The Long-Run Impact of Government Asset Guarantees*

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Abstract

Using a proprietary FDIC database of all failed bank auction participants, I provide one of the first studies of Shared-Loss Agreements (SLAs), a failed bank resolution mechanism through which the FDIC absorbs 80% of failed banks' losses accruing to their acquirers. In the three years post-acquisition, acquirers with SLAs underperform failed bank auction losers by 5.78 percentage points per year and failed bank acquirers without SLAs by 8.38 percentage points per year (risk-adjusted). This divergence in long-run returns is not fully explained by a reduction in the SLA acquirers' downside risk or their winner's curse in competitive bidding. Rather, acquirers with SLAs suffer unanticipated earnings shocks and deliver negative earnings surprises. Overall, investors do not fully anticipate the effects of SLAs on financial performance.

Keywords: financial institutions, regulation, failed bank
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1 Introduction

During the Global Financial Crisis, many governmental authorities around the world attempted to solve undercapitalization problems in the financial sector by simply injecting capital (Metrick and Schmelzing, 2021). Capital injections, such as the Troubled Asset Relief Program, (TARP) were a common way to provide stability to troubled financial institutions, and taxpayers effectively became investors in the banking system. However, many taxpayers were critical of these programs, arguing that capital injections encouraged excessive bank risk-taking at taxpayers' expense.

In response to this public outcry, governments actively sought alternative resolution strategies that could meet three objectives: impose losses on the shareholders of a failed institution, maintain the stability of the financial system, and minimize taxpayer losses. Governments worldwide have suggested that asset guarantees, whereby the entity who purchases the troubled assets only realizes a portion of the realized losses, could be part of an effective strategy to meet these three objectives without directly injecting capital into the troubled institutions.[1] Since the failures of complex financial institutions have been rare post-financial crisis, there have not been many opportunities for governments to test the effectiveness of guaranteed assets for these institutions. However, in early 2023, the importance of such guarantees was highlighted when the United States and Swiss governments provided a backstop for losses incurred by the acquirers of Silicon Valley Bank, First Republic Bank, and Credit Suisse.

Asset guarantees are believed to be a useful tool in resolving failed banks by reducing the risk and increasing the appeal of acquiring distressed assets. In addition, governments believe that asset guarantees lower the cost to taxpayers when compared to direct capital injection and that transferring these assets to healthy acquirers within the private sector benefits borrowers and depositors. However, little is known about how these asset guarantees might affect the entities assuming the troubled assets. To shed light on this issue, this study examines the long-run equity returns to acquirers of guaranteed assets in a setting where asset guarantees have a demonstrated

[1]For example, the Single Resolution Mechanism, which is responsible for the resolution of the entities directly supervised by the European Central Bank, designates asset guarantees as an appropriate use of the fund.

history of great importance: the failed bank setting. During times of extreme financial stress, the Federal Deposit Insurance Corporation (FDIC) allows failed bank auction participants to include asset guarantees called Shared-Loss Agreements (SLAs) in their failed bank auction bids. During the Great Financial Crisis, the FDIC agreed to absorb a portion of future losses and recoveries (often 80%) of covered assets over the five to ten years post-acquisition.[2] The FDIC's implementation of SLAs was critical not only for resolving the volume of banks that failed during crisis periods but also the stability of the financial sector. Between 2007 and 2015, 304 of the 518 banks that failed were acquired with an SLA. Similarly, to resolve thrifts during the savings and loan crisis of the 1980s, the Federal Savings And Loan Insurance Corporation implemented bespoke loss-sharing provisions.

The addition of SLAs offered potential benefits to both the acquirers and the FDIC. For acquirers, SLAs could reduce their exposure to the losses of the covered assets. The primary FDIC benefit of allowing for SLAs in failed bank auction bids is their potential for realizing a lower resolution cost. Compared to the outright cash sale of these assets, the FDIC claims that their estimated savings from SLAs during the financial crisis exceeded $41 billion (19% of covered assets).[3] As an additional benefit to the FDIC, acquirers purchasing a given failed bank with an SLA would receive a smaller upfront payment from the FDIC's Deposit Insurance Fund (DIF) at the time of resolution in exchange for a stream of future payments corresponding to the realized losses of the covered assets. Therefore, instead of paying out all losses upfront and drawing down cash during times of extreme economic stress, SLAs enabled the FDIC to push some of these payments to the future, potentially during more stable times.[4]

Despite the demonstrated importance that asset guarantees have in resolving bank failures, to the best of my knowledge, no study has examined whether these arrangements created value for

[2]For example, for Single-family Residential (SFR) SLAs, the agreements last ten years and cover both downside losses and recoveries. For commercial assets covered under Non-Single-Family (NSF) agreements, the first five years cover losses and recoveries, while the final three years cover only recoveries.

[3]For further information on SLAs, see the FDIC's Loss Share Questions and Answers https://www.fdic.gov/resources/resolutions/bank-failures/failed-bank-list/lossshare/

[4]In the second quarter of 2008, the DIF reserve ratio dropped below the statutory minimum of 1.15% of estimated insured deposits, and the FDIC started allowing bidders to include SLAs. Under the Federal Deposit Insurance Company Improvement Act (FDICIA) of 1991, the FDIC is required to resolve bank failures in the manner that is least costly to the Deposit Insurance Fund, regardless of the presence of SLAs. https://www.fdic.gov/bank/historical/crisis/overview.pdf

acquirers, which is a primary concern to policymakers, potential failed bank auction participants, financial market participants, and borrowers. To address this question, I use a proprietary FDIC database identifying all failed bank auction participants at all stages of the auction process, including those that are only observable to the regulator. This proprietary data gives me three primary advantages over the subset of failed bank auction bidder data that is posted publicly. First, I observe the full universe of banks that bid on the failed banks, including those that ultimately acquire the failed bank and the bidding banks that submitted bids for the same auction, yet lost. This comparison provides an advantage over many existing studies within the mergers and acquisition space to the extent that auction winners are more similar to losers than to the average firm in the market. Pre-acquisition, failed bank winners and losers have similar observable characteristics, and the returns to auction winners and losers closely track in the two years prior to the failed bank auction. Thus, I can compare failed bank auction winners and losers within a given auction. This credible counterfactual allows for a causal interpretation of the outcome of auction winners. Second, I am able to link *all* bidders to their bids, which allows me to further compare acquirers with SLAs to auction losers that had attempted to acquire the same failed bank with an SLA, alleviating the concern that unobservables may drive the decision for auction participants to include SLA coverage, even *within a given auction*. Third, I can identify participants at all stages of the auction process, including those only available to the regulator, which allows me to quantify the competition for the failed bank.

Within a traditional buy-and-hold abnormal return framework (BHAR), banks that bid on failed banks, yet lost the auction, realize no abnormal announcement day returns, and they realize Fama French adjusted (FF-adjusted) annualized returns of 7.70 percentage points per year over the subsequent three years. In contrast, failed bank acquirers with (without) SLAs realize five-day returns of 3.50 (1.86) percentage points surrounding acquisition announcements. The failed bank acquirers with (without) SLAs realize 3.91 (12.29) percentage points per year over the subsequent three years.[5]

[5]The total BHAR over the three-year horizons are 12.2 and 41.6 percentage points. The 3.91 percentage point magnitude is calculated by solving for r in the equation $(1+\mathrm{r}_1)^3 = (1 + 0.122)$ and multiplying by 100 in order to express r_1 as an annual percentage. Correspondingly, the 12.29 percentage point magnitude is calculated analagously

While failed bank auction winners with SLAs outperform auction losers in the short-run, this trend reverses in the long-run. In the three years post-acquisition, acquirers with SLAs underperform failed bank auction losers and winners without SLAs by 5.78 and 8.38 percentage points per year (FF-adjusted). However, the three-year difference in long-run BHARs between failed bank auction losers and winners without SLAs is not statistically significant. These results are similar within an event-time portfolio framework, and they are not driven by failed bank auction losers that become subsequent winners.

I bolster the identification by implementing an alternative winner-loser empirical framework within a given failed bank auction. While the BHAR and event-time portfolio frameworks that demonstrate the baseline results facilitate comparisons between failed bank auction winners (with and without SLAs) and losers *across* failed bank auctions, the winner-loser BHAR framework allows me to compare winners and losers *within* a given failed bank auction. In this framework, I construct long-run buy-and-hold returns for each type of participant in the failed bank auction. To causally identify the difference between banks that acquired failed institutions and those that did not, I utilize an ordinary least squares (OLS) framework with an auction-level fixed effect, creating a matched sample of winners and losers at the auction level. The inclusion of an auction fixed effect controls for the direct impact of all auction-level variables that are consistent between winners and losers, including observable characteristics of failed banks and macroeconomic conditions prevailing on the auction day. Within this framework, my findings reveal that SLAs do not significantly affect the five-day announcement returns, suggesting that the market perceives SLAs to be accurately priced at the time of acquisition. However, in comparison to other winners without SLAs and losers, failed bank acquirers with SLAs experience both economically substantial and statistically significant declines in FF-adjusted returns over the three years following the acquisition. By incorporating an auction-level fixed effect, I effectively hold all auction-level characteristics constant (e.g., the quality of the failed bank), thereby eliminating the possibility that this divergence in abnormal returns is driven by the acquisition of lower quality failed banks with SLAs.

In comparison to corporate and non-failed bank acquisitions, failed bank acquisitions are

by solving for r_2 in the equation $(1+r_2)^3 = (1 + 0.416)$ and multiplying by 100.

unique along several dimensions. Failed banks are resolved through a process that closely resembles a sealed-bid first-price auction, and acquisitions are required to be completed on very brief timelines (within 90 days of failure). Due to this short timetable, potential acquirers are traditionally given limited information pertaining to the failed bank and only allowed to briefly perform due diligence. Additionally, there was considerable uncertainty surrounding the future performance of these potentially troublesome assets during the crisis periods.

Although SLAs have proven to be useful in limiting losses for acquirers, they come with significant costs that must be carefully considered. One challenge is quantifying the expected benefits of SLAs due to uncertainty surrounding expected payments. Since acquirers with SLAs only realize 20 percent of the losses and recoveries of the associated assets, the FDIC attempts to contract around moral hazard problems by mandating additional monitoring and monthly loan-level reporting requirements. Banks must also thoroughly document their efforts to work through any issues with troubled loans and must convince the FDIC to allow sales of covered assets, which some banks find to be difficult (Barba, 2012). Most, if not all, banks hire a designated team of people specifically tasked with managing the covered assets, which encompass the bulk of the direct administrative costs (Barba, 2011). With the presence of SLAs, banks may also hold onto troubled assets longer than they would have in the absence of coverage, thereby potentially imposing additional opportunity costs on acquirers (Barba, 2011). Taken together, the uncertainty surrounding the valuation on both the costs and benefits on SLAs suggests noisier signals on the value of acquisition and could inflate acquirers' bids with SLAs. Furthermore, SLAs could directly affect the risk profile of the newly combined entity. All else equal, for a given failed bank, an acquisition with an SLA will result in a lower risk profile for the new entity than the same acquisition without shared losses since both the downside losses and upside potential of the covered assets are reduced. If SLAs are associated with a reduction in risk for the combined entity, this may be reflected in lower long-term returns and safer lending portfolios.

In subsequent analysis, I examine whether the divergence in returns between acquirers with SLAs and auction losers is consistent with overpayment or a reduction in risk of the combined entity. The winner's curse (Capen et al., 1971) implies that winning bidders fail to adapt their

strategies to the level of competition and overpay. This overpayment increases in the amount of competition (Kagel and Levin, 1986), ultimately leading to a deterioration in shareholder value. In practice, valuing the benefits of SLAs can be difficult for both the market and auction participants, since there is considerable uncertainty surrounding default (and recovery) rates of the covered assets. Acquirers may also underestimate the administrative burden associated with SLAs.[6] To the extent that markets are efficient, overpayment in the form of a winner's curse should be reflected in negative short-run returns. Using the same winner-loser empirical framework to search for evidence on the winner's curse, I employ tests that relate bidder returns to the degree of competition over the entire auction process. According to Kagel and Levin (1986), returns to successful acquirers should be lower in the presence of stronger competition. The granularity of the FDIC's database allows me to quantify complete levels of bidder competition at all stages of the auction process, including stages that are unobservable to the public, which is a common limitation of the winner's curse literature (Moeller et al., 2004; Varaiya, 1988). I find that no measure of bidder competition at any stage of the auction process has a meaningful impact on either short-run or long-run returns. In short, I do not find evidence of overpayment consistent with theories of the winner's curse.

Next, I examine whether the difference in abnormal returns between failed bank auction winners with SLAs and other failed bank auction participants could be driven by a reduction in risk. Using the same winner-loser BHAR framework, I find that post-acquisition, total volatility goes down for acquirers with SLAs. This reduction is driven by a decline in idiosyncratic, as opposed to systematic, risk. While there are no changes in systematic volatility or equity betas, I find that idiosyncratic volatility declines for acquirers with SLAs. Using Call Reports, I show that acquirers with SLAs realize decreased lending risk compared to other failed bank auction participants, as indicated by lower charge-offs and loan-loss reserves. However, the market responds negatively to the first four post-acquisition earnings announcements for acquirers with SLAs, indicating that market participants may be learning that the costs (or benefits) of shared-loss coverage are higher (or lower) than anticipated at the time of the acquisition. This conjecture is further substantiated

[6]"For some banks, loan-losses - and hence payments from the FDIC - have been lower than expected while loss-share bookkeeping and reporting costs have been higher," as cited in Cumming (2015).

by acquirers with SLAs realizing negative analyst-based earnings surprises in the second and third quarters following the acquisition. Taken together, while some measures of risk decline, this analysis suggests that the wedge in long-run returns between failed bank auction winners with SLAs and failed bank auction losers cannot be entirely attributed to a reduction in risk stemming from SLAs.

I contribute to an established literature examining optimal resolution policies, which is of primary interest to governments and policymakers. A number of studies examine the implications of capital injections (bail outs) during the Global Financial Crisis through the TARP program (Duchin and Sosyura, 2012, 2014) or other capital injection programs globally (Dam and Koetter, 2012; Giannetti and Simonov, 2013). Other papers have examined bail in mechanisms such as contingent convertible capital securities (Avdjiev et al., 2020). I extend the work on government interventions during time of stress by examining a previously overlooked mechanism: government guarantees in the form of SLAs.

I also contribute to a growing literature on failed banks. Studies examining the savings and loan crisis estimate the FDIC losses associated with failed bank assets (James, 1991) and the revenues generated from failed bank acquisitions (James and Wier, 1987). A number of failed bank studies taking place during the Great Recession estimate the costs of resolutions to the FDIC by measuring the allocation of distressed bank assets and liabilities (Granja et al., 2017; Igan et al., 2022) or the costs associated with regulatory forbearance Cole and White (2017); Kang et al. (2015). Within the failed bank literature, my paper is closely related to Kandrac (2014) and Ivanov and Karolyi (2021). These two long-run event studies both show that bank failures have negative long-run consequences on *communities*, though Kandrac (2014) shows that the presence of SLAs mitigates some of these negative effects. However, neither study examines the impact that acquiring a failed bank with an SLA has on acquirers. While governments around the world may view asset guarantees as a viable alternative to capital injections for future crises, my study suggests that asset guarantees may not be unambiguously positive for the acquiring entities, which may affect the overall willingness of outside entities to participate in transactions involving guaranteed assets. It is also worth noting that these failed bank studies, aside from Kandrac (2014), include the presence of SLAs in their analysis, and I complement these existing studies by showing the impact of SLAs

on ex-post acquirer returns.

2 Background and Literature

2.1 The Resolution Process

Drafted in response to the Savings and Loan Crisis, the FDIC Improvement Act (FDICIA) of 1991 revised the guidelines for the FDIC to resolve failed institutions. FDICIA establishes that once a given bank's tangible equity falls below the regulatory minimum (2% of assets), the primary Federal regulator issues the Prompt Corrective Action (PCA), and the resolution must be complete within 90 days. This law was intended to incentivize banks to expediently address problems while the problems are still small enough to be manageable, yet the law requires the FDIC to resolve failed banks quickly in an attempt to minimize long-term losses. FDICIA additionally mandates that the FDIC resolve the failed institution in the least costly manner, ideally taking away any subjectivity the FDIC had in selecting acquirers.[7] During the Global Financial Crisis, bids with the lowest cost to the DIF were typically purchase and assumption (P&A) transactions whereby the FDIC sold some (or all) of the failing bank's assets and liabilities. This process closely resembles a sealed-bid first-price auction.

In order to prevent a potential run on the bank, there is no formal announcement that the resolution process has begun, so the general public is unaware of these failed bank auctions. Once the process begins, the FDIC's Division of Resolutions and Receivership (DRR) determines the marketing strategy, prepares the necessary marketing materials, and values the assets. From there, they solicit eligible bidders that meet the following criteria:[8]

- Total risk-based capital ratio of 10% or greater,
- Tier 1 risk-based capital ratio of 6% or greater,
- Tier 1 leverage capital ratio of 4% or greater,
- CAMELS composite rating of 1 or 2,
- CAMELS management rating of 1 or 2,
- Compliance rating of 1 or 2,
- Bank holding company composite (RFI/C) rating of 1 or 2,
- Community Reinvestment Act (CRA) rating that is at least satisfactory,

[7] For more information on the resolution process, see the FDIC's Resolution Handbook https://www.fdic.gov/bank/historical/reshandbook/

[8] Eligible bidders are not necessarily banks. For example, see (Johnston-Ross et al., 2021) for a discussion on the process that private investors can pursue to become eligible to participate in failed bank auctions.

- Satisfactory anti-money laundering record, and
- A size threshold, which increases in the distance from the failed bank.

