchell IHS	1925-1929	Mitchell IHS	1925-1929		
Poland	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	IMF (IFS)	1979-2000	IMF (IFS)	1979-2000	IMF (IFS)	1979-2000
	IMF (IFS)	1950-1978	IMF (IFS)	1950-1978	IMF (IFS)	1950-1978
	Mitchell IHS	1937-1938	Mitchell IHS	1937-1938		
	Mitchell IHS	1924-1936	Mitchell IHS	1924-1936		
	Mitchell IHS	1919-1922	Mitchell IHS	1919-1922		
Portugal	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	JST Macrohistory Database	1998-2000	Mitchell IHS	1998-2000	JST Macrohistory Database; Mitchell IHS	1998-2000
	IMF (IFS)	1953-1997	IMF (IFS)	1953-1997	IMF	(IFS) 1953-1997
	JST Macrohistory Database	1937-1952	Mitchell IHS	1937-1952		
	JST Macrohistory Database	1936	JST Macrohistory Database	1936		
	JST Macrohistory Database	1924-1935	Mitchell IHS	1924-1935		
	Mitchell IHS	1917-1919	Mitchell IHS	1917-1919		
Qatar	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1966-2000	IMF (IFS)	1966-2000	IMF (IFS)	1966-2000
Romania	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1973-2000	IMF (IFS)	1973-2000	IMF (IFS)	1973-2000
	Mitchell IHS	1937-1944	Mitchell IHS	1937-1944		
	Mitchell IHS	1920-1936	Mitchell IHS	1920-1936		
Russia	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	Bank of Russia	1999-2000	Bank of Russia	1999-2000	Bank of Russia	1999-2000
	Bank of Russia	1995-1998	Bank of Russia	1995-1998	Bank of Russia	1995-1998
	Mitchell IHS	1873-1915	Mitchell IHS	1873-1915		
Rwanda	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1964-2000	IMF (IFS)	1964-2000	IMF (IFS)	1964-2000
Saint Kitts and Nevis	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1979-2000	IMF (IFS)	1979-2000	IMF (IFS)	1979-2000
Saint Lucia	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1975-2000	IMF (IFS)	1975-2000	IMF (IFS)	1975-2000
Saint Vincent and the Grenadines	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1975-2000	IMF (IFS)	1975-2000	IMF (IFS)	1975-2000
Sao Tome and Principe	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	IMF (IFS)	1995-2000	IMF (IFS)	1995-2000	IMF (IFS)	1995-2000
	Nunes et al. (2010)	1957-1973	Nunes et al. (2010)	1957-1973	Nunes et al. (2010)	1957-1973
	Nunes et al. (2010)	1954-1956	Nunes et al. (2010)	1954-1956		

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Country	Total deposits		Demand deposits		Time deposits	
	Sources	Period covered	Sources	Period covered	Sources	Period covered
	Nunes et al. (2010)	1945-1953	Nunes et al. (2010)	1945-1953	Nunes et al. (2010)	1945-1953
	Nunes et al. (2010)	1944	Nunes et al. (2010)	1944		
	Nunes et al. (2010)	1938-1942	Nunes et al. (2010)	1938-1942		
Saudi Arabia	IMF (IFS)	1960-2017	IMF (IFS)	1960-2017		
Senegal	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000
	Mitchell IHS	1955-1959	Mitchell IHS	1955-1959		
Serbia	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1997-2000	IMF (IFS)	1997-2000	IMF (IFS)	1997-2000
Seychelles	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1971-2000	IMF (IFS)	1971-2000	IMF (IFS)	1971-2000
Sierra Leone	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1958-2000	IMF (IFS)	1958-2000	IMF (IFS)	1958-2000
