

**Merging the BIF and the SAIF:
Would a Merger Improve the Funds' Viability?**

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1. Introduction

As part of the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (FIRREA), the Savings Association Insurance Fund (SAIF) was created. Ever since its creation, however, it has been considered vulnerable, partly because of its small size and partly because of its geographic concentration. SAIF-member institutions constitute a much smaller portion of U.S. banking organizations than Bank Insurance Fund (BIF) member institutions do. As of year-end 1998, the SAIF had 1,430 members, roughly 16 percent the number of BIF members, and the SAIF insured an estimated \$709 billion in deposits, roughly 33 percent of the estimated deposits insured by the BIF.¹ In addition, SAIF-member institutions are geographically concentrated, unlike BIF-member institutions.

This paper examines the SAIF's ability to remain solvent using a Monte Carlo model that was developed by Oshinsky (1999) to study the effects of banking consolidation and megamergers on the BIF. It shows that, in contrast to the BIF, industry consolidation has served to reduce the vulnerability of the SAIF, as several large BIF-member institutions have increased their SAIF-insured holdings. Nonetheless, the SAIF continues to be somewhat more vulnerable to insolvency risk than the BIF.

The paper also examines a merger of the BIF and the SAIF. It finds that a larger, combined insurance fund would be less at risk than either the BIF or the SAIF separately. In other words, both the BIF and the SAIF would benefit from a merger of the funds. A fund merger would also eliminate the possibility that one fund might become insolvent while the other fund remains solvent. For the SAIF, however, the benefits of a fund

¹ FDIC (1999), 17.

merger have diminished during the 1990s as industry consolidation has effectively spread the risk of large-bank failures across insurance funds.

Section 2 (“Background”) reviews some of the changes that took place in SAIF-insured institutions between 1990 and 1998. The model is described in section 3 (“Simulation Model”), and the results for the SAIF are presented in section 4 (“SAIF Results”). In section 5 (“Merging the BIF and the SAIF”), the results from a hypothetical merger of the BIF and the SAIF are discussed.

2. Background

The SAIF insures a much smaller pool of institutions than the BIF. As of December 31, 1989, there were 2,598 SAIF-member institutions, compared with 13,230 BIF-member institutions. By year-end 1998, the SAIF insured only 1,430 institutions, or 14 percent of all depository institutions, and the assessment base for SAIF-member institutions, including SAIF-insured portions of BIF-member institutions, constituted only 25 percent of the year-end 1998 banking industry assets. Between 1989 and 1998, stress in the thrift industry and ongoing consolidation to meet competitive pressures brought about numerous mergers of SAIF members, frequently involving BIF members as well as SAIF members.

Another point of vulnerability for SAIF-member institutions is that they are more geographically concentrated than BIF-member institutions. However, geographic concentration is not examined here.

2.1 Oakar Institutions

The SAIF was created with no initial funding. It was further handicapped by requirements in FIRREA that some of the SAIF premiums be diverted to pay part of the cost of Federal Savings and Loan Insurance Corporation (FSLIC) and Resolution Trust Corporation (RTC) resolutions.² At its inception, SAIF members faced the prospect of heavy insurance premiums for a long time; moreover, SAIF members could change to BIF insurance only by paying large exit and entry fees.³ Although this provided some measure of protection to the SAIF by discouraging migration of SAIF members to the BIF, it also discouraged banks from purchasing failed thrifts. Banks that were considering the purchase of a thrift would face either high up-front fees or the need to maintain separate institutions indefinitely.

To encourage banks to purchase thrifts, Representative Mary Rose Oakar proposed including a section in FIRREA that allowed institutions insured by one fund to hold deposits insured by the other fund. More specifically, a BIF-member institution would be able to purchase a SAIF-member institution, merge the two institutions, and avoid the exit and entry fees by designating an appropriate portion of its deposits as SAIF-insured. The final legislation included this section and these SAIF-insured deposits are termed Oakar deposits.⁴

² The SAIF provided \$2.0 billion to the FSLIC Resolution Fund, \$1.1 billion to defease bonds that provided funding to the RTC, and annual interest payments of \$793 million on the Financing Corporation (FICO) bonds that were used to provide funding for the FSLIC. The interest cost for FICO bonds was spread across banks and thrifts on January 1, 1997.