If a solicited bank expresses interest, the bank must first execute a confidentiality agreement before learning any details about the failed institution, including its name. Once the agreement is formalized, the potential bidder gains access to a secured website that markets the specific failed institution with limited information. From there, the potential bidder can notify a marketing specialist, formally declare "interest", and subsequently gain access to more information pertaining to the terms offered. In most cases, interested bidders can schedule two days to perform due diligence on site with a small team of three to five people.

Approximately two weeks before the target bank is scheduled to close, the bidding process begins. The FDIC conducts a sealed process based on standard transaction terms, and bidders submit their bids through a secure website to ensure confidentiality. Bidders submit bids consisting of their desired level of 1) asset discount (or premium) over the book value of the bank's failed assets, 2) any deposit premium, indicating the amount that the bidder is willing to pay to assume the deposits of the failed bank, and 3) shared-loss coverage between the bidder and FDIC (not required).[9] Bidders typically submit bids on a Monday or a Tuesday and are notified of their status within 48 hours of submitting their bid(s).

The FDIC uses its proprietary models to value all bids, including those where acquirers chose to include SLAs, and acquirers have no knowledge of how the FDIC estimates the costs to the DIF associated with their bids. Under FDICIA, the FDIC is mandated to select the bid associated with the lowest resolution cost that exceeds the FDIC's reservation value, which is the estimated cost of liquidation, regardless of the inclusion of an SLA. Given that there is considerable uncertainty pertaining to the value of the failed institutions, along with the expected payments from SLAs, it can even be difficult for potential acquirers to value their own bids. As a result, it is not uncommon for a bidder to submit multiple bids, varying the inputs of the three bidding components.

Once the FDIC selects the bid that is consistent with the least costly resolution, they notify

[9]Bids that are "non-conforming" can also be considered if they can be priced. "Non-conforming" indicates that a bid does not conform to the FDIC's offered transaction; for example, an acquirer may elect to not acquire assets under litigation.

all bidders. Typically, the resolution process begins on a Friday. After the close of business hours, the identity of the winning bank, as well as the terms of the bid, is disclosed to the general public. On the following Monday, the bank reopens for business as usual, under the name of the acquirer. For bank failures in 2007, 2008, and those before November 12, 2009, the FDIC only released the identity of the winning bidder in real-time. However, in response to a Freedom of Information Act (FOIA) request, starting on November 12, 2009, the FDIC began publicly releasing an incomplete list of failed bank auction bid and bidder data at the date of the resolution of the failed bank.

Table 1 shows a breakdown of the number of failed banks per year. Before 2007, bank failures were relatively infrequent events, though there were 518 failures between 2007 and 2015. The far-right column indicates the yearly number of auctions that appear in the final sample, which begins on November 12, 2009 (post FOIA). Figure 1 provides a breakdown of failure resolution types each year. As the table shows, Purchase and Assumption transactions with or without Loss Share are the most common types of resolutions.[10] Purchase and Assumption (P&A) transactions with Loss Share become the most common type of resolution from 2009 to 2013, accounting for nearly two-thirds of all failed bank resolutions. Figure 2 subfigure a shows the annual amounts of failed bank assets and deposits, and subfigure b shows the yearly estimated costs realized by the FDIC for bank failures occurring in that year. For the 518 banks failing from 2007 to 2015 and holding over $700 billion in assets ($500 billion in deposits), the FDIC realized losses of approximately 24% of failed bank assets.[11]

2.2 Shared-Loss Agreements

Asset guarantees have a rich history of importance during times of extreme stress on the financial sector. By guaranteeing assets, the government supports institutions whose failure could have caused serious harm to the financial system and the broader economy. During the Savings and Loan crisis, the Federal Savings And Loan Insurance Corporation implemented a loss-sharing provision when resolving thrifts. Subsequently, the FDIC resolved nearly two-thirds of

[10] For more information regarding the different types of resolution types, see Chapter 4 of the FDIC's Resolutions Handbook: https://www.fdic.gov/bank/historical/reshandbook/resolutions-handbook.pdf#page=7

[11] For failed bank asset estimates and FDIC most recent cost estimates, see: https://banks.data.fdic.gov/explore/failures

bank resolutions between 1991 and 1993 and then again during the Global Financial Crisis with Shared-Loss coverage.[12] In response to the Great Recession, many regulators across the world noted the importance of asset guarantees. For example, the Single Resolution Mechanism, which is directly responsible for the resolution of the entities directly supervised by the European Central Bank, designates asset guarantees as an appropriate use of the fund. Additionally, the Board of the International Organization of Securities Commissions, consisting of regulators from 34 countries, suggests in the event of a failure of financial market infrastructure, regulatory agencies across the world should allow acquirers the opportunity for shared-losses with the government.

During the Great Recession, The FDIC's implementation of shared-loss coverage was crucial for failed bank resolutions. Between 2008 and 2013, 304 failed bank acquisitions included SLAs, and the covered assets totaled over $216 billion. Figure 3 provides a breakdown of the assets under SLAs associated with bank failures in each year along with the FDIC's anticipated cost at the time of the resolution.

While SLAs can vary by failed bank auction, in a typical arrangement, both the losses and recoveries have an 80/20 split between the FDIC and the acquiring bank.[13] Thus, the FDIC reimburses the acquirer for 80% of the losses associated with the covered assets over the specified period and any recoveries that were previously charged off by either the failed or acquiring bank. SLAs can cover commercial assets, single-family mortgages, or both. For commercial assets, the arrangements cover an eight-year period with the first five years for losses and recoveries and the final three years for recoveries only. For single-family mortgages, the agreements are for ten years and have the same 80/20 split as the commercial assets.

While there can be benefits to risk mitigation, acquirers with SLAs are subject to additional rules and reporting requirements, which can be both time-consuming and costly for acquiring banks.

[12]In tandem, partial asset guarantees were also featured in the Asset Guarantee Program as part of open bank assistance following a systemic risk exception for Citigroup and Bank of America. The joint program was established between Treasury, Federal Reserve, and FDIC in January 2009 provided a partial guarantee of losses on certain assets to provide confidence to market participants. Both Citigroup and Bank of American received assistance under the AGP yet voluntarily terminated their coverage within the first year.

[13]Through March 26, 2010, the FDIC shared losses with assuming banks on an 80/20 basis until the losses exceeded an established threshold defined in the agreement, after which the basis for sharing losses shifted to a 95/5 basis. Sharing losses on a 95/5 basis was eliminated for all SLAs executed after March 26, 2010.

To contract around any potential acquirer moral hazard problems, the standard language in a P&A Agreements with an SLA includes nearly three pages of rules and reporting requirements.

In spirit, these requirements essentially ask the acquirer to treat the assets covered under the SLA as they would treat their own, despite the substantial reduction in gains and losses from these covered assets. Pamela Farwig, a Deputy Director in the FDIC's Division of Resolutions and Receiverships, explains in Barba (2012), "The purpose of loss share is to keep assets in the banking sector, which is more seamless for failed bank customers, and also enables the FDIC to realize the intrinsic value of the assets." To align the incentives of the failed bank acquirer and the FDIC, standard contract language requires the acquiring institution to implement "usual and prudent business and banking practices," "customary servicing practices," and to use its "best efforts to maximize collections." For single family loans, the bank must undertake reasonable and customary loss-mitigation efforts when default is reasonably foreseeable. These efforts must comply with the FDIC mortgage loan modification program, the U.S. Treasury's Home Affordable Modification Program Guidelines, or any other modification program approved by the FDIC.

In practice, many of these factors, such as what is "customary" and what constitutes a "best effort," are subjective. These subjective factors, coupled with the fact that acquirers are only exposed to minimal down-side losses and upside gains, may indicate that acquirers with SLAs are subject to a moral hazard problem. Despite potentially following the minimum requirements outlined in the P&A agreement, acquirers with SLAs may not have the financial incentives to design as many creative resolution strategies as acquirers without them. As a result, the acquiring bank may actually end up worse off with the presence of an SLA.

Furthermore, the reporting requirements for SLAs can be burdensome for acquiring banks, which are required to file monthly reports on each loan with the FDIC. These reporting requirements are more demanding for SLAs that include single-family homes, and the FDIC makes it clear that examiners will review the assuming bank's effort to implement the home-ownership preservation initiatives reflected in the single-family SLAs. The FDIC also conducts regular on-site reviews and off-site monitoring of records of covered losses and overall compliance with the SLAs. If the assuming bank is not in compliance with the SLA, the FDIC has the right to stop payments until

the problem findings are resolved, and in extreme cases, sell the assets through a bid process. As Pamela Farwig also explained in Barba (2011), "I would agree that the process is arduous. We are picking up 80% of the losses, we want to make sure that the buying banks are appropriately recognizing the losses...It is a burdensome process, but we have an oversight responsibility."

The majority of SLAs were terminated prior to their expiration, and acquirers often cite relief from administrative burden as a meaningful component of their decision.[14] To terminate an SLA, acquirers must approach the FDIC with a written termination offer. If the FDIC believes that the terms of the offer are less costly than the estimated cost of continuation, the FDIC can accept the offer subject to approval by the primary federal regulator of the acquirer. This offer could result in a payment from the acquirer to the FDIC or the other way around. Table 2 shows the termination status for all terminated SLAs through 2020. A single failed bank typically has two different types of covered assets (commercial assets and single-family residential), and each type can be terminated early. Column 2 reports the number of failed bank SLAs realizing some form of early termination, and this number is broken down into agreements that were terminated entirely and those with one-sided terminations. Of the 304 failed banks that were acquired with an SLA, 247 (81.25%) experienced some form of early termination, and the bulk of these early terminations were for the entire agreement. Columns 5 and 7 show a breakdown of the number of terminations where the acquirer paid the FDIC and vice versa; the number of terminations without payment is shown in Column 9. The aggregate amount of the payments by type are shown in Columns 6 and 8. While it is more frequent for the FDIC to pay the acquirer to terminate coverage (159 cases), it is still fairly common for the acquirer to pay the FDIC to terminate coverage (71 cases), allowing the acquirer to realize more recoveries and free them from the reporting burden of the SLA.[15]

Figure 4 shows the yearly number of SLA early terminations and fourth quarter single-

[14] "We are pleased to have successfully negotiated the early termination of our shared-loss agreements with the FDIC," said Ignacio Alvarez, President and Chief Executive Officer of Popular Inc. "We are now focused on realizing the expected benefits of this transaction, which include lower operating expenses, greater flexibility to manage these assets and simpler financial reporting." (Davis, 2018)

[15] Walt Moelling, an attorney specializing in assisting banks with Shared-Loss terminations, explains, "Aside from considerations of profit and loss, ending the loss-shares could reduce a headache for management. Dealing with the complexity of loss sharing eats up a lot of banker's energy...The cost of maintaining the relationship with the FDIC is so great that, even if you have to come out a little bit behind on the financial terms of the exchange, you can win just by freeing up management's time." (Cumming, 2015)

family residential delinquency rate. Between 2007 and 2009, single-family delinquency rates rose from 3.10% to 10.33%. They remained over 10% through 2012 then declined.[16] As both single-family and commercial real estate delinquency rates dropped to pre-crisis levels, SLA terminations dramatically increased in 2015 and 2016. While SLAs are especially valuable when default rates are high, they hinder a bank's ability to capitalize on recoveries. These correlations suggest that acquirers may be strategic in the timing of their SLA terminations by maintaining coverage when default rates are relatively high (2010 through 2014), yet terminating such agreements when rates of recovery are likely to be higher, post 2014.[17] By terminating the SLAs, acquirers are also released from the reporting burden, additional monitoring, and any rules pertaining to the treatment of the loans outlined in the P&A agreements.

3 Sample Construction

3.1 Sample Construction

This study combines data from an FDIC proprietary regulatory database, henceforth referred to as FDIC AuctionData, the New York Federal Reserve CRSP-FRB linking table, daily equity prices and market values from the Center for Research in Security Prices (CRSP), and quarterly Call Report items. The proprietary regulatory database is an internal database used for both marketing and managing failed bank auctions and was intended for use by FDIC employees to aid in the resolution of failed banks. It contains complete information pertaining to each step in the auction process discussed in Section 2.1: bank solicitation, interest designation, due diligence, and auction bid. The sample contains all failed bank auctions in the 50 United States between November 12, 2009, when the database became complete, and December 31, 2015. For each auction, I calculate the number of solicited banks, individual banks that made bids, and the bids themselves. Within an auction, I remove duplicate bids for a given bank, retaining the bid with the highest place. For example, if a given bank wins a specific failed bank auction, yet placed two losing bids, I retain the

[16] For a time-series of quarterly single-family residential rates, see https://fred.stlouisfed.org/series/DRSFRMACBS. For data pertaining to commercial real estate delinquency rates, see https://fred.stlouisfed.org/series/DRCRELEXFACBS

[17] "A lot of these agreements were written when the economy was still in a recession and we hadn't come into a recovery yet...The economy has recovered and a lot of these loans are performing. Banks are more comfortable with them now," said David Giesen, a managing director in Navigant Consulting's valuation and financial risk management practice, as cited by Stewart (2011).

winning bid in the sample. Then, I merge each bidder's identifier to the entity's PERMCO using the CRSP-FRB linking table.[18]

While the majority of failed bank auctions do receive bids, only a small subset of bidders are public entities, which dramatically reduces the sample size. For this reason, I am unable to directly compare first and second place bidders, as in Malmendier et al. (2018) and Vij (2019). The final sample consists of 254 auctions, where 485 bids were made by publicly traded banks. Of these 485 bids, 134 pertain to auction winners, and 351 pertain to public banks that bid for auctions, yet lost. Of the 134 acquirers, 101 have SLAs and 33 do not. During the Global Financial Crisis, approximately two-thirds of failed bank auctions were resolved with SLAs. Of the 254 auctions present in my sample, 172 (67.77%) were acquired with SLAs, and the number of acquirers with SLAs in my sample is comparable (75.37%).[19] Table 3 Panel A shows the breakdown of these auction-level characteristics. On average (at the median), the FDIC solicited 372 (373) institutions. Of the solicited banks, an average (median) of 6.05 (6) banks expressed interest, 5.03 (5) banks conducted due diligence, and 3.12 (3) banks eventually bid. As previously stated, due to the uncertainty surrounding how failed bank bids are calculated, it is common for bidders to submit multiple bids. The average auction in the sample has 6.47 bids yet 3.12 bidders. For the 134 acquirers in my sample, the average ratio of failed bank assets to acquirer assets is 15%, and for the 101 sample acquirers with SLAs, the ratio of covered assets to acquirer assets is 11%.

I calculate the Fama-French three-factor adjusted returns for all publicly traded bidders' stocks (Fama and French, 1993).[20] For each stock, I first estimate 90-day rolling-window factor loadings (betas) for the three Fama-French factors: market, size, and book-to-market. Using the realization of the three factors and the factor loading estimates from the prior 90-day regression, I calculate Fama-French predicted stock returns. The difference between the delisting-adjusted stock return and the predicted return is the factor-adjusted return. Weekly adjusted returns or adjusted returns over a given holding period are formed by cumulating these daily adjusted returns.

[18]Federal Reserve Bank of New York. 2017. CRSP-FRB Link:
https://www.newyorkfed.org/research/banking$_r esearch/datasets.html$

[19]Note that not all failed bank auctions have both publicly traded winners and losers. For example, a given auction may have a publicly traded loser but no winner or vice versa.

[20]Baseline results adding a fourth momentum factor, as in Carhart (1997) are shown in the Internet Appendix.

Next, I merge the final sample to quarterly Call Report data and construct variables to quantify the bank's size (ASSET and LNASSET) and the relative size and type of the deposits compared to assets (DEPOSITS, BROKERED, and NONCORE). I also construct measures for the risk stemming from the loan portfolio, as indicated by reserves (RESERVE) and net charge-offs (CHARGEOFF), non-performing loans (NONPERF), and securities (SECURITIES) all relative to total assets. Measures of overall bank risk include the ratio of risk-weighted assets (RWA) and equity capital (EQUITY) relative to total assets. I also examine the composition of the loan portfolio by taking the ratio of consumer loans (CONSUMER), commercial and industrial loans (CANDI), construction and development loans (CANDD), commercial real estate loans (CRE), real estate loans (REALESTATE), and other real estate (OREO) scaled by total assets. In a corporate setting, text-based studies show that firms with similar assets are more likely to have synergies and engage in mergers (Hoberg and Phillips, 2010, 2015, 2018). Within the failed bank setting, Granja et al. (2017) show that similarity in loan portfolios is a meaningful determinant of bids, and subsequent acquisitions, of failed banks. I create an overall measure of loan portfolio similarity (LOANDISTANCE) between the bidder and failed bank target by computing the sum of the differences in CONSUMER, CANDI, CANDD, CRE, REALESTATE, and OREO. Variables with a "B_" prefix pertain to bidding banks, while variables with an "F_" prefix are indicative of failed bank variables. Table 3 Panel B shows summary statistics for quarterly bidder characteristics for the quarter prior to making the bid, and Table 3 Panel C shows the same characteristics for the failed banks. Bidding banks are noticeably larger. On average, bidders have $9.6 billion in assets (with a lot of skew), and on average, failed banks have approximately $450 million in assets. Bidders are also more profitable and exhibit lower lending risk. Appendix A contains additional details pertaining to the construction of each variable.

