



The Quarterly Review of Interest Rate Risk

Volume 2, Number 1

First Quarter, 1997

EXECUTIVE SUMMARY

Interest Rate Sensitivity Rises in the First Quarter

Results of the OTS Net Portfolio Value (NPV) Model showed an increase in the interest rate sensitivity of the thrift industry during the first quarter of 1997. At the end of the first quarter, the median sensitivity measure for the industry was 203 basis points, an increase of 21 basis points from the previous quarter. Interest rates, which rose during the first quarter, accounted for most of the increase in the interest rate sensitivity. The industry's ability to absorb interest rate shocks remained unchanged in the first quarter, however, as the median post-shock NPV capital ratio stood at 9.7 percent. Although the overall financial condition of the thrift industry remains strong, a substantial segment of the industry remains vulnerable to potential interest rate shocks. An estimated 78 percent of OTS-regulated thrifts would lose more than 10 percent of their net portfolio value should a 200 basis point interest rate increase occur.

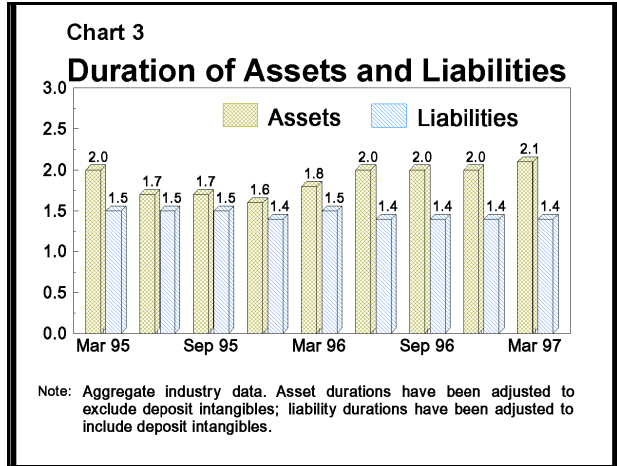
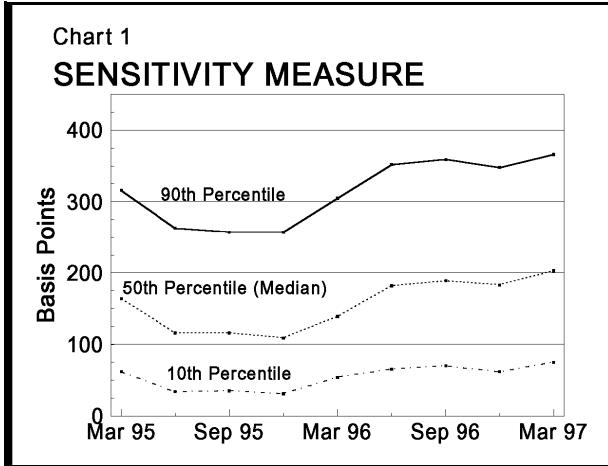
QUARTERLY TREND ANALYSIS

The median sensitivity measure - a key measure of the industry's interest rate sensitivity - increased slightly to 203 basis points at the end of the first quarter, rising 21 basis points from year-end 1996 (Chart 1, page 2). The increase in sensitivity between the fourth quarter of 1996 and first quarter of 1997 can be attributed to a shift in the yield curve. The yield curve at the end of March was higher and steeper than the yield curve at the end of December (Chart 2, page 2). As a result, the

effective durations of the industry's assets increased slightly, while the effective durations of liabilities remained constant (Chart 3, page 2).¹

The median pre-shock NPV ratio for the industry remained essentially unchanged at 11.6 percent in March, and the median post-shock NPV ratio also remained unchanged at 9.7 percent (Chart 4, page 2). Higher post-shock NPV ratios provide thrifts with the ability to withstand interest rate shocks.

Note: See glossary on page 7 for notes and definitions of the terms highlighted throughout this article.



ASYMMETRY OF GAINS AND LOSSES

Table 1 (page 3) shows the estimated percentage change in the industry's aggregate net portfolio value and its NPV capital ratio under different interest rate scenarios for the fourth quarter of 1996, the first quarter of 1997, and the first quarter of 1996. For the thrift industry as a whole, the loss in net portfolio value when interest rates increase is greater than the gain in aggregate net portfolio value when interest rates decrease. For example, the thrift industry would lose about 20 percent of its net portfolio

value if rates rose by 200 basis points, but would gain only 6.4 percent in value if rates fell by 200 basis points. This asymmetry between gains and losses is largely a result of the embedded call option in mortgage loans and mortgage-backed securities. As interest rates decline, the market value of most mortgages increases, but at a decelerating rate, since falling interest rates increase the likelihood that mortgages will be prepaid.