³ Entry fees are assessed only on institutions migrating between funds. *De novo* institutions are charged only regular assessments.

⁴ Similarly, a SAIF-member institution can hold BIF-insured deposits, in which the BIF-insured deposits are Oakar deposits. In the present study, institutions holding Oakar deposits are referred to as Oakar institutions.

The amendment largely succeeded in minimizing market distortions related to mergers of depository institutions. By December 31, 1998, 8.1 percent of FDIC-member institutions held Oakar deposits. Of these 839 Oakar institutions, 730 were BIF-member institutions; they held \$257 billion in SAIF-insured deposits, or 36 percent of SAIF-insured deposits. The other 109 institutions were SAIF-member institutions holding \$39 billion in BIF-insured deposits, or 2 percent of BIF-insured deposits.⁵

Although not envisioned at the time, one result of the Oakar amendment has been a commingling of fund risk. As large banks have purchased thrifts, the SAIF's risk profile has become more like the BIF's risk profile. The ramifications of the commingling of the funds are discussed further in section 4 ("SAIF Results").

2.2 Market Concentration

When a bank fails, the FDIC is authorized to bill the cost of the failure to affiliate or sister banks. Therefore the model implicitly assumed that the failure of one institution simultaneously causes the failure of the affiliate institutions. To proxy the failure of all affiliate institutions at one time, the model aggregated institutions by holding company. Thus, in this paper, references to market concentration are based on banking companies rather than individual banks or thrifts.⁶

Concentration in the industry (as measured by percentage of domestic deposits held by banking company) as of December 31, 1998, is shown in table 1. This

⁵ FDIC (1999), 17–18.

⁶ Throughout this paper, the terms "banking organization," "bank holding company," and "banking company" will be used interchangeably. The term "institution" refers to individual institutions and not to the organization.

Table 1

Industry Consolidation as of December 31, 1998			
Banking Companies	Percentage of BIF-Insured Deposits	Percentage of SAIF-Insured Deposits	Percentage of Combined Deposits
25 largest	45.2%	31.9%	42.3%
100 largest ^a	64.6	58.2	63.3
All others	35.4	41.8	36.7

^a Included in the 100 largest banking companies are the 25 largest banking companies.

table demonstrates a significant difference between the BIF and the SAIF: BIF-insured deposits are more heavily concentrated in the 100 largest organizations than SAIF-insured deposits. In addition, nearly one-half of the BIF-insured deposits are held by the 25 largest organizations, whereas the comparable SAIF figure is less than one-third. If the funds were merged and all institutions were insured by a new National Insurance Fund (NIF),⁷ the concentration levels would resemble the BIF because of the BIF's relative size.

3. Simulation Model

Oshinsky (1999) employed a Markov process to study the probability of insolvency of the BIF. The same model was used for this study. For a detailed description of the model, see Oshinsky (1999).

Because, in general, banking failures are serially correlated, the model was designed to simulate periods of small, medium, and large disbursements. Using the historical patterns of BIF disbursements, a Markov-switching model defined the

⁷ The name "National Insurance Fund" and the acronym "NIF" are used in this paper to indicate a new fund that would be created if the BIF and the SAIF were to be merged. This usage does not mean the funds will actually be merged, nor does it mean that if they are, the name of the new fund will be National Insurance Fund.

probability of switching among the three levels of disbursements. This framework resulted in a projection that groups good years together and bad years together.

