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Recovery Ratios in the Savings and Loan Crisis: Evidence From the Resolution Trust Corporation's Sale of Bank-Owned Real Estate

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Abstract

The sale of bank-owned real estate (REO, or Real Estate Owned) by the Resolution Trust Corporation (RTC) following the savings and loan crisis in the late 1980s presents lessons for sales of REO following the Great Recession of 2007 to 2009. This article examines the sales counts and recovery ratios by property type and by census division in the country for all REO properties sold by the RTC, which assumed control of failed institutions and liquidated assets during the period 1989 to 2005. Recovery ratios (asset sales prices divided by the gross loan balance at foreclosure) reached a nadir of 46 percent in 1990 and 1991. It then quickly stabilized to the mid-70-percent range. We find that sales of single-family residential, industrial, and retail properties enjoyed higher recovery ratios than sales of raw land and office buildings. Nearly one-half of the sales were in the West South Central census division of the United States. Although we are cautious about overstating the results, this study offers support for policies that promote more rapid liquidation of REO portfolios as a means of raising recovery ratios, thereby reducing losses from the sale of REO properties.

Introduction

A persistent question during the recent economic crisis has been the appropriate pace at which to liquidate bank-owned real estate. Risks exist on both sides: rapid liquidation can force down real estate prices, but an overhang of unresolved properties can also hold down prices as potential buyers anticipate further increases in inventory coming onto the market.

This article uses data from the earlier financial crisis and examines sales of bank-owned real estate (REO, or Real Estate Owned) by the Resolution Trust Corporation (RTC) after the savings and loan (S&L) crisis of the 1980s.[1] Our data cover all sales of bank-owned real estate by the RTC, which assumed control of failed institutions and liquidated assets during the 1989-through-2005 period.

These rich data enable us to examine sales counts and recovery ratios by year, by property type, and by U.S. Census Bureau divisions of the country.[2] The data show that recovery ratios—which we define as the ratio of the sales price to the gross loan balance amount of the asset—reached a nadir of 46 percent in 1990 and 1991. Average recovery ratios quickly stabilized to the mid-70-percent range.

Single-family residential, industrial, and retail property sales enjoyed higher recovery ratios than sales of undeveloped land and sales of office buildings. Nearly one-half of the sales were in the West South Central division of the United States. Although the absence of an appropriate counterfactual leaves us careful about drawing a strong conclusion, this case study does suggest that it is possible for recovery ratios to increase rapidly after a rapid liquidation of bank-owned real estate portfolios.

The RTC sales experience generally is regarded as a successful response to dealing with the fallout from the S&L crisis (Wang and Peiser, 2007). William Seidman, chairman of the RTC, made early projections of losses on bad loans taken over by the RTC that were estimated at more than $200 billion, not including interest, which could run the bill up to $500 billion (Cope, 1990). The ultimate loss to the U.S. Treasury was $161 billion. Although the RTC in its early days received considerable criticism—with particular focus on charges that the RTC was selling assets too cheaply and too quickly—the evidence in this article suggests that recovery ratios on sales of REO properties recovered rapidly from the 1990-through-1991 nadir. The absence of an appropriately compelling counterfactual forces us to be somewhat humble concerning the strength of our conclusions about policy, but we think it is important to rigorously document the facts about this case study: rapid sales of real estate by the RTC were followed by an initial drop in sales prices in 1990 through 1991 and a rapid recovery as more capital came to the market.

Although our sample is comprehensive in the sense that it covers every sale of REO properties by the RTC, we unfortunately lack critical information about the quality of the assets being sold by the RTC. We do know the state in which the asset is located, its property type, and the method of disposition, but we do not have detailed location data or any information about the physical

[1] Throughout the article, we refer to this real estate as "REO." This convention is based on the term "Other Real Estate Owned," which the Office of the Comptroller of Currency uses for real estate that a bank has come to own by foreclosure on a loan or in satisfaction of debts owed to the bank.

[2] This article follows the Census Bureau's nine-division categorization. The West South Central division includes Arkansas, Louisiana, Oklahoma, and Texas. These states were significantly affected by the S&L crisis.

condition of the asset. We believe the analysis of recovery ratios presented in this article provides useful insight into the RTC's experience and sheds light on deficiencies in how banks handled nonperforming loans (NPLs) and REO property sales during the Great Recession of December 2007 through June 2009. The implications are important because they bear directly on the speed of the recovery. The extent to which banks sit on bad real estate assets may be slowing down the speed of recovery because property sales prices may remain lower than they would otherwise be.

Background and Literature Review

The S&L crisis of the 1980s and 1990s was responsible for the failure of hundreds of thrift institutions that had book-value assets worth hundreds of billions of dollars.[3] The Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) of 1989 created the RTC to acquire, manage, and dispose of the assets of failed institutions. The RTC existed from August 1989 through December 1995. FIRREA gave the RTC responsibility for managing and resolving all failed S&Ls previously insured by the Federal Savings and Loan Insurance Corporation (FSLIC). Congress established the RTC as a temporary federal agency to clean up the S&L crisis after the FSLIC became insolvent. One of the RTC's objectives was to maximize the value of the disposition of the failed thrift institutions and their assets while minimizing the effect on local real estate and financial markets. Another objective was to maximize the availability and affordability of residential property for low- and moderate-income families (FDIC, 1998). The Federal Deposit Insurance Corporation (FDIC) typically dealt with ongoing franchises and emphasized the sale of the maximum amount of assets to the acquiring institution. The RTC, by contrast, focused on selling the assets directly to purchasers—most of whom specialized in buying pools of performing loans and NPLs and REO properties.