Next, I examine the comparability between the sample of publicly-traded, failed bank auction winners and losers. In Table 4 Panel A, I partition the sample into winners and losers and report summary statistics for 17 variables of interest for the quarter before failure along with test statistics for the differences in means and associated p-values. On average, winners and losers are similarly sized, exhibit comparable levels of charge-offs and reserves, and have comparable levels

of risk-weighted assets and equity capital. For the most part, their loan portfolios have similar compositions, although there are slight differences in the amount of commercial and industrial (B_CANDI) and construction and development (B_CANDD) loans for auction winners and losers. However, these differences are economically small (less than 2% of total assets) and are unlikely to drive the findings within this analysis. There is no meaningful difference in target loan portfolio similarity (LOANDISTANCE) between the two groups. This finding is consistent with Granja et al. (2017), who highlight that acquiring banks have similar asset business lines to failed banks.

In Panel B, I examine the subset of banks that bid with SLAs and partition the sample into banks that win failed bank auctions with SLAs and those that bid with SLAs yet did not win the auction. Again, winners with SLAs and losers bidding with SLAs exhibit similar fundamentals in the quarter before the failed bank acquisition. In the Internet Appendix, I conduct the same analysis between failed bank acquirers with and without SLAs. Like, the results shown in Table 4, I show that winners with and without SLAs demonstrate very similar observable characteristics in the quarter before the acquisition.

3.2 Comparison Between the FDIC's Database and Public Bid Summary Data

For each failed bank auction, the FDIC posts a time-varying summary of auction bids on its website. Compared to any publicly available information, the regulatory database, FDIC AuctionData, contains a superset of failed bank auction bid data. As discussed in Section 2.1, prior to November 12, 2009, the FDIC only posted the identities of the winning bidders. However, in response to a Freedom of Information Act (FOIA) request, the FDIC started making select bidder and bid data public in real-time starting on November 12, 2009. For all bids surpassing the liquidation value, the FDIC releases information pertaining to the bidder's identities and bid characteristics. The details of the winning bid are matched to the identity of the auction winner. The details of the second-place bid, referred to as the cover bid, are also released, though the identity of the cover bidder is released one year later. All other disclosed bids are unlinked to bidder identities, and any bids and bidder identities that are below the confidential reservation (liquidation) value remain undisclosed.

Figure 5 is an example of a public Bid Summary for North Houston Bank. Both the

identity, U.S. Bank, N.A., and bid characteristics of the winning bid are presented. While details pertaining to the other bids and bidders are also included, they are unlinked to the bidder identities, which are included at the bottom of the summary. In this auction, there are more bids than bidders, indicating that some bidders placed multiple bids. One of the Bid Summary footnotes, highlighting the incomplete nature of the public data, states, "If any bids were received that would have been more costly than liquidation they have been excluded from this summary."

4 Empirical Strategy

The primary goal of this study is to understand the long-run implications of failed bank acquisitions for acquirers; however, the literature has debated the proper methodology for calculating these returns. Barber and Lyon (1997) and Lyon et al. (1999) propose the use of buy-and-hold abnormal returns, arguing that they are the most accurate representation of the returns realized by investors. Campbell et al. (1997) caution researchers that if event windows overlap in calendar time, the covariances between the abnormal returns may differ from zero, and the distributional results presented for the aggregated abnormal returns are not applicable. They suggest an event-time portfolio approach, which allows for cross-correlation of the abnormal returns. Since failed bank auctions cluster in time and are especially prevalent during the financial crisis, I implement both buy-and-hold abnormal returns as well as an event-time portfolio approach.[21]

4.1 Establishing a Benchmark

The quintessential question plaguing the extant acquisition literature is how to measure the long-run hypothetical performance of an acquirer in the absence of an acquisition. Since the performance of an acquiring bank in the absence of an acquisition is not directly observable, Barber and Lyon (1997) suggest a comparison of acquirer buy-and-hold returns to the return of a) a reference portfolio, b) a matched sample of firms based on no specified firm characteristics, or c) the three-factor model from Fama and French (1993).

[21]While other studies have advocated for a calendar-time approach (Fama, 1998), I am unable to implement this approach in my setting. My sample of public bidders contains too few bidders to form calendar-month portfolios that are long in the winning bidders' stocks and short in the losing bidders' stocks. The long or short portfolios would often contain very few stocks. As a result, the estimates would become unreliable and depend on minimum portfolio requirements.

One potential concern with implementing a matched sample based on observable characteristics is that there may still be unobservable differences between the acquiring firm and the matched sample (Loughran and Vijh, 1997; Rau and Vermaelen, 1998). Within the failed bank auction setting, this selection issue may be especially severe. For example, failed bank acquirers may have a better understanding of their risk exposure to real estate than can be inferred from observable Call Report data. As a result, failed bank auction participants may be better banks than those who do not participate, which may result in longer long-run abnormal returns, even in the absence of the acquisition itself. Comparing the abnormal returns of the acquiring bank to a sample of matched banks would overstate the value of the acquisition. To overcome this selection effect, I implement a winner-loser strategy where I compare the three-factor abnormal returns of failed bank auction winners to failed bank auction losers. To the extent that all banks bidding on the failed bank were willing to acquire it, the winner-loser strategy helps to alleviate this selection problem notwithstanding the possibility that unobserved factors drive the differences in the bids themselves.

For each bidder b, I compute abnormal returns (ARs) over a given interval starting at date m and ending at date n by taking the difference between the cumulated bidder stock return, $RET^{b}_{m,n}$ and the cumulated benchmark return, $Ret^{benchmark}_{m,n}$. For the benchmark, I implement the Fama and French (1993) three-factor model, which controls for the return of the market, size, and book-to-market ratios. Since the sample only contains banks, it is not necessary to make any subsequent industry-adjustments. Equation 1 formalizes the abnormal return calculation for each bidder b:

$$AR^{b}_{m,n} = RET^{b}_{m,n} - Ret^{benchmark}_{m,n} \tag{1}$$

As previously explained, given that there were many failed bank auctions each week during the crisis, I first implement the event-time portfolio framework suggested by Campbell et al. (1997). Each week, I create event-time portfolios that consist of the equally weighted FF-adjusted returns to failed bank auction winners and losers. Subsequently, I also show the standard BHARs to failed bank auction winners and losers, since these most closely represent the returns that investors realize.

5 Results

5.1 Baseline Results

To understand whether failed bank auction winners realize long-run abnormal returns, I first present the results using the event-time portfolio advocated for by Campbell et al. (1997), since failed bank auctions cluster by week, and present the results in Table 5. Each week, I compute an equally weighted portfolio of failed bank auction winners and losers. Panel A of Table 5 shows the returns for the two weeks, three months, six months, one year, and two years prior to the failed bank auction. While failed bank auction winners and losers both experience positive abnormal FF-adjusted returns over these varying horizons, the differences between them is small and generally not statistically significant. Coupled with the results presented in Table 4, these results suggest that prior to the failed bank auction, winners and losers are similar.

Figure 6 subfigure a shows the cumulative FF-adjusted returns to the winning and losing portfolios. In subfigure b, the auction winners are decomposed into those winning auctions with and without SLAs. Following Savor and Lu (2009) and Malmendier et al. (2018), I focus on a three-year horizon post-acquisition.[22] At first glance, the magnitude of the FF-adjusted returns for losing banks may be surprising. However, it is important to note that in order to even be solicited for a failed bank auction, a bank must meet all criteria outlined in Section 2.1, certifying that it is of the highest quality.[23] In comparison to a standard acquisition, FDICIA requires a failed bank acquisition to be completed within 90 days, often leaving potential acquirers with only a few days to decide whether to submit a bid for the troubled assets contained within the failed bank. Due to the heightened uncertainty surrounding these types of auctions, a potential acquirer may be especially confident in its own stability and solvency before participating in the failed bank auction.

Table 5 Panel B shows the abnormal returns to the winning and losing portfolios over varying forward-looking horizons. I define week 1 as the week of the acquisition announcement.

[22] Out of the 101 acquirers with SLAs in my sample, only two transactions are terminated within three years of acquisition. One acquirer terminated shared-loss coverage after 2.45 years and the other terminated coverage after 2.9 years. All results are robust to removing these two acquirers.

[23] Over the sample period, the return on the market is 1.156 percentage points per month, and the return for all banks, as classified by the Fama and French 49 industry portfolios, is 1.152 percentage points per month. A two-tailed t-test for a difference in means indicates that we cannot reject the null hypothesis. As a result, subsequent industry adjustments are unnecessary.

However, as discussed in Section 2.1, these auctions announcements typically come on Fridays after business hours. Thus, it should not be concerning that the weekly returns to the winner's portfolio are not positive and statistically significant on the event week (week 1), since the market will fully incorporate this information the following Monday. However, in the two weeks following the failed bank acquisition, the equally-weighted portfolio of auction winners realizes an FF-adjusted return of 1.96 percentage points, while the losing portfolio realizes no abnormal returns.

Table 5 shows that for the one, two, and three years post-acquisition, winning portfolios realize FF-adjusted returns of 8.70, 15.4, and 25.4 percentage points, equating to annualized returns of 8.70, 7.42, and 7.84 percentage points over the corresponding horizons. Meanwhile, the portfolios of losing banks realize corresponding FF-adjusted returns of 8.91, 24.1, and 42.9 percentage points, equating to annualized returns of 8.91, 11.4, and 12.64 percentage point over the corresponding horizons. These results indicate that the annualized differences in FF-adjusted returns between banks winning and losing failed bank auctions over the one-, two-, and three-year horizons are -0.21, -3.98 and -4.80 percentage points over the same horizons.[24]

For the event-time portfolios shown in Table 5, I partition the full sample of failed bank auction winners with and without SLAs. For all horizons longer than one year, the winners without SLAs realize higher returns. In the three years post-acquisition, winners with SLAs realize FF-adjusted returns of 17.9 percentage points (5.64 percentage points per year), while those without SLAs experience FF-adjusted returns of 49.3 percentage points (14.29 percentage points per year). These results indicate that winners with SLAs underperform both failed bank auction losers and winners without SLAs.

Table 6 shows the average BHAR for auction winners, winners including and excluding SLA, and losers over various horizons, and I graphically show these effects in Figure 6 subfigures c and d. Since FDICIA requires failed bank auctions to be resolved within 90 days (approximately 63 trading days), in Column 1, I show that over the previous 63 trading days, $AR_{(-63,-1)}$, there are

[24]Table 5 Panel B Row 5 indicates that the total difference in returns between winners and losers over the one-, two-, and three-year horizons is the -0.84, -8.8, and -17.6 percentage points, and the table demonstrates the corresponding level statistical significance. To facilitate interpretation, I discuss the difference in the annualized returns for auction winners (Column 1) and auction losers (Column 2) corresponding to each respective horizon in the text.

no statistically significant differences between any groups of failed bank auction participants.

In the five trading days surrounding the acquisition announcement, $AR_{(-2,2)}$, auction winners have FF-adjusted returns of 3.10 percentage points, while losers exhibit no statistically significant returns. In the one-, two-, and three years following the announcement dates, winners have BHAR of 4.90, 12.0, and 19.5 percentage points (corresponding to annualized returns of 4.9, 5.83, and 6.11 percentage points per year). Meanwhile, losers experience BHAR of 5.30, 17.3, and 32.0 percentage points (corresponding to annualized returns of 5.30, 8.31, and 9.71 percentage points per year). Over the three-years post acquisition, the sub-sample of acquirers with SLAs earn total BHAR of 12.2 percentage points (3.91 percentage points per year), while failed bank auction losers realize 32.0 (9.70 percentage points per year). In contrast, the sub-sample of acquirers without SLAs earn BHAR of 41.6 percentage points (12.29 percentage points per year) over the same post-acquisition horizon.

Within the BHAR framework, over the two years post-acquisition, failed bank acquirers underperform losers by 2.48 percentage points per year, and this underperformance grows to 3.57 percentage points over the three year horizon. In Rows 3 and 4, I break acquirers into those with and without SLAs. In the five days surrounding the acquisition announcement, returns are positive for both groups of acquirers, but in the three years following the auction, winners without SLAs realize higher levels of FF-adjusted returns than those without loss share (41.6 vs. 12.2 percentage points). In rows 6 and 7, I show that acquirer underperformance is driven by acquirers with SLAs, while there is no difference in the returns to acquirers without SLAs and failed bank losers. Row 6 shows that in the one, two, and three years following acquisitions, as compared to auction losers, winners with SLAs realize total returns that are 2.46, 8.58 and 19.8 percentage points lower. In subsequent analysis, I explore possible explanations for this divergence in returns.

6 Potential Mechanisms

6.1 Winner's Curse

The winner's curse hypothesis suggests that auction winners fail to adapt their strategies to the level of competition (Kagel and Levin, 1986) and the amount of uncertainty surrounding the

value of the assets being sold within the auction environment (Bazerman and Samuelson, 1983). It is an empirical possibility within a common value environment in which, under the presence of complete information, all bidders would assign the same value to the asset. However, each bidder receives an imperfect signal as to the actual value of the asset. Even though the average value across bidders could be correct, the winner's curse could still apply if the winning bidder is the one who most overvalued the asset.

A failed bank auction has many attributes of the common value environment that may give rise to the winner's curse. The FDIC invites potential bidders to participate in these auctions, suggesting that they are comparable, and there are secondary markets for resale of these loans (Bajari and Hortaçsu, 2003; Kagel et al., 1995). A possible criticism of the failed bank setting is participating banks may have different valuations for the targets due to unobservable synergies. However, synergies could also have a common value element (Varaiya, 1988), as two different bidders could both be able to reap equivalent benefits from acquiring a particular target. Empirically, the standard interpretation of data on the gains in mergers is that the sources of synergies are unique to targets and imply no special synergies, on average, to bidders (Asquith, 1983).

Even relaxing the assumption of a common value environment does not preclude the possibility for a winner's curse in failed bank auctions. Klemperer (1998); Bulow and Klemperer (2002) state that some bidder asymmetry, such as differential synergies, can magnify the potential winner's curse. Given the assumption of a common value element in failed bank auctions, I offer several direct tests of the winner's curse. A central prediction is that any overvaluation of the auctioned asset is a function of the number of participants in a given auction. Hence, if the winner's curse applies to the failed bank settings, theory predicts that the returns to the winning bidder are inversely related to the magnitude of bid competition (Kagel and Levin, 1986).

To search for potential evidence of the winner's curse, I implement an alternative empirical framework that allows me to directly compare the path of failed bank auction winners and losers, holding all failed bank auction-level variables constant, as formalized in Equation 2:

$$AR^{b}_{m,n} = \beta_1 WIN_{b,a} + \beta_2 WIN_{b,a} \times LOSSSHARE_a + \beta_3 WIN_{b,a} \times COMPETITION_a + \beta_4 \gamma_a + \epsilon_{b,a} \tag{2}$$

where bidder b abnormal returns over the interval (m, n) is a function of whether the bidder won the auction a with or without an SLA and the level of competition within the given auction. The variable WIN is an indicator variable that takes the value of 1 if bank b wins auction a, and the indicator variable LOSS SHARE takes a value of one for acquirers with shared-loss coverage. The variable γ_a is an auction-level fixed effect, which controls for all time-invariant auction-level characteristics, such as all observable failed bank characteristics and time fixed effects, including the day of the auction. The auction fixed effect absorbs the direct effect of all auction-level variables, including the LOSS SHARE indicator variable and COMPETITION count variable. I also control for the interaction between WIN and LOSS SHARE because Tables 5 and 6 indicate that SLAs are a meaningful determinant of acquirer returns.

Including an auction-level fixed effect allows me to draw comparisons within a given auction, isolating the impact of the variables of interest, such as shared-losses and bidder competition. This fixed effect also absorbs any time-varying effects, since an auction is fixed for a given day. Since there can be multiple failed bank auction announcements on a given day, the auction-level fixed effect is an even finer classification than a daily (time) fixed effect. The results presented in Section 5.1 show the *average* long-run effects of failed bank acquisitions, but this alternative framework allows me to compare failed bank auction winners to losers *within* a given auction. While the effect is better identified within this framework, the auction-level fixed effect completely absorbs the effect of auctions where there are only winning or losing banks. In the presence of the winner's curse, I would expect the coefficient on β_3 to be negative and significant.

This framework affords two primary benefits over existing studies which directly relate acquirer abnormal returns to bidder competition. First, instead of examining whether the level of acquirer returns is higher or lower in the presence of competition, I can compare the returns of auction winners to those of losers within the same auction, unlike Boone and Mulherin (2007). While studies have shown that observable characteristics are unrelated to short-run return windows (Brown and Warner, 1980, 1985), this distinction becomes important when looking at long-run returns. Second, existing studies attribute a lack of significance to public bidders being a noisy and incomplete measure of takeover competition. The AuctionData regulatory database allows me

to quantify bidder competition at *all* stages of the failed bank auction discussed in Section 2.1: solicitation, interest, due diligence, and bidding, regardless of whether the bids become public.

I implement the framework presented in Equation 2 and present the results in Table 7. In Panel A, I show the daily return results surrounding the announcement date. Compared to auction losers, winners realize positive abnormal returns of approximately 1.80% on the day before after the announcement, and announcements often occur after the close of a Friday business day. None of the coefficients in Panel A on WIN x LOSS SHARE are statistically significant indicating that the market believes that SLAs are accurately priced at the time of the auction outcome announcement.

In Panel B, the dependent variable is the bidder's abnormal returns in the five-day window surrounding the auction announcement. To the extent that this announcement incorporates all information pertaining to the costs and benefits of acquiring a failed bank, this is the window that is most likely to indicate over-payment. In Column 1, I show that over the five-day window surrounding the auction announcement, winners realize FF-adjusted returns that are 3.48 percentage points higher than auction losers. In Column 2, I interact the WIN indicator variable with the indicator variable indicating LOSS SHARE and continue find that the interaction term is not significant, indicating that the market does not believe that auction winners overpay for SLAs.