Singapore	IMF (IFS)	1963-2020	IMF (IFS)	1963-2020	IMF (IFS)	1963-2020
	Mitchell IHS	1960-1962	Mitchell IHS	1960-1962		
Slovakia	IMF (IFS)	2006-2021	IMF (IFS)	2006-2021	IMF (IFS)	2006-2021
	IMF (IFS)	1993-2005	IMF (IFS)	1993-2005	IMF (IFS)	1993-2005
Slovenia	IMF (IFS)	2004-2021	IMF (IFS)	2004-2021	IMF (IFS)	2004-2021
	IMF (IFS)	1991-2003	IMF (IFS)	1991-2003	IMF (IFS)	1991-2003
Somalia	IMF (IFS)	1960-1989	IMF (IFS)	1960-1989	IMF (IFS)	1960-1989
South Africa	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1992-2000	IMF (IFS)	1992-2000	IMF (IFS)	1992-2000
	Mitchell IHS	1991	Mitchell IHS	1991	Mitchell IHS	1991
	IMF (IFS)	1965-1990	IMF (IFS)	1965-1990	IMF (IFS)	1965-1990
	Mitchell IHS	1950-1964	Mitchell IHS	1950-1964		
	Mitchell IHS	1891-1949	Mitchell IHS	1891-1949		
Spain	IMF (IFS)	2005-2021	IMF (IFS)	2005-2021	IMF (IFS)	2005-2021
	IMF (IFS)	2004	IMF (IFS)	2004	IMF (IFS)	2004
	IMF (IFS)	2001-2003	IMF (IFS)	2001-2003	IMF (IFS)	2001-2003
	Martín-Aceña and Pons (2005; 2010)	1998-2000	Martín-Aceña and Pons (2005; 2010)	1998-2000	Martín-Aceña and Pons (2005; 2010)	1998-2000
	IMF (IFS)	1952-1997	IMF (IFS)	1952-1997	IMF (IFS)	1952-1997
	Martín-Aceña and Pons (2005; 2010)	1942-1951	Martín-Aceña and Pons (2005; 2010)	1942-1951	Martín-Aceña and Pons (2005; 2010)	1942-1951
	Martín-Aceña and Pons (2005; 2010)	1939-1941				
	Mitchell IHS	1937	Mitchell IHS	1937		
	Mitchell IHS; Martín-Aceña and Pons (2005; 2010)	1935	Mitchell IHS	1935	Martín-Aceña and Pons (2005; 2010)	1935
	Martín-Aceña and Pons (2005; 2010)	1876-1934	Martín-Aceña and Pons (2005; 2010)	1876-1934	Martín-Aceña and Pons (2005; 2010)	1876-1934
	Martín-Aceña and Pons (2005; 2010)	1856-1875	Martín-Aceña and Pons (2005; 2010)	1856-1875		
	Martín-Aceña and Pons (2005; 2010)	1839-1855				
Sri Lanka	IMF (IFS)	2001-2019	IMF (IFS)	2001-2019	IMF (IFS)	2001-2019
	IMF (IFS)	2000	IMF (IFS)	2000	IMF (IFS)	2000
	IMF (IFS)	1950-1999	IMF (IFS)	1950-1999	IMF (IFS)	1950-1999
	Mitchell IHS	1949	Mitchell IHS	1949		
	Mitchell IHS	1938-1948	Mitchell IHS	1938-1948		
Sudan	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000
Suriname	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1967-2000	IMF (IFS)	1967-2000	IMF (IFS)	1967-2000
Sweden	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021	IMF (IFS)	2001-2021
	Edvinsson and Ögren (2014)	1990-2000				
	Edvinsson and Ögren (2014)	1989	IMF (IFS)	1989	IMF (IFS); Edvinsson and Ögren (2014)	1989
	IMF (IFS)	1950-1988	IMF (IFS)	1950-1988	IMF (IFS)	1950-1988
	Edvinsson and Ögren (2014)	1875-1949	Mitchell IHS	1875-1949		
	Edvinsson and Ögren (2014)	1820-1874				
	Warren Weber Data	1800-1819				
Switzerland	IMF (IFS)	1992-2016	IMF (IFS)	1992-2016	IMF (IFS)	1992-2016
	Switzerland Historical Data O.14a	1954-1991	Switzerland Historical Data O.14a	1954-1991	Switzerland Historical Data O.14a	1954-1991
	Switzerland Historical Data O.04	; O.14a 1953	Switzerland Historical Data O.04	1953	Switzerland Historical Data O.14a	1953
	Switzerland Historical Data O.14a	1950-1952	Switzerland Historical Data O.04	1950-1952	IMF (IFS)	1950-1952