Several papers from the 1990s examine the disposition of assets in the context of the S&L crisis. Ely and Varaiya (1997) examined whether bidders overpaid for thrift institutions purchased from the RTC. They predicted the expected purchase price based on the number of participating bidders and the uncertainty of the thrift's franchise value. In their sample of sales, they did not find evidence that the RTC underpriced the thrift institutions. Balbirer, Jud, and Lindahl (1992) investigated the monetary returns to stockholders who acquired thrift institutions in federally assisted mergers. They found that shareholders of acquiring firms earned significant positive returns, suggesting that—in contrast to the Ely and Varaiya result—some underpricing of the acquired assets may have occurred. Gosnell, Hodgins, and MacDonald (1993) also investigated whether acquirers benefited from significant positive returns in federally assisted mergers of thrift institutions. Although they studied sales from a slightly earlier period—1989 through 1991—than Balbirer, Jud, and Lindahl (1992), they did not find evidence of positive abnormal returns. Where they did find wealth transfers, they attributed it to the implicit guarantee of continued operation granted by the regulator to the acquirer.

Nanda, Owers, and Rogers (1997) also investigated whether purchasers of assets from the RTC experienced extraordinary gains. To the contrary, Nanda, Owers, and Rogers (1997) found that most subsets of winning bidders—notably those who acquired former mutual institutions and properties

[3] http://www.gao.gov/archive/1996/ai96123.pdf.

in the RTC's West category—had experienced persistently negative and abnormal returns. The only subset of transactions in which the acquirers earned significant gains was transfers of insured deposits. Nanda, Owers, and Rogers (1997) focused on the auctions of whole institutions, branch sales, and the transfer of insured deposits. In these transactions, the winning bidder acquired the assets and the liabilities of the institution or branch. Some of the sales included options from the RTC that "materially reduce the risk for the acquirers" (Nanda, Owers, and Rogers, 1997: 286). Their paper provides a good description of the RTC's resolution process using auctions. Their focus on the sale by auction, merger, and acquisition of whole and partial institutions by the RTC differs from our article, which focuses specifically on the sales prices of REO properties by the RTC. Another difference is that they analyzed only publicly traded acquirers in RTC transactions in 1989 and 1990, while we analyze all sales of REO properties for RTC's entire existence. In our sample, the final property dispositions occurred in 2005, which was 16 years after the RTC was established.

Nearly from the beginning of the RTC, politicians expressed concern that the RTC was selling assets too cheaply. The *Economist* (1991) reported on the political difficulties that the RTC faced in its early days to obtain government funding after its initial sales of failed institutions were at cents on the dollar. Lincoln, the savings and loan institution owned by Charles Keating, which had assets of $5 billion at its peak, sold for only $12 million.[4] The sale of assets at very low prices caused an outcry for more careful oversight of future RTC sales.

In an examination of distressed commercial real estate assets that the FSLIC sold in the late 1980s, Curry, Blalock, and Cole (1991) determined that the average rate of recovery was 64 percent. They found that local market conditions, the difficulty of management, and disposition and write-downs before the FSLIC was declared insolvent were the primary determinants of the recovery rate.

In a related strand of literature, Lea and Thygerson (1994) and Benveniste et al. (1994) developed models for maximizing asset recovery in the context of RTC-style resolution. Lea and Thygerson created a set of optimal disposition rules based on multiperiod cash flow maximization. They concluded that liquid assets and retail deposit franchises needed to be sold as quickly as possible; performing illiquid assets needed to be securitized with seller financing from the RTC, and non-performing illiquid assets needed to be sold with equity-participating loans from the RTC (Lea and Thygerson, 1994). Benveniste et al. (1994) concluded that the RTC would maximize its returns by retaining full or partial ownership of the assets for risk-sharing purposes while placing managerial control of distressed assets in the private sector.

The most comprehensive study of RTC recovery rates, *Managing the Crisis: The FDIC and RTC Experience, 1980–1994* (FDIC, 1998), was published by the FDIC in an inhouse analysis of its experience selling the assets of the institutions it acquired from 1980 through 1994. The study addressed several of the areas we focus on in the present article. In particular, the RTC was concerned about

[4] Charles Keating served 5 years in prison for his mismanagement of the Lincoln Savings and Loan Association. Five senators—Alan Cranston (D-Calif.), Dennis DeConcini (D-Ariz.), John Glenn (D-Ohio), John McCain (R-Ariz.), and Donald Riegle (D-Mich.)—were accused of corruption in 1989 after their intervention into an investigation of Lincoln by the Federal Home Loan Bank Board (FHLBB). The FHLBB subsequently backed off taking action against Lincoln.

public perception of a fire-sale mentality or "dumping" of assets from the start. As a result, the FIRREA legislation that established the RTC precluded the sale of real estate assets for less than 95 percent of market value, which was defined as appraised value. This requirement caused initial sales to be very slow, but FIRREA was amended in 1991 to lower the bar for sales to be not less than 70 percent of the appraised value (FDIC, 1998). The RTC had to dispose of all of the assets held by the institutions it acquired. These assets included not only real estate but also collateral for loans that included everything from wine cellars to bull sperm.[5] In the present article, we focus on REO properties or "owned real estate" (ORE).

> Although ORE sales represented a small percentage of total assets for both the FDIC and the RTC, their disposition was highly visible and attracted much public attention. The FDIC and the RTC were criticized for holding properties too long or selling below market value and adversely affecting real estate markets. (FDIC, 1998: 305)

The FDIC's *Managing the Crisis* (1998) reports the sales price as a percentage of book value for sealed bid loan sales by the FDIC from 1986 through 1994 (FDIC, 1998).

Exhibit 1 shows recovery ratios ranging from 31.5 percent in 1988 to 79.5 percent in 1992 for loan sales that include both performing loans and NPLs.