The model used the historical BIF bank failures and losses instead of the SAIF or FSLIC failures and losses.⁸ The SAIF's history is far too short to be useful for this type of analysis, and in addition, future SAIF failures will almost certainly differ from the FSLIC experience. During the 1980s, when most FSLIC failures occurred, savings and loan (S&L) regulation and supervision were lax. In the early 1980s, FSLIC officials felt that many S&L insolvencies were caused only by the high interest-rate levels that—the officials believed—would soon decline, after which the S&Ls would return to solvency. Therefore, many insolvent S&Ls were allowed to continue operating. After the sharp drop in interest rates in 1983, many S&Ls did return to profitability, but 10 percent of the industry remained insolvent. And unlike other regulators, the Federal Home Loan Bank Board (FHLBB) encouraged troubled institutions to grow out of their problems and move into new business areas to bolster profits. Deregulation, coupled with significant forbearance fueled by pressure from various branches of the government and an insolvent insurance fund, exacerbated the crisis and increased both the failure and the loss rates of thrifts. In contrast, during the early 1980s, banking regulators maintained more political independence than the FHLBB, and since it was not itself insolvent, the FDIC was able to close insolvent banks earlier, thus reducing the cost of bank failures. Finally, as of December 31, 1998, approximately 37 percent of SAIF-insured deposits were held by commercial banks, and another 7 percent were held by thrift subsidiaries of bank holding

⁸ Until 1989, savings and loans were regulated by the Federal Home Loan Bank Board and insured by the FSLIC. FIRREA abolished the FHLBB and the FSLIC and created the Office of Thrift Supervision (OTS) and the SAIF.

companies. The BIF's experience is therefore probably a better proxy for future thrift experience than the FSLIC's experience.

The model projected the financial condition of the SAIF for 50 years. For each year, it projected thrift failures (and losses from failures), on the basis of the state of the industry and random variation within each disbursement state. To capture the effects of industry consolidation, the model simulated the top 100 thrift organizations individually—that is, SAIF losses from each of the top 100 thrifts were separated from the remaining thrifts. Premium assessments were based on the SAIF's financial condition and on the assessment schedule mandated by FIRREA.⁹ In addition, the SAIF's earnings, net of operating expenses, were estimated.

The simulation was performed 1,000 times using a Monte Carlo simulation. The number of runs that contained an insolvent year determined the probability that the SAIF will become insolvent. To better understand the effects of ongoing consolidation on the SAIF and the hypothetical NIF, the model was run under three consolidation scenarios.

3.1 Failure and Loss Rates

As stated above, the model used the historical BIF failure and loss rates. The BIF has historically experienced much lower loss rates for large banks and lower failure rates for very large banks. Table 2 summarizes BIF failure rates by asset-size class. During

⁹ Note that the model does not take into account the SAIF Special Reserve that was required under the Deposit Insurance Funds Act of 1996. Under this legislation, approximately one billion dollars was removed from the SAIF and placed in a special reserve on January 1, 1999. These funds may only be used if the SAIF balance falls below 50 percent of the designated reserve ratio.

Table 2

BIF Failure Rates, 1934–1997
(Percentage of Institutions per Year)

	Low	High	Average
Top 25	0.0%	4.0%	0.1%
26–100	0.0	4.0	0.3
All others	0.0	3.5	0.3

the 64-year history of the FDIC, there were 2 failures of top 25 banking organizations, 12 failures of top 26–100 banking organizations, and 1,372 failures of smaller institutions. But although the range of failure rates was similar across size classes, the average failure rate for top 25 organizations was significantly lower. As seen in table 3, loss rates also differ by asset-size class. Historical loss rates for top 100 failures (calculated as the

Table 3

BIF Loss Rates, 1934-1997
(Percentage of Failed-Institution Assets)

	Low	High	Simple Average	Weighted Average
Top 50	–0.9%	10.2%	3.2%	5.3%
51–100	0.0	18.3	6.6	6.8
All others	4.8 bp	60.1	11.9	16.0

Note: For top 100, the figures are by organization; for all others, the figures are per year.

percentage of each failed organization’s assets) ranged from a small gain to a loss of 18.3 percent, averaging 5.4 percent. The loss rates for the remaining institutions (calculated as an annual aggregate percentage of small-bank failed assets) ranged from a low of 4.8 basis points (0.048 percent) to a high of 60.1 percent, averaging 11.9 percent. Economists have cited several reasons for the differences in failure and loss rates for large institutions, including a smaller likelihood of fraud that could cause bank failure, economies of scale, liability structure, and better diversification of risk.¹⁰ To ensure that the effects of consolidation are considered, the model incorporated the different failure and loss rates for these three asset-size classes.