As in past quarters, exposure to changes in interest rates was particularly pronounced at some thrift institutions. The right panel of

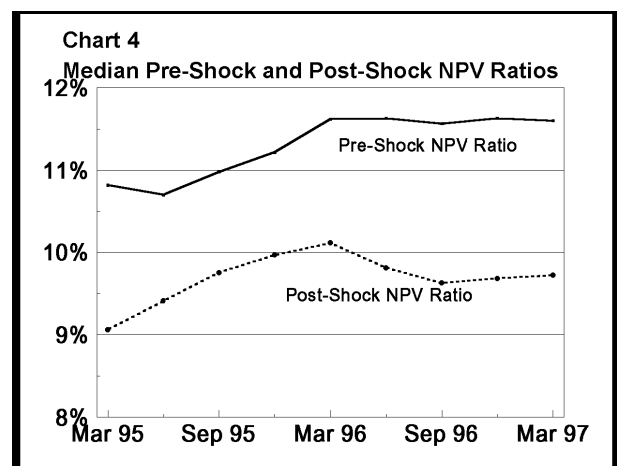
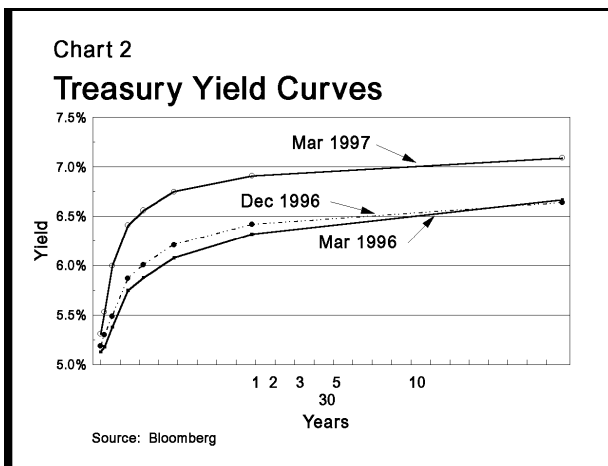


Chart 5 shows the distribution of the estimated percentage change in individual thrift net portfolio values for an increase in interest rates of 200 basis points. Of the 1,211 reporting thrifts, 95 percent would experience a loss of net portfolio value in that scenario. Moreover, about 48 percent of the industry (578 thrifts) would lose more than 20 percent of their economic value if interest rates rose by 200 basis points. The left panel of Chart 5 shows the industry distribution of gains and losses in net portfolio value (in both absolute and percentage terms, respectively) for a 200 basis point

decrease in interest rates. Under this usually favorable scenario, 79.8 percent of the reporting thrifts would experience increases in their net portfolio values.

Chart 6 (page 4) shows how the distribution of gains and losses for the first quarter of 1997 compares with that for the first quarter of 1996 given both a decrease and an increase in interest rates of 200 basis points. As shown in the left panel of Chart 6, the distribution of gains and losses in the first quarter of 1997 generally has more observations in the upper

Table 1
Interest Rate Risk Measures
(Industry aggregate data)

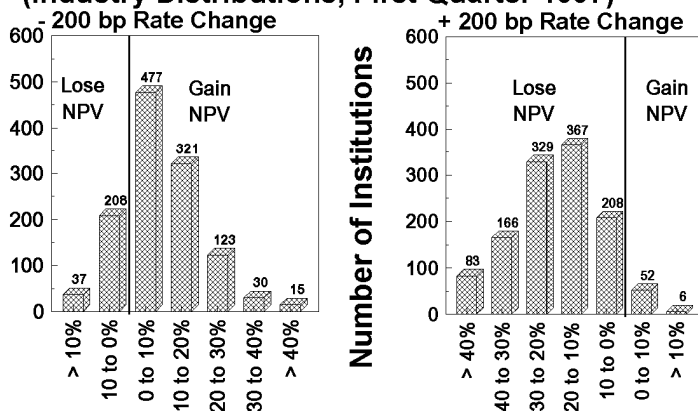
Change in Interest Rates (basis points)	Percentage Change in NPV			Ratio of NPV-to-Assets		
	Mar 96	Dec 96	Mar 97	Mar 96	Dec 96	Mar 97
+300	-21.4	-33.6	-32.5	8.0	6.9	7.1
+200	-11.8	-20.4	-19.5	8.8	8.1	8.3
+100	-4.5	-8.9	-8.4	9.4	9.2	9.2
Base Case	0.0	0.0	0.0	9.8	9.9	9.9
-100	2.2	5.4	4.8	9.9	10.3	10.3
-200	2.2	7.0	6.4	9.8	10.4	10.4
-300	3.7	8.5	7.7	9.9	10.5	10.5