> The RTC, more so than the FDIC, found itself with an extraordinary volume of assets. As a result, unlike the FDIC, which up to a point was able to take the assets in, manage them for a short period, clean them up, and then sell them, the RTC generally did not have the luxury of time and would market assets without much prior due diligence. For that reason and because the assets held by the RTC were, on the whole, of a lesser quality, the FDIC was generally able to receive a better sales price. (FDIC, 1998: 331)

Exhibit 1

FDIC Sealed Bid Loan Sales, by Year

Year	Loans Sold (N)	Book Value ($ thousands)	Estimated Value ($ thousands)	Sales Price ($ thousands)	Sales Price As a Percentage of Book Value (%)
1986	128,779	341,983	156,606	177,993	52.1
1987	91,123	860,360	331,061	303,338	35.3
1988	71,865	875,419	315,490	276,061	31.5
1989	28,284	493,132	213,597	210,778	42.7
1990	106,668	1,341,397	673,515	645,596	48.1
1991	143,462	2,119,000	1,413,000	1,452,000	68.5
1992	96,529	4,094,093	3,157,408	3,253,847	79.5
1993	136,347	5,386,787	3,338,579	3,332,402	61.9
1994	63,780	4,562,358	2,608,154	2,654,237	58.2
Total/average	**866,837**	**20,074,529**	**12,207,420**	**12,306,252**	**61.3**

FDIC = Federal Deposit Insurance Corporation.

[5] To be fair, it was actually a bull sperm bank. See Gravino (1993).

The RTC structured transactions with input from investors in which they pooled packages of loans by specific products, such as office buildings, nursing homes, and hotels and motels, or by geographic location. These packages were offered for competitive bidding in pools with book values ranging from $100 million to $150 million. The RTC also offered financing from 2-year bridge loans to 7-year fixed-payment loans. The values recovered from these transactions ranged from 46.6 percent in 1992 to 62.4 percent in 1991.[6]

Although we focus on sales of REO properties, most of the RTC's sales were loans (both performing loans and NPLs) rather than directly owned real estate. The RTC extended its representations and warranties to conform with those stipulations customarily granted in the secondary mortgage market, including coverage for loan documentation deficiencies that authorized repurchase or substitution of another qualified loan if a defect was found that was adverse to the buyer. In general, REO property sales carried less risk for potential buyers than loan sales, because title to the property was already vested in the RTC. Nevertheless, our investigation of sales price ratios reveals that the market still had considerable real estate risk, as evidenced by the sizable discounts that purchasers paid relative to the gross loan balances.

Data and Results

Our data include all the REO dispositions from financial institutions acquired by the RTC. Data were acquired through Freedom of Information Act (FOIA) requests (FOIA requests #09-1094 and 09-1537) and cover 4,117 liquidated institutions and 26,079 individual properties. We received administrative data from the RTC's internal systems; any errors reflect errors in its system.

The data from the RTC include a number of characteristics of the asset being liquidated. For 25,423 of the individual properties we observe the type of property (variable aset_prop_typ_cde in the RTC's system). We create bucket categories 'Single Family Residential' (SFRT), 'Apartment' (APTT), 'Industrial' (IND), 'Land' (L), 'Office' (OFF), and 'Retail' (RE).

We also observe the eventual asset sale price ('aset_sale_prc_amt') and the liquidation date of the asset. Our liquidation ratio is based on the ratio of the asset sale price to the Asset Gross Balance Amount ('aset_gros_bal_amt'), which is taken from the RTC's 'ORE_CollateralAppraisal' dataset within its ORE master file. The Asset Gross Balance Amount is the total balance as carried on the servicer's books for the FDIC and other participating parties. This amount creates a ratio of sale price to the total loan balance, which we truncate at 5. We also drop properties for which the eventual sale price is not observed or is listed as being less than zero, and we drop properties for which the Asset Gross Balance Amount is less than $10,100.[7] These property drops leave 18,967 properties in our sample.

Although we do not observe the location of the property, we observe the location of the financial institution that was taken over and liquidated through the RTC. We assume that the properties are in the same census division as the liquidated financial institution. We apply the nine-group

[6] Recovery ratios were 100.2 percent in 1994 and 71.6 percent in 1990, but these years had only 1 and 2 transactions, respectively, whereas the number of transactions from 1991 through 1993 ranged from 28 to 32 per year (FDIC, 1998).

[7] A number of properties have Asset Gross Balances, which were coded with very low numbers.

census divisions. Of the 18,967 properties for which we observe the liquidation price, 9,256 (49 percent) are mapped to financial institutions located in the West South Central division: Arkansas, Louisiana, Oklahoma, and Texas.

Exhibit 2 shows the count of properties liquidated, by type of property, for the primary property types. The sample is dominated by two categories: Land and Single-Family Residential properties. The Land category includes improved and unimproved land, and the Single-Family Residential category includes one-family and two-unit structures. Structures with three or more units are included in the Apartment category. Of the 17,771 properties in these primary categories, 6,120 are land and 7,125 are single-family residential. The remainder includes 2,015 office buildings, 1,173 apartment buildings, 728 retail buildings, and 610 industrial buildings.

Exhibit 2 shows that office sales occur somewhat sooner than average, while industrial and apartment sales occur a little later in the RTC's operating years. Single-family residential and land sales dominate and tend to follow the total sales trend.

Exhibit 3 shows the average recovery ratio, by type of property and year. Across the entire sample, the average recovery ratio is 77.4 percent. The Land category has an average recovery ratio of 63.6 percent, which is the outlier among the categories of property. The recovery ratio for the other categories of property range from 74.0 percent for Office to 94 percent for Industrial.

Exhibit 2

Count of Properties Liquidated, by Year of Disposition and Type

Year	Apartment (APTT)	Industrial (IND)	Land (L)	Office (OFF)	Retail (RE)	Single-Family Residential (SFRT)	Total
1988	10	3	69	59	0	80	221
1989	15	2	102	49	0	75	243
1990	17	2	238	84	1	241	583
1991	29	4	502	174	16	535	1,260
1992	145	61	903	382	132	1,045	2,668
1993	268	199	1,777	547	205	1,704	4,700
1994	177	141	974	254	157	1,203	2,906
1995	181	105	527	192	94	827	1,926
1996	148	44	334	96	61	583	1,266
1997	98	27	311	92	31	378	937
1998	49	10	224	34	8	210	535
1999	30	6	104	8	9	108	265
2000	2	2	26	16	4	52	102
2001	1	2	6	7	1	22	39
2002	0	1	8	9	3	34	55
2003	2	1	6	4	1	16	30
2004	1	0	8	6	3	5	23
2005	0	0	1	2	2	7	12
Total	**1,173**	**610**	**6,120**	**2,015**	**728**	**7,125**	**17,771**

Notes: Apartment includes properties with at least three units. Land includes both improved and unimproved land. Single-family residential includes single-family and two-family properties. Data are taken from the Resolution Trust Corporation's internal systems and include only bank-owned real estate for which the eventual liquidation price is observed and present in its systems.