Subsequently, I add interaction terms between WIN and the number of auction bids, bidders, banks performing due diligence, and solicited banks. The results in Columns 3 through 7 of Panel B suggest that there is no evidence of a winner's curse when examining five-day FF-adjusted returns surrounding the acquisition announcement. The positive acquisition announcement returns indicate that the market does not believe that the acquirers overpaid for failed banks. Furthermore, the coefficient on LOSS SHARE is never significant, indicating that upon the announcement, there is no difference in five-day returns for acquisitions with and without SLAs. The lack of significance on the LOSS SHARE indicator variable across all specifications further highlights that the market does not believe that acquirers making acquisitions overpay for SLAs.

In Table 7 Panel C, I examine the post-acquisition window from date 3 to 750. When the interaction between WIN and LOSS SHARE is included in the regressions, the coefficient on WIN is positive, yet never significant. Consistent with the findings from Tables 5 and 6, this shows

that acquirers with SLAs realize returns that are lower than both acquirers without SLAs and losing banks. Compared to both acquirers without SLAs and failed bank auction losers, Columns 2 through 7 indicate that FF-adjusted returns to acquirers with SLAs are approximately 30% lower, a magnitude that is both economically and statistically meaningful. Essentially, by implementing this framework, the auction-level fixed effect allows me to compare an auction to "itself," only changing the interacted variable of interest. For example, in Column 2, I show that for a given failed bank, an acquirer with an SLA would realize 28.0% less from day 3 to day 750 (10.37% per year), as compared to an acquirer of the same bank without shared losses. This result alleviates the concern that acquirer underperformance with SLAs is due to acquiring failed banks with poorer quality assets, since this framework controls for all failed bank characteristics.

When analyzing either short- or long-run returns, the interaction term between WIN and any measure of bidder competition is negative, though not statistically significant.[25] The results from Table 7 indicate that shared-losses are an important determinant of long-run acquirer returns, though no measure of competition meaningfully determines announcement-day or long-run returns. Taken together, the results presented in Table 7 suggest that despite acquirers with SLAs realizing substantially lower abnormal returns than losers, there is no evidence of a winner's curse.

6.2 Risk Reduction

6.2.1 Equity-based Measures of Risk

Next, I explore whether failed bank acquisitions change the risk profile of the acquirer. Using the winner-loser framework from Equation 2, I first examine the effect that the acquisition has on total volatility (tVOL), as measured by the standard deviation of the realized returns. I measure pre-acquisition total volatility over the interval (-253, -3) and post-acquisition total volatility over the interval (3, 253). Thus, for each failed bank acquisition participant, I have a yearly pre- and post- acquisition measure of volatility. I present the results in Column 1 of Table 8. The coefficient on POST is negative and statistically significant, indicating that post-acquisition, total volatility declines for all failed bank auction participants. The interaction term POST x WIN indicates

[25]Results are consistent when windows of (0,750) or (-2,-750) are implemented. They are also consistent when the number of public bids or bidders is examined. These results are presented in the Online Appendix.

that post-acquisition, there is no difference in volatility between acquirers without SLAs and failed bank auction losers. However, the interaction term POST x WIN x LOSS SHARE is negative and statistically significant, indicating that, post-acquisition, failed bank acquirers with SLAs have a reduction in volatility.

Next, I examine whether this reduction in risk is driven by exposure to market-wide (systematic) risk or bank-level (idiosyncratic) risk by decomposing each yearly volatility (tVOL) measure into idiosyncratic (iVOL) and systematic (sVOL) volatility. I calculate yearly idiosyncratic volatility as the standard deviation of the residuals from the three-factor model regressions, and systematic volatility is measured as the difference between tVOL and iVOL. In Columns 2 and 3, the coefficient on POST x WIN is not statistically significant, indicating there is no change in idiosyncratic or systematic volatility for auction winners without SLAs. However, in Column 2, the negative coefficient on POST x WIN x LOSS SHARE is statistically significant, indicating that failed bank acquirers with SLAs realize a reduction in idiosyncratic volatility. To the extent that idiosyncratic volatility could be priced, as in Goyal and Santa-Clara (2003), the decline in idiosyncratic volatility realized by acquirers with SLAs may explain part of the divergence in returns between acquirers with SLAs and other failed bank auction participants. However, post-acquisition, there is no change in systematic volatility for acquirers with or without an SLA for the risk factors I consider.

As an alternative measure of systematic risk, I examine changes in the correlation between each participant's stock returns and the market (MKTBETA) over the same yearly intervals. In Table 8 Column 4, no coefficient demonstrates statistical significance. These results indicate that there are no differences between the betas of acquirers with SLAs, acquirers without SLAs, and losers. These similarities continue post-acquisition. The analysis in Table 8 suggests that in comparison to failed bank auction losers, failed bank acquirers with SLAs exhibit less idiosyncratic risk post-acquisition, though levels of systematic risk remain unchanged.

6.2.2 Accounting-based Measures of Lending Risk

One potential place acquirers with SLAs may have realized a decline in their idiosyncratic risk is their loan portfolios, since the presence of the SLA reduced both the downside losses and upside potential of the covered assets. To the extent that the FDIC guarantees the assets covered

under SLAs, it is possible that the lending portfolios of the failed bank acquirers became safer. However, adding a portfolio of troubled loans to a stable, existing loan portfolio may lead to an overall decline in the quality of the acquirers' portfolio. For example, even in in the presence of an SLA, post-acquisition, charge-off rates could increase if losses on SLAs assets are high enough to offset the coverage limits and bring down the overall quality of the aggregate loan portfolio. If poorer quality failed banks were sold to acquirers with accompanying SLAs, acquirers may realize greater levels of charge-offs and loan-loss reserves, indicating poorer performance in the loan portfolio post-acquisition. Alternatively, if the SLA made the loan portfolio safer, one would expect to see correspondingly lower levels of charge-offs and loan-loss reserves. To disentangle these explanations, I perform a bank-level analysis using Call Report data for all banks taking part in failed bank auctions and implement the alternative bank-level framework in Equation 3:

$$Dependent_{b,q} = \beta_1 POST \times WIN_b + \beta_2 POST \times WIN_b \times LOSSSHARE_b + \beta_3 BankControls_{b,q} + \beta_4 \nu_q + \beta_5 \psi_b + \epsilon_{b,q} \quad (3)$$

where $Dependent_{b,q}$ is the quarterly bank-level dependent variable of interest, WIN is an indicator variable indicating whether the bank won a failed bank auction, and LOSS SHARE is an indicator variable that takes a value of one if the acquiring bank has an SLA. I include year-quarter (ν_q) and bank-level (ψ_b) fixed effects which absorb the direct effects of POST and WIN respectively. *BankControls* is a vector of quarterly control variables that includes size (LNASSET) as well as non-performing loans (NONPERF), deposits (DEPOSITS), securities, consumer loans (CONSUMER), commercial and industrial loans (CANDI), construction and development loans (CANDD), commercial real estate loans (CRE), and real estate loans (REALESTATE), all scaled by total assets. Further details pertaining to the construction of these variables are in Appendix A.

Within this framework, I compare banks that lost failed banks auctions to those that won and became acquirers, with and without SLAs. I only allow each bank to enter the sample once as a winner or a loser, and losers never become subsequent winners. Banks become losers the first time they bid on a failed bank, and banks become winners the first time they acquire a failed bank. If acquirers win subsequent auctions, they remain winners in the sample since this panel analysis is

conducted at the quarterly level. For a given acquirer, shared-loss coverage is sticky over time. In the rare event where an acquirer acquires two banks within the same quarter, they are assigned a value of one for LOSS SHARE if at least one acquisition included an SLA.

I examine quarterly loan-loss reserves and charge-offs in Table 9. In Column 1, the coefficient on POST x WIN is negative and statistically significant, indicating that loan-loss reserves decrease for failed bank auction winners post-acquisition. However, when I break up auction winners into those with and without SLAs in Column 2, I find that while the coefficient on POST x WIN is no longer negative, the coefficient on POST x WIN x LOSS SHARE is negative and statistically significant. This indicates that auction winners with SLAs realize a decrease in loan-loss reserves, driving the aggregate results shown in Column 1. Columns 3 and 4 indicate that the pattern is consistent for charge-offs. These results suggest that the loan portfolios of acquiring banks with SLAs are becoming safer, as opposed to riskier.

The results presented in Sections 6.2.1 and 6.2.2 indicate that while some measures of risk in the lending portfolio decline, the most important equity-based risk measures relevant for long-term required returns, such as beta, do not decline for failed bank acquirers with SLAs relative to other auction participant. Taken together, these results suggest that it is unlikely that this long-run underperformance can be entirely attributed to a decline in the required return for these firms.

6.2.3 Post-Acquisition Earnings Announcements and Surprises

In this section, I analyze the extent to which market participants anticipate future failed bank participants' earnings by examining earnings surprises, as in LaPorta et al. (1997). In the presence of SLAs, market participants may be negatively (positively) surprised by acquirer earnings if the administrative burden is higher (lower) than anticipated or if the SLA insurance is less (more) valuable than it was perceived to be at the time of the acquisition. For example, both market participants and acquirers may have expectations of the value of the shared-loss coverage under a set of assumptions pertaining to the trajectory of the economic recovery. If the recovery was faster (slower) than anticipated, SLAs may have been less (more) valuable. Thus, over time, it is possible that market participants realize that acquirers overpaid for shared-loss coverage. If the divergence in long-run returns between acquirers with SLAs and auction losers is driven exclusively

by a risk-reduction story, there is no compelling reason for the returns around post-acquisition earnings announcements to be different from zero (in the absence of other events).

Within a given failed bank auction, acquirers with SLAs realize returns that are 27.8 percentage points lower than failed bank auction losers over the interval (0, 750). To quantify the extent to which the market was surprised by the future performance of failed bank auction participants, I examine the cumulative (FF-adjusted) abnormal returns (CARs) surrounding subsequent earnings announcements. For each failed bank auction participant, I calculate the three- and five-day returns surrounding the first post-acquisition earnings announcement (EAnext1). Then, I sum up the FF-adjusted CARs surrounding the subsequent four (EAnext4), eight (EAnext8), and twelve (EAnext12) earnings announcements using the same windows. Greater magnitudes indicate more surprises.

Using the same winner-loser empirical strategy from Equation 2, I present the results in Table 10. In Panels A and B, I examine the three- and five-day windows surrounding each earnings announcement, respectively. Panel A Column 1 indicates that in comparison to acquirers without SLAs and auction losers, the first earnings announcement return is 3.07 percentage points lower for acquirers with SLAs. This magnitude is economically large and statistically significant at the 10% level. In Panel B, I show that the analogous return is 2.83 percentage points lower when examining five-day windows, and while this magnitude continues to be economically meaningful, it is not statistically significant.

Column 2 indicates that the three- (five-) day cumulative returns surrounding the first four earnings announcements post-acquisition are 6.28 (7.19) percentage points lower for acquirers with SLAs relative to other auction participants. This represents approximately a quarter of the 27.8 percentage point divergence in returns between acquirers with SLAs and auction losers over the (0, 750) interval, indicating that market participants were negatively surprised by earnings of SLA acquirers over the four quarters following the acquisition. Over the next eight (twelve) quarters, this effect stays relatively stable, although the point estimates are not statistically significant, suggesting that market participants realize fewer subsequent surprises. In contrast, acquirers without SLAs realize relatively small premiums upon future earnings announcements.

In Table 10 Panel C, I examine whether analysts are surprised by the earnings announcements of failed bank auction participants. To calculate each quarterly earnings surprises (SUE), I use the IBES summary file to calculate the difference between the actual earnings per share and the analyst estimate and normalize this difference by the share price at the end of the previous quarter from CRSP.[26] Analyst-based earnings surprises (SUE) are widely considered to be the most accurate, both in content and time (Brown et al., 1987). In the second (q+2) and third (q+3) quarters post-acquisition, failed bank acquirers have negative analyst-based earnings surprises. This lines up with the timeline for the negative earnings announcement returns presented in Panels A and B.

One potential explanation for the negative earnings surprises and the corresponding negative returns is that, at the time of the acquisition, analysts get a coarse view of the SLA terms and hence believe that the benefits of the SLA offset any potential problems with the underlying troubled assets. This overestimate of the SLA benefits is revealed to be incorrect as evidenced by the negative earnings surprises. Over time, market participants realize that the net present value of acquiring these troubled assets with an SLA is lower than anticipated, as reflected by the negative returns around earnings announcements.

In the first year post-acquisition, the magnitude of the divergence in cumulative earnings announcement returns between acquirers with SLAs and other failed bank auction participants, coupled with the negative analyst-based earnings surprises, calls into question that the differences in three-year, post-acquisition cumulative returns can be exclusively attributed to a risk-reduction story. Instead, it appears as though the market is negatively surprised by earnings for the first-year post-acquisition, potentially because participants have learned that the costs (or benefits) associated with SLAs are higher (lower) than expected at the time of the acquisition. Taken together, the results in Table 10 suggest that the market participants did not fully anticipate the effects of SLAs on financial performance.

[26]Not all sample banks have analysts generating EPS forecasts each quarter, so the sample size is slightly reduced.

6.3 Administrative Burden

I use the term "administrative burden" as a catch-all term to describe all realized direct and opportunity costs that acquirers bear as a result of managing a failed bank with shared-loss coverage. The primary direct cost associated with managing an SLA is the non-trivial cost of additional staff needed to comply with the FDIC's monthly or quarterly monitoring and reporting mandates. According to Barba (2011), most (if not all) acquirers have entire teams dedicated to managing the assets under SLAs, such as the dedicated 45-member team put in place by Umpqua Holdings. David Provost, the CEO of First Michigan Bank in Troy, explains that these costs can be both difficult to estimate and substantial. "It is a long process and it takes a long time to understand the procedures and what the FDIC expected...It is not something for the faint of heart. We spent seven figures on getting the systems right," as cited in Barba (2011).

Banks also face indirect opportunity costs associated with SLAs. In discussing these costs, Steven R. Gardner, the CEO and President of Pacific Premier, specifically mentions "the cost of a lost opportunity for having these assets sit on our books for longer," as cited in Barba (2011). As discussed in Section 2.2, P&A Agreements with SLAs include language aligning the interests of the FDIC and acquirers, even though acquirers only internalize a small portion of the losses and recoveries. To encourage borrowers to work through potentially problematic loans and minimize overall losses, the FDIC has placed a variety of restrictions on the sale of assets, which could potentially have adverse effects for acquirers. Chris Myers, CEO and President of CVB, spoke about his frustrations negotiating a sale of SLA assets and said, "We, for the past year, have been pressing hard on the FDIC to allow us to sell these [Louisiana church] loans as opposed to have to go foreclose on these loans. You may not get to the finish line when you're going into Louisiana to foreclose on some local church," as cited in Barba (2012). By keeping these troublesome loans on their books, this may have implications for future acquirer business. For example, church members may choose not to bank with an entity that forecloses on their church. Alternatively, by holding onto the troublesome church loans, the bank may need to prioritize delegating its (potentially limited) resources to managing the loan, as opposed to making new potentially profitable ones. The most common reason banks give for terminating SLAs in their press releases is administrative burden.

Due to a lack of data availability, I am unable to quantify the direct or indirect administrative burden costs associated with managing SLA assets. From the FDIC side, James (1991) estimates that the FDIC's *direct* administrative expenses associated with bank closures average about 10% of failed bank assets for a sample of banks without SLAs, although conditional on a given pool of acquired assets, these costs are likely higher with the presence of SLAs. Since the FDIC realizes economies of scale in managing SLAs across multiple banks, it is likely that 10% is only a lower bound estimate for the costs acquirers bear. To the extent that these costs are anticipated, they should be priced at the time of the acquisition. However, given that acquirers may have difficulty estimating their own administrative costs, the market may also gain a better understanding of these direct and opportunity costs over time.

The administrative burden hypothesis implies that market participants make expectational errors regarding the extent of the administrative burden at the time of the acquisition and realize the true costs over time. To test this hypothesis, I follow LaPorta et al. (1997) and examine post-acquisition earnings announcement surprises in 6.2.3. Approximately one quarter of the three-year return differential between acquirers with SLAs and other auction participants can be attributed to earnings surprises that are systematically more negative for acquirers with SLAs. While many things could drive differences in earnings announcements, one possible explanation for the divergence in earnings announcement returns between acquirers with SLAs and other auction participants is that market participants had learned that the administrative burden associated with SLAs was higher than estimated at the time of the acquisition.

7 Robustness

7.1 Removing Losers that Become Winners

My analysis has indicated that failed bank auction losers outperform acquirers with SLAs in the long-run, though the result is opposite in the short run. A natural question is whether failed bank auction losers become subsequent winners. Since winners realize positive announcement day returns, it is possible that losers that become winners later realize these positive announcement-day returns, potentially driving the divergence in the long-run performance between winners and losers.

Occasionally, failed bank auction losers do become subsequent winners. In Table 11, I repeat the analysis in Section 5.1 but remove any losing banks that subsequently becomes winners within three years, and I show both the event-time portfolios and BHARs for all failed bank auction acquirers and acquirers with and without SLAs, consistent with Tables 5 and 6. However, I examine the subset of Losers that Never Win in Row 4. Compared to the full sample of failed bank auction losers shown in Tables 5 and 6, losers that never win realize even higher abnormal return, making the difference between all groups of auction winners and losers even more dramatic when the sub-sample of auction losers that later win are dropped. This analysis indicates that failed bank auction losers that later win do not drive the findings presented in Tables 5 and 6.