	Switzerland Historical Data O.04	1907-1949	Switzerland Historical Data O.04	1907-1949	Switzerland Historical Data O.04	1907-1949
	Switzerland Historical Data O.14a	1906	Switzerland Historical Data O.14a	1906	Switzerland Historical Data O.14a	1906
	Switzerland Historical Data O.13	1851-1905	Switzerland Historical Data O.13	1851-1905		

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Country	Total deposits		Demand deposits		Time deposits	
	Sources	Period covered	Sources	Period covered	Sources	Period covered
Syria	IMF (IFS)	2001-2011	IMF (IFS)	2001-2011	IMF (IFS)	2001-2011
	IMF (IFS)	1951-2000	IMF (IFS)	1951-2000	IMF (IFS)	1951-2000
	Mitchell IHS	1939-1950	Mitchell IHS	1939-1950		
Taiwan	Mitchell IHS	1961-2005	Mitchell IHS	1961-2005		
	Mitchell IHS	1952-1960	Mitchell IHS	1952-1960		
	Mitchell IHS	1900-1941	Mitchell IHS	1900-1941		
Tajikistan	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1998-2000	IMF (IFS)	1998-2000	IMF (IFS)	1998-2000
Tanzania	IMF (IFS)	2001-2020	IMF (IFS)	2001-2020	IMF (IFS)	2001-2020
	IMF (IFS)	1961-2000	IMF (IFS)	1961-2000	IMF (IFS)	1961-2000
	Mitchell IHS	1947-1960	Mitchell IHS	1947-1960		
Thailand	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000
	Mitchell IHS	1947-1949	Mitchell IHS	1947-1949		
	Mitchell IHS	1944-1946	Mitchell IHS	1944-1946		
	Mitchell IHS	1941-1942	Mitchell IHS	1941-1942		
Timor-Leste	IMF (IFS)	2002-2021	IMF (IFS)	2002-2021	IMF (IFS)	2002-2021
	Nunes et al. (2010)	1968-1973	Nunes et al. (2010)	1968-1973	Nunes et al. (2010)	1968-1973
	Nunes et al. (2010)	1967	Nunes et al. (2010)	1967		
	Nunes et al. (2010)	1965-1966	Nunes et al. (2010)	1965-1966	Nunes et al. (2010)	1965-1966
	Nunes et al. (2010)	1961	Nunes et al. (2010)	1961		
	Nunes et al. (2010)	1947-1960	Nunes et al. (2010)	1947-1960	Nunes et al. (2010)	1947-1960
Togo	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000
	Mitchell IHS	1954-1959	Mitchell IHS	1954-1959		
Trinidad and Tobago	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1951-2000	IMF (IFS)	1951-2000	IMF (IFS)	1951-2000
	Mitchell IHS	1946-1950	Mitchell IHS	1946-1950		
Tunisia	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1958-2000	IMF (IFS)	1958-2000	IMF (IFS)	1958-2000
	Mitchell IHS	1939-1957	Mitchell IHS	1939-1957		
Turkey	IMF (IFS)	2008-2022	IMF (IFS)	2008-2022	IMF (IFS)	2008-2022
	IMF (IFS)	2005-2007	IMF (IFS)	2005-2007	IMF (IFS)	2005-2007
	IMF (IFS); Mitchell IHS	2004	Mitchell IHS	2004	IMF (IFS)	2004
	IMF (IFS)	2001-2003	IMF (IFS)	2001-2003	IMF (IFS)	2001-2003
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000
	Mitchell IHS	1947-1949	Mitchell IHS	1947-1949	Mitchell IHS	1947-1949
	Görmez and Yiğit (2015)	1933-1946	Görmez and Yiğit (2015)	1933-1946	Görmez and Yiğit (2015)	1933-1946
	Mitchell IHS	1924-1932	Mitchell IHS	1924-1932	Mitchell IHS	1924-1932
	Görmez and Yiğit (2015)	1923				
Uganda	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000	IMF (IFS)	1960-2000
	Mitchell IHS	1944-1958	Mitchell IHS	1944-1958		
	Mitchell IHS	1939	Mitchell IHS	1939		
Ukraine	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1992-2000	IMF (IFS)	1992-2000	IMF (IFS)	1992-2000