tail (gains) and fewer observations in the lower tail (losses) compared to the same distribution in the first quarter of 1996. The reverse situation generally holds for the distribution of gains and losses when interest rates rise by 200 basis points, as shown in the right panel of Chart 6. These results are consistent with the thrift industry displaying a greater interest rate sensitivity in the first quarter of 1997 compared with that a year ago.

INDUSTRY PROFILE

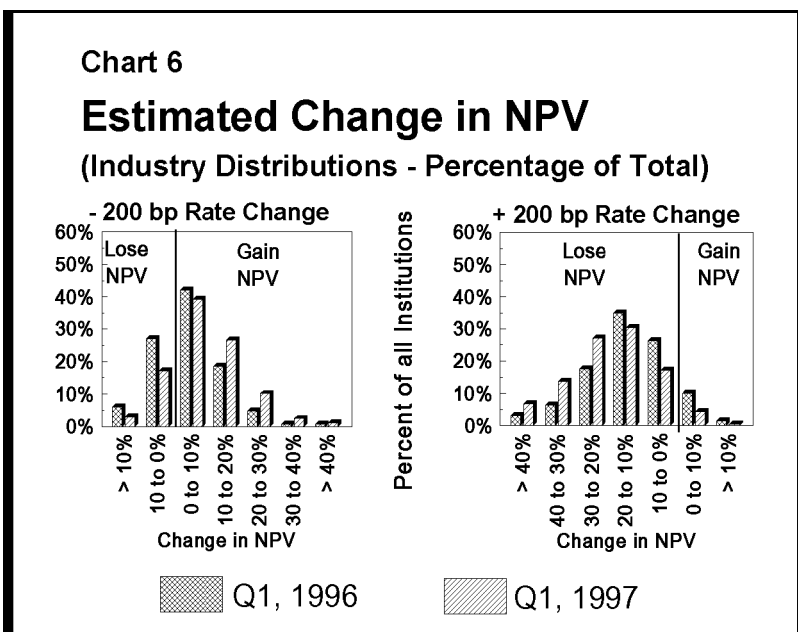
The pre- and post-shock NPV capital ratios of each reporting thrift are plotted in the NPV Sensitivity Chart (Chart 8, page 5). In this chart, the horizontal axis represents a thrift's pre-shock NPV ratio and the vertical axis represents its post-shock NPV ratio. The 45 degree line in the chart represents the "zero sensitivity line," where pre- and post-shock NPV ratios are equal. Each dot denotes the pre- and post-shock NPV capital

Chart 5
Estimated Change in NPV
(Industry Distributions, First Quarter 1997)



ratios for a thrift. The 25 thrifts with post-shock NPV ratios of less than 4.0 percent appear in the area below the dotted horizontal line. A thrift institution whose post-shock NPV ratio is below the 4.0 percent line either has a relatively low level of capital, a high degree of NPV sensitivity, or both. In general, thrifts with exposure ratios below that level should take steps to strengthen their capital position or reduce their interest rate sensitivity.

Further analysis indicates that 19 of the 25 thrifts with exposure measures below 4.0 percent also had sensitivity measures in excess of the industry median of 203 basis points. This suggests that these thrifts with exposure measures below 4.0 percent are highly exposed primarily due to excessive interest rate sensitivity rather than inadequate capital levels.