7.2 Comparison to Auction Losers Bidding with SLAs

One alternative explanation for the divergence in long-run abnormal returns between failed bank acquirers with SLAs and failed bank auction losers is that acquirers with shared-loss coverage may differ from auction losers along unobservable dimensions that may drive the decision to include shared-losses in their bids. For example, acquirers that included SLAs in their bids may have had a lower overall appetite for risk, and this may have resulted in lower long-run returns even in the absence of the acquisition with the SLA. Thus, a more relevant comparison group for winners with SLAs may be auction losers that bid with SLAs, since both groups of auction participants were willing to acquirer the failed bank in the presence of the SLA. In Table 12, I show the long-run returns to the 257 auction losers with Shared-Loss bids within both event-time and BHAR frameworks and show that the results are similar in magnitude to when the full sample of failed bank auction losers are examined within the event-time portfolio or BHAR frameworks presented in Tables 5 and 6.

7.3 Alternative Benchmarks

For all analysis in this study, abnormal returns are computed using the three factors from Fama and French (1993). Results are similar when a fourth momentum factor (Carhart, 1997) is implemented. I present the baseline results implementing this additional factor in the Internet Appendix.

8 Conclusion

Using a proprietary set of data from FDIC failed bank auctions, I examine whether acquiring a failed bank with an SLA creates long-run value for acquirer shareholders. For identification, I use the post-acquisition performance of both failed bank auction losers and acquirers without SLAs as a counterfactual. This data set allows me to observe all failed bank auction participants at every stage of the auction process, including those that are only observable to the regulator. Thus, I am able to use the loser's post-acquisition performance to construct the counterfactual performance of the winners, had they not acquired the failed bank.

While failed bank auction winners with SLAs outperform auction losers in the short-run, this trend reverses in the long-run. These results are similar using a buy-and-hold abnormal return framework and an event-time portfolio framework, and they are not driven by failed bank auction losers that become subsequent winners. The same pattern is also present when acquirers with SLAs are compared to failed bank auction losers bidding with SLAs.

In subsequent analysis, I empirically explore whether the divergence in long-run abnormal returns between failed bank acquirers with SLAs and other bidders is a manifestation of overpayment consistent with the winner's curse, a reduction in risk, or a meaningful increase in administrative burden. Inconsistent with the presence of the winner's curse, I find no evidence that abnormal returns are meaningfully related to bidder competition at any stage of the auction process, including those that are only observable to the regulator.

Subsequently, I show that within the first year post-acquisition, the market responds negatively to earnings announcements and that there are negative analyst-based earnings surprises during this time period. This could indicate that market participants may be learning that the costs (or benefits) of SLAs are higher (or lower) than anticipated at the time of the acquisition. Overall, this suggests that any potential risk-reduction may not fully drive the divergence in long-run returns between acquirers with SLAs and other failed bank auction participants and that investors do not fully anticipate the effects of SLAs on financial performance.

The effectiveness of resolution strategies is a primary concern to governments and regulators worldwide, and this study has meaningful implications for those tasked with maintaining

financial stability. While governments around the world have proposed asset guarantees as an alternative capital injections for solving complex financial institutions going forward, little is known regarding the effect that asset guarantees have on acquirers. I provide the first comprehensive study examining impact of guaranteed assets on acquirers within the failed bank setting. By gaining a better understanding of long-run acquirer outcomes, governments can use this information to anticipate the propensity for acquirers to acquire guaranteed assets and ultimately improve their least cost estimates for resolutions.

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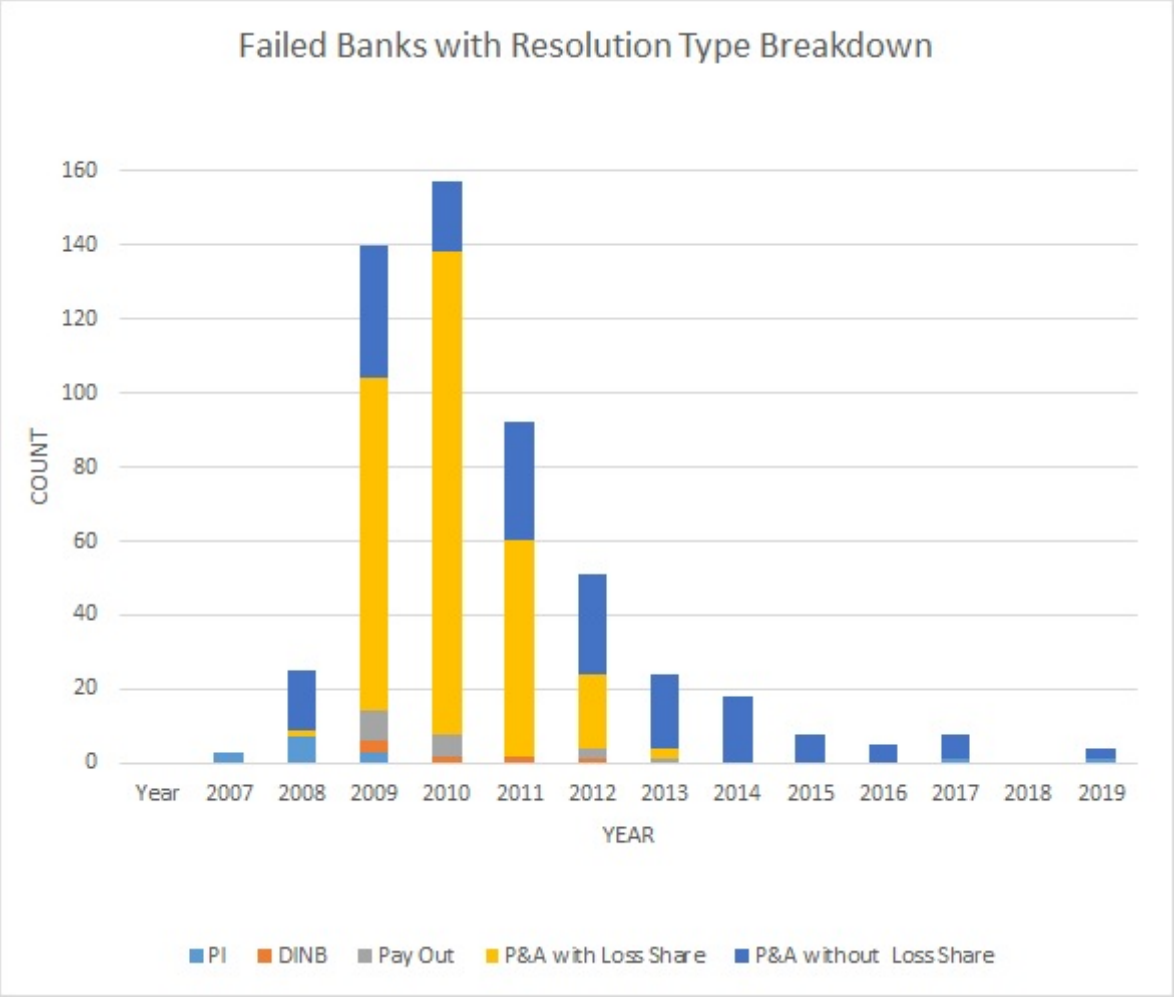
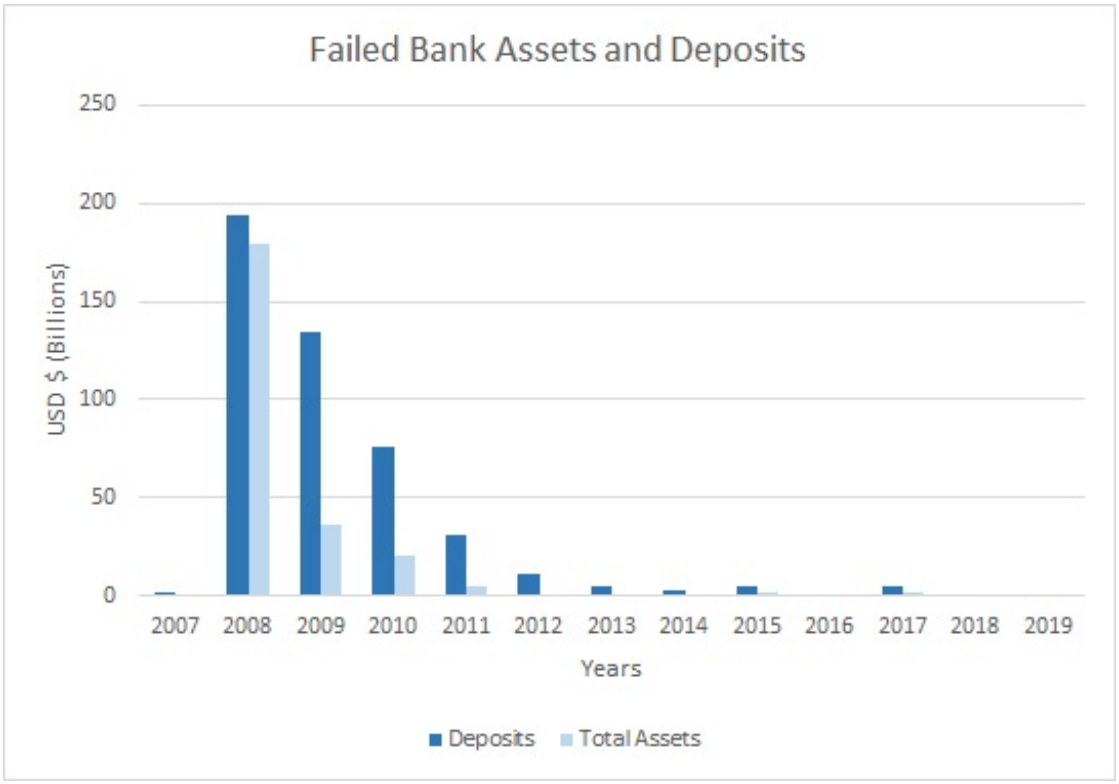
Figure 1. Failed Bank Resolution Types. This figure displays a breakdown of the total bank failures each year broken down by failure type. PI (Purchase of Insured Deposits) transactions are acquisitions of insured deposits only, Deposit Insurance National Bank (DINB) is a payout where the failed bank comes under receivership and remains open under the supervision of the FDIC with a new title. Customers are given a time period to transfer out deposits under a specified threshold, while assets of the failed institution remain in the possession of the FDIC until they are later dispersed. A Pay Out occurs when the insurer paid the deposits directly and placed the assets in a liquidating receivership. A Purchase and Assumption with Loss Share (PA with Loss Share) or without Loss Share (PA without Loss Share) is a resolution where deposits, certain other liabilities and a portion (or all) of the assets were sold to an acquirer.

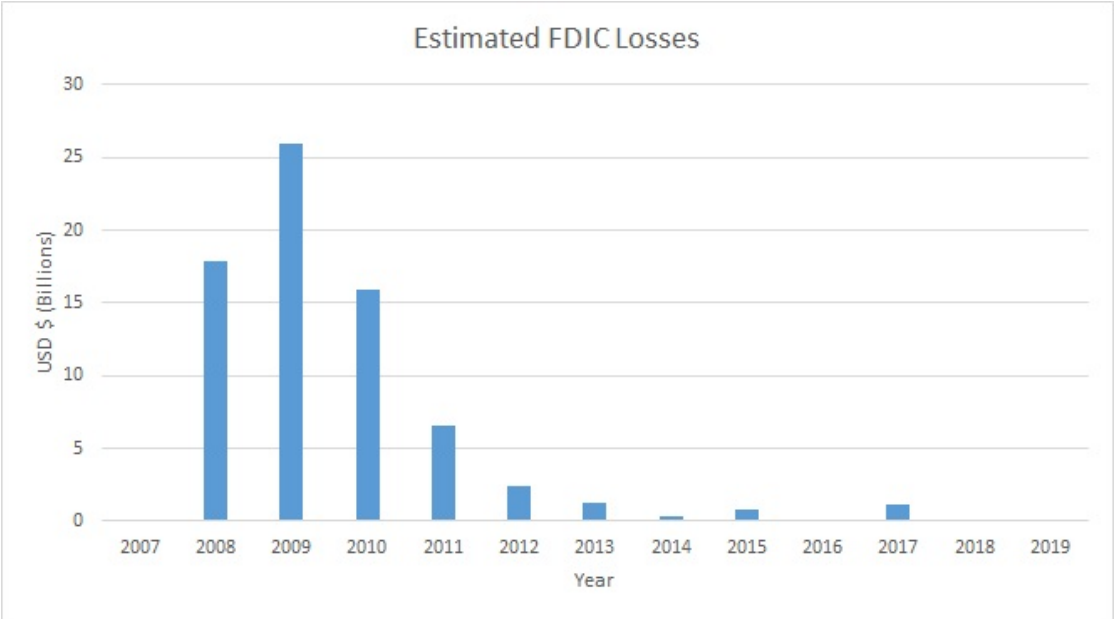


(a)

Figure 2. Failed Bank Assets, Deposits, and FDIC losses. Subfigure A shows the total number of failed bank assets and deposits for all bank failures in a given year. Subfigure B shows the most recent FDIC cost estimates associated with failed banks in a given year.

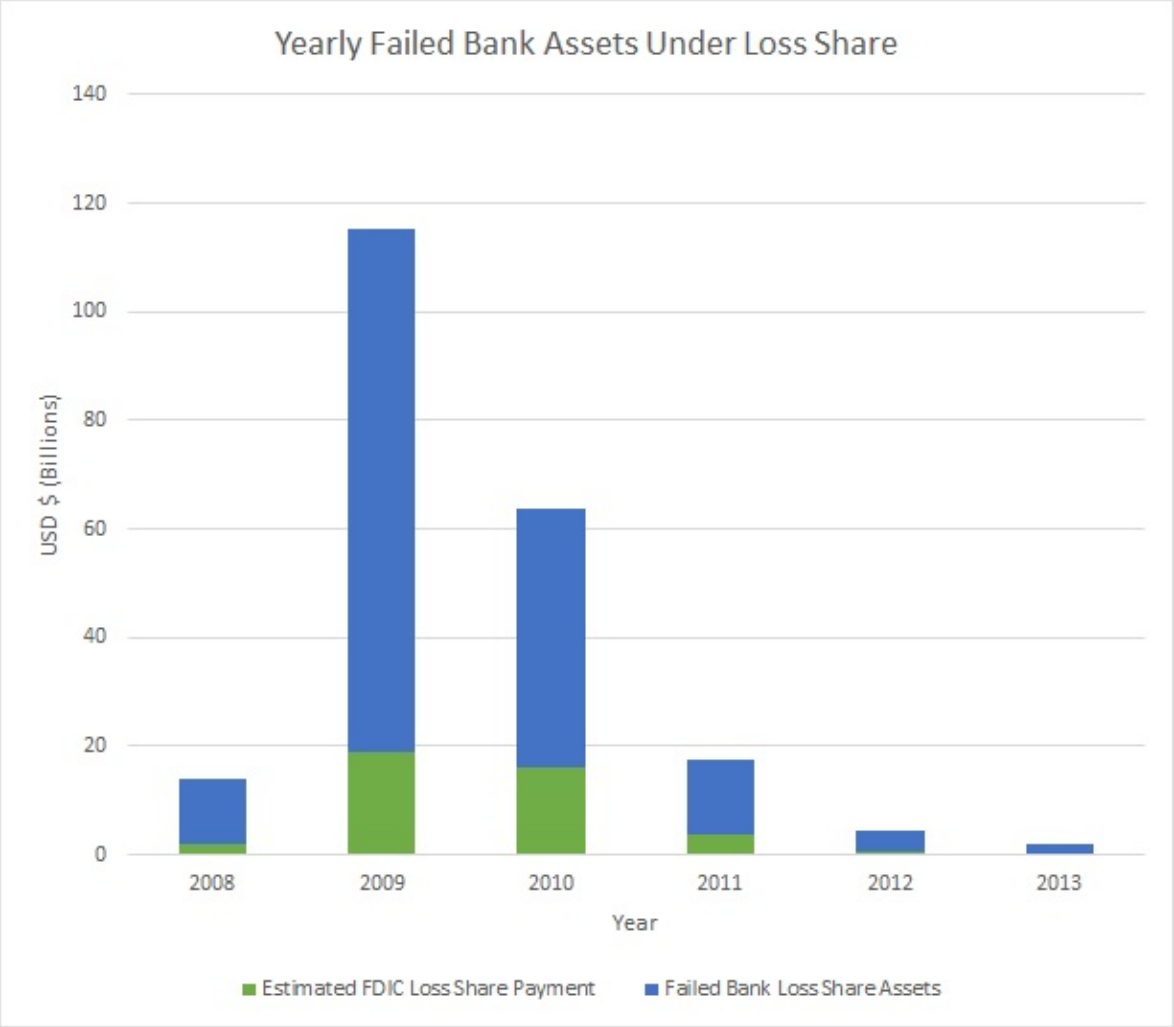


(a)



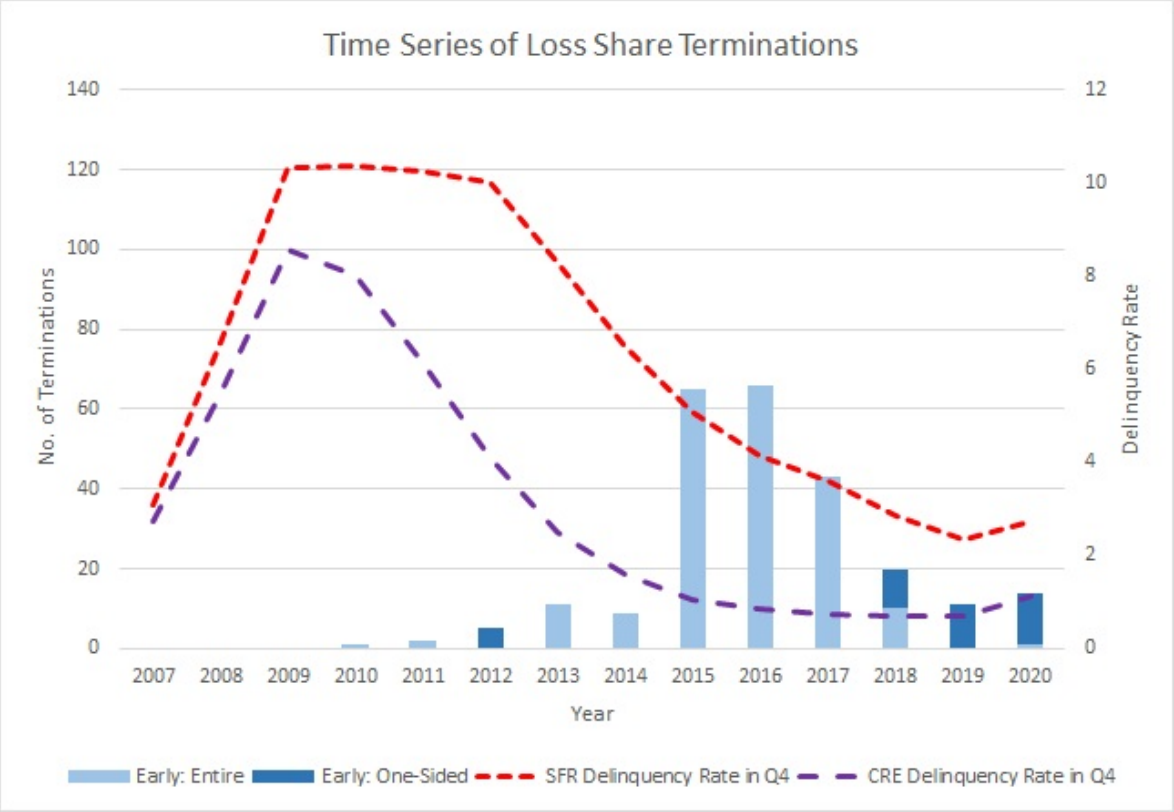
(b)

Figure 3. Failed Bank Assets under Loss Share. This Figure shows the total number of assets under Loss Share for bank failures in a given year. The FDIC's estimated Loss Share Payment is also shown.