Exhibit 3

Average Recovery Ratio of Properties Liquidated, by Year of Disposition and Type

Year	Apartment (APTT)	Industrial (IND)	Land (L)	Office (OFF)	Retail (RE)	Single-Family Residential (SFRT)	Total
1988	0.785	—	0.471	0.685	—	0.856	0.681
1989	0.695	—	0.620	0.615	—	0.900	0.709
1990	0.792	—	0.323	0.440	—	0.592	0.467
1991	0.988	0.400	0.290	0.366	0.639	0.619	0.461
1992	1.143	1.346	0.663	0.830	1.106	1.124	0.931
1993	0.791	0.999	0.700	0.859	0.899	0.894	0.815
1994	0.731	0.831	0.677	0.802	0.753	0.861	0.779
1995	0.749	0.802	0.679	0.663	0.774	0.843	0.766
1996	0.627	1.059	0.713	0.734	0.795	0.923	0.817
1997	0.524	0.685	0.646	0.724	1.160	0.704	0.683
1998	0.605	0.701	0.734	0.779	0.488	0.777	0.738
1999	0.701	1.221	0.699	0.893	1.058	0.827	0.782
2000	—	0.649	0.556	0.522	1.183	1.143	0.899
2001	—	—	0.683	0.348	—	1.132	0.905
2002	—	—	0.946	1.277	—	1.129	1.075
2003	—	—	0.875	0.950	—	0.696	0.780
2004	—	—	0.745	0.730	—	0.824	0.723
2005	—	—	—	—	—	0.993	1.240
Total:							
Mean ratio	0.771	0.937	0.636	0.742	0.880	0.876	0.774
SD of ratio	0.736	0.826	0.686	0.761	0.761	0.695	0.719
Count	1,173	610	6,120	2,015	728	7,125	17,771
SE of mean	0.021	0.033	0.009	0.017	0.028	0.008	0.005

SD = standard deviation. SE = standard error.

Notes: Apartment includes properties with at least three units. Land includes both improved and unimproved land. Single-family residential includes single-family and two-family properties. Data are taken from the Resolution Trust Corporation's internal systems and include only bank-owned real estate for which the eventual liquidation price is observed and present in its systems.

From 1990 through 1991, the RTC had the lowest recovery ratios (46.0 percent) overall. Land and office recovery ratios were especially low in 1991, at 29.0 and 36.6 percent, respectively, and apartment and retail recovery ratios were 98.8 and 63.9 percent, respectively. After increasing to 93.1 percent in 1992, recovery ratios peaked again in 1996 at 81.7 percent. In the latter part of the 1990s, the nationwide economic recovery was well under way. Average recovery ratios were generally 80.0 percent or higher. Sales toward the end of the RTC's operations were fewer in number and included some particularly distressed properties that no buyers had wanted previously.[8]

[8] The office recovery ratio in 1999 dropped to 46 percent, but the ratios in 1998 and 2000 were 97 and 111 percent, respectively. One large sale of distressed property (possibly vacant or partially completed) can significantly affect the average recovery ratio for the year.

It is important to note that the average ratios for a number of property types are more than 1.0 in several years, especially for the Single-Family Residential and Retail categories. This result is not surprising because many of the REO assets were of high quality and, as real estate markets improved, the RTC was able to sell the assets for more than their loan balances (Asset Gross Balance Amounts) before foreclosure.

Exhibit 4 shows the divisional distribution of the asset dispositions in the sample. Nearly one-half of the asset sales are in the West South Central census division, which includes the hard-hit states of Arkansas, Louisiana, Oklahoma, and Texas. The New England division accounts for more than one-fourth of the sample, and the Pacific division accounts for about 8 percent.

Through the first 3 years of the sales in our sample (1988 through 1990), nearly all of the sales are properties acquired in the liquidation of financial institutions in the West South Central census division. One-fourth of the asset sales occur in 1993, and sales tail off until the end of the RTC's dispositions in 2005.

Sales in the New England division lag slightly behind sales in the West South Central division, and sales in the Pacific and South Atlantic divisions occur even later, with a higher proportion occurring between 1997 and 1999.

Exhibit 5 shows the average recovery ratios by time period and by division. The West South Central and East South Central divisions see much lower recovery ratios (71.2 and 75.5 percent, respectively) than the other divisions in the sample. The highest recovery ratios occur in the Middle Atlantic and Mountain divisions, where they exceed the loan values: 1.05 and 1.0. After the West South Central division, the New England division has the second highest number of sales (5,265) and its asset recovery ratio is 79.6 percent. It appears to benefit from selling assets later in the 1990s, with recovery ratios well more than 1.0 from 2000 through 2002.

Exhibit 6 shows the average recovery ratios by division and by type of property. The lower observed recovery ratios in the West South Central division reflect two factors: (1) the properties liquidated in that division are disproportionately in the Land category, with a recovery ratio of only 58.8 percent; and (2) recovery ratios in the Office and residential categories, which have the next highest counts, were lower than in the other divisions.

Exhibit 7 shows the distribution of liquidations by time period and by method of disposal. One-half of the sales use brokers, and the remainder use open auctions, sealed auctions, and liquidators.

Exhibit 8 shows recovery ratios by method of disposal. Ratios are highest for the broker-sold properties (88.9 percent) and lowest for properties sold at auction (63.7 percent).

Exhibit 4

Count of Properties Liquidated, by Year of Disposition and Location

Year	EASTNC	EASTSC	MIDATL	MOUNTAIN	NEWENG	PACIFIC	SOUTHATL	WESTNC	WESTSC	TOTAL
1988	0	0	0	0	0	0	0	0	243	243
1989	0	0	1	0	0	0	0	0	258	259
1990	0	0	32	1	2	0	0	0	606	641
1991	0	0	43	0	160	0	0	0	1,188	1,391
1992	71	31	74	8	632	8	35	85	1,843	2,787
1993	74	25	162	47	1,578	230	240	91	2,612	5,059
1994	22	4	245	51	1,079	274	98	72	1,202	3,047
1995	15	9	159	25	863	359	94	81	456	2,061
1996	4	1	75	71	437	380	59	34	261	1,322
1997	15	13	119	16	263	179	114	29	252	1,000
1998	9	7	51	8	125	88	88	15	170	561
1999	1	6	67	8	74	12	34	4	95	301
2000	2	1	8	1	26	21	24	4	28	115
2001	7	7	5	0	8	6	4	2	6	45
2002	26	0	1	0	16	0	0	0	23	66
2003	11	12	1	0	0	0	0	0	8	32
2004	3	5	1	3	2	0	7	0	3	24
2005	0	0	3	4	0	0	4	0	2	13
Total	**260**	**121**	**1,047**	**243**	**5,265**	**1,557**	**801**	**417**	**9,256**	**18,967**

EASTNC = East North Central division. EASTSC = East South Central division. MIDATL = Middle Atlantic division. MOUNTAIN = Mountain division. NEWENG = New England division. PACIFIC = Pacific division. SOUTHATL = South Atlantic division. WESTNC = West North Central division. WESTSC = West South Central division.

Notes: The four census regions and nine divisions are Region 1, Northeast (NEWENG and MIDATL); Region 2, Midwest (EASTNC and WESTNC); Region 3, South (SOUTHATL, EASTSC, and WESTSC); Region 4, West (MOUNTAIN and PACIFIC). Data are taken from the Resolution Trust Corporation's internal systems and include only bank-owned real estate for which the eventual liquidation price is observed and present in its systems.

Exhibit 5

Recovery Ratio of Properties Liquidated, by Year of Disposition and Location

Year	EASTNC	EASTSC	MIDATL	MOUNTAIN	NEWENG	PACIFIC	SOUTHATL	WESTNC	WESTSC	TOTAL
1988	—	—	—	—	—	—	—	—	0.676	0.676
1989	—	—	—	—	—	—	—	—	0.693	0.697
1990	—	—	1.607	—	—	—	—	—	0.435	0.492
1991	—	—	2.037	—	1.268	—	—	—	0.293	0.459
1992	0.873	0.776	1.953	1.409	1.196	0.944	0.650	0.603	0.825	0.933
1993	0.866	0.763	1.091	1.074	0.734	0.889	0.775	0.699	0.848	0.818
1994	1.281	2.048	1.043	1.002	0.679	0.863	0.904	1.237	0.734	0.778
1995	0.707	0.837	0.792	1.058	0.671	0.785	0.862	1.115	0.847	0.771
1996	0.679	—	0.796	1.109	0.740	0.793	0.969	0.959	0.854	0.816
1997	0.359	0.398	0.693	0.764	0.713	0.691	0.683	0.754	0.654	0.681
1998	0.376	0.516	0.749	0.472	0.811	0.805	0.702	0.680	0.686	0.731
1999	—	1.066	0.852	0.585	0.841	0.561	0.683	0.152	0.755	0.775
2000	—	—	0.945	—	1.358	0.963	0.539	0.380	0.669	0.871
2001	0.426	0.312	0.583	—	1.846	0.933	0.606	—	1.289	0.905
2002	0.757	—	—	—	2.358	—	—	—	0.563	1.083
2003	0.735	0.841	—	—	—	—	—	—	0.684	0.790
2004	0.531	0.534	—	—	—	—	0.727	—	1.289	0.708
2005	—	—	—	0.623	—	—	0.246	—	1.781	1.211
Total:										
Mean ratio	0.811	0.755	1.053	1.007	0.796	0.808	0.774	0.871	0.712	0.774
SD of ratio	0.787	0.81	1.094	0.809	0.698	0.525	0.538	0.874	0.719	0.730
Count	260	121	1,047	243	5,265	1,557	801	417	9,256	18,967
SE of mean	0.049	0.074	0.034	0.052	0.010	0.013	0.019	0.043	0.007	0.005

EASTNC = East North Central division. EASTSC = East South Central division. MIDATL = Middle Atlantic division. MOUNTAIN = Mountain division. NEWENG = New England division. PACIFIC = Pacific division. SD = standard deviation. SE = standard error. SOUTHATL = South Atlantic division. WESTNC = West North Central division. WESTSC = West South Central division.

Notes: The four census regions and nine divisions are Region 1, Northeast (NEWENG and MIDATL); Region 2, Midwest (EASTNC and WESTNC); Region 3, South (SOUTHATL, EASTSC, and WESTSC); Region 4, West (MOUNTAIN and PACIFIC). Data are taken from the Resolution Trust Corporation's internal systems and include only bank-owned real estate for which the eventual liquidation price is observed and present in its systems.

Exhibit 6

Count and Average Recovery Ratio of Properties Liquidated, by Specific Divisions and Type of Property

Year	Apartment (APTT)	Industrial (IND)	Land (L)	Office (OFF)	Retail (RE)	Single-Family Residential (SFRT)	Total
West South Central division							
Count	231	353	4,118	936	418	2,656	8,712
Ratio	0.984	1.046	0.588	0.662	0.956	0.815	0.712
New England division							
Count	556	147	946	597	143	2,604	4,993
Ratio	0.649	0.727	0.685	0.812	0.671	0.885	0.801
Pacific division							
Count	191	49	358	115	66	694	1,526
Ratio	0.672	0.927	0.645	0.825	0.749	0.932	0.812
All other divisions							
Count	195	61	698	367	101	1,171	2,593
Ratio	0.965	0.823	0.851	0.807	0.951	0.962	0.907

Notes: The four census regions and nine divisions are Region 1, Northeast (New England and Middle Atlantic divisions); Region 2, Midwest (East North Central and West North Central divisions); Region 3, South (South Atlantic, East South Central, and West South Central divisions); Region 4, West (Mountain and Pacific divisions). Apartment includes properties with at least three units. Land includes both improved and unimproved land. Single-family residential includes single-family and two-family properties. Data are taken from the Resolution Trust Corporation's internal systems and include only bank-owned real estate for which the eventual liquidation price is observed and present in its systems.

Exhibit 7

Count of Properties Liquidated, by Year of Disposition and Liquidation Method

Year	Open Auction	Broker	Liquidator	Sealed Bid	Total
1988	63	81	53	24	221
1989	49	136	52	2	243
1990	116	253	49	11	583
1991	159	811	68	79	1,260
1992	357	1,962	177	127	2,668
1993	1,719	2,400	337	215	4,700
1994	1,029	1,409	242	216	2,906
1995	671	832	183	237	1,926
1996	140	781	112	229	1,266
1997	190	523	119	56	937
1998	169	260	61	41	535
1999	83	98	42	36	265
2000	3	45	25	23	102
2001	1	18	10	4	39
2002	0	13	40	1	55
2003	9	6	7	8	30
2004	0	10	12	0	22
2005	0	2	2	8	12
Total	4,758	9,640	1,591	1,317	17,770

Notes: Apartment includes properties with at least three units. Land includes both improved and unimproved land. Single-family residential includes single-family and two-family properties. Data are taken from the Resolution Trust Corporation's internal systems and include only bank-owned real estate for which the eventual liquidation price is observed and present in its systems.

Exhibit 8

Average Liquidation Ratio of Properties Liquidated, by Year of Disposition and Liquidation Method

Year	Open Auction	Broker	Liquidator	Sealed Bid	Total
1988	0.636	0.822	0.544	0.621	0.681
1989	0.533	0.803	0.621	—	0.709
1990	0.474	0.679	0.769	0.497	0.467
1991	0.293	0.569	0.681	0.299	0.461
1992	0.758	0.994	0.955	0.650	0.931
1993	0.666	0.934	0.832	0.759	0.815
1994	0.618	0.929	0.780	0.585	0.779
1995	0.636	0.868	0.863	0.707	0.766
1996	0.671	0.895	0.767	0.675	0.817
1997	0.630	0.798	0.525	0.372	0.683
1998	0.591	0.858	0.780	0.589	0.738
1999	0.725	0.909	0.644	0.849	0.782
2000	—	1.194	0.729	0.824	0.899
2001	—	1.239	0.920	0.675	0.905
2002	—	0.896	1.158	—	1.075
2003	0.800	1.057	0.384	0.895	0.780
2004	—	0.693	0.715	—	0.705
2005	—	—	—	1.171	1.240
Total:					
Mean ratio	0.637	0.889	0.787	0.648	0.774
SD of ratio	0.560	0.768	0.790	0.628	0.719
Count	4,758	9,640	1,591	1,317	17,770
SE of mean	0.008	0.008	0.020	0.017	0.005

SD = standard deviation. SE = standard error.

Notes: Apartment includes properties with at least three units. Land includes both improved and unimproved land. Single-family residential includes single-family and two-family properties. Data are taken from the Resolution Trust Corporation's internal systems and include only bank-owned real estate for which the eventual liquidation price is observed and present in its systems.

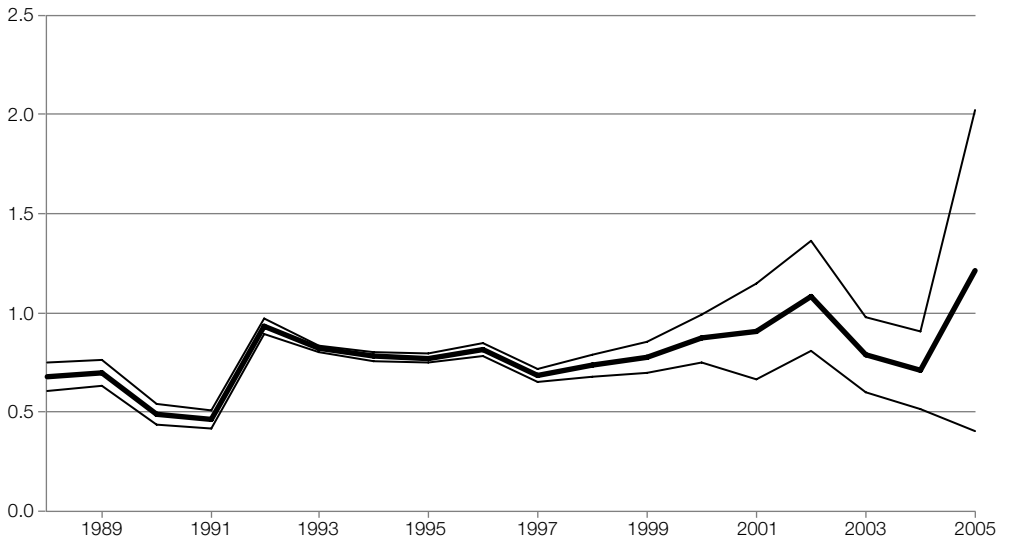
Discussion and Conclusion

Exhibits 9 and 10 summarize the recovery ratio trends over the life of the RTC. Exhibit 9 shows the mean recovery ratios by year for all REO property sales. The darker line is the mean, and the lighter lines represent the ± 2 standard error boundaries. Overall, the chart suggests that after a drop to less than 50 percent in 1990 and 1991, recovery ratios increase to 90 percent in 1992 and gradually fall back to 70 percent in 1997. The ratios increase again to a peak in 2002. The sales at the very end demonstrate a lot of variance but represent only a small number of sales.

The early asset sales in 1988 are the low-hanging fruit—sales of assets that were prime or for which buyers appear to be willing to pay high prices. The RTC initially was precluded from selling assets more than 5 percent less than the appraised value. The removal of this constraint in 1990 enabled a more rapid sales cycle and ushered major investors into the market. The recovery ratios rebounded

Exhibit 9

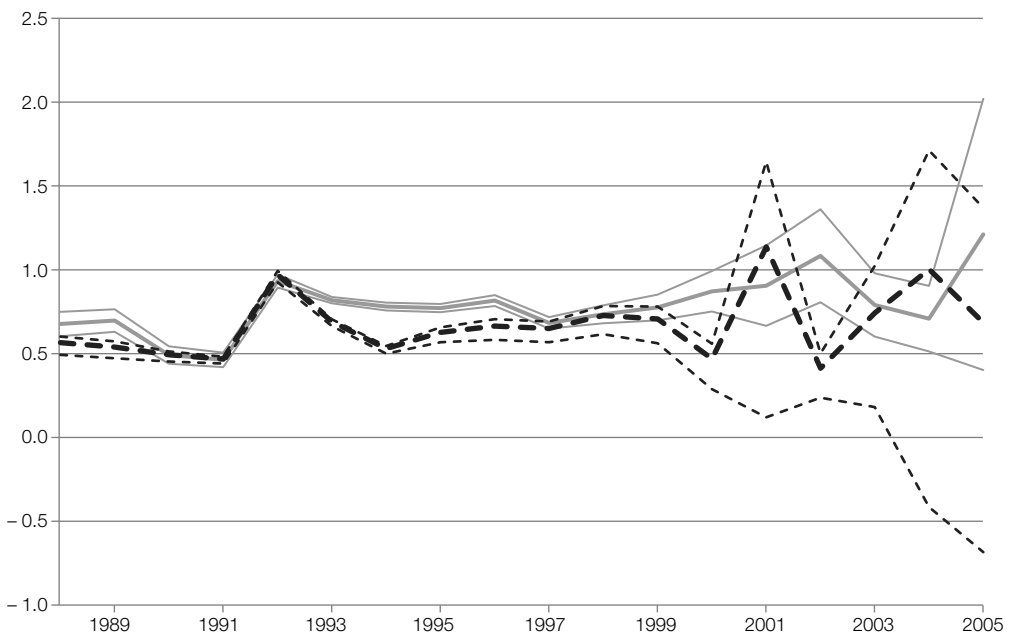
Recovery Ratios, by Year



Note: Lighter lines show ± 2 standard deviations.

Exhibit 10

Recovery Ratios for Total Sample and West South Central Division, by Year



Notes: Lighter lines show ± 2 standard error bands. Solid lines indicate the total sample. Dashed lines indicate the West South Central division.

quickly to the mid-range of 70 to 90 percent, where they remained until 2002. The lighter lines show ± 2 standard deviations for the recovery ratios, which increase toward the end as the RTC was selling fewer assets.

Exhibit 10 compares the recovery ratios by year for the total sample with those of the West South Central division. This division had the largest number of asset sales and was the location of the earliest asset sales by the RTC.

In the rolling recession that characterized the S&L crisis, the West South Central division also experienced the earliest wave of the economic downturn and the collapse of the real estate market. Thus, the chart shows that the recovery ratios in the West South Central division virtually match the total sample ratios in the early years up until 1992. Ratios in the West South Central division were well below average from 1993 through 1996. After that, the ratios in this division bounce around, but the wider standard deviations of the means indicate that the number of asset sales also drops.

Exhibits 11a and 11b show the average house prices by division published as house price indexes (HPI) by the Office of Federal Housing Enterprise Oversight (OFHEO).[9] The exhibits show how the recession of the late 1980s through the early 1990s affected different divisions in different time periods. Although cycles among different property types, and especially between commercial and residential property, vary within the same division based on different economic forces, house prices indicate the state of the economic cycle in different divisions. The West South Central division suffered its collapse in the mid-1980s, but the downturn did not hit the coasts—the Pacific and New England divisions—until the early 1990s. House prices in the New England and Pacific divisions bottomed out in 1994, well after the hardest hit West South Central division was in recovery. Although recovery ratios depend entirely on the quality of individual assets, rising house prices in a division contribute to higher recovery ratios over time, especially for housing and land. This contribution is evident in the New England and Pacific divisions, where house prices increased dramatically after 1999.

In conclusion, the tables and graphs presented here provide a detailed picture of the RTC's experience in disposing of assets during its years of operation from 1988 to 2005. Our database focuses on REO properties of S&L institutions that the RTC took over in the aftermath of the S&L crisis in the mid-1980s. The REO properties represent a small part of the more than 490,000 real estate-related assets that the RTC acquired. Nevertheless, the RTC experience in disposing of the assets provides useful insight into the recent financial crisis and how best to deal with the mountain of NPLs and other assets clogging the banks.

The critical dilemma facing banks today is whether to unload their real estate assets at bargain prices or to hold on to them in hopes that future recoveries from asset sales will be higher. Unlike the S&L crisis, the banks have not been forced to take action by the government.[10] In fact, the

[9] The HPI is a broad measure of the movement of single-family house prices. The HPI is a weighted, repeat-sales index, meaning that it measures average price changes in repeat sales or refinancing on the same properties. This information is obtained by reviewing repeat mortgage transactions on single-family properties in which mortgages have been purchased or securitized by Fannie Mae or Freddie Mac since January 1975 (http://www.fhfa.gov/Default.aspx?Page=81).

[10] The government has a variety of means to put pressure on banks to sell bad loans and REO, such as increasing the capital requirements for such assets or requiring banks to respond to negative audits by the Office of the Inspector General of the FDIC.