¹⁰ Another difference may relate to systemic-risk concerns. When the LDC (less-developed-country) debt crisis caused several large banks to become troubled in the early 1980s, regulators practiced forbearance rather than allowing multiple large banks to fail. Forbearance has been used to assist smaller banks as well.

3.2 Stratification of the Top 100 Banking Companies

In Oshinsky (1999), the top 100 banking companies were modeled individually while the others were modeled on an aggregate basis. A similar—but not identical—procedure was used for this analysis. This analysis assumed that the risk profile of a bank or thrift is more closely related to the asset size of its banking company than to the bank’s rank within the insurance fund. The 100th-largest BIF-member banking company is far larger than the 100th-largest SAIF-member banking company. Thus, the largest SAIF-member banking companies were placed in the top 25 or top 26–100 asset-size classes only if they would have been in these categories on the basis of an asset-size stratification of BIF-member organizations. As a result, in the 1997 simulation for the SAIF, there were only 24 companies in the top 25 asset-size class, and only 68 companies in the 26–100 asset-size class.¹¹

When the NIF was modeled, there were no companies with deposit insurance by multiple funds. Because some SAIF organizations were large enough to be in the top 100 when BIF asset cutoffs were used, the 1997 simulation for the NIF included 25 companies in the top 25 asset-size class, and 80 companies in the 26–100 asset-size class.

¹¹ The SAIF universe includes partial institutions—the SAIF portion of BIF-member Oakar institutions. If an Oakar institution were to fail, the losses would be split between the BIF and the SAIF on the basis of the proportion of BIF and SAIF deposits. In the model, these partial institutions’ assets and deposits are the portions of the Oakar institutions’ total assets and total deposits, based on the proportion of SAIF deposits. However, when the top 100 organizations were stratified, total assets of the banking company were used since the risk profile for the organization is based on total asset size.

4. SAIF Results

As in Oshinsky (1999), the SAIF model was run under the following scenarios: 1990 structure, 1997 structure, and 1998 structure *pro forma* to June 1999.¹² The year-end 1990 structure was selected because at that time the significant increase in the merger activity of large banking companies had just begun. The year-end 1997 structure was selected because 1997 was the last year-end date when no megamergers had been consummated. The *pro forma* simulation incorporated the megamergers consummated in 1998 and those that had been announced but not yet consummated as of June 30, 1999.

Table 4 provides the results. In 1990, before Oakar institutions became prevalent,

Table 4

SAIF Simulation Results			
Model	Probability of Fund < 0 bp	Probability of Fund < 50 bp	Probability of Fund < 75 bp
1990 structure	9.6%	44.9%	66.2%
1997 structure	6.2	23.6	52.0
<i>Pro forma</i>	7.0	25.6	49.4

the risk to the SAIF was significant mainly because 64.7 percent of the assets of SAIF-insured institutions were held by smaller institutions that, historically, have relatively high failure and loss rates. Through industry consolidation, and in particular mergers involving large banking organizations becoming Oakar organizations, more SAIF-insured deposits came to reside in the top 100 organizations that have historically experienced lower loss rates. In addition, some of these mergers involved top 25 organizations that have historically experienced lower failure rates as well. By year-end 1997, the top 100 BIF-member organizations held 30.2 percent of the SAIF-insured deposits, compared with approximately 5.4 percent as of year-end 1990. With a larger portion of the SAIF-

¹² The *pro forma* simulation adjusts the year-end 1998 structure for mergers announced but unconsummated as of June 30, 1999. These mergers include, but are not limited to, Fleet Financial Group,

insured deposits residing in institutions with lower failure rates and loss rates, the risk of SAIF insolvency decreased significantly, falling from 9.6 percent to 6.2 percent.¹³

The risk to the SAIF increased slightly in the *pro forma* simulation, which included the announced but unconsummated mergers. As of December 1997, the top 25 totaled \$403.4 billion in assets, and consolidation during 1998 and adjustments for pending mergers effectively moved \$20.5 billion in assets from smaller institutions into the top 25.¹⁴ In addition, as a result of the mergers, the number of companies in the top 25 decreased from 24 as of December 1997 to only 19. With slightly more assets in the top 25 but significantly fewer organizations, the average size of the SAIF portion of these companies increased by over 40 percent. Thus, the chance that a single top 25 failure would cause SAIF insolvency was greater.