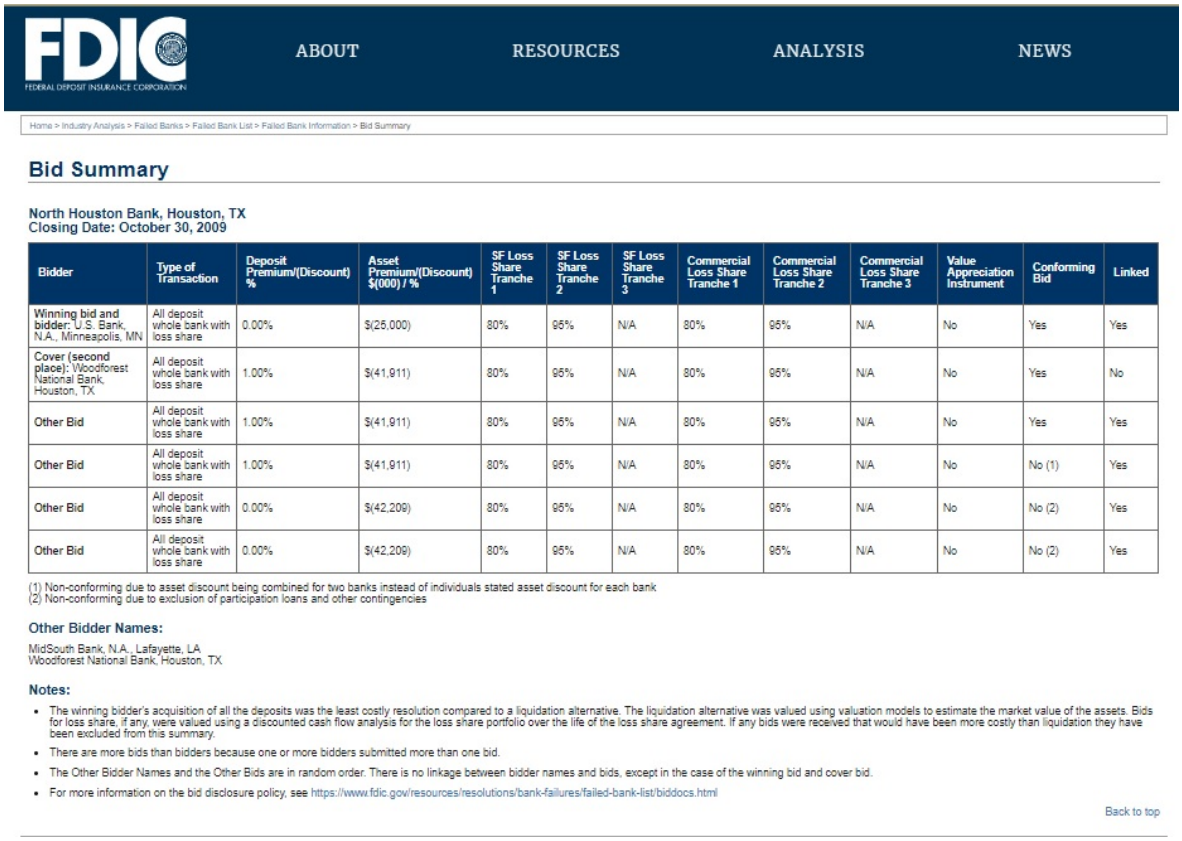
(a)

Figure 4. Loss Share Terminations. This figure depicts the time series of bank failure terminations with sing-family residential and commercial real estate delinquency rates. The bars represent the yearly number of early Loss Share termination. The early terminations are separated into terminations of the entire agreement and terminations that are one-sided (either Single-Family Residential or Non Single-Family Residential). The fourth fourth quarter single family residential and commercial real estate delinquency rates in each year are also shown.



(a)

Figure 5. Failed Bank Bid Summary Example. This figure displays an example of a public Failed Bank Bid Summary for North Houston Bank, which closed on October 30, 2009.



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Bid Summary

North Houston Bank, Houston, TX
Closing Date: October 30, 2009

Bidder	Type of Transaction	Deposit Premium/(Discount) %	Asset Premium/(Discount) $(000) / %	SF Loss Share Tranche 1	SF Loss Share Tranche 2	SF Loss Share Tranche 3	Commercial Loss Share Tranche 1	Commercial Loss Share Tranche 2	Commercial Loss Share Tranche 3	Value Appreciation Instrument	Conforming Bid	Linked
Winning bid and bidder: U.S. Bank, N.A., Minneapolis, MN	All deposit whole bank with loss share	0.00%	$(25,000)	80%	95%	N/A	80%	95%	N/A	No	Yes	Yes
Cover (second place): Woodforest National Bank, Houston, TX	All deposit whole bank with loss share	1.00%	$(41,911)	80%	95%	N/A	80%	95%	N/A	No	Yes	No
Other Bid	All deposit whole bank with loss share	1.00%	$(41,911)	80%	95%	N/A	80%	95%	N/A	No	Yes	Yes
Other Bid	All deposit whole bank with loss share	1.00%	$(41,911)	80%	95%	N/A	80%	95%	N/A	No	No (1)	Yes
Other Bid	All deposit whole bank with loss share	0.00%	$(42,209)	80%	95%	N/A	80%	95%	N/A	No	No (2)	Yes
Other Bid	All deposit whole bank with loss share	0.00%	$(42,209)	80%	95%	N/A	80%	95%	N/A	No	No (2)	Yes

(1) Non-conforming due to asset discount being combined for two banks instead of individuals stated asset discount for each bank
(2) Non-conforming due to exclusion of participation loans and other contingencies

Other Bidder Names:

MidSouth Bank, N.A., Lafayette, LA
Woodforest National Bank, Houston, TX

Notes:

- The winning bidder's acquisition of all the deposits was the least costly resolution compared to a liquidation alternative. The liquidation alternative was valued using valuation models to estimate the market value of the assets. Bids for loss share, if any, were valued using a discounted cash flow analysis for the loss share portfolio over the life of the loss share agreement. If any bids were received that would have been more costly than liquidation they have been excluded from this summary.
- There are more bids than bidders because one or more bidders submitted more than one bid.
- The Other Bidder Names and the Other Bids are in random order. There is no linkage between bidder names and bids, except in the case of the winning bid and cover bid.
- For more information on the bid disclosure policy, see https://www.fdic.gov/resources/resolutions/bank-failures/failed-bank-list/biddocs.html

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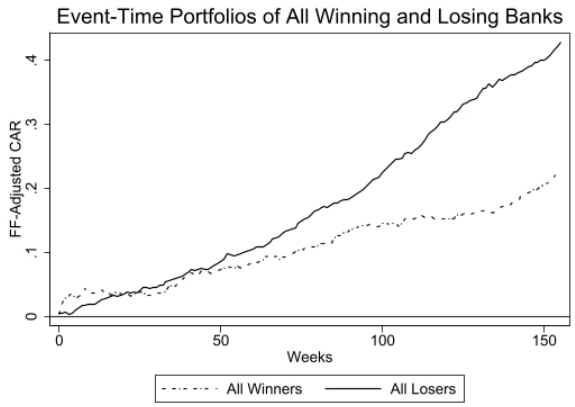
(a)

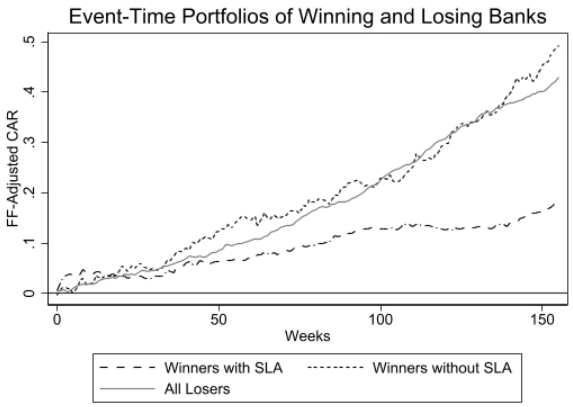
Table 1. Failed Bank Statistics. For each year indicated in Column 1, this table shows the total number of failed banks, the total failed bank assets in millions, the total failed bank deposits in millions, the total number auctions used in the paper's analysis, and the total number of sample auctions with Shared-Loss Agreements (SLAs). After November 12, 2009, as the result of a Freedom of Information (FOIA) request, information pertaining to failed bank auction winners and losers were made public. Prior to November 12, 2009, only failed bank auction winners were made public in real time.

Year	Failed Banks	Resolved with SLAs	Failed Bank Assets ($ millions)	Failed Bank Deposits ($ millions)	Sample Auctions	Sample Auctions with SLAs
2000	2					
2001	4		2,358.60	1,652.00		
2002	11		2,705.40	2,328.20		
2003	3		1,045.20	902.90		
2004	4		163.10	149.90		
2005	0		0.00	0.00		
2006	0		0.00	0.00		
2007	3		2,602.50	2,388.00		
2008	25	4	373,588.80	234,160.60		
2009	140	90	170,909.40	137,351.70	13	11
2010	157	130	96,514.00	81,121.80	99	91
2011	92	57	36,012.20	32,058.20	69	50
2012	51	20	12,055.80	11,303.20	41	19
2013	24	3	6,101.70	5,119.30	15	1
2014	18		3,088.40	2,853.00	11	
2015	8		6,727.50	4,899.80	6	
2016	5		278.80	268.60		
2017	8		6,530.70	5,243.50		
2019	4		214.10	195.20		
2020	4		458.00	434.80		
Total	563	304	721,354.20	522,430.70	254	172

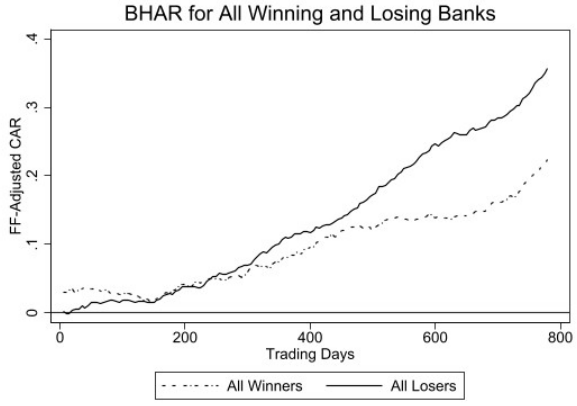
Figure 6. Cumulative Abnormal Returns for Failed Bank Auction Winners and Losers. Subfigure a shows the Fama-French adjusted cumulative abnormal returns to weekly event time portfolios that consist of failed bank auction winners (winners) and banks that bid for failed banks, yet lose the failed bank auctions (losers) where time is measured in weeks. In subfigure b, winners are shown decomposed into those with and without Shared-Loss Agreements. Subfigure c shows the Fama-French adjusted cumulative buy-and-hold abnormal returns for failed bank auction winners (winners) and banks that bid for failed banks, yet lose the failed bank auctions (losers) where time is measured in trading days. In subfigure b, winners are shown decomposed into those with and without Shared-Loss Agreements.



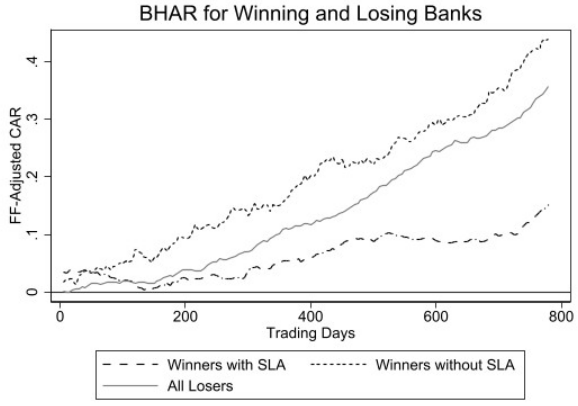
(a)



(b)



(c)



(d)

Table 2. Loss Share Terminations. This Table summarizes Shared-Loss Agreement terminations by year. The total count of terminations are in Column 2, and they are broken down between early terminations of the entire agreement (Column 3) or one side of the agreement (Column 4). Columns 5 and 6 indicate the count and amount of terminations that had payments from the acquirer to the FDIC. Columns 7 and 8 indicate the count and amount of terminations that had payments from the FDIC to the acquirer. Column 9 reports the number of terminations without payments.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All Early	Early Termination		Pmt from Acquirer to FDIC		Pmt from FDIC to Acquirer		No Pmt
Year	Terminations	Entire	One Side	Count	Amount ($ million)	Count	Amount ($ million)	Count
2010	1	1				1	13.30	
2011	2	2				2	15.10	
2012	5		5			5	5.13	
2013	11	11				11	23.10	
2014	9	9				8	51.80	1
2015	65	65		20	26.10	42	80.20	3
2016	66	66		24	58.40	41	76.40	1
2017	43	43		21	9.63	20	41.30	2
2018	20	10	10	4	1.70	12	160.00	4
2019	11	0	11	1	0.01	7	78.00	3
2020	14	1	13	1	0.19	10	23.50	3
Total	247	208	39	71	96.03	159	567.83	17

Table 3. Summary Statistics. Panel A displays summary statistics for the auction-level variables within the sample. Panel B contains information pertaining to quarterly bidder-level variables, and Panel C contains summary statistics for the failed banks pertaining to the auctions in the sample. For each variable of interest, the name (Column 1), mean (Column 2), standard deviation (Column 3), and values at the 25th, 50th, and 75th percentiles (Columns 4-6) are displayed. The number of observations is presented in Column 7. All variables are defined in Appendix A.

Panel A: Auction-Level Characteristics						
(1) Variable	(2) Mean	(3) SD	(4) p25	(5) p50	(6) p75	(7) N
LOSS SHARE	0.6772	0.4685	0	1	1	254
BIDS	6.4724	4.4006	3	6	8	254
BIDDERS	3.1063	1.7379	2	3	4	254
DUE DILLIGENCE	5.0276	2.1272	3	5	7	254
INTERESTED	6.0551	2.8846	4	6	8	254
SOLICITATIONS	373.2362	120.8009	302	372	440	254
Panel B: Bidder Characteristics						
B_ASSET (thousands)	9,679,470	32,800,000	2,127,462	3,315,244	5,141,858	485
B_LNASSET (thousands)	15.1130	1.0913	14.5704	15.0140	15.4529	485
B_DEPOSIT	0.7938	0.0657	0.7692	0.8060	0.8391	485
B_BROKERED	0.0421	0.0826	0.0091	0.0208	0.0450	485
B_NONCORE	0.2459	0.0875	0.1964	0.2333	0.2999	485
B_RESERVE	0.0114	0.0043	0.0086	0.0107	0.0140	485
B_CHARGEOFF	0.0019	0.0024	0.0007	0.0012	0.0026	485
B_PD90	0.0053	0.0115	0.0000	0.0008	0.0046	485
B_NONPERF	0.0476	0.0307	0.0248	0.0397	0.0675	485
B_EQUITY	0.1130	0.0220	0.0950	0.1139	0.1274	485
B_SECURITIES	0.1656	0.0781	0.1136	0.1500	0.1950	485
B_CONSUMER	0.0440	0.0716	0.0095	0.0186	0.0425	485
B_CANDI	0.0884	0.0653	0.0420	0.0629	0.1179	485
B_CANDD	0.0799	0.0545	0.0406	0.0604	0.1215	485
B_CRE	0.0021	0.0055	0.0000	0.0000	0.0010	485
B_REALESTATE	0.5116	0.1225	0.4336	0.5287	0.6141	485
B_OREO	0.0113	0.0099	0.0039	0.0085	0.0177	485
B_LIQUID	0.2342	0.0943	0.1738	0.2196	0.2737	485
B_LOANDISTANCE	0.3726	0.2110	0.2184	0.3155	0.4704	485
Panel C: Failed Bank Characteristics						
F_ASSET (thousands)	449,513	618,560	135,688	240,084	489,019	254
F_LNASSET (thousands)	12.4662	1.0225	11.8181	12.3887	13.1002	254
F_DEPOSIT	0.9186	0.0732	0.8787	0.9370	0.9710	254
F_BROKERED	0.0564	0.0923	0.0000	0.0201	0.0761	254
F_NONCORE	0.3383	0.1420	0.2318	0.3429	0.4333	254
F_RESERVE	0.0325	0.0170	0.0207	0.0301	0.0401	254
F_CHARGEOFF	0.0092	0.0115	0.0017	0.0050	0.0130	254
F_PD90	0.0040	0.0096	0.0000	0.0000	0.0035	254
F_NONPERF	0.2049	0.0920	0.1397	0.1876	0.2631	254
F_EQUITY	0.0090	0.0228	0.0026	0.0107	0.0199	254
F_SECURITIES	0.0902	0.0742	0.0269	0.0786	0.1291	254
F_CONSUMER	0.0106	0.0119	0.0025	0.0067	0.0140	254
F_CANDI	0.0738	0.0649	0.0311	0.0550	0.0948	254
F_CANDD	0.1208	0.0824	0.0641	0.1033	0.1663	254
F_CRE	0.0026	0.0081	0.0000	0.0000	0.0000	254
F_REALESTATE	0.6087	0.1104	0.5343	0.6161	0.6843	254
F_OREO	0.0577	0.0515	0.0212	0.0451	0.0774	254
F_LIQUID	0.2230	0.0815	0.1587	0.2125	0.2657	254

Table 4. Comparison of Failed Bank Auction Winners and Losers. In Panel A, all failed bank auction participants are separated into winners and losers, and summary statistics for each characteristic are displayed. In Panel B, failed bank auction winners with Shared-Loss Agreements (SLAs) are compared to failed bank auction losers who included SLAs in their bids but did not win the auction. Column 1 indicates the variable of interest. Columns 2-4 present the means, standard deviations, and number of observations associated with the auction winners in the sample. Columns 5 through 7 provide corresponding summary statistics for failed bank auction losers. The difference in means between the two groups (Column 8), the two-tailed test-statistic (Column 9), and associated p-value (Column 10), are also shown. Aside from B_LNASSET and B_LOANDISTANCE, all other variables are normalized by total assets, and all variables are defined in more depth in Appendix A

Panel A: All Auction Winners and All Auction Losers									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	All Auction Winners			All Auction Losers			Difference		
	Mean	SD	N	Mean	SD	N	in Means	t-stat	p-value
B_LNASSET (thousands)	15.0496	1.2260	134	15.1372	1.0362	351	-0.0876	-0.7904	0.4297
B_DEPOSIT	0.8015	0.0660	134	0.7908	0.0654	351	0.0106	1.5978	0.1107
B_BROKERED	0.0437	0.0595	134	0.0415	0.0900	351	0.0022	0.2634	0.7924
B_NONCORE	0.2446	0.0894	134	0.2464	0.0868	351	-0.0018	-0.1989	0.8424
B_RESERVE	0.0119	0.0044	134	0.0113	0.0042	351	0.0006	1.4973	0.1350
B_CHARGEOFF	0.0020	0.0015	134	0.0019	0.0026	351	0.0001	0.5532	0.5804
B_PD90	0.0054	0.0125	134	0.0053	0.0111	351	0.0001	0.1190	0.9054
B_EQUITY	0.1116	0.0244	134	0.1135	0.0210	351	-0.0019	-0.8560	0.3924
B_SECURITIES	0.1646	0.0742	134	0.1660	0.0797	351	-0.0014	-0.1736	0.8622
B_LIQUID	0.2398	0.0837	134	0.2320	0.0981	351	0.0078	0.8158	0.4150
B_LOANDISTANCE	0.3872	0.2007	134	0.3670	0.2148	351	0.0202	0.9428	0.3463
B_CONSUMER	0.0434	0.0684	134	0.0442	0.0728	351	-0.0008	-0.1123	0.9106
B_CANDI	0.1021	0.0664	134	0.0832	0.0642	351	0.0189	2.8634	0.0044
B_CANDD	0.0695	0.0459	134	0.0839	0.0569	351	-0.0145	-2.6289	0.0088
B_CRE	0.0027	0.0073	134	0.0018	0.0046	351	0.0009	1.5732	0.1163
B_REALESTATE	0.5024	0.1101	134	0.5152	0.1269	351	-0.0128	-1.0255	0.3056
B_OREO	0.0101	0.0103	134	0.0117	0.0097	351	-0.0016	-1.6072	0.1087
Panel B: Auction Participants Bidding with Loss Share									
	Auction Winners with SLAs			All Auction Losers All with SLAs			Difference		
	Mean	SD	N	Mean	SD	N	in Means	t-stat	p-value
B_LNASSET (thousands)	15.0352	1.0336	101	15.1278	1.0104	257	-0.0925	-0.7748	0.4390
B_DEPOSIT	0.8062	0.0565	101	0.7997	0.0509	257	0.0065	1.0541	0.2925
B_BROKERED	0.0448	0.0578	101	0.0396	0.0883	257	0.0052	0.5461	0.5854
B_NONCORE	0.2448	0.0841	101	0.2469	0.0824	257	-0.0021	-0.2138	0.8308
B_RESERVE	0.0121	0.0045	101	0.0117	0.0041	257	0.0004	0.7852	0.4328
B_CHARGEOFF	0.0022	0.0016	101	0.0021	0.0029	257	0.0001	0.2174	0.8281
B_PD90	0.0061	0.0138	101	0.0057	0.0121	257	0.0004	0.2846	0.7761
B_EQUITY	0.1105	0.0221	101	0.1129	0.0199	257	-0.0024	-0.9999	0.3180
B_SECURITIES	0.1670	0.0768	101	0.1618	0.0772	257	0.0053	0.5811	0.5615
B_LIQUID	0.2440	0.0863	101	0.2289	0.0971	257	0.0151	1.3634	0.1736
B_LOANDISTANCE	0.3874	0.2068	101	0.3609	0.2114	257	0.0266	1.0768	0.2823
B_CONSUMER	0.0435	0.0642	101	0.0433	0.0696	257	0.0002	0.0291	0.9768
B_CANDI	0.1017	0.0690	101	0.0820	0.0618	257	0.0197	2.6302	0.0089
B_CANDD	0.0759	0.0479	101	0.0919	0.0568	257	-0.0160	-2.4954	0.0130
B_CRE	0.0028	0.0079	101	0.0019	0.0043	257	0.0009	1.3899	0.1654
B_REALESTATE	0.4957	0.1069	101	0.5131	0.1252	257	-0.0173	-1.2247	0.2215
B_OREO	0.0111	0.0106	101	0.0132	0.0101	257	-0.0021	-1.7662	0.0782

Table 5. Event-Time Portfolios. This table shows the cumulative Fama and French (1993) returns to equally-weighted event-time portfolios of failed bank auction winners, winners with Loss Share, winners without Loss Share, and losers over various horizons. Panel A shows the FF-adjusted returns over windows prior to the failed bank announcement date, and Panel B shows the cumulative FF-adjusted returns to weekly portfolios over various horizons post-acquisition announcement. Heteroscedasticity-consistent standard errors are utilized, and t-statistics are presented in parentheses. Significance is denoted by * p <0.10, ** p < 0.05, and *** p<0.01.

Panel A: Pre-Acquisition Weekly Event-Time Portfolios					
	(1) Two Weeks Prior	(2) 3 Months Prior	(3) 6 Months Prior	(4) One Year Prior	(5) Two Years Prior
Auction Winners (1)	0.00245	0.0195*	0.0487***	0.0604***	0.0797**
	(0.52)	(1.71)	(2.98)	(2.65)	(2.13)
Auction Winners With Loss Share (2)	0.00380	0.0134	0.0419**	0.0249	0.0444
	(0.64)	(1.01)	(2.35)	(1.08)	(0.99)
Auction Winners Without Loss Share (3)	-0.00344	0.0352	0.0673	0.169**	0.186**
	(-0.45)	(1.46)	(1.63)	(2.75)	(2.77)
Auction Losers (4)	0.00635	0.0199**	0.0232**	0.0221	0.112***
	(1.63)	(2.34)	(2.02)	(1.22)	(4.77)
(1) - (4)	-0.00389	-0.000436	0.0255	0.0384	-0.0342
	(-0.64)	(-0.03)	(1.28)	(1.32)	(-0.77)
(2) - (4)	-0.00254	-0.00654	0.0187	0.00286	-0.0620
	(-0.36)	(-0.41)	(0.88)	(0.10)	(-1.20)
(3) - (4)	-0.00978	0.0153	0.0441	0.147**	0.0502
	(-1.16)	(0.60)	(1.05)	(2.33)	(0.74)
Panel B: Post-Acquisition Weekly Event-Time Portfolios					
	Week 1	Two Weeks	One Year	Two Years	Three Years
Auction Winners (1)	0.00293	0.0196***	0.0807***	0.154***	0.254***
	(0.90)	(3.66)	(3.64)	(5.46)	(5.77)
Auction Winners With Loss Share (2)	0.00463	0.0226***	0.0660***	0.129***	0.179***
	(1.17)	(3.46)	(2.66)	(4.75)	(4.08)
Auction Winners Without Loss Share (3)	-0.00408	0.00831	0.129**	0.235***	0.493***
	(-0.58)	(0.95)	(2.49)	(2.86)	(4.53)
Auction Losers (4)	0.00480*	0.00431	0.0891***	0.241***	0.429***
	(1.79)	(1.25)	(6.05)	(11.60)	(11.73)
(1) - (4)	-0.00188	0.0152**	-0.00843	-0.0880**	-0.176***
	(-0.44)	(2.40)	(-0.32)	(-2.52)	(-3.07)
(2) - (4)	-0.000175	0.0183**	-0.0232	-0.113***	-0.250***
	(-0.04)	(2.48)	(-0.81)	(-3.31)	(-4.38)
(3) - (4)	-0.00888	0.00400	0.0399	-0.00680	0.0640
	(-1.20)	(0.43)	(0.75)	(-0.08)	(0.57)

Table 6. Buy-and-Hold Abnormal Returns. This table reports the OLS results for the cumulative Fama and French (1993) buy-and-hold abnormal returns to failed bank auction winners and losers (Rows 1 and 4). Subsequently, winners are partitioned into winners with Loss Share (Row 2) and without Loss Share (Row 3). Abnormal returns over an (m, n) event window around the announcement date ($AR_{(m,n)}$) are defined in Appendix A. Heteroscedasticity-consistent standard errors are utilized, and t-statistics are presented in parentheses. Significance is denoted by * p <0.10, ** p < 0.05, and *** p<0.01.

	(1)	(2)	(3)	(4)	(5)
	$AR_{(-63,-1)}$	$AR_{(-2,2)}$	$AR_{(0,250)}$	$AR_{(0,500)}$	$AR_{(0,750)}$
Auction Winners (1)	0.0124	0.0310***	0.0490**	0.120***	0.195***
	(1.16)	(5.98)	(2.26)	(4.40)	(4.82)
Auction Winners With Loss Share (2)	0.0101	0.0350***	0.0284	0.0874***	0.122***
	(0.79)	(5.38)	(1.15)	(3.07)	(2.89)
Auction Winners Without Loss Share (3)	0.0196	0.0186***	0.112**	0.221***	0.416***
	(0.99)	(2.88)	(2.50)	(3.31)	(4.55)
Auction Losers (4)	0.0203***	-0.000708	0.0530***	0.173***	0.320***
	(3.37)	(-0.32)	(4.27)	(9.96)	(12.23)
(1) - (4)	-0.00789	0.0317***	-0.00404	-0.0530	-0.125**
	(-0.67)	(6.61)	(-0.17)	(-1.61)	(-2.55)
(2) - (4)	-0.0102	0.0357***	-0.0246	-0.0858**	-0.198***
	(-0.78)	(6.63)	(-0.92)	(-2.39)	(-3.68)
(3) - (4)	-0.000687	0.0193***	0.0590	0.0477	0.0961
	(-0.03)	(2.59)	(1.38)	(0.79)	(1.07)

Table 7. Winner-Loser Strategy and Bidder Competition. This table reports the OLS results for the cumulative Fama and French (1993) returns over an (m, n) event window surrounding the failed bank acquisition announcement date ($AR_{(m,n)}$). The variable WIN is an indicator variable that takes the value of one if a given bank wins the failed bank auction. LOSS SHARE is an indicator variable that takes a value of one if an acquisition is made with a Loss Share arrangement. BIDS is a count variable representing the number of bids within a failed bank auction. BIDDERS, DUE DILIGENCE, INTERESTED, and SOLICITATIONS are count variables that represent the number of banks submitting bids, formally declaring interest, performing due diligence, and being solicited. All variables are defined in Appendix A. Failed bank auction fixed effects are included in all regressions. Heteroscedasticity-consistent standard errors are utilized, and t-statistics are presented in parentheses. Significance is denoted by * p <0.10, ** p < 0.05, and *** p<0.01.

Panel A: Daily Returns Surrounding Acquisition Announcement							
	(1) $AR_{(-2)}$	(2) $AR_{(-1)}$	(3) $AR_{(0)}$	(4) $AR_{(1)}$	(5) $AR_{(2)}$	(6) $AR_{(3)}$	(7) $AR_{(-1,1)}$
WIN	0.00286	0.00513	0.00823	0.0180***	0.00115	.000393	.0239***
	(0.56)	(1.14)	(0.22)	(3.33)	(0.26)	(0.13)	(2.75)
WIN x LOSS SHARE	-0.000240	0.000322	0.00472	-0.000571	0.00518	0.000284	0.00438
	(-0.04)	(0.06)	(1.03)	(-0.07)	(0.93)	(0.07)	(0.40)
Auction FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	485	485	485	485	485	485	485
R-squared	0.686	0.605	0.649	0.691	0.546	0.645	0.671
Panel B: Short-Run Windows							
	$AR_{(-2,2)}$	$AR_{(-2,2)}$	$AR_{(-2,2)}$	$AR_{(-2,2)}$	$AR_{(-2,2)}$	$AR_{(-2,2)}$	$AR_{(-2,2)}$
WIN	0.0348***	0.0279**	0.0387**	0.0593**	0.0590**	0.0350*	0.0594*
	(4.97)	(2.57)	(2.16)	(2.47)	(2.44)	(1.74)	(1.90)
WIN x LOSS SHARE		0.00988	0.00681	0.00389	0.00580	0.0103	0.00663
		(0.71)	(0.46)	(0.27)	(0.41)	(0.75)	(0.52)
WIN x BIDS			-0.00120				
			(-0.93)				
WIN x BIDDERS				-0.00680			
				(-1.62)			
WIN x Due DILLIGENCE					-0.00501		
					(-1.59)		
WIN x INTERESTED						-0.00109	
						(-0.46)	
WIN x SOLICITATIONS							-0.0000837
							(-1.00)
Auction FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	485	485	485	485	485	485	485
R-squared	0.638	0.639	0.641	0.644	0.644	0.640	0.643
Panel C: Long-Run Windows							
	$AR_{(3,750)}$	$AR_{(3,750)}$	$AR_{(3,750)}$	$AR_{(3,750)}$	$AR_{(3,750)}$	$AR_{(3,750)}$	$AR_{(3,750)}$
WIN	-0.143**	0.0538	0.127	0.187	0.286	0.198	0.0335
	(-2.34)	(0.52)	(0.91)	(0.97)	(1.44)	(1.27)	(0.15)
WIN x LOSS SHARE		-0.280**	-0.301**	-0.305**	-0.310**	-0.272**	-0.278**
		(-2.20)	(-2.34)	(-2.33)	(-2.49)	(-2.13)	(-2.13)
WIN x BIDS			-0.00812				
			(-0.83)				
WIN x BIDDERS				-0.0288			
				(-0.81)			
WIN x DUE DILIGENCE					-0.0372		
					(-1.30)		
WIN x INTERESTED						-0.0222	
						(-1.14)	
WIN x SOLICATIONS							0.0000537
							(0.10)
Auction FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	485	485	485	485	485	485	485
R-squared	0.648	0.655	0.656	0.656	0.657	0.657	0.655

Table 8. Winner-Loser Strategy and Equity-Based Risk Measures. This table reports the OLS results for yearly total volatility (tVOL), idiosyncratic volatility (iVOL), systematic volatility (sVOL), and equity beta (MKTBETA). In the pre-period, all measures are calculated over the interval (-253, -3), and in the post-period, the interval is (3, 253). The variable WIN is an indicator variable that takes the value of one if a given bank wins the failed bank auction. LOSS SHARE is an indicator variable that takes a value of one if an acquisition is made with a Shared-Loss Agreement. The variable POST is an indicator variable if the observation is post-acquisition. All variables are defined in Appendix A. Failed bank auction fixed effects are included in all regressions. Heteroscedasticity-consistent standard errors are utilized, and t-statistics are presented in parentheses. Significance is denoted by * p <0.10, ** p < 0.05, and *** p<0.01.

