

# The Quarterly Review of Interest Rate Risk

Office of Examinations, Supervision, and Consumer Protection  
Risk Modeling and Analysis Division



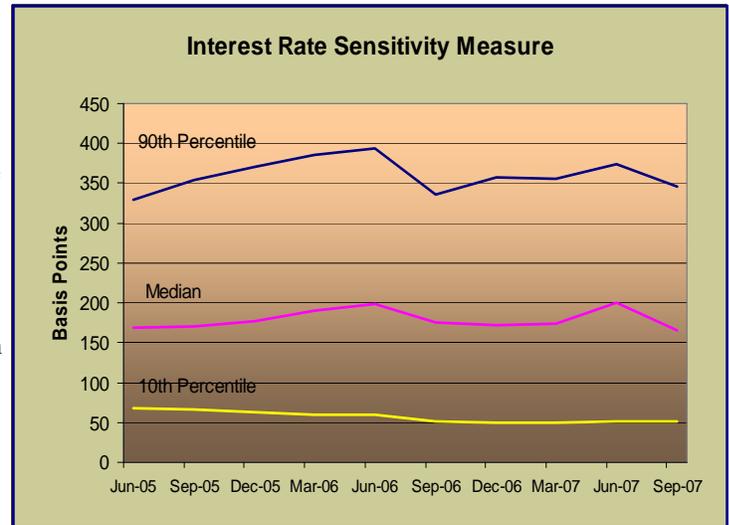
### Special points of interest:

- 30-yr mortgage commitment rate falls
- Treasury yield curve steepens as short-term rates fall more than long-term rates
- Third quarter median interest rate sensitivity falls and post-shock NPV ratio rises
- Asset duration declines and liability duration increases
- Comparative Regional Analysis
- Feature article provides a primer on FAS 157, *Fair Value Measurements*

## Third Quarter Sees Sensitivity Fall

Between June 30, 2007 and September 30, 2007, interest rates declined and the yield curve steepened considerably. The most dramatic changes occurred at the short-end of the curve, where the three-month and two-year Treasury rates dropped 100 basis points and 92 basis points, respectively. Significant, although less dramatic, changes also occurred in the medium- to long-term maturities. The ten-year and 30-year Treasury rates fell 44 basis points and 30 basis points, respectively.

The slope of the Treasury yield curve, as measured by the difference between the two-year and ten-year rates, increased from 16 basis points on



June 30, 2007 to 63 basis points on September 30, 2007. Over the same period, the 30-year

mortgage rate on conforming fixed-rate loans declined from

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## A Primer on FAS 157

In September 2006, the Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standards No. 157 ("FAS 157"), *Fair Value Measurements*, as part of its on-going effort to promote balance sheet transparency and comparability. FAS 157 does not introduce the concept of fair value. Rather, its purpose is to establish one common definition for the 60 or so accounting standards that either permit or require the use of fair value for financial reporting. It also introduces a common framework for measurement and requires an expanded disclosure for all fair value estimates. FAS 157 does not, however, identify

which assets or liabilities should be measured at fair value or when fair value measurement is required.

Although FAS 157 is effective for financial statements issued for fiscal years beginning after November 15, 2007, many large firms, including most financial conglomerates, opted for early adoption. While it is probably too soon to assess how FAS 157 will impact the thrift industry as a whole, recent disclosures by firms such as Merrill Lynch, JP Morgan and Lehman Brothers, indicate that we may be in for a bumpy ride.

Indeed, many observers believe that the large write downs many firms have taken in

recent weeks can be directly attributed to the new requirements in FAS 157. Although some may dispute that point, one thing is abundantly clear – measuring fair values during times of severe market disruptions can be an extremely challenging exercise – a concern critics of the accounting standard voiced as far back as 2004.

As institutions and auditors struggle with implementation, we suspect that FASB will find it necessary to clarify or expand upon certain aspects of the Statement. Nonetheless, the basic tenants of FAS 157 will remain. As such, analysts, investors, and regulators will be compelled to

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## A Primer on FAS 157 (continued)

(Continued from page 1)

familiarize themselves with terms such as “Level 3” assets and liabilities and the concept of “mark-to-model.”

This article provides a general overview of FAS 157. It discusses key terms and concepts in the Statement, how FAS 157 differs from previous fair value practice standards, and the new disclosure requirements. Additionally, this article addresses how the introduction of FAS 157 impacts Schedule CMR reporting requirements.

### Scope and Applicability

As noted above, FAS 157 establishes a single definition for fair value, a framework for fair value measurements, and an expanded set of disclosure requirements. FAS 157 applies to all assets and liabilities carried at fair value, such as securities designated as available-for-sale or trading, and financial derivatives such as swaps, caps and floors.

It also applies to securities designated as held-to-maturity or available-for-sale, situations where an institution uses fair value in conjunction with its assessment of other-than-temporary impairment.

FAS 157 defines fair value as the exit price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. A fair value measurement assumes a hypothetical orderly transaction considered from the perspective of a market participant who holds the asset or owes the liability.

### Changes to Current Practice

The changes to current practice resulting from the

application of FAS 157 relate to the disclosures of the methods used in measuring fair value and the introduction of a fair value hierarchy. Included among the changes are: (1) fair value is an exchange price notion; (2) fair value is a market-based measurement, not an entity-specific measurement; (3) market participant assumptions include assumptions about risk, such as the risk inherent in a particular valuation technique used to measure fair value; (4) fair value measurement for a liability reflects its nonperformance risk; and (5) expanded disclosures about the use of fair value to measure assets and liabilities in interim and annual periods subsequent to initial recognition.

It should be pointed out that, prior to FAS 157, there was a diversity of practice in determining what constituted fair value, especially for complex securities that traded in illiquid markets. In some circumstances, firms did not mark an instrument down to a level that was below its intrinsic value when fair value was different from intrinsic value. FAS 157 reaffirms that fair value is a market-based measurement and that fair value estimates must be based on observable market prices, assumptions or supportable unobserved assumptions.

### Fair Value Hierarchy

To increase consistency and comparability in fair value measurements and related disclosures, a fair value hierarchy was created under FAS 157 that classifies the source of information used in fair value measurements into three broad levels, depending upon whether it is market based or non-market based.

The hierarchy ranks the quality and reliability of the information used to determine fair values.

These three levels are intended to show investors the degree of certainty that pertains to the valuation of financial assets and liabilities:

**Level 1**-Quoted market prices for identical assets or liabilities in active markets.

**Level 2**-Observable market-based inputs, other than Level 1 quoted prices (or unobservable inputs that are corroborated by market data).

**Level 3**-Unobservable inputs (that are not corroborated by observable market data; valuation assumptions that are based on management’s best estimates of market participants’ assumptions).

This hierarchical framework gives investors a better indication as to the quality and reliability of management’s fair value estimates and provides some insight into why analysts and market commentators currently are closely scrutinizing firms with a high proportion of Level 3-based valuation estimates.

### The Disclosure Requirements of FAS 157

FAS 157 dramatically increases the amount of information firms must disclose on how fair value estimates are derived. The disclosures are expected to enable users of financial statements to assess the inputs used to develop the fair value measurements. Additional disclosures are required for fair value measurements using significant unobservable inputs.

Disclosure requirements include: (1) the fair value measurements of a particular group of assets or liabilities as

of a particular reporting date; (2) the hierarchical level under which a particular estimate falls; (3) for fair value measurements using significant unobservable inputs, a reconciliation of the beginning and ending balances; (4) the amount of the total gains or losses for the period included in earnings that are attributable to the change in unrealized gains or losses; and (5) on an annual basis, a description of the valuation technique used to measure fair value and a discussion of any changes in methodology that occurred during the period.

### Gauging the Potential Impact of FAS 157

It is difficult to assess how the implementation of FAS 157 will affect the thrift industry, but as noted above, FAS 157 requirements are already impacting many of the large financial conglomerates who opted for early adoption of the standard. However, we can make the following observations:

(1) Many of the investment banks hold billions of dollars of Level 3 assets, spanning a range between \$20 billion to \$60 billion.

(2) Although many firms took sizable write downs during the third quarter of this year, very few provided details on the valuation assumptions used to estimate fair values. (These disclosures should come at a later date, when the related 10-Ks are issued.) As a result of this scarcity of information, investors have been closely scrutinizing those firms with significant amounts of Level 3 assets.

(3) Because of FAS

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## A Primer on FAS 157 (continued)

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157's market-based approach, companies have been forced to take write downs on certain asset-backed securities, even though the underlying collateral has not started to incur "losses" in terms of cash flows. As such, these write downs represent a liquidity discount the market has placed on these securities.

### Other Topics Related to FAS 157

#### *Distressed Sales*

A key issue that has arisen is whether the current market prices for a wide range of mortgage-backed and other asset-backed securities are the result of distressed sales. Market participants, including some banking executives, would argue that many of the transactions that have occurred in recent weeks were executed at fire-sale prices—not the intrinsic value of the assets sold.

Under FAS 157, if orderly transactions are occurring between market participants in a manner that is usual and customary for transactions involving such assets, then those transactions are not "forced" sales. The fact that transaction volume in a market is significantly lower than in previous periods does not necessarily mean that there is not an active market. Similarly, the existence of a relatively thin market, as compared to previous periods, does not necessarily constitute evidence that transactions in that market are "forced" or "distressed" transactions.

#### *Potential Impacts on Institutions in Implementing FAS 157*

The fair value clarifications and enhanced disclosure requirements associated with

FAS 157 are being required for financial institutions at a time when fair values for certain financial instruments are hard to determine as certain credit markets have seen severe disruption.

Institutions will be required to do more in the way of disclosing how they arrived at a fair value estimate. This could be a strain on accounting departments and finance professionals in meeting the expanded disclosure requirements. Also, external auditors, worried about their own liability, could take a hard stance in ensuring fair value estimates are meeting the requirements of GAAP by requiring marks to observed prices for certain securities that are not trading well.

Financial institutions will need to collect information where they use fair value measurements on a recurring or nonrecurring basis and then assess how to apply FAS 157.

Financial institutions may need to review and revise current policies that contain information about fair value estimates in order to comply with the FAS 157 measurement guidelines. Institutions will also need to have a risk management process, including internal controls, designed to ensure that the fair value measurements are managed, monitored, and reported in accordance with this standard.

#### **The Impact of FAS 157 on Schedule CMR Reporting**

Using the balances, rates, and maturities data reported by institutions on Schedule CMR, the OTS NPV Model performs cash flow analysis to calculate the present values of assets and liabilities on their balance sheets. The primary function of the OTS NPV

Model is to assess an institution's level of interest rate risk. It is not designed to provide fair value estimates. The NPV Model produces valuations based on generic assumptions regarding factors such as credit quality. Furthermore, because virtually all mortgages are assumed to be of agency quality, the benchmark pricing process in the NPV Model does not account for the liquidity discount that must be assigned to certain segments of the mortgage market at this time.

As part of an on-going effort to improve the valuations produced by the NPV Model, OTS is currently developing a new data collection form that will include data such as FICO scores, LTV ratios, default rates, and recovery ratios. This information, when combined with a new suite of competing risks default/prepayment models that OTS is testing currently, may ultimately provide estimated values for assets that are much closer to their fair values. During 2008, we plan to begin testing this new process in connection with the safety and soundness examination process. If these tests are successful, we plan to make these enhancements available to the entire thrift industry by 2010.

The NPV Model changes notwithstanding, FAS 157 will have an impact on the regulatory reporting process and the NPV Model estimates that thrifts ultimately will receive in the Interest Rate Risk Exposure Report. Under current reporting guidelines, institutions are required to report certain assets and liabilities at fair value on Schedule CMR, including instruments such as collateral-

ized mortgage obligations (CMOs), complex securities, and structured advances.

The self-reported items on Schedule CMR account for a sizable portion of the industry's total assets. For example, the aggregated total of CMOs for thrifts as reported on CMR for September 2007 was approximately \$108.3 billion, or seven percent of total assets. The fair values reported by thrift institutions in the base case scenario at the September quarter-end were roughly 99% of the face value for these CMOs. OTS expects thrifts to use the appropriate industry standards when deriving these estimates and management must be prepared to support these estimates during on-site examinations.

### Conclusion

FAS 157 clarifies how fair values are to be determined under GAAP and raises the bar related to disclosures behind the fair value measurements. The concept of the three level measurement hierarchy and the expanded disclosures required for Level 3 instruments will be a challenge for finance departments at institutions and their auditors. It is too early to know if the goal of the standard of providing more transparency in an institution's balance sheet will be accomplished.

The new disclosure requirements will compel auditors, investors, and regulators to ask more questions in the event it appears that an institution is not taking appropriate write-downs. ■

### Third Quarter Sees Sensitivity Fall (continued)

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6.63 percent to 6.28 percent. The federal funds target rate was lowered to 4.75 percent at the end of the third quarter, down from 5.25 percent at the end of the second quarter.

Given that most OTS-regulated thrifts have positive effective duration gaps (i.e., they fund longer term assets with shorter term liabilities), the interest rate changes during the third quarter improved the interest rate risk profile of the typical thrift. Lower interest rates typically increase the value of fixed rate mortgage loans and trigger a corresponding increase in pre-shock capital.

The thrift industry reported a decline in earnings and profitability in the third quarter of 2007. For the most part, this was due to continuing weaknesses in the housing and credit markets. The decline in earnings was concentrated in a small number of thrifts that are heavily engaged in originating mortgages for sale. Strong capital levels and appropriate loan loss provisions should help thrifts to weather any further weakening in the housing markets.

Delinquencies for most loan types increased over the past year and continued to rise in the third quarter. The largest increases in delinquency rates were for single-family mortgages and construction loans. These increases reflect the continued weakness in the housing sector. Troubled assets, which consist of noncurrent loans and repossessed assets, were up 24 basis points from the prior quarter at 1.19 percent of assets, and were up from 0.64 percent one year ago. Excluding repurchased

GNMA loans, troubled assets were up 24 basis points from the prior quarter at 1.14 percent of assets, and were up from 0.53 percent one year ago.

Capital measures for the thrift industry continue to be strong, stable, and well in excess of minimum requirements. Equity capital at the end of the third quarter was 10.16 percent of assets, up from 9.23 percent one year ago, but down from a record 10.80 percent in the prior quarter. At the end of the third quarter, nearly 99 percent of the industry exceeded well-capitalized standards.

Net income for the thrift industry was \$704 million in the third quarter, down 84 percent from \$4.29 billion in the third quarter one year ago, and down 82 percent from \$3.83 billion in the prior quarter.

Return on average equity was 1.77 percent in the third quarter, down from 11.72 percent in the third quarter one year ago and from 9.54 percent in the prior quarter. Profitability, as measured by return on average assets (ROA), was 0.18 percent in the third quarter, down from 1.08 percent in the comparable year ago quarter, and down from 1.02 percent in the prior quarter. The median ROA declined to 0.48 percent in the third quarter, down from 0.62 percent in the third quarter one year ago, and down from 0.53 percent in the prior quarter.

The industry's aggregate ROA was down from the prior quarter and comparable year ago quarters. Higher provisioning and losses on asset sales drove the decrease in the third quarter. The industry's equity capital ratio

was 10.16 percent at the end of the third quarter, down from a record 10.80 percent in the prior quarter.

In the third quarter, net interest margin was down five basis points from the third quarter one year ago to 260 basis points (or 2.60 percent of average assets), and was down from 276 basis points in the prior quarter. Loan loss provisions increased to 0.92 percent of average assets in the third quarter, up from 0.22 percent in the third quarter one year ago and up from 0.38 percent in the prior quarter. The recent increases in loss provisions reflect the increase in noncurrent loans stemming from the slower housing market and the deterioration of loans originated in the past several years. Loan loss provisions averaged 0.26 percent of average assets between 2001 and 2003 and generally trended lower from the beginning of 2003 through the first half of 2006, reflecting historically low levels of problem assets.

Total fee income, including mortgage loan servicing fee income and other fee income, increased to 1.18 percent of average assets in the third quarter compared to 0.91 percent in the third quarter one year ago, but was down from 1.42 percent in the prior quarter. Servicing fee income was 0.08 percent of average assets in the third quarter, up from a negative 0.05 percent in the third quarter one year ago, but down from 0.23 percent in the prior quarter. Other fee income rose 14 basis points from the comparable year ago quarter to 1.10 percent of average assets, but was down from 1.19 percent in the prior quarter.

Other noninterest income was 0.12 percent of average assets in the third quarter, down from 0.81 percent in the third quarter one year ago and from 0.48 percent in the prior quarter. Other noninterest income primarily includes gains on sales of assets and income from leasing office space. Other noninterest income is typically volatile since it includes realized gains or losses on assets held for sale and the results of balance sheet restructuring activities.

Noninterest expense increased to 2.74 percent of average assets in the third quarter as compared to 2.54 percent in the comparable year ago quarter and 2.72 percent in the prior quarter. General and administrative expense, the largest component of noninterest expense, decreased three basis points to 2.46 percent of average assets in the third quarter, down from 2.49 percent in the comparable year ago quarter.

Thrifts remain focused on residential mortgage lending, with 50.7 percent of assets invested in 1-4 family mortgage loans at the end of the third quarter, down from 54.6 percent one year ago. Of these 1-4 family mortgage loans, 7.1 percent are home equity lines of credit, up from 6.0 percent one year ago.

Total thrift industry mortgage originations (which include multifamily and non-residential mortgages) were \$185.7 billion in the third quarter, up eight percent from \$172.1 billion in the third quarter one year ago, but down five percent from \$194.6 billion in the prior quarter. Third quarter 1-4 family mortgage originations

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### Interest Rates and ARM Market Share



### Third Quarter Sees Sensitivity Fall (continued)

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 by thrifts were \$165.1 billion, up ten percent from \$149.9 billion in the third quarter one year ago, but down five percent from the \$173.3 billion originated in the prior quarter.

Thrifts accounted for approximately 30.0 percent of total 1-4 family originations nationwide in the third quarter of 2007, up from 21.5 percent in the comparable year ago

quarter, and up from 25.0 percent in the prior quarter.

An estimated 13 percent of thrift originations were ARMs in the third quarter, down from 26 percent in the comparable year ago quarter, but up from ten percent in the prior quarter. The ARM share for all lenders was 13 percent in the third quarter, 11 percent in the prior quarter, and 19 percent in the third quarter one year ago. The

ARM share of total 1-4 family mortgages held by thrifts in their portfolios was 61.6 percent in the third quarter, up from 61.2 percent in the prior quarter.

The volume of mortgage refinancing, as a percentage of total mortgage originations, was up from the comparable year ago quarter, as borrowers converted adjustable-rate mortgages to fixed-rate mortgages.

Refinancing activity accounted for 44 percent of thrift mortgage originations in the third quarter, up from 27 percent in the third quarter one year ago, but down from 48 percent in the prior quarter.

Deposits and escrows grew by 2.2 percent over the year to \$955 billion from \$934 billion. As a percentage of total assets, deposits and escrows increased

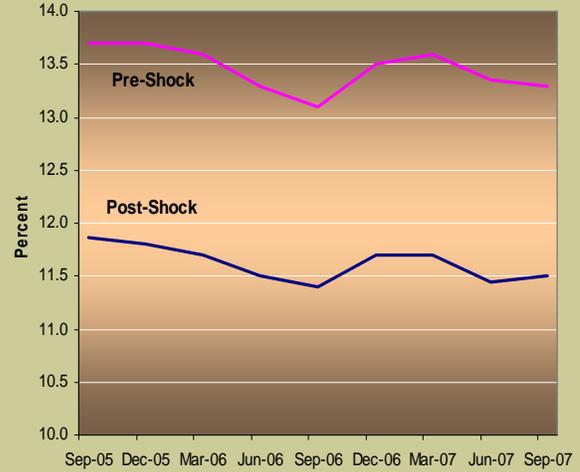
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## Duration and NPV Sensitivity Measures

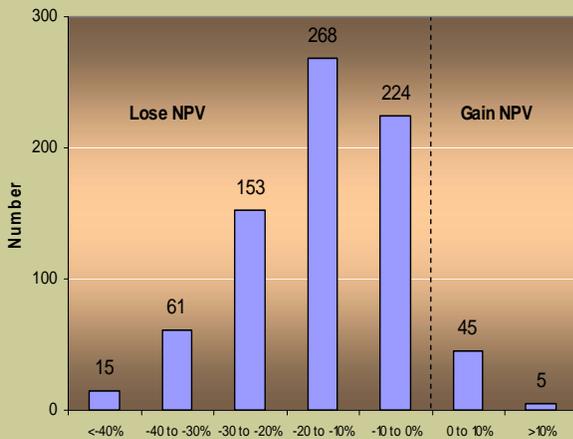
**Median Effective Duration Gap**



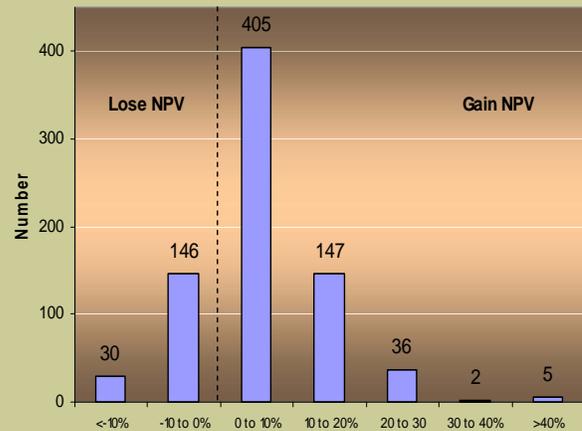
**Median Pre- and Post-Shock NPV Ratios**



**Estimated Change in NPV:  
+200bp Rate Change**



**Estimated Change in NPV:  
-200bp Rate Change**



### Third Quarter Sees Sensitivity Fall (continued)

(Continued from page 5)  
to 60.8 percent from 57.2 percent one year ago. Federal Home Loan Bank advances rose from 17.5 percent one year ago to 18.5 percent of total assets in the third quarter.

The interest rate changes that occurred during the quarter improved the interest rate risk profile of the typical thrift. Lower interest rates typically

increase the value of fixed-rate mortgage loans and trigger a corresponding increase in pre-shock capital. Similarly, lower mortgage rates increased the likelihood of refinance-driven mortgage prepayments which decreased the effective duration of most fixed- and adjustable-rate mortgages relative to last quarter. The drop in the effective duration of assets, in turn,

led to an industry wide decrease in sensitivity.

Third-quarter median interest rate sensitivity fell to 166 basis points, down from 200 basis points in the prior quarter. The median pre-shock Net Portfolio Value (NPV) ratio fell in the third quarter by approximately seven basis points, while the median post-shock NPV ratio rose by seven basis

points. The decrease in sensitivity, coupled with higher pre-shock NPV ratios, resulted in the number of thrifts with post-shock NPV ratios below 4.0 percent falling from nine to five institutions.

The industry's median effective duration of assets declined from 1.97 to 1.75 in the third quarter. The decline

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### Interest Rate Risk Measures

Thriffs with Post-Shock NPV Ratios Under 4 Percent



Interest Rate Risk Measures Industry Aggregates Last Two Quarters				
	NPV as % of PV of Assets		% Change in NPV	
	Jun-07	Sep-07	Jun-07	Sep-07
+300	8.09%	7.93%	-33%	-28%
+200	9.45%	8.98%	-21%	-17%
+100	10.61%	9.88%	-9%	-7%
Base	11.55%	10.55%	0%	0%
-100	12.13%	10.84%	6%	4%
-200	12.44%	10.92%	10%	5%

Post-Shock NPV Ratio and Sensitivity Measure Matrix September 2007

	Under 100bp	101-200bp	201-400bp	Over 400bp	Total
Over 10%	175	158	163	19	515
6% to 10%	32	87	102	10	231
4% to 6%	3	3	11	3	20
Below 4%	0	1	2	2	5
<b>Total</b>	<b>210</b>	<b>249</b>	<b>278</b>	<b>34</b>	<b>771</b>

Minimal Moderate Significant High

Post-Shock NPV Ratio and Sensitivity Measure Matrix June 2007

	Under 100bp	101-200bp	201-400bp	Over 400bp	Total
Over 10%	158	132	183	31	504
6% to 10%	25	65	137	15	242
4% to 6%	0	2	14	7	23
Below 4%	1	1	5	2	9
<b>Total</b>	<b>184</b>	<b>200</b>	<b>339</b>	<b>55</b>	<b>778</b>

Minimal Moderate Significant High

### Third Quarter Sees Sensitivity Fall (continued)

(Continued from page 6) in the duration of assets was caused by the decrease in interest rates, which increased estimated prepayment speeds. The third quarter saw the industry’s median effective duration of liabilities increase from 1.19 to 1.21. The decrease in the effective duration of assets coupled with the increase in the duration of liabilities resulted in a

decrease in the duration gap for the thrift industry in the third quarter from 0.77 to 0.54.

Of the thrifts that submitted Schedule CMR data in the third quarter, the NPV Model estimated that about 94 percent would experience a loss of net portfolio value if rates rose by 200 basis points and approximately 77 percent of thrifts would experience an increase

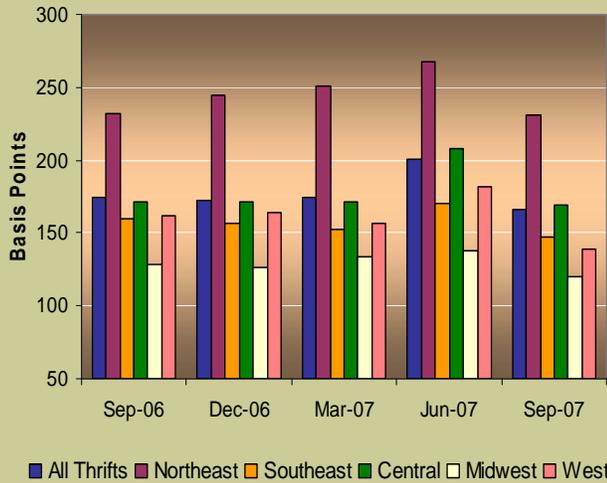
in net portfolio value should rates fall 200 basis points. The NPV model estimated that the thrift industry would lose 17 percent of its net portfolio value if rates rose by 200 basis points in the third quarter, and the industry would gain five percent if rates fell by 200 basis points.

Based on TB 13a guidance for the “S” rating, 618 thrifts

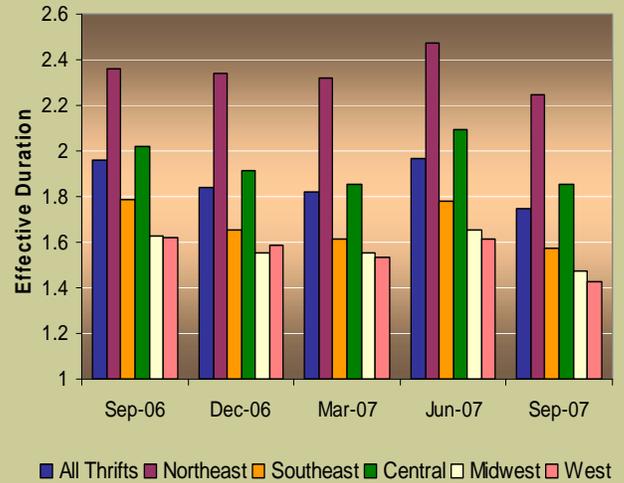
(80.2 percent) initially would be assigned an interest rate risk rating of minimal, 124 thrifts (16.1 percent) moderate risk, 22 thrifts (2.8 percent) significant risk, and 7 thrifts (0.9 percent) high risk in the third quarter. The number of thrifts with significant or high interest rate risk declined from 44 in the second quarter to 29 in the third quarter. ■

## Comparative Trends in the Five OTS Regions

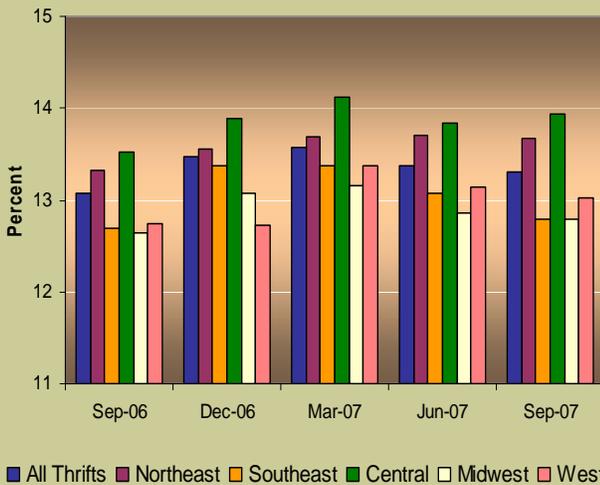
Median Sensitivity by OTS Region



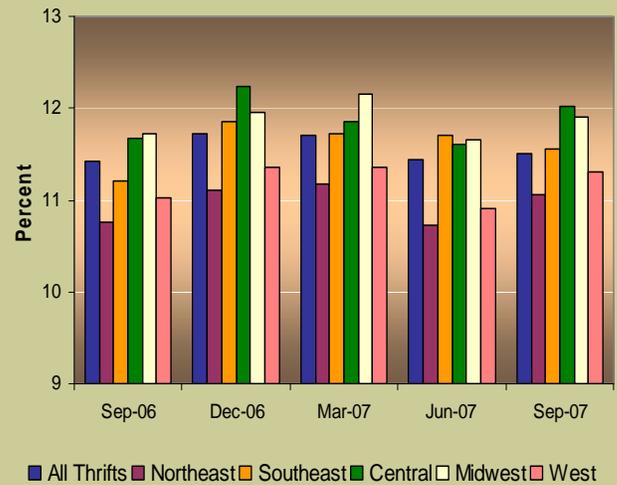
Median Assets Duration by OTS Region



Median Pre-Shock NPV Ratio by OTS Region



Median Post-Shock NPV Ratio by OTS Region



## Regional Comparisons

At the end of the third quarter, the Northeast Region had the highest median sensitivity at 231 basis points, while the Midwest Region had the lowest median sensitivity at 120 basis points.

All five regions saw their median sensitivities fall, with the West Region’s sensitivity falling the most (43 basis

points) and the Midwest Region’s sensitivity falling the least (18 basis points).

The Central Region had the highest median pre-shock NPV ratio at 13.94 percent. The Southeast and Midwest Regions had the lowest pre-shock NPV ratio at 12.79%.

The Central Region also had the highest median post-

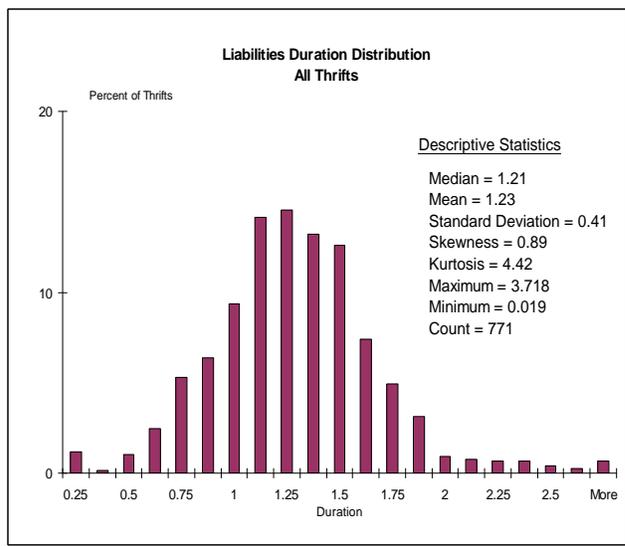
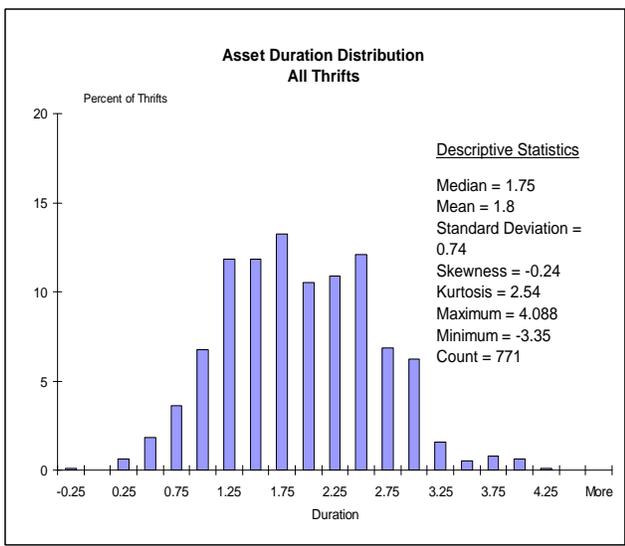
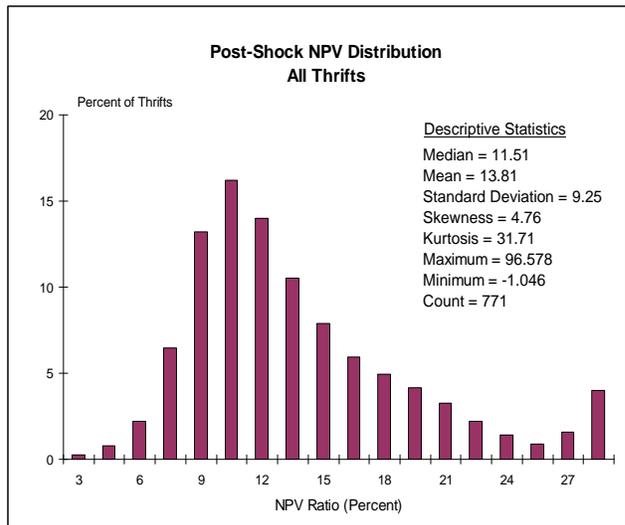
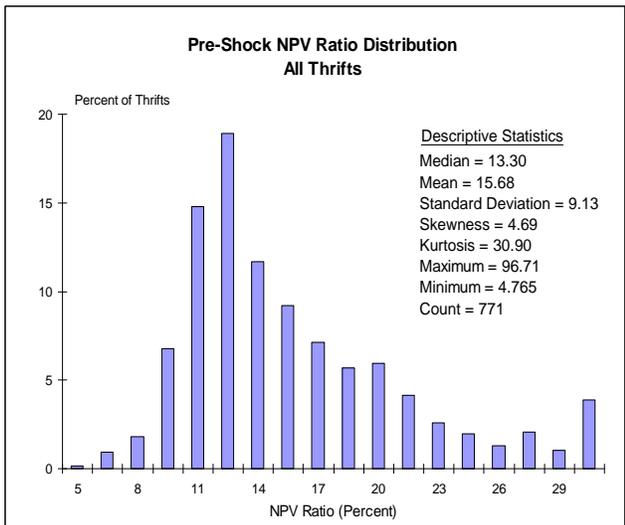
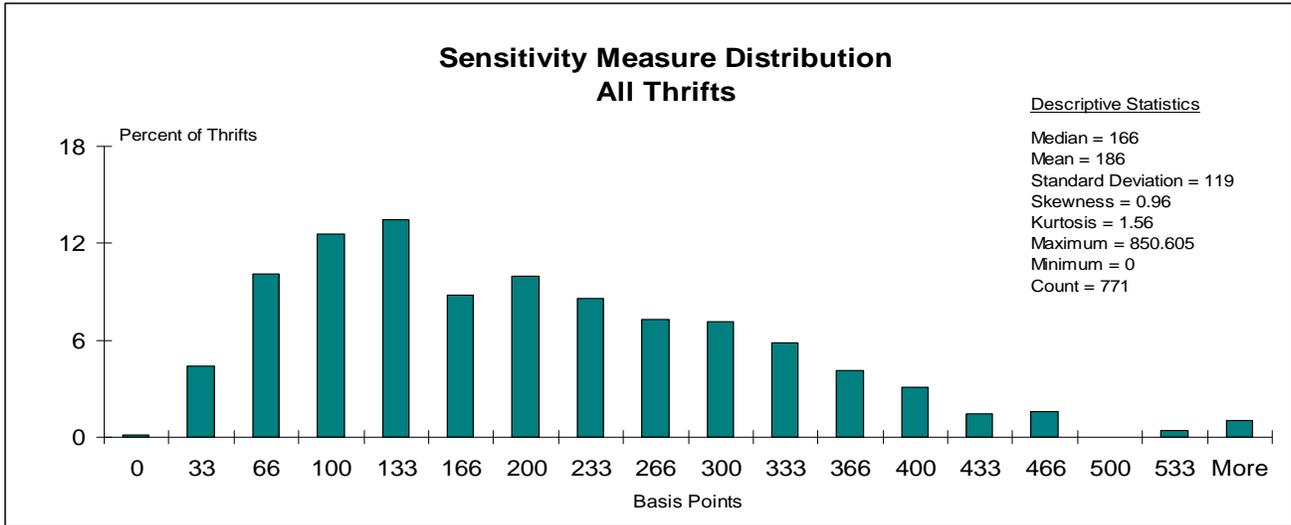
shock NPV ratio, at 12.02 percent, while the Northeast Region had the lowest, at 11.05 percent.

The Northeast Region had the highest median asset duration, at 2.24, while the West Region had the lowest, at 1.43, at quarter end.

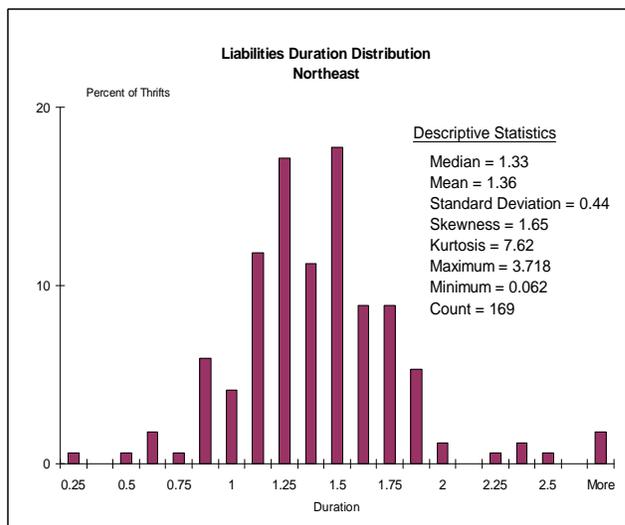
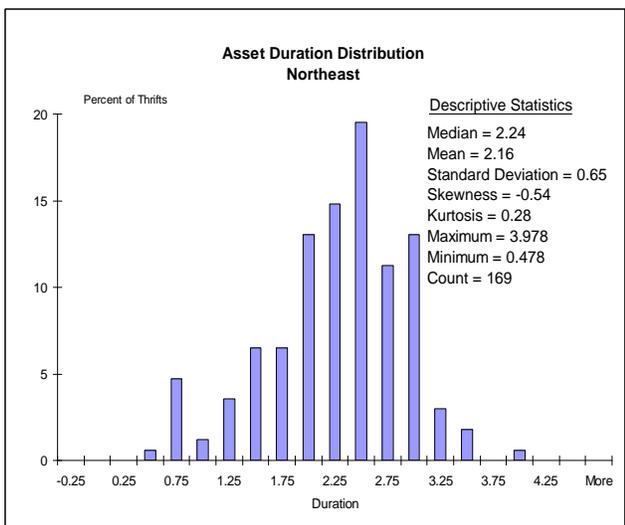
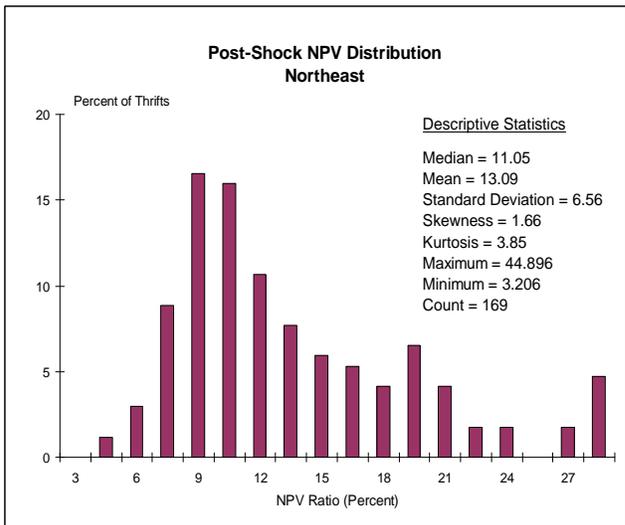
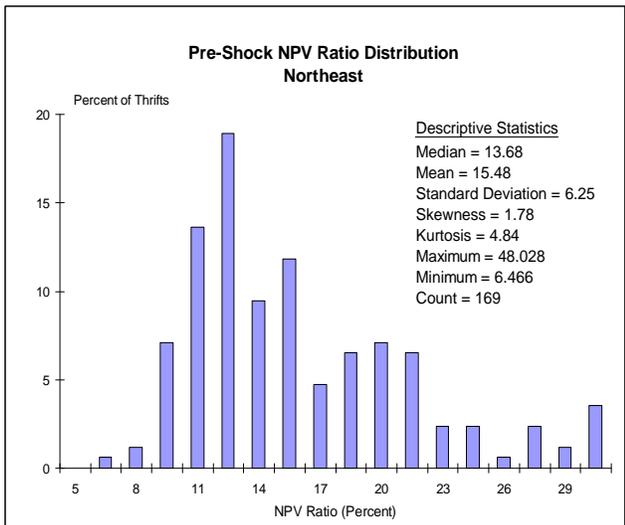
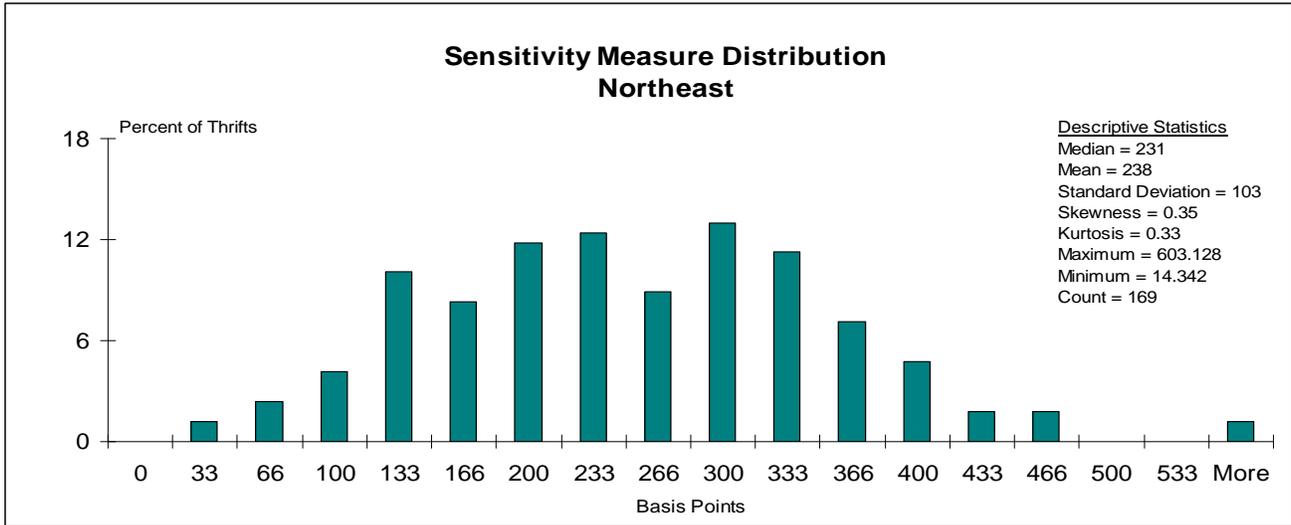
The Southeast Region had the lowest median liability

duration, at 1.05, while the Northeast Region had the highest, at 1.33. ■

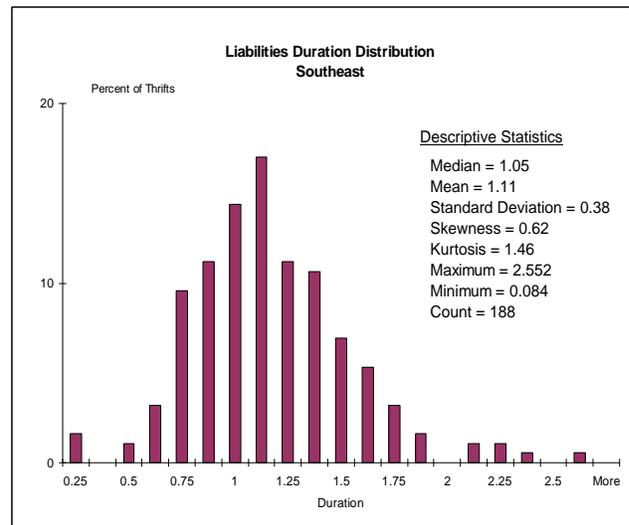
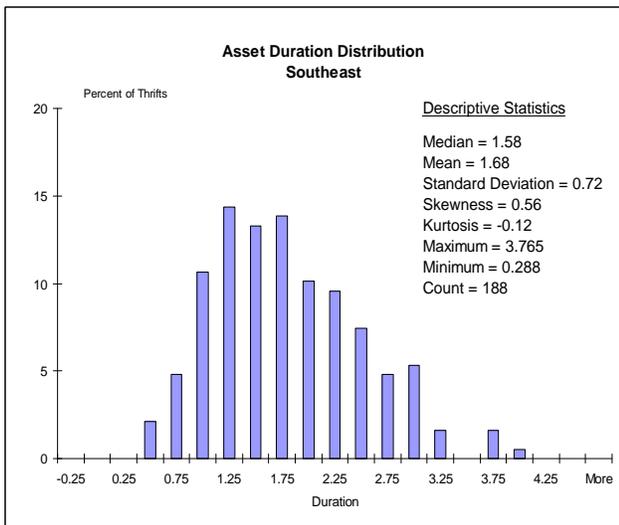
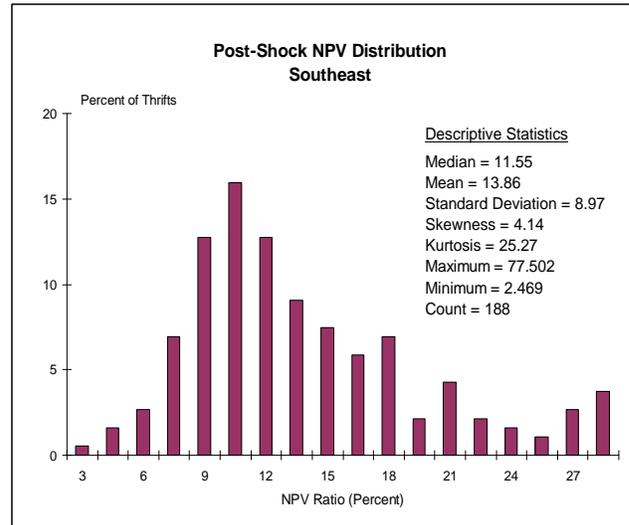
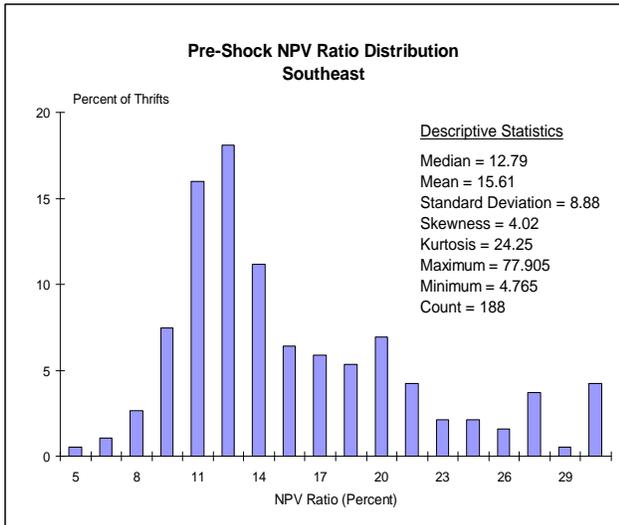
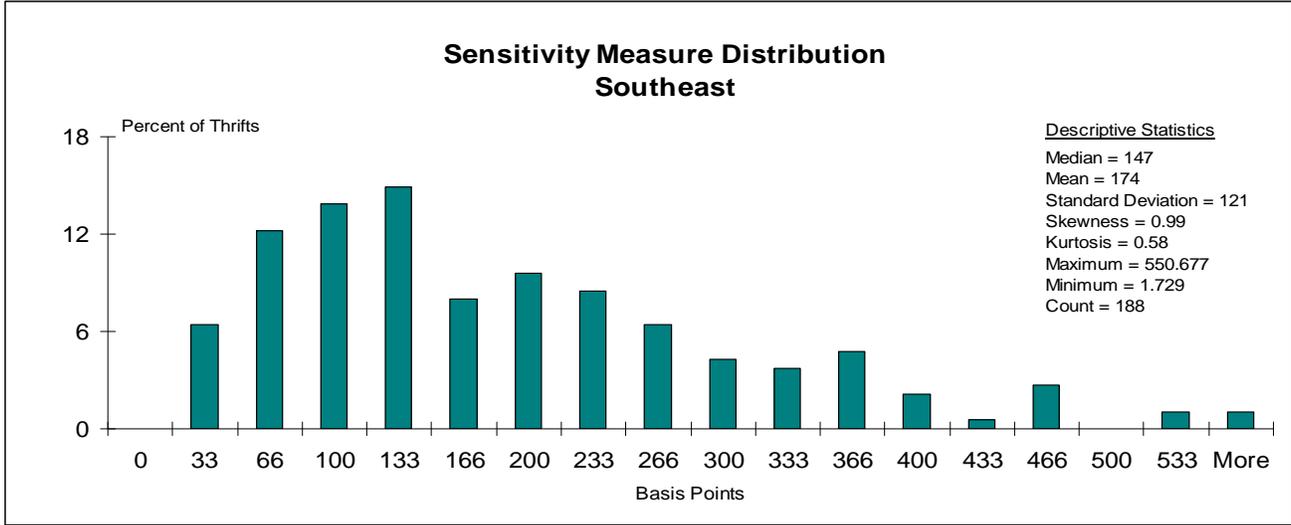
## Appendix A – All Thrifts



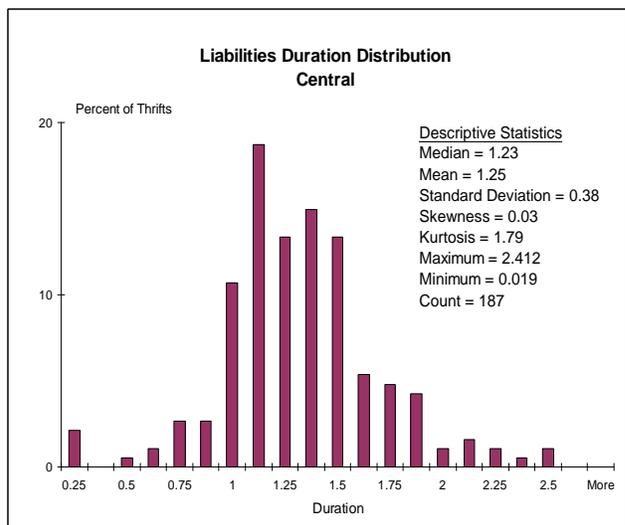
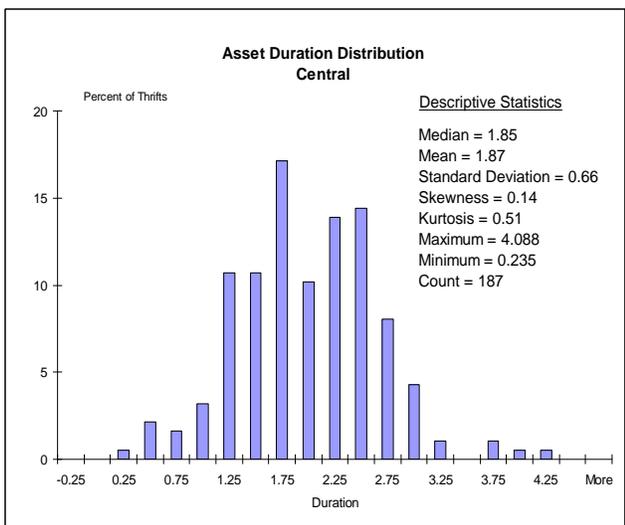
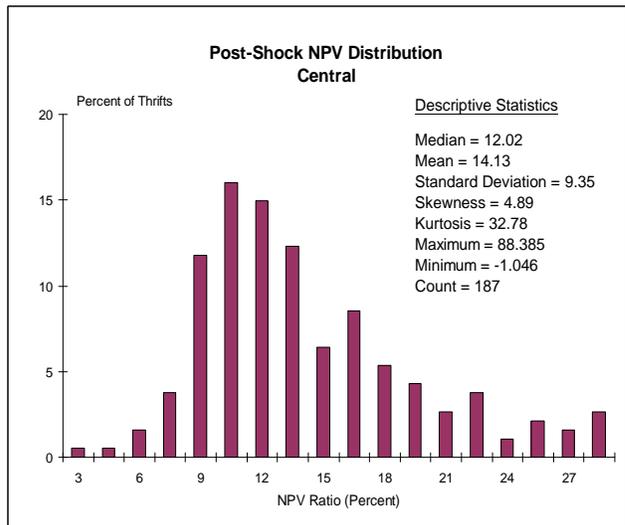