United Arab Emirates	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1973-2000	IMF (IFS)	1973-2000	IMF (IFS)	1973-2000
United Kingdom	Bank of England Bankstats	2010-2022	Bank of England Bankstats	2010-2022	Bank of England Bankstats	2010-2022
	Bank of England Bankstats; IMF (IFS)	2009	Bank of England Bankstats	2009	IMF (IFS)	2009
	Bank of England Bankstats	1997-2008	Bank of England Bankstats	1997-2008	Bank of England Bankstats	1997-2008
	JST Macrohistory Database	1952-1996	JST Macrohistory Database; IMF (IFS)	1952-1996	IMF (IFS)	1952-1996
	JST Macrohistory Database	1880-1951				
	Mardinin and Schuer (2014)	1835-1879				
United States of America	Federal Reserve	1973-2022	Federal Reserve	1973-2022	Federal Reserve	1973-2022
	Federal Reserve	1959-1972	Federal Reserve	1959-1972	Federal Reserve	1959-1972
	NBER Macrohistory Database; IMF (IFS)	1950-1958	NBER Macrohistory Database	1950-1958	IMF (IFS)	1950-1958
	NBER Macrohistory Database; Federal Reserve	1947-1949	NBER Macrohistory Database	1947-1949	Federal Reserve	1947-1949
	Mitchell IHS; Warren Weber Data	1945-1946	Mitchell IHS	1945-1946	Warren Weber Data	1945-1946
	NBER Macrohistory Database	1914-1944	NBER Macrohistory Database	1914-1944	NBER Macrohistory Database	1914-1944
	Mitchell IHS	1896-1913	Mitchell IHS	1896-1913		

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Country	Total deposits		Demand deposits		Time deposits	
	Sources	Period covered	Sources	Period covered	Sources	Period covered
	Mitchell IHS	1835-1895				
	Warren Weber Data	1809-1834				
Uruguay	Banco Central del Uruguay	1998-2022	Banco Central del Uruguay	1998-2022	Banco Central del Uruguay	1998-2022
	IMF Uruguay Staff Country Report	1993-1997	IMF Uruguay Staff Country Report	1993-1997	IMF Uruguay Staff Country Report	1993-1997
	IMF (IFS)	1963-1992	IMF (IFS)	1963-1992	IMF (IFS)	1963-1992
	IMF (IFS)	1950-1962	IMF (IFS)	1950-1962		
	Mitchell IHS	1913-1949	Mitchell IHS	1913-1949		
Venezuela	IMF (IFS)	2001-2015	IMF (IFS)	2001-2015	IMF (IFS)	2001-2015
	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000	IMF (IFS)	1950-2000
	Mitchell IHS	1913-1949	Mitchell IHS	1937-1949		
			Mitchell IHS	1913-1936		
Vietnam	IMF (IFS)	1995-2022	IMF (IFS)	1995-2022		
	IMF (IFS)	1992-1993	IMF (IFS)	1992-1993		
	Mitchell IHS	1970-1974	Mitchell IHS	1970-1974		
	Mitchell IHS	1955-1969	Mitchell IHS	1955-1969		
	Mitchell IHS	1950-1954	Mitchell IHS	1950-1954		
Yemen	IMF (IFS)	1990-2013	IMF (IFS)	1990-2013	IMF (IFS)	1990-2013
Zambia	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022	IMF (IFS)	2001-2022
	IMF (IFS)	1965-2000	IMF (IFS)	1965-2000	IMF (IFS)	1965-2000
	Mitchell IHS	1952-1953	Mitchell IHS	1952-1953		
	Mitchell IHS	1945-1948	Mitchell IHS	1945-1948		
	Mitchell IHS	1931-1938	Mitchell IHS	1931-1938		
Zimbabwe	IMF (IFS)	2009-2022	IMF (IFS)	2009-2022	IMF (IFS)	2009-2022
	IMF (IFS)	2008	IMF (IFS)	2008	IMF (IFS)	2008
	IMF (IFS)	1979-2007	IMF (IFS)	1979-2007	IMF (IFS)	1979-2007
	IMF (IFS)	1975-1978	IMF (IFS)	1975-1978		
	Mitchell IHS	1965-1974	IMF (IFS)	1965-1974		
	Mitchell IHS	1961-1964	Mitchell IHS	1961-1964		
	Mitchell IHS	1936-1959	Mitchell IHS	1936-1959		