Between 1990 and 1997, the model projects that the SAIF reserve ratio would fall below 50 basis points and 75 basis points less frequently. The probability of falling below 50 basis points dropped by nearly 50 percent, from 44.9 percent to 23.6 percent. In contrast, the probability of falling below 75 basis points dropped by only 21 percent. Between the 1997 and *pro forma* scenarios, the probability of the SAIF falling below either level changed little. These results are closely related to the changes in the composition of the institutions insured by the SAIF. Today, a relatively large portion of SAIF-insured deposits still reside in smaller institutions, which could readily reduce the

Inc.'s acquisition of BankBoston Corporation and Union Planters Corporation's acquisition of First Mutual Bancorp, Inc.

¹³ Note that the benefit of lower failure rates and loss rates of larger companies was partially offset by the movement of a large percentage of the industry into a few companies. Although the larger banking companies fail less often, the failure of one company could single-handedly bring about insolvency of the SAIF.

¹⁴ The top 25 organizations in the *pro forma* simulation held \$53.4 billion more than the top 25 in the 1997 structure simulation, but \$32.9 billion of this amount was banking industry growth during 1998. Therefore, the mergers moved only \$20.5 billion into the top 25.

fund balance below 75 basis points during a period of stress. However, as the SAIF's condition became more closely linked to top 100 organizations during the 1990s, it became less likely that the SAIF reserve ratio would drop below 50 basis points.¹⁵

The simulation results support the hypothesis that during the 1990s, the risk profile of the SAIF has become more like that of the BIF.¹⁶ To facilitate a comparison of the funds, the BIF results from Oshinsky (1999) are shown in Table 5.

Table 5

BIF Simulation Results*			
Model	Probability of Fund < 0 bp	Probability of Fund < 50 bp	Probability of Fund < 75 bp
1990 structure	3.9%	17.8%	43.7%
1997 structure	6.0	17.1	34.0
<i>Pro forma</i>	6.5	16.6	32.1

* Oshinsky (1999), 14,16.

Whereas the SAIF was projected to be far more vulnerable than the BIF in 1990, the difference between the projected insolvency rates for the BIF and the SAIF fell to a mere 20 basis points in the 1997 scenario and 50 basis points in the *pro forma* scenario. Likewise, the projected probability of the SAIF reserve ratio falling below 50 basis points and 75 basis points fell to levels that are somewhat higher—but more similar to—the BIF.

5. Merging the BIF and the SAIF

The BIF and the SAIF provide identical insurance coverage to two groups of institutions that are becoming more similar. The risk profiles of both funds might be

¹⁵ Note that this result is also driven in part by the model's assumption about reserves. In particular, the model assumed that the SAIF would not reserve for a possible failure of a top 25 bank failure in the following year; however, the model allows for over-reserving of smaller institutions, in keeping with historical experience at the FDIC.

¹⁶ Note that the results rely heavily on the assumption that future SAIF failure rates and loss rates will resemble historical BIF experiences.

improved were they to be merged. To test this theory, the model was run assuming that the funds had been merged. Table 6 provides the results, which show the same general pattern as the BIF results: the risk of insolvency increased during the 1990s.

Table 6

Probability of NIF Insolvency			
Model	Probability of Fund < 0 bp	Probability of Fund < 50 bp	Probability of Fund < 75 bp
1990 structure	3.7%	23.4%	56.0%
1997 structure	5.2	17.8	38.6
<i>Pro forma</i>	6.2	16.9	35.8

From 1990 to 1997, the probability of insolvency increased—even though the portion of insured deposits held by smaller institutions (with higher failure and loss rates) dropped—because more banking companies became large enough to materially damage the insurance fund single-handedly. Industry consolidation during 1998 and the announced mergers effectively moved \$125.9 billion in assets, adjusted for industry growth, into the top 25 organizations, which held \$3.0 trillion as of December 1997. As with the SAIF, the mergers caused the number of top 25 organizations to decrease, in this case from 25 as of 1997 to 20.