THRIFT SIZE AND INTEREST RATE RISK

Table 2 reports the pre-shock and post-shock NPV ratios and the sensitivity measure for three different thrift-size categories for March 1997 and March 1996. Both the pre-shock and the exposure ratios are inversely related to thrift size in both quarters. That is, as thrift size increases, both ratios fall. The relation between thrift size and the sensitivity measure displays a different pattern. An upside down U-shape characterizes the relation between thrift-size and sensitivity. Inspection of Table 2 also shows that interest rate risk increased substantially for each of the three size categories between March 1996 and March 1997. This is shown by a decline in the exposure ratios and an increase in the sensitivity measures.

Table 2
Thrift Size and Interest Rate Risk Measures
 (Industry Medians)

Base Case Assets	Number of Institutions	NPV Ratios		Sensitivity Measure
		Pre-Shock	Post-Shock	
March 1997				
Under \$500 Million	1,002	12.08%	10.09%	198
\$500 to \$1 Billion	96	10.43%	8.57%	238
Over \$1 Billion	113	9.62%	7.44%	213
March 1996				
Under \$500 Million	1,102	11.88%	10.40%	137
\$500 to \$1 Billion	102	11.06%	9.43%	180
Over \$1 Billion	111	9.31%	7.97%	132

Chart 7
Institutions with Exposure Ratios under 4.0 Percent

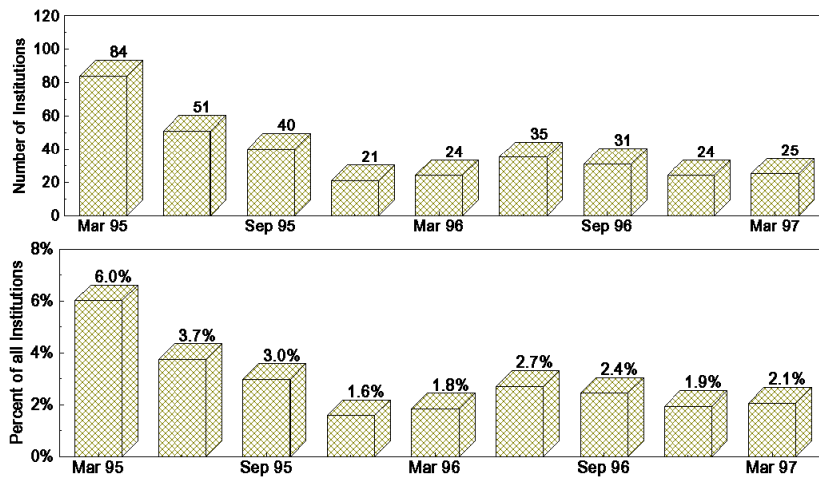
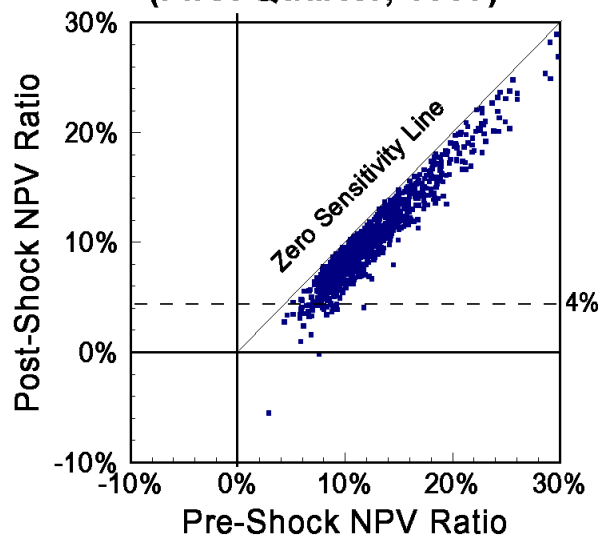
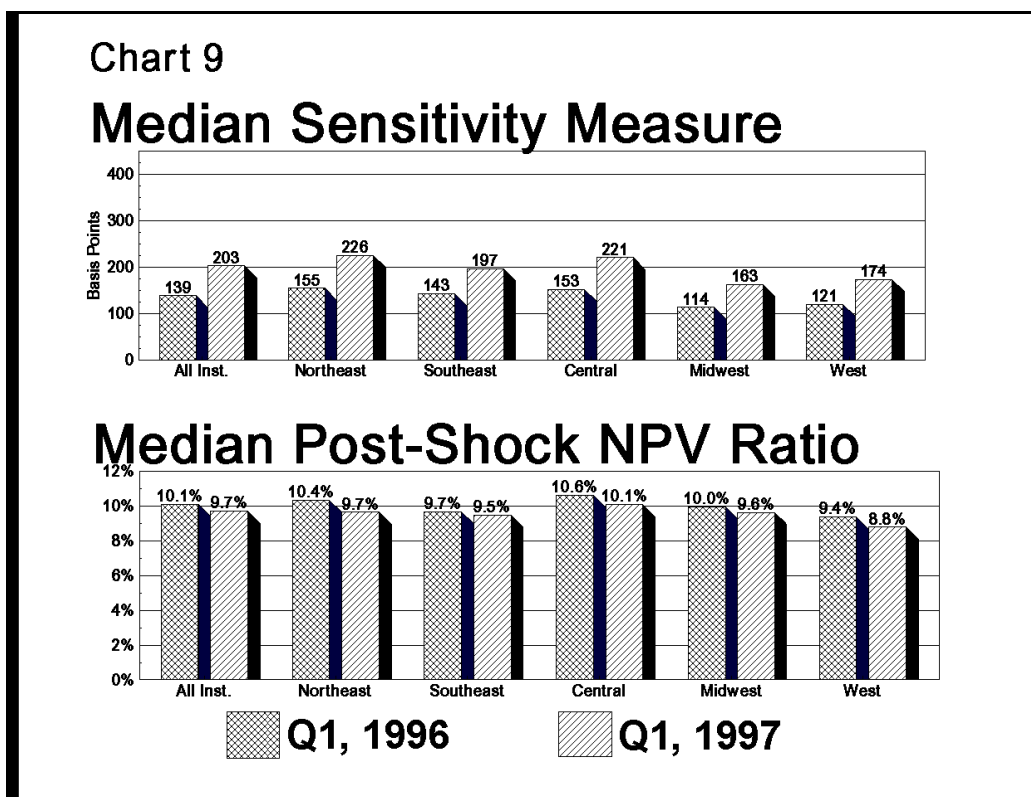