Exhibit 11a

Average House Prices, by Year and Census Division, Published by the OFHEO

Year	EASTNC	EASTSC	MIDATL	MOUNTAIN	NEWENG	PACIFIC	SOUTHATL	WESTNC	WESTSC
1988	137.95	138.20	232.89	123.45	290.33	176.81	160.04	128.55	110.46
1989	146.36	142.36	238.32	126.83	292.18	211.47	168.20	132.47	113.41
1990	151.85	143.18	231.36	129.18	269.70	217.50	168.34	133.22	113.81
1991	158.74	149.13	234.73	135.27	263.65	220.37	173.49	138.22	118.06
1992	164.89	153.98	238.80	142.45	260.66	217.32	177.15	142.36	122.08
1993	170.96	160.27	241.91	153.58	261.28	213.00	180.51	147.83	127.00
1994	179.37	167.75	233.85	167.33	252.85	205.92	180.71	155.58	128.90
1995	190.21	177.08	241.07	179.96	263.14	211.79	188.48	163.64	134.38
1996	199.69	184.07	241.84	187.62	267.42	214.15	192.73	170.32	137.49
1997	210.01	192.75	249.69	196.91	279.68	225.74	201.43	178.69	142.78
1998	218.77	202.13	259.85	205.04	297.68	241.96	210.70	187.31	149.94
1999	229.24	207.15	272.97	213.09	326.16	256.03	219.44	198.56	156.44
2000	243.01	215.14	294.46	227.63	366.52	284.43	233.92	212.95	164.48
2001	255.61	225.92	320.74	242.15	406.51	310.75	252.83	228.27	174.07
2002	266.62	233.33	354.42	252.42	454.46	344.84	271.24	242.37	181.14
2003	279.16	241.11	391.01	263.89	499.86	386.10	292.84	256.67	186.37
2004	294.71	253.10	441.05	293.51	559.46	465.61	332.35	273.47	194.76
2005	309.38	270.10	497.95	343.49	608.40	550.95	388.29	289.59	206.73

EASTNC = East North Central division. EASTSC = East South Central division. MIDATL = Middle Atlantic division. MOUNTAIN = Mountain division. NEWENG = New England division. OFHEO = Office of Federal Housing Enterprise Oversight. PACIFIC = Pacific division. SOUTHATL = South Atlantic division. WESTNC = West North Central division. WESTSC = West South Central division.

Notes: The four census regions and nine divisions are Region 1, Northeast (NEWENG and MIDATL); Region 2, Midwest (EASTNC and WESTNC); Region 3, South (SOUTHATL, EASTSC, and WESTSC); Region 4, West (MOUNTAIN and PACIFIC). Data are taken from the Resolution Trust Corporation's internal systems and include only bank-owned real estate for which the eventual liquidation price is observed and present in its systems.

Source: OFHEO (2013)

Exhibit 11b

Index of OFHEO House Prices, With 1988 = 100

Year	EASTNC	EASTSC	MIDATL	MOUNTAIN	NEWENG	PACIFIC	SOUTHATL	WESTNC	WESTSC
1988	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1989	106.10	103.01	102.33	102.74	100.64	119.60	105.10	103.05	102.67
1990	110.08	103.60	99.34	104.64	92.89	123.01	105.19	103.63	103.03
1991	115.07	107.91	100.79	109.57	90.81	124.64	108.40	107.52	106.88
1992	119.53	111.42	102.54	115.39	89.78	122.91	110.69	110.74	110.52
1993	123.93	115.97	103.87	124.41	89.99	120.47	112.79	115.00	114.97
1994	130.03	121.38	100.41	135.54	87.09	116.46	112.92	121.03	116.69
1995	137.88	128.13	103.51	145.78	90.63	119.78	117.77	127.30	121.65
1996	144.76	133.19	103.84	151.98	92.11	121.12	120.43	132.49	124.47
1997	152.24	139.47	107.21	159.51	96.33	127.67	125.86	139.00	129.26
1998	158.59	146.26	111.58	166.09	102.53	136.85	131.65	145.71	135.74
1999	166.18	149.89	117.21	172.61	112.34	144.81	137.12	154.46	141.63
2000	176.16	155.67	126.44	184.39	126.24	160.87	146.16	165.66	148.90
2001	185.29	163.47	137.72	196.15	140.02	175.75	157.98	177.57	157.59
2002	193.27	168.84	152.18	204.47	156.53	195.03	169.48	188.54	163.99
2003	202.36	174.46	167.89	213.76	172.17	218.37	182.98	199.67	168.72
2004	213.64	183.14	189.38	237.76	192.70	263.34	207.67	212.73	176.32
2005	224.27	195.44	213.81	278.24	209.55	311.61	242.62	225.27	187.15

EASTNC = East North Central division. EASTSC = East South Central division. MIDATL = Middle Atlantic division. MOUNTAIN = Mountain division. NEWENG = New England division. OFHEO = Office of Federal Housing Enterprise Oversight. PACIFIC = Pacific division. SOUTHATL = South Atlantic division. WESTNC = West North Central division. WESTSC = West South Central division.

Notes: The four census regions and nine divisions are Region 1, Northeast (NEWENG and MIDATL); Region 2, Midwest (EASTNC and WESTNC); Region 3, South (SOUTHATL, EASTSC, and WESTSC); Region 4, West (MOUNTAIN and PACIFIC). Data are taken from the Resolution Trust Corporation's internal systems and include only bank-owned real estate for which the eventual liquidation price is observed and present in its systems.

Source: OFHEO (2013)

government stimulus funds under the Troubled Asset Relief Program, or TARP, rather than leading to an increase in lending by the banks, have been used to bolster the banks' balance sheets and have enabled the banks to defer selling off their troubled real estate assets. One key trend we hoped to understand from the RTC database was whether recovery ratios increased significantly over time. The data do show a significant positive trend in the recovery ratios between the low points of 1991 and 2000, which marked the end of the bulk of the sales.[11] Although we do not have information about the condition or quality of the REOs being sold, the data do support the theory that, after the sale of REO assets began in earnest in 1991, recovery ratios quickly recovered and continued to increase over time. We conclude that, although more research is needed that takes into account the condition of the assets, our article provides evidence in support of speeding up sales of troubled assets. As long as the properties remain sitting idly on the books of the banks, they impede the banks' ability to make new loans and continue to depress real estate prices as potential investors remain on the sidelines waiting for the surge of distressed asset sales that have yet to come to market.

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Additional Reading

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