

The Quarterly Review Of Interest Rate Risk

Economic Analysis Division,
 Office of Thrift Supervision



Special points of interest:

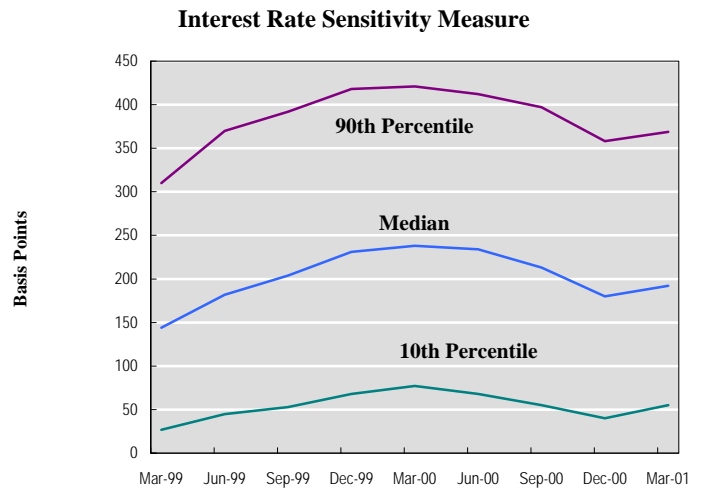
- Interest rate sensitivity increases modestly
- Yield curve becomes upward sloping
- Core deposits and their valuation in the NPV Model
- Pre- and post-shock NPV ratios increase
- Mortgage rates fall
- FHLB advances update

Increase in NPV Offsets First Quarter Rise in Sensitivity

Median thrift sensitivity climbed to 192 basis points in the first quarter, up from 180 basis points in December. This increase reflects the effect of a decrease in the effective duration of liabilities.

Overall thrift industry interest rate risk exposure declined as the increase in the median pre-shock and post-shock Net Portfolio Value (NPV) ratios more than offset the rise in sensitivity.

The number of thrifts with higher interest rate risk declined for the fifth consecutive quarter. See



details inside, starting on page 3.

Core Deposits and Their Valuation in the NPV Model

For the typical savings institution, profitability is intimately related to its net interest spread. This spread refers to the difference between what a bank pays depositors and other creditors to use their funds and what it earns on the loans made with these funds.

For example, a recent study of the top 50 banks in the U.S. by the Bank Administration Institute (BAI) and First Manhattan Consulting Group (FMCG) finds that the liability spread and the fees associated with checking and savings accounts provides the banking industry with 51

percent of its revenue and two-thirds of its profits. (See *Banking Strategies*, May/June 2001, "Liquidity Drought" for details. The discussion here draws heavily from this article).

Deposit funds generally come in two types -- core deposits and wholesale deposits. Core deposits consist of checking, savings, and money market accounts made by the core customers of a financial institution.

Core depositors are a bank's loyal retail customers who tend to place relatively more value on the convenience, service, and relationship they have with

their bank above getting the very highest interest rate on their funds.

On the other hand, banks can obtain wholesale deposits in the commercial money markets from customers who value achieving the highest possible insured return far more than the other factors valued by core depositors.

Core deposits generally carry lower interest rates than wholesale deposits, and are less likely to be withdrawn to earn higher rates elsewhere. Because of this, banking institutions enjoy a wider net interest spread when loan demand

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Core Deposits and Their Valuation in the NPV Model (continued)

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can be funded with core deposits.

Another attractive feature of core deposits is that these funds are less likely than wholesale deposits to be withdrawn from banks during economic downturns and financial crises. All things considered, therefore, core deposits are both a cheaper and a more reliable source of funds with which to satisfy loan demand.

The supply of core deposits has been dwindling since the 1970s, when interest rates were deregulated. However, the 1990s saw a dramatic speed-up in the erosion of core deposits, as the mutual funds boom drove many retail investors to shift their wealth from deposit accounts in banks to the stock market in order to earn very attractive returns.

According to the aforementioned BAI/FMCG study, between 1993 and 1999, core deposits as a percent of consumer and small business assets fell from 21 percent to 11 percent. Consistent with this overall decrease, the Office of the Comptroller of the Currency points out that the percentage of banks in the U.S. able to fund at least two-thirds of total assets with core deposits decreased from 95 percent to 75 percent between 1992 and 2000.

While many financial institutions, especially large banks, were able to make up for the loss of core deposits during the 1990s through increased fee income and merger efficiencies, fee income has leveled off recently and the

industry has consolidated to the point where dramatic gains in efficiencies are becoming more difficult to come by.

As a result, financial institutions of all sizes are being forced to engage in price competition to attract a substantially smaller supply of core deposits.

While deposit-pricing pressures have eased somewhat recently (as a result of the series of decreases in short-term interest rates by the Federal Reserve and the rise in core deposits, as retail investors fled a plunging stock market in 2000 and early 2001), financial institutions are still faced with the long-term problem of how to beef up their levels of core deposits.

A recent Credit Suisse First Boston staff report warns that tightening net interest margins associated with deposit pricing pressures will become a "prevailing trend," reducing bank earnings by between 7 percent and 15 percent. Indeed, many observers of the banking industry view the widening gap between core deposits and loan demand as the hidden crisis of banking.

Given the growing importance of core deposits, effective with the March 2001 reporting cycle, the OTS Net Portfolio Value Model incorporated an updated methodology to value core (nonmaturity) deposits reported on Schedule CMR. New regression coefficients for the cash flows, offered rates, equilibrium conditions, and balances for checking, savings, and money market accounts were estimated with up-

dated data.

In addition, starting with the March 2001 cycle, discount rates for core deposits are based on LI-BOR/Swap yields, instead of secondary-market CD yields (see the NPV Model Manual, Section 6-D, available at <http://www.ots.treas.gov/docs/48461.pdf>, for details). These changes produce more accurate valuations and measures of price sensitivity for the core deposits reported by savings associations.

In order to assess the effect of the methodological change in core deposit valuation on sensitivity and post-shock capital levels, we conducted an analysis using CMR and market data for the quarter-ended September 2000. Generally speaking, these changes favorably affect most institutions' levels of interest rate risk because post-shock NPV ratios improve for all savings associations, with the median thrift's post-shock NPV ratio rising by 104 basis points.

Although the changes also produce higher sensitivity measures for many institutions, these higher sensitivity levels are more than offset by higher pre-shock NPV ratios. The actual effect depends, however, on the composition of an institution's core deposits, as well as what proportion of an institution's overall funding is done with core deposits.

Sensitivity rises for most thrifts, with sensitivity increasing by 14 basis points for the median thrift. In contrast, sensitivity falls for thrifts at the fifth percentile level or

lower.

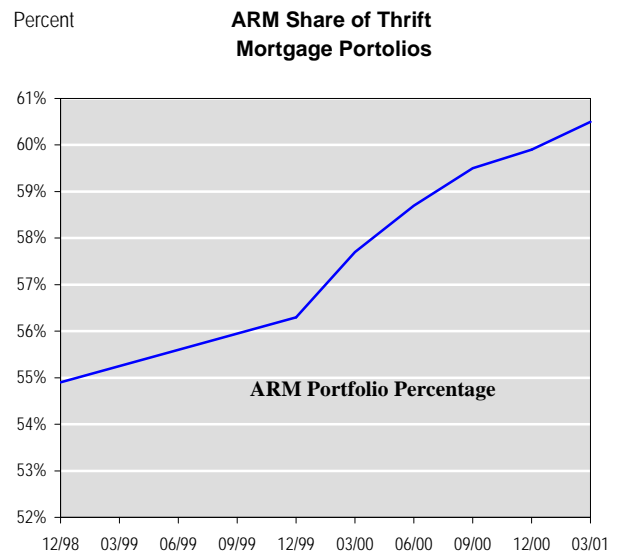
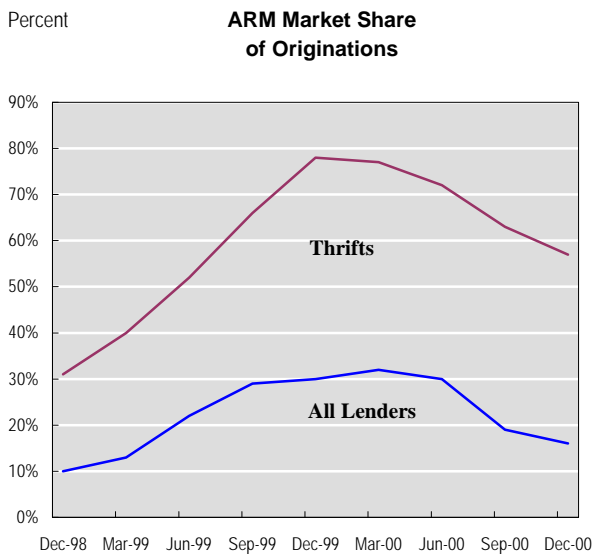
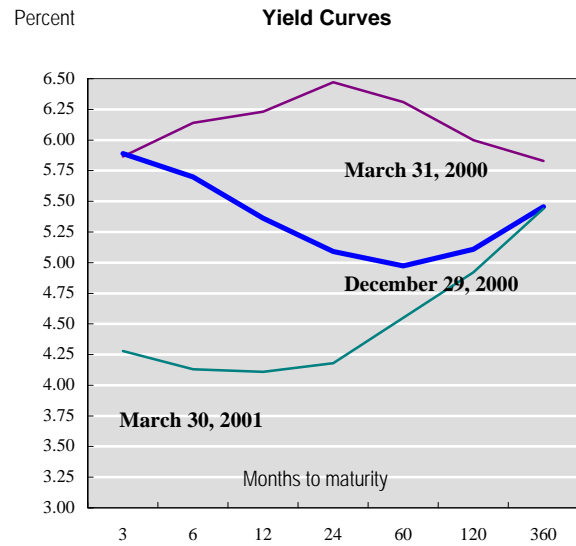
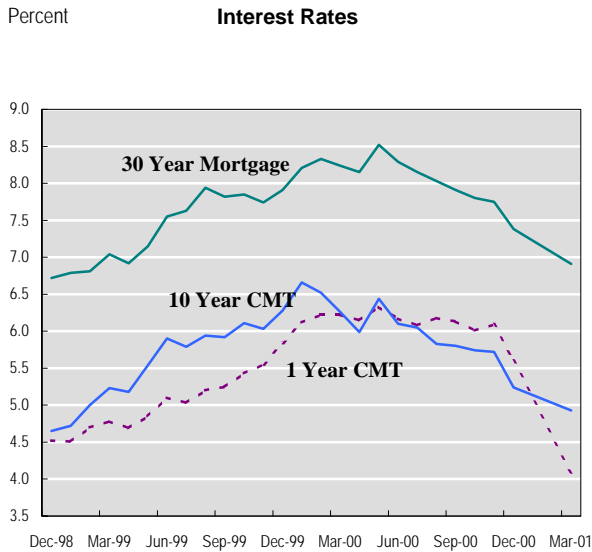
What accounts for these changes? To provide an answer, we examined the effective durations and valuations (estimated present value as a percent of face value) for the various categories of core deposits under both the old and updated valuation methodologies.

The results indicate that sensitivity of the typical thrift's NPV rises because the effective durations of core deposits fall. This happens because core deposits are not as long-lived as they once were, as depositors are more keenly aware of rates of return on alternatives available elsewhere.

At the same time, the pre-shock NPV ratio rises as a result of an increase in core deposit intangible values. With the change in deposit valuation, the NPV Model imputes a higher premium to core deposits because of a greater gap between market interest rates and the lower rates paid on these deposits. This result is consistent with core deposits being more valuable to thrifts today.

The effect of these methodological changes is to raise the typical institution's overall sensitivity and increase its pre- and post-shock NPV ratios. However, the combined effect of these two factors is to reduce the typical institution's exposure to interest rate risk and potentially improve its "S" rating (the sensitivity component of an institution's examination rating).

Interest Rates and ARM Market Share



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Interest rates at all maturities fell in the first quarter, with particularly sharp declines in rates over the short-term range of the Treasury yield curve. The 30-year mortgage rate fell for the fourth consecutive quarter to 6.91 percent, its lowest level since February 1999.

With the dramatic fall in short-term rates, the yield curve became upward-sloping. This improvement resulted from the Federal Reserve's 150 basis points cut in the federal funds target rate during the first

quarter. As a result of a more normally sloped yield curve, thrifts saw their net interest margins rise. The industry's net interest margin improved to 267 basis points in the first quarter, up from 258 basis points in the prior quarter.

With the lower 30-year mortgage rate, long-term, fixed-rate mortgages became relatively more attractive, and ARM originations by thrifts were down in the first quarter. Thrifts' ARM originations fell to 36 percent, down from 57 percent in the prior quarter. Although ARM originations declined,

the share of ARM mortgages held in portfolio rose in the first quarter to 60.5 percent from 59.9 percent in the prior quarter.

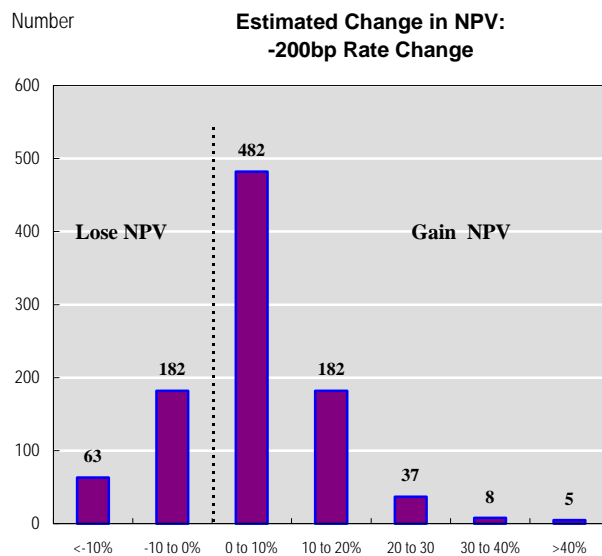
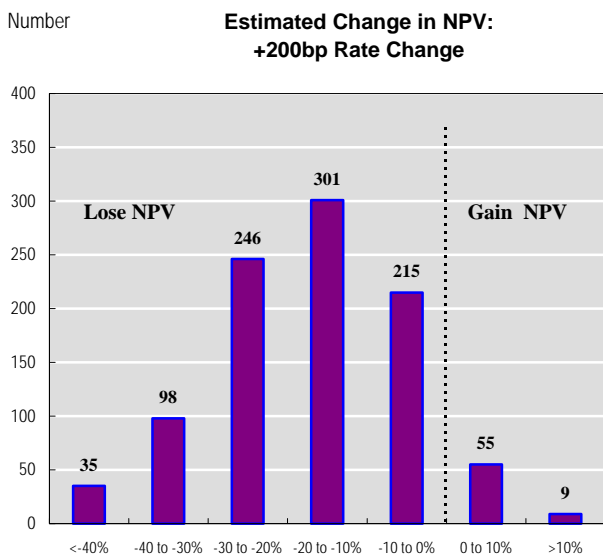
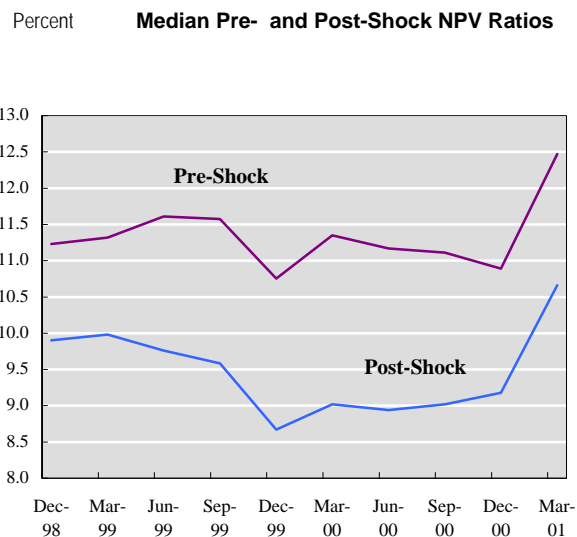
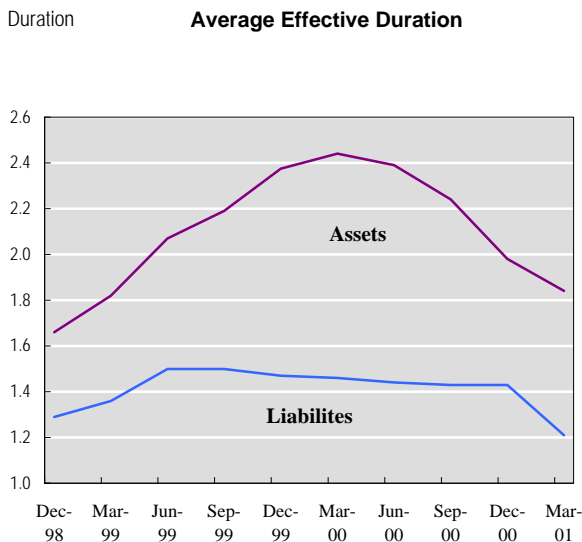
First-quarter 1-4 family mortgage originations by thrifts stood at \$74.3 billion, up sharply from \$55.3 billion in the fourth quarter.

Thrifts' share of all 1-4 family originations was 21.2 percent in the first quarter, up only slightly from 21.1 percent in the fourth quarter.

Refinancing activity of all mortgages accounted for 14.9 per-

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Duration and NPV Sensitivity Measures



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cent of thrift originations in the first quarter, up from 10.8 percent in the fourth quarter. Overall, mortgage originations rose substantially as mortgage interest rates declined and the volume of mortgage refinancing increased.

First-quarter earnings stood at \$2.2 billion, up from \$1.9 billion in the fourth quarter.

The new SFAS 133 accounting rule for derivatives had no noticeable effect on thrifts' earnings in the first quarter, although the ac-

counting rule change affected OTS-regulated thrifts with a December 31 fiscal year-end.

Median assets duration for the industry fell from 1.8 to 1.6 between the fourth and first quarters, due to the fall in interest rates. As rates decline, the NPV Model predicts an increase in the rate of mortgage prepayments. As a result, mortgage durations fall.

Median liabilities duration for the industry declined to 1.2 in the first quarter, down from 1.4 in the prior quarter. This decrease was

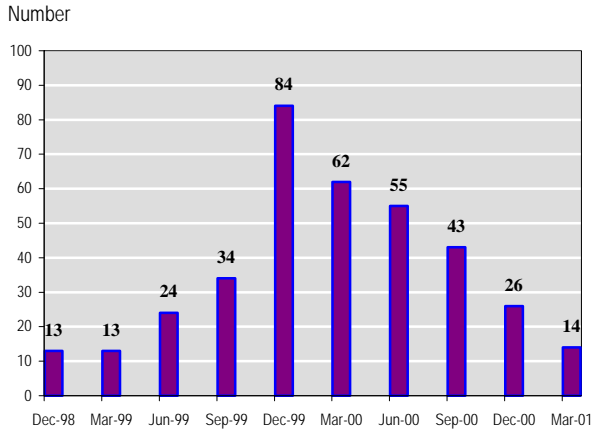
the result of a methodological change in the valuation of core deposits in the NPV Model. (See page 2 of the feature article, "Core Deposits and Their Valuation in the NPV Model").

The median pre-shock NPV ratio for the industry rose from 10.9 percent to 12.5 percent between the fourth and first quarters. This increase was due to the general fall in interest rates during the first quarter and the same aforementioned methodological change in

(Continued on page 5)

Interest Rate Risk Measures

Thrifts with Post-Shock NPV Ratios Under 4 Percent



Interest Rate Risk Measures Industry Aggregates Last Two Quarters

	Ratio of NPV to Assets		% Change	
	Dec-00	Mar-01	Dec-00	Mar-01
+300	6.0	7.7	-36%	-29%
+200	7.2	8.7	-22%	-18%
+100	8.1	9.6	-10%	-8%
Base	8.8	10.3	0	0
-100	9.2	10.5	+4%	+2%
-200	9.3	10.4	+7%	+3%
-300	9.6	10.3	+12%	+3%

Post-Shock NPV Ratio and Sensitivity Measure Matrix December 2000

	Under 100bp	101-200bp	201-400bp	Over 400bp	Total
Over 10%	121	104	154	18	397
6% to 10%	137	153	135	23	448
4% to 6%	8	27	53	10	98
Below 4%	0	2	16	8	26
Total	266	286	358	59	969

Minimal Moderate Significant High

Post-Shock NPV Ratio and Sensitivity Measure Matrix March 2001

	Under 100bp	101-200bp	201-400bp	Over 400bp	Total
Over 10%	154	160	203	31	548
6% to 10%	73	110	157	17	357
4% to 6%	2	6	24	8	40
Below 4%	0	2	10	2	14
Total	229	278	394	58	959

Minimal Moderate Significant High

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the treatment of deposits, which increases the value of core deposit intangibles.

The median post-shock NPV ratio rose to 10.7 percent in the first quarter due to the increase in the median pre-shock NPV ratio.

In the first quarter, a 200 basis point increase in rates would result in a loss in net portfolio value for 895 thrifts, while 64 thrifts would see their net portfolio value rise.

If rates fell by 200 basis points, 714 thrifts would see their net portfolio values rise, while 245 thrifts would see a decrease in their net portfolio values.

The number of thrifts with a post-shock NPV ratio below 4 percent fell to 14. This represents the fifth consecutive quarterly fall in the number of thrifts that are highly exposed to fluctuations in interest rates.

With a 200 basis point increase in interest rates, the thrift

industry would lose 18 percent of its net portfolio value. This net portfolio loss is down from 22 percent in the previous quarter.

The number of thrifts with a post-shock NPV ratio over 6 percent increased between the fourth and first quarters. In the first quarter, the number of such thrifts was 905 compared to 845 in the fourth quarter.

The number of thrifts with a post-shock NPV ratio below 6 per-

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cent fell to 54 in the first quarter. The number of thrifts with a sensitivity of 200 basis points or less decreased to 507 in the first quarter, down from 552 in the fourth quarter. This increase in more sensitive institutions was due to the methodological change in core deposit valuation that increased sensitivity for the typical thrift. The number of thrifts with over 400 basis points in sensitivity fell slightly to 58 in the first quarter.

As a result of better capital ratios, the number of thrifts with high interest rate risk exposure fell from 34 to 20 between the fourth and first quarters.

FHLB Advances Update

As of December 31, 2000, 56.8 percent of FHLB advances had a remaining maturity of at least one year, up from 49 percent at the end of 1999. In addition, advances with time remaining to maturity of at least one year ranged from a low of 37 percent at the FHLBank of Boston to more than 80 percent at the FHLBank of Atlanta. Much of the Atlanta Home Loan Bank's total reflects puttable advances with a long maturity, but a shorter date to the first exercise date.

Puttable advances increased by \$19.0 billion in 2000, and now represent 23.6 percent of advances, up from 22.3 percent one year ago. As of December 31, 2000, the FHLBank of Atlanta continued to hold more puttable advances than any other FHLbank, with \$28.5 billion.



Glossary

Pre-Shock NPV Ratio: Equity-to-assets expressed in present value terms (i.e., base case NPV divided by present value of assets).

Post-Shock NPV 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.

Duration: A measure of the price sensitivity of a financial instrument to changes in yield. The higher the duration, the greater the price sensitivity. For example, an asset with duration of 1.6 will appreciate in value by about 1.6 percent for one percentage point (100 basis points) decline in yield.

NPV Model: Measures how six hypothetical changes in interest rates (three successive 100 basis point increases and three successive 100 basis point decreases) affect the model's estimate (based on current interest rates) of a thrift's market value of net worth.

Kurtosis: A statistical measure of the tendency of data to be distributed toward the tails, or ends, of the distribution. A normal distribution has a kurtosis statistic close to 0.

Skewness: A statistical measure of the degree to which a distribution is more spread out on one side than the other. A distribution that is approximately symmetric has a skewness statistic close to 0.

Economic Analysis Division

Office of Thrift Supervision
1700 G Street, NW
Washington, DC 20552

David Malmquist, Director
Economic Analysis Division
Phone: 202-906-5639
Email: david.malmquist@ots.treas.gov

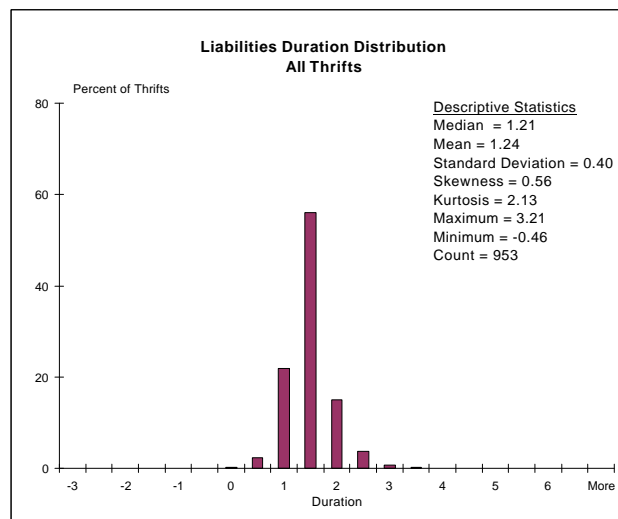
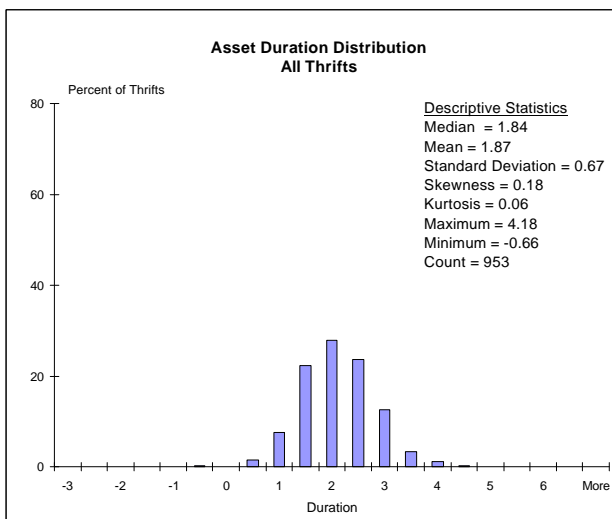
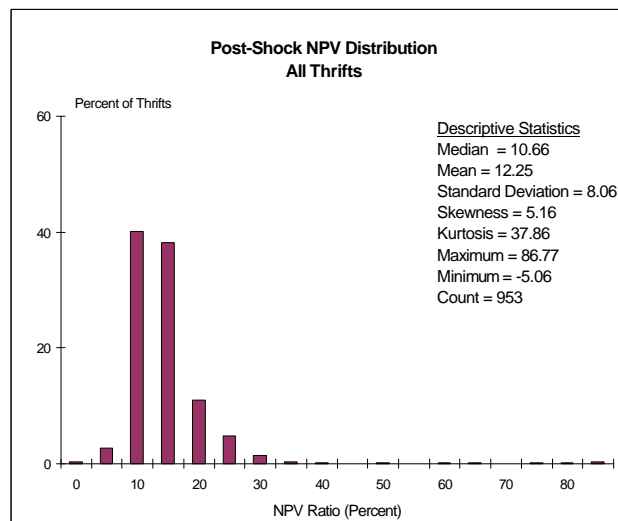
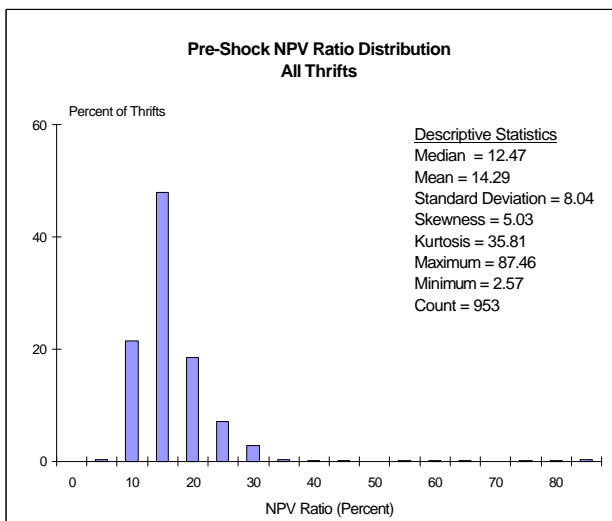
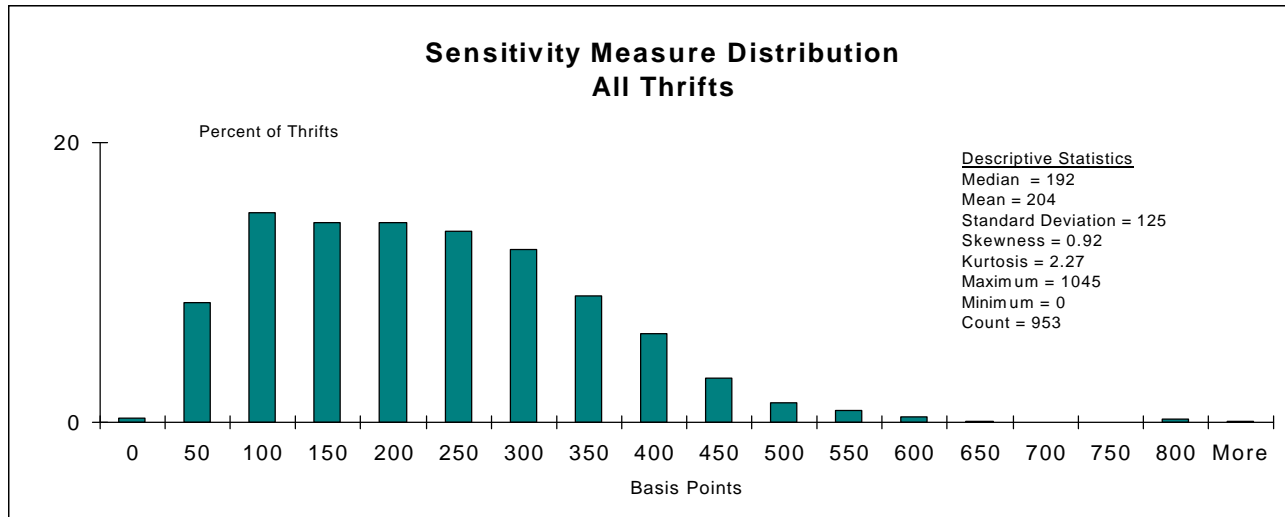
Prepared by:

Jonathan D. Jones
Phone: 202-906-5729
Email: jonathan.jones@ots.treas.gov

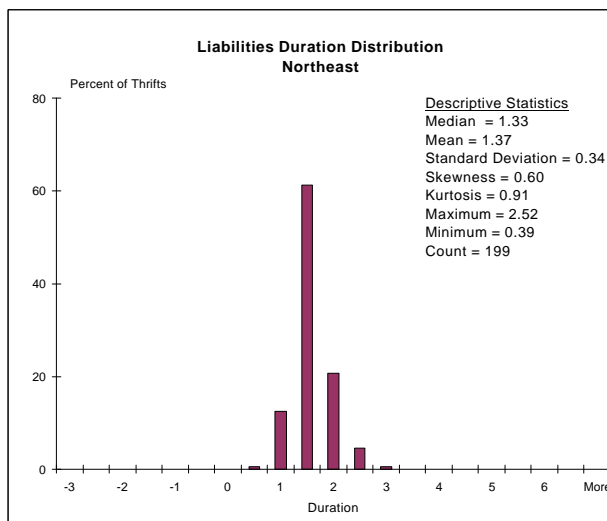
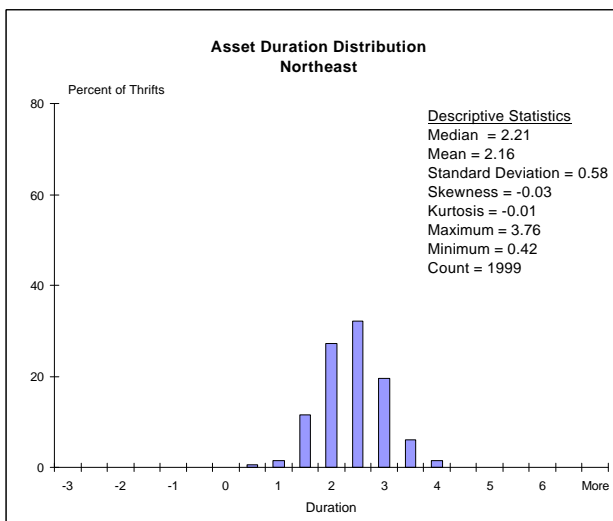
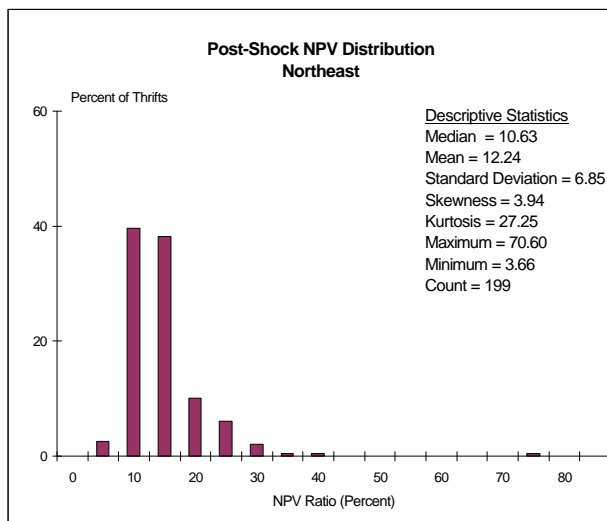
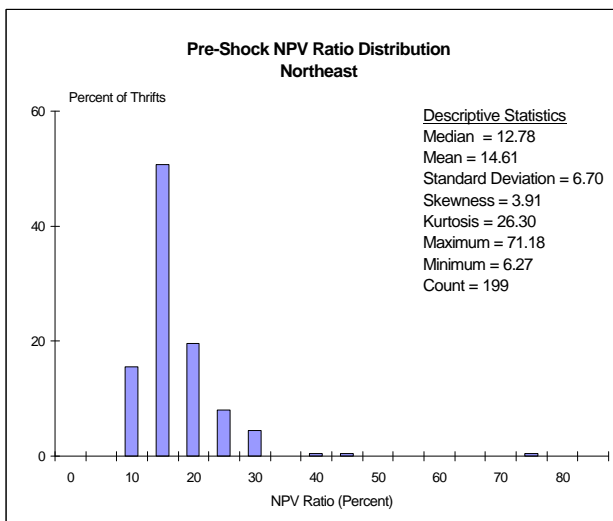
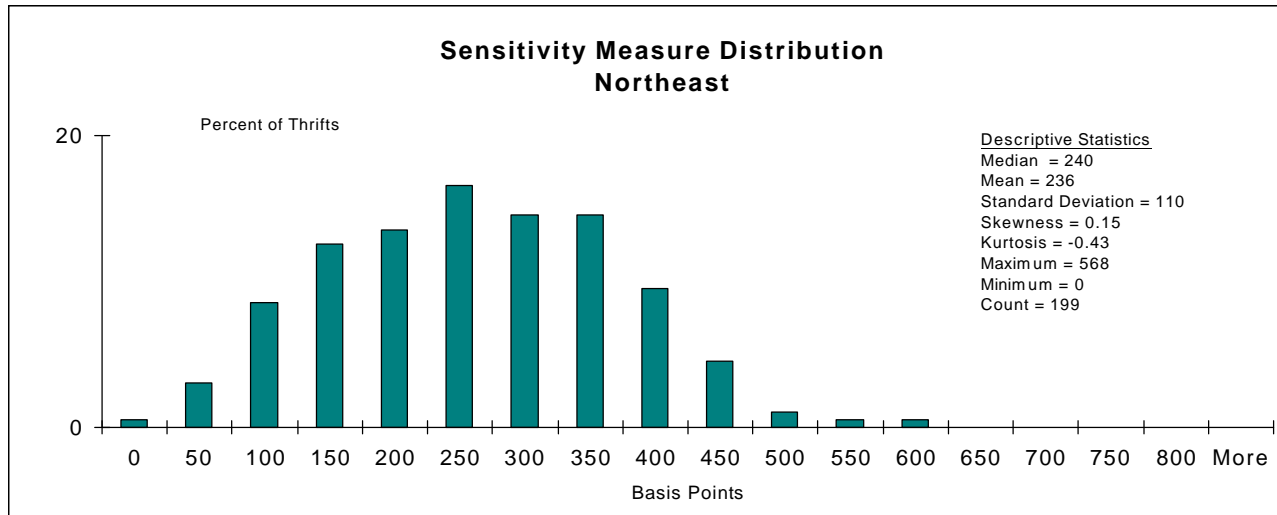
Fred Phillips-Patrick
Phone: 202-906-7295
Email: fred.patrick@ots.treas.gov

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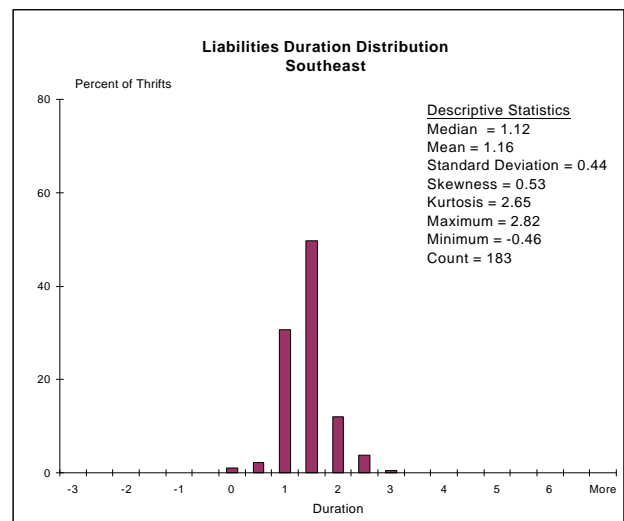
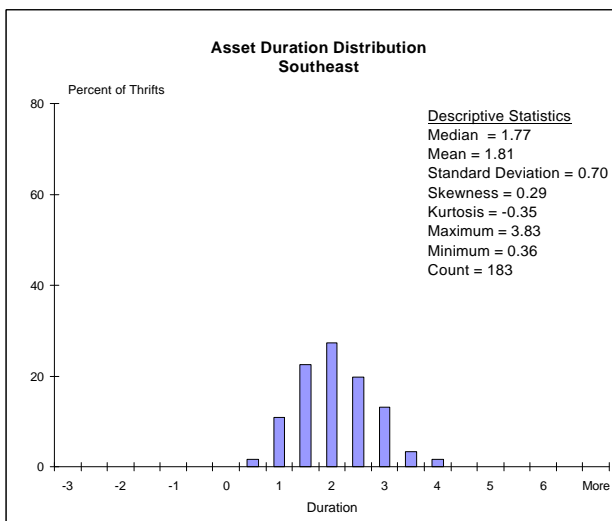
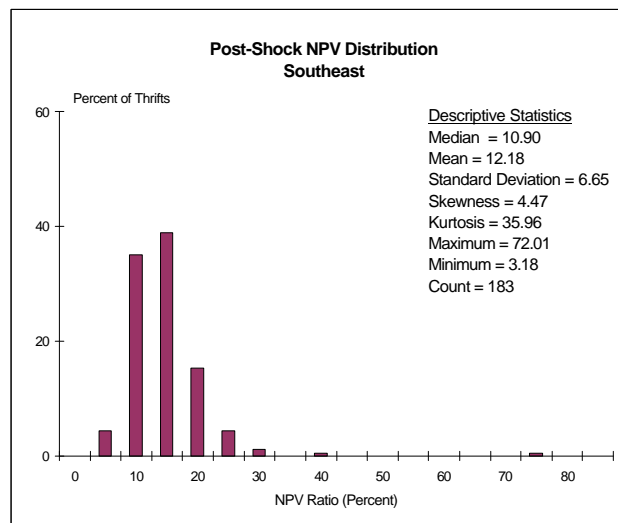
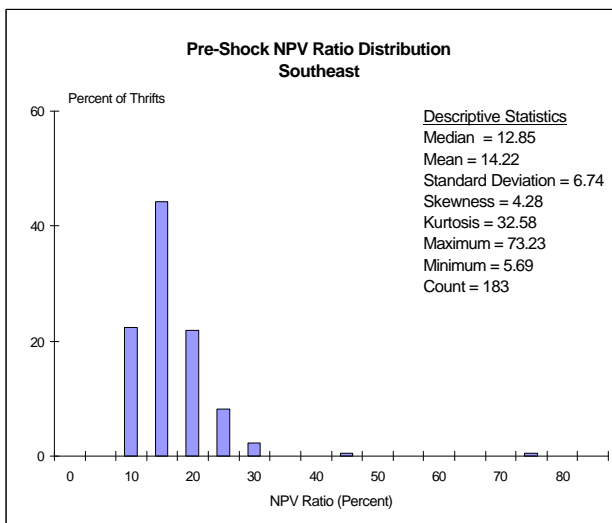
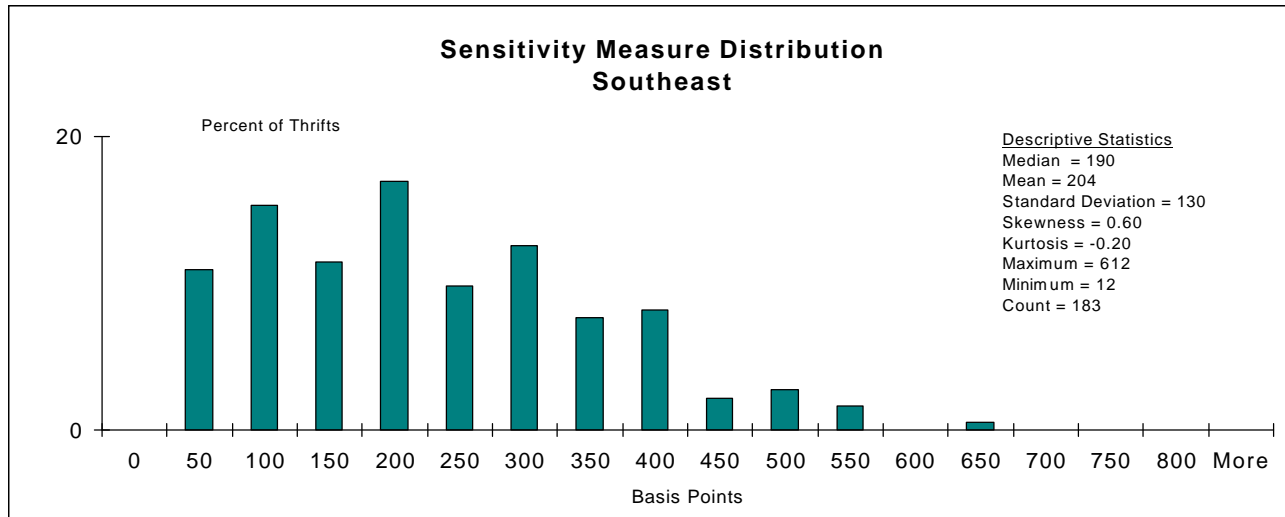
Appendix A – All Thrifts



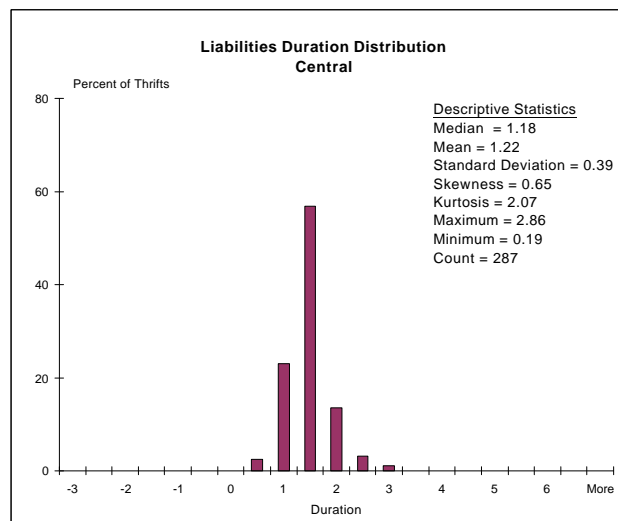
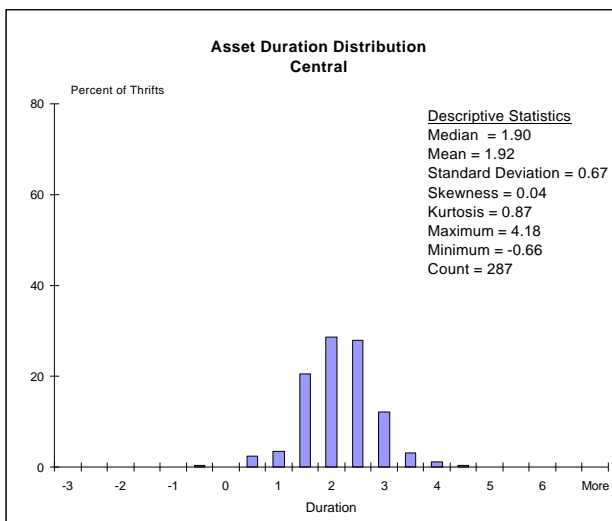
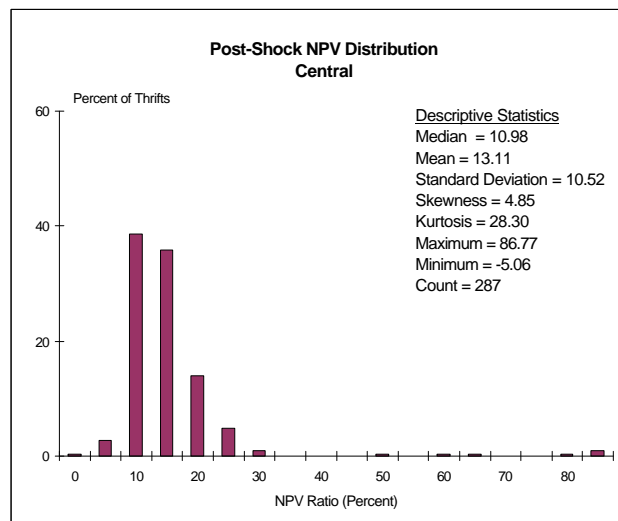
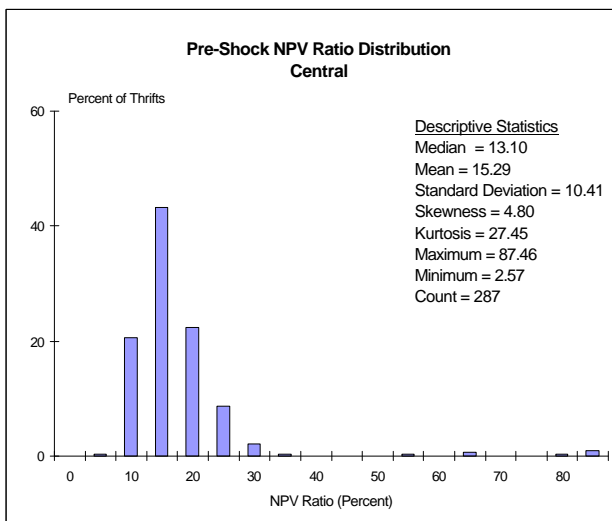
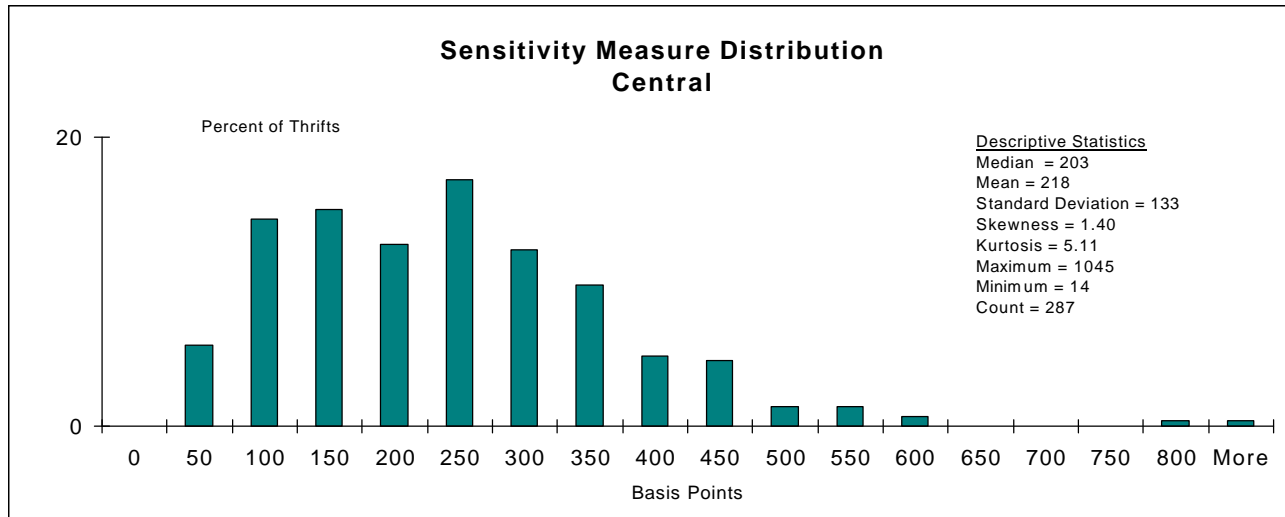
Appendix B – Northeast Region



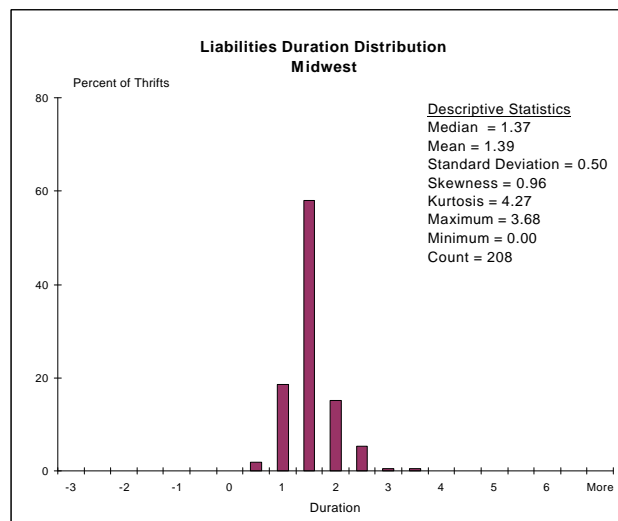
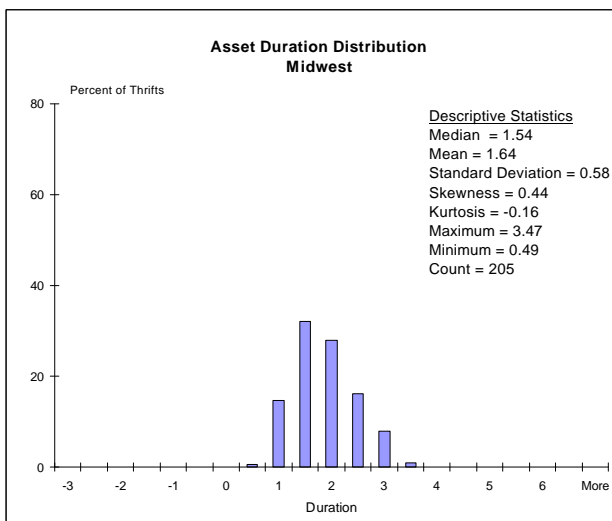
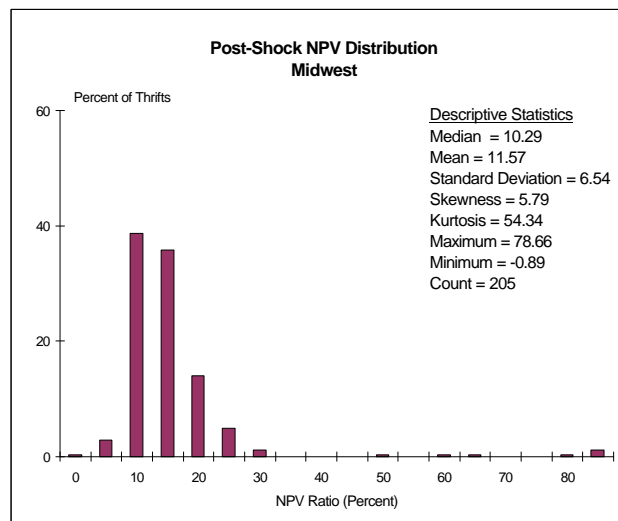
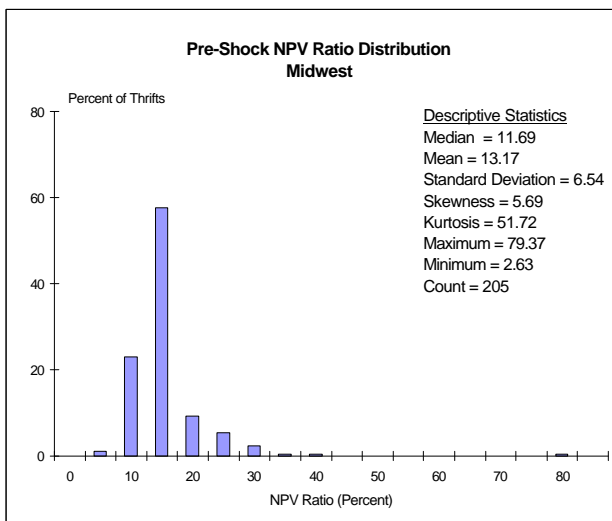
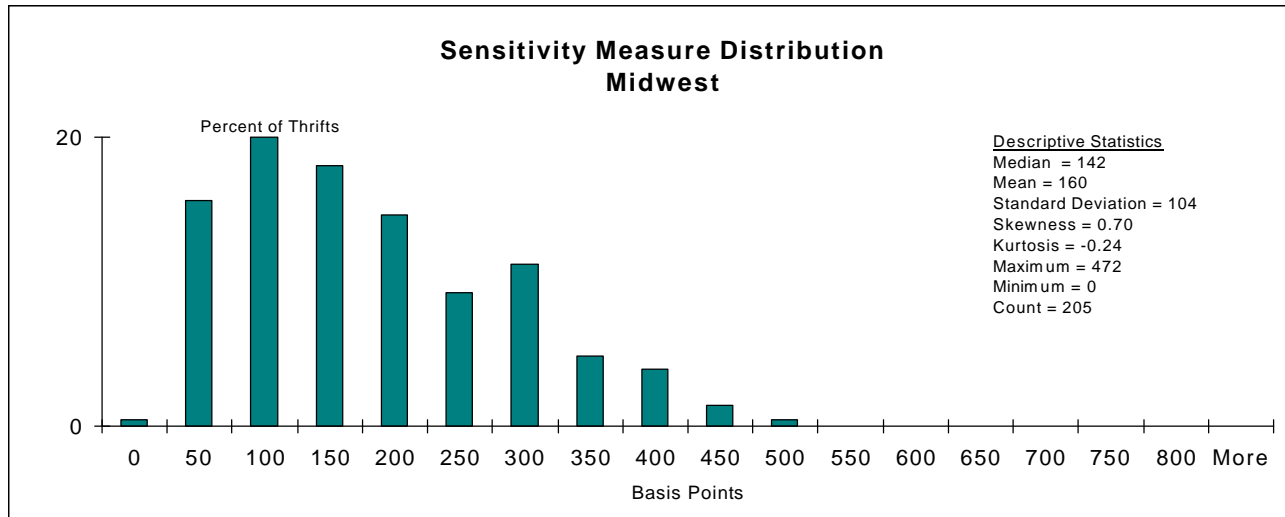
Appendix C – Southeast Region



Appendix D – Central Region



Appendix E – Midwest Region



Appendix F – West Region