Chart 8
SENSITIVITY CHART
 (First Quarter, 1997)





EXPOSURE MEASURES UNDER 4 PERCENT RAISE CONCERNS

Any thrift with a post-shock NPV ratio below 4.0 percent gives cause for supervisory concern. The number of thrifts with exposure measures below that level increased slightly in the fourth quarter to 25, well below the recent peak level of 142 in December 1994. At the end of the first quarter, 2.1 percent of all thrifts had exposure measures below the 4.0 percent level.

REGIONAL PROFILE

The median sensitivity measures for the entire industry and by OTS region for the first quarter of 1996 and for the first quarter of 1997 are presented in the top panel of Chart 9. As shown in the chart, the Northeast Region had the largest median sensitivity measure in the first quarter of 1997, while the Midwest Region had the smallest. In comparing first

quarter 1996 with first quarter 1997, the Northeast Region experienced the largest increase in median interest rate sensitivity. Over the same period, the Midwest Region had the smallest increase in the median sensitivity measure.

The lower panel of Chart 9 shows the median post-shock NPV ratio (exposure ratio) for the entire industry and by OTS region. The results indicate that the entire industry as well as each of the five regions experienced an increase in interest rate risk as manifested by a fall in post-shock NPV ratios between the first quarter of 1996 and the first quarter of 1997. In the first quarter of 1997, the Central Region had the highest post-shock NPV ratio, while the West Region had the lowest post-shock NPV ratio. ■

Anthony G. Cornyn, CFA
Jonathan D. Jones, Ph.D.

End Notes:

1. *Duration is a measure of the price sensitivity of a financial instrument for small changes in yield. The higher the duration of an instrument, the greater is its price sensitivity. For example, an asset with a duration of 1.6 will appreciate in value by about 1.6 percent for a one percentage point (100 basis points) decline in yield. The reverse would hold if yields rose by one percent.*

GLOSSARY

Pre-Shock NPV Ratio	Equity-to-assets ratio expressed in present value terms (i.e., base case NPV divided by present value of assets).
Post-Shock NPV Ratio (Exposure Ratio)	Equity-to-assets ratio expressed in present value terms following an adverse 200 basis point interest rate shock. Also referred to as the exposure ratio.
Sensitivity Measure	Difference between pre-shock and post-shock NPV Ratios (expressed in basis points).
Estimated Change in NPV	The percentage change in base case NPV caused by an interest rate shock.

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