	(1) tVOL	(2) iVOL	(3) sVOL	(4) MKTBETA
WIN	0.00166	0.00248*	-0.000826	-0.0881
	(1.23)	(1.94)	(-0.96)	(-1.28)
WIN x LOSS SHARE	0.00167	-0.00000773	0.00168*	0.120
	(1.02)	(-0.01)	(1.65)	(1.58)
POST	-0.00450***	-0.00364***	-0.000862***	0.0245
	(-9.85)	(-9.98)	(-3.22)	(1.19)
POST x WIN	0.00109	0.00157	-0.000480	0.0248
	(0.77)	(1.18)	(-0.55)	(0.36)
POST x WIN x LOSS SHARE	-0.00272*	-0.00363**	0.000910	-0.00899
	(-1.65)	(-2.52)	(0.92)	(-0.13)
Auction FE	Yes	Yes	Yes	Yes
Observations	969	969	969	970
R-squared	0.552	0.595	0.424	0.407

Table 9. Risk in Lending. This table reports the OLS results examining either Loan-Loss Reserves (RESERVE) or charge-offs (CHARGEOFF) as a ratio to total assets. The variables WIN is an indicator variables that take a value of one if the bank wins a failed bank auction. The variable POST is an indicator variable that takes a value of one post-acquisition. LOSS SHARE is an indicator variable that takes a value of one if an acquisition is made with a Shared-Loss Agreement. All variable definitions are defined in Appendix A. Year-quarter and bank fixed effects are included in all regressions, and standard errors are adjusted for cluster effects at the bank level. Robust t-statistics are in parentheses. Significance is denoted by * p <0.10, ** p < 0.05, and *** p<0.01.

	(1) RESERVE	(2) RESERVE	(3) CHARGEOFF	(4) CHARGEOFF
POST x WIN	-0.00102***	-0.000348	-0.000261**	-0.0000180
	(-2.98)	(-0.90)	(-2.39)	(-0.15)
POST x WIN x LOSS SHARE		-0.00146***		-0.000528***
		(-2.82)		(-3.00)
LNASSET	-0.00165***	-0.00159***	-0.000139	-0.000116
	(-3.12)	(-3.02)	(-0.92)	(-0.76)
NONPERF	0.0670***	0.0705***	0.0235***	0.0248***
	(7.91)	(8.13)	(9.40)	(9.86)
DEPOSITS	0.00387	0.00390	0.00272***	0.00274***
	(1.57)	(1.59)	(3.23)	(3.24)
SECURITIES	0.00138	0.00116	0.000736	0.000656
	(0.47)	(0.39)	(1.02)	(0.93)
CONSUMER	0.00450	0.00319	0.00200	0.00153
	(0.66)	(0.47)	(0.87)	(0.67)
CANDI	0.00837*	0.00745*	0.000118	-0.000216
	(1.90)	(1.71)	(0.10)	(-0.18)
CANDD	-0.00844	-0.00889	-0.00106	-0.00122
	(-1.30)	(-1.37)	(-0.49)	(-0.57)
CRE	-0.0455*	-0.0455*	-0.00498	-0.00497
	(-1.81)	(-1.81)	(-0.61)	(-0.62)
REALESTATE	0.00850***	0.00802***	0.00138**	0.00121*
	(3.04)	(2.90)	(2.10)	(1.87)
Year-Quarter Fixed Effect	Yes	Yes	Yes	Yes
Bank Fixed Effect	Yes	Yes	Yes	Yes
Observations	8286	8286	8286	8286
R-squared	0.737	0.739	0.446	0.448

Table 10. Winner-Loser Strategy and Earnings Announcements and Surprises. This table reports the OLS results for the three-day (Panel A) and five-day (Panel B) cumulative Fama and French (1993) returns (CARs) surrounding post-acquisition earnings announcements. The dependent variable EAnext1 is the three- or five-day FF-adjusted CAR for the first earnings announcement post-acquisition. The variable EAnext4 is the sum of the first four five-day FF-adjusted CARs surrounding post-acquisition earnings announcements. EAnext8 and EAnext12 are calculated analogously for the next eight and twelve post-acquisition earnings announcements. Panel C shows analyst-based earnings surprises over the subsequent four quarters post-acquisition. The variable WIN is an indicator variable that takes the value of one if a given bank wins the failed bank auction. LOSS SHARE is an indicator variable that takes a value of one if an acquisition is made with a Shared-Loss Agreement. All variables are defined in Appendix A. Failed bank auction fixed effects are included in all regressions. Heteroscedasticity-consistent standard errors are utilized, and t-statistics are presented in parentheses. Significance is denoted by * p <0.10, ** p < 0.05, and *** p<0.01.

Panel A: Three-day Return Windows				
	(1)	(2)	(3)	(4)
	EAnext1	EAnext4	EAnext8	EAnext12
WIN	0.0181	0.0307	0.0227	0.0239
	(1.13)	(1.29)	(0.62)	(0.53)
WIN x LOSS SHARE	-0.0307*	-0.0628**	-0.0585	-0.0586
	(-1.67)	(-2.06)	(-1.28)	(-1.07)
Auction FE	Yes	Yes	Yes	Yes
Observations	484	484	477	469
R-squared	0.471	0.522	0.498	0.503
Panel B: Five-day Return Windows				
	EAnext1	EAnext4	EAnext8	EAnext12
WIN	0.0115	0.0321	0.00309	0.00822
	(0.68)	(1.13)	(0.08)	(0.16)
WIN x LOSS SHARE	-0.0283	-0.0719**	-0.0588	-0.0819
	(-1.45)	(-2.10)	(-1.17)	(-1.25)
Auction FE	Yes	Yes	Yes	Yes
Observations	484	484	477	469
R-squared	0.474	0.524	0.498	0.504
Panel C: Earnings Surprises				
	SUE_{q+1}	SUE_{q+2}	SUE_{q+3}	SUE_{q+4}
WIN	-0.0000924	0.00234	0.00157	0.000356
	(-0.03)	(1.07)	(1.04)	(0.23)
WIN x LOSS SHARE	0.000895	-0.00651*	-0.00497**	0.000333
	(0.28)	(-1.92)	(-1.99)	(0.11)
Auction FE	Yes	Yes	Yes	Yes
Observations	457	452	453	448
R-squared	0.502	0.577	0.475	0.378

Table 11. Auction Losers that Never Win. Panel A shows the cumulative Fama and French (1993) returns to equally-weighted event-time portfolios of failed bank auction winners, winners with Loss Share, winners without Loss Share, and losing banks over various horizons. All banks that lose failed bank auctions, yet win another auction within the next three yeras are removed. Panel B reports announcement and long-term buy-and-hold abnormal returns for the same sample presented in Panel A. Abnormal returns over an (m, n) event window around the announcement date ($AR_{(m,n)}$) are defined in Appendix A. Heteroscedasticity-consistent standard errors are utilized, and t-statistics are presented in parentheses. t-statistics are in parentheses. Significance is denoted by * p <0.10, ** p < 0.05, and *** p<0.01.

Panel A: Post-Acquisition Weekly Event-Time Portfolios					
	(1)	(2)	(3)	(4)	(5)
	Week 1	Two Weeks	One Year	Two Years	Three Years
Auction Winners (1)	0.00293	0.0204***	0.0761***	0.145***	0.226***
	(1.14)	(4.92)	(4.53)	(7.20)	(7.09)
Auction Winners With Loss Share (2)	0.00463	0.0226***	0.0660***	0.129***	0.179***
	(1.17)	(3.46)	(2.66)	(4.75)	(4.08)
Auction Winners Without Loss Share (3)	0.00164	0.0188***	0.0838***	0.158***	0.261***
	(0.48)	(3.48)	(3.66)	(5.44)	(5.83)
Losers that Never Win (4)	0.00250	0.00284	0.0979***	0.249***	0.440***
	(0.97)	(0.83)	(6.27)	(10.98)	(10.70)
(1) - (4)	0.000424	0.0176***	-0.0217	-0.104***	-0.214***
	(0.12)	(3.27)	(-0.95)	(-3.41)	(-4.12)
(2) - (4)	0.00212	0.0198***	-0.0319	-0.120***	-0.261***
	(0.45)	(2.68)	(-1.09)	(-3.40)	(-4.34)
(3) - (4)	-0.000860	0.0159**	-0.0140	-0.0911**	-0.179***
	(-0.20)	(2.50)	(-0.51)	(-2.48)	(-2.94)
Panel B: Buy-and-Hold Abnormal Returns					
	$AR_{(-63,-1)}$	$AR_{(-2,2)}$	$AR_{(0,250)}$	$AR_{(0,500)}$	$AR_{(0,750)}$
Auction Winners (1)	0.0124	0.0310***	0.0490**	0.120***	0.195***
	(1.16)	(5.98)	(2.26)	(4.40)	(4.82)
Auction Winners With Loss Share (2)	0.0101	0.0350***	0.0284	0.0874***	0.122***
	(0.79)	(5.38)	(1.15)	(3.07)	(2.89)
Auction Winners Without Loss Share (3)	0.0196	0.0186***	0.112**	0.221***	0.416***
	(0.99)	(2.88)	(2.50)	(3.31)	(4.55)
Losers that Never Win (4)	0.0191**	-0.000180	0.0590***	0.171***	0.335***
	(2.42)	(-0.07)	(3.98)	(8.39)	(10.32)
(1) - (4)	-0.00666	0.0312***	-0.0100	-0.0502	-0.140***
	(-0.51)	(6.00)	(-0.39)	(-1.49)	(-2.67)
(2) - (4)	-0.00901	0.0352***	-0.0306	-0.0831**	-0.212***
	(-0.62)	(6.08)	(-1.11)	(-2.32)	(-3.78)
(3) - (4)	0.000537	0.0188***	0.0530	0.0504	0.0818
	(0.02)	(2.64)	(1.25)	(0.86)	(0.89)

Table 12. Comparison of Failed Bank Auction Winners and Losers Bidding with Loss Share. Panel A shows the cumulative Fama and French (1993) returns to equally-weighted event-time portfolios of failed bank auction winners, winners with Loss Share, winners without Loss Share, and auction losers who bid with Loss Share coverage. Panel B reports announcement and long-term buy-and-hold abnormal returns to failed bank auction winners and losers (Rows 1 and 2). Abnormal returns over an (m, n) event window around the announcement date ($AR_{(m,n)}$) are defined in Appendix A. t-statistics are in parentheses. Heteroscedasticity-consistent standard errors are utilized, and t-statistics are presented in parentheses. Significance is denoted by * p <0.10, ** p < 0.05, and *** p<0.01.

Panel A: Post-Acquisition Weekly Event-Time Portfolios

	(1)	(2)	(3)	(4)	(5)
	Week 1	Two Weeks	One Year	Two Years	Three Years
Auction Winners (1)	0.00293	0.0196***	0.0807***	0.154***	0.254***
	(0.90)	(3.66)	(3.64)	(5.46)	(5.77)
Auction Winners with Loss Share (2)	0.00463	0.0226***	0.0660***	0.129***	0.179***
	(1.17)	(3.46)	(2.66)	(4.75)	(4.08)
Auction Winners without Loss Share (3)	-0.00408	0.00831	0.129**	0.235***	0.493***
	(-0.58)	(0.95)	(2.49)	(2.86)	(4.53)
Auction Losers with Loss Share Bids (4)	0.00324	0.00291	0.0905***	0.250***	0.467***
	(1.02)	(0.66)	(5.28)	(9.53)	(9.88)
(1) - (4)	-0.000316	0.0166**	-0.00978	-0.0965**	-0.213***
	(-0.07)	(2.40)	(-0.35)	(-2.51)	(-3.31)
(2) - (4)	0.00139	0.0197**	-0.0245	-0.121***	-0.288***
	(0.27)	(2.50)	(-0.81)	(-3.22)	(-4.46)
(3) - (4)	-0.00732	0.00540	0.0385	-0.0153	0.0263
	(-0.96)	(0.56)	(0.71)	(-0.18)	(0.22)

Panel B: Buy-and-Hold Abnormal Returns

	$AR_{(-63,-1)}$	$AR_{(-2,2)}$	$AR_{(0,250)}$	$AR_{(0,500)}$	$AR_{(0,750)}$
Auction Winners (1)	0.0124	0.0310***	0.0490**	0.120***	0.195***
	(1.16)	(5.98)	(2.26)	(4.40)	(4.82)
Auction Winners With Loss Share (2)	0.0101	0.0350***	0.0284	0.0874***	0.122***
	(0.79)	(5.38)	(1.15)	(3.07)	(2.89)
Auction Winners Without Loss Share (3)	0.0196	0.0186***	0.112**	0.221***	0.416***
	(0.99)	(2.88)	(2.50)	(3.31)	(4.55)
Auction Losers with Loss Share Bids (4)	0.0194***	-0.000397	0.0484***	0.176***	0.334***
	(2.68)	(-0.18)	(3.40)	(8.43)	(10.59)
(1) - (4)	-0.00693	0.0324***	0.000535	-0.0561	-0.140***
	(-0.55)	(7.02)	(0.02)	(-1.60)	(-2.65)
(2) - (4)	-0.00928	0.0366***	-0.0201	-0.0890**	-0.212***
	(-0.66)	(7.15)	(-0.73)	(-2.35)	(-3.72)
(3) - (4)	0.000272	0.0197***	0.0635	0.0445	0.0822
	(0.01)	(3.01)	(1.48)	(0.71)	(0.87)

A Variable Descriptions

Variable	Definition	Source
$AR_{(m,n)}$	$AR_{(m,n)}$ represents the Fama-French-adjusted abnormal returns obtained as the difference between the realized delisting-adjusted return and the predicted return from a rolling Fama-French three-factor model (Fama and French, 1993) over the holding period that starts at day m and goes to day n	CRSP
ASSET	*ASSET* Total bank assets measured in thousands	Call Reports
BIDDERS	*BIDDERS* is a count variable that indicates the number of bidders within a given failed bank auction	FDIC AuctionData
BIDS	*BIDS* is a count variable that indicates the number of bids within a given failed bank auction	FDIC AuctionData
BROKERED	*BROKERED* is the ratio of quarterly brokered deposits to total assets	FDIC AuctionData
CANDD	*CANDD* is the portion of total quarterly bank assets that consist of real estate construction and land development loans	Call Reports
CANDI	*CANDI* is the portion of total quarterly bank assets that consist of commercial and industrial loans	Call Reports
CHARGEOFF	*CHARGEOFF* is the ratio of quarterly net charge-offs to bank assets	Call Reports
CRE	*CRE* is the ratio of quarterly loans to finance commercial real estate, construction, and land development to bank assets	Call Reports
CONSUMER	*CONSUMER* is the ratio of quarterly consumer loans to bank assets	Call Reports
DEPOSITS	*DEPOSITS* is the ratio of total quarterly bank deposits to total bank assets	Call Reports
DUE DILIGENCE	*DUE DILIGENCE* is the total number of banks that performed due diligence on the bank	FDIC AuctionData
EAnextN	*EAnext1*, *EAnext4*, *EAnext8*, and *EAnext12* represent the sum of the cumulative FF-adjusted returns surrounding the subsequnt one, four, eight, and two earnings announcements post-acquisition	Compustat and CRSP
EQUITY	*EQUITY* is the ratio of total quarterly equity capital to total bank assets	Call Reports
INTERESTED	*INTERESTED* is the total number of banks that declared formal interest in acquiring the failed bank	FDIC AuctionData
iVOL	*iVOL* is is the idiosyncratic volatility of the equity, calculated as the standard deviation of the residuals from the factor model regressions	WRDS Beta Suite
LNASSET	*LNASSET* is the natural log of total bank assets measured in thousands	Call Reports
LOANDISTANCE	*LOANDISTANCE* is the sum of the differences between the composition of CONSUMER, CANDI, CANDD, CRE, REALESTATE, and OREO between bidders and failed bank. LOANDISTANCE = |B_CONSUMER - F_CONSUMER| + |B_CANDI - F_CANDI| + |B_CANDD - F_CANDD| + |B_CRE - F_CRE| + |B_REALESTATE - F_REALESTATE| + |B_OREO - F_OREO|	Call Reports
LOSS SHARE	*LOSS SHARE* is an indicator variable that takes a value of one for failed bank acquisitions that have Shared-Loss Agreements	FDIC AuctionData

LOSS SHARE RATIO	*LOSS SHARE RATIO* is the ratio of total failed bank assets covered under Loss Share Agreements to acquirer assets at the end of the previous quarter	FDIC and Call Reports
ME	*ME* is the end of the week market value of equity, calculated by the product of shares outstanding and price	CRSP
MKTBETA	*MKTBETA* is calculated as the correlation between each participant's stock returns and the market	WRDS Beta Suite
NONCORE	*NONCORE* is the ratio of total quarterly non-core deposits to total bank assets.	Call Reports
NONPERF	*NONPERF* is the ratio of total quarterly bank non-performing loans to total bank assets. Quarterly non-performing loans are computed as the sum of loans 30-89 days past due, loans 90 days or more past due, and non-accrual loans.	Call Reports
OREO	*OREO* is the ratio of other real estate loans to total bank assets.	Call Reports
POST	*POST* is an indicator variable that takes a value of one after a given failed bank acquisition takes place	
REALESTATE	*REALESTATE* is the ratio of total quarterly real estate loans to total bank assets.	Call Reports
RESERVE	*RESERVE* is the sum of total quarterly allowances for loan and leases and allocated transfer risk reserves scaled by total assets	Call Reports
SECURITIES	*SECURITIES* is the ratio of total quarterly total securities to total bank assets	Call Reports
SOLICITATIONS	*SOLICITATIONS* is a count variable that indicates the number of banks within a given failed bank auction that were solicited by the FDIC	FDIC AuctionData
SUE	*SUE* is calculated each quarter as the difference between the actual earnings per share and the analyst estimate and normalize this difference by the share price at the end of the previous quarter	IBES and Compustat
sVOL	*sVOL* is the systematic volatility, computed as the difference between the total volatility (tVOL) and idiosyncratic volatility (iVOL)	WRDS Beta Suite
tVOL	*tVOL* is the standard deviation of the realized returns	WRDS Beta Suite
WIN	*WIN* is an indicator variable that takes a value of one for banks that acquire failed banks	FDIC AuctionData