The probability that the NIF reserve ratio would fall below 75 basis points dropped substantially from 1990 to 1997 and dropped slightly from 1997 to the *pro forma* scenario. Likewise, the model projected that the probability of the NIF reserve ratio falling below 50 basis points dropped 24 percent between 1990 and 1997 and dropped 5 percent between 1997 and the *pro forma* scenario. Not surprisingly, the NIF results are more similar to those of the BIF than the SAIF. However, unlike the insolvency rates, the NIF reserve ratio was projected to fall below 50 basis points and 75 basis points somewhat more frequently than the BIF. This reflects the differences between the composition of institutions insured by the SAIF and the BIF; in particular, SAIF-insured

deposits are more likely to be held by smaller institutions, which have higher failure rates and loss rates.¹⁷

For purposes of comparison, table 7 provides the probability of insolvency for all three funds. In each scenario, the NIF was projected to be less risky than either the BIF

Table 7

Probability of Insolvency			
Model	BIF	SAIF	NIF
1990 structure	3.9%	9.6%	3.7%
1997 structure	6.0	6.2	5.2
<i>Pro forma</i>	6.5	7.0	6.2

or the SAIF alone: that is, both funds, not just the SAIF, benefited from a merger.

However, a merger of the funds would be no panacea: the risk of insolvency dropped, but it did not plummet toward zero. For the SAIF, the value of combining the funds would have been highest in 1990, before many large-bank mergers had effectively reduced the risk of the SAIF. The benefit to the BIF would have been relatively small at that time, but has increased somewhat with the advent of megamergers.

At first glance, the results indicate that the comparative advantage of the NIF over the BIF and, to a lesser extent, the SAIF appears to have narrowed since 1997.

Compared to the BIF, the NIF was only 0.3 percent less likely to be insolvent in the *pro forma* scenario but 0.8 percent less likely to be insolvent in the 1997 scenario. This result, however, does not capture changes in the depth of insolvency. In the *pro forma* scenario, the average depth of insolvency for the BIF was 101 basis points, but it was only 81 basis points for the NIF. Thus a combined insurance fund would more quickly be able to recover from insolvency than the BIF. This was less of a factor in 1997, when

¹⁷ In addition, this result may be driven in part by the model's treatment of reserves for top 25 organizations. See footnote 15.

the average depth of insolvency was 71 basis points for the BIF and 57 basis points for the NIF.¹⁸

From a public-policy perspective, the benefit of a fund merger exceeds the benefits for each fund individually. In the *pro forma* scenario, the model projected a 6.5 percent probability of insolvency for the BIF and a 7.0 percent probability of insolvency for the SAIF; however, the probability that at least one fund would become insolvent was 10.3 percent. Of the 65 runs that projected BIF insolvency, only 32 also projected that the SAIF would become insolvent. This indicates that there is a reasonably good chance that one fund could become insolvent while the other fund remains solvent. This situation could lead to a loss of public confidence during a period when funds are available at the FDIC but in the wrong place. The results also indicate that there is a real chance that members of the BIF and the SAIF will be faced with materially different assessment rates for the exact same level of insurance coverage in the future. Such distortions in the marketplace would most likely reduce the efficiency of depository institutions as banks and thrifts expend resources on arbitraging tactics in pursuit of smaller insurance assessments.

In conclusion, these results show that a merger of the funds would substantially decrease the probability of a failure of at least one deposit insurance fund. In addition, it would provide benefits to both the BIF and the SAIF. A fund merger would reduce—but by no means eliminate—the probability of fund insolvency.

¹⁸ For the SAIF, the average depth of insolvency was 37 basis points in the 1997 scenario and 54 basis points in the *pro forma* scenario. Thus the SAIF would typically be able to replenish itself more quickly than the NIF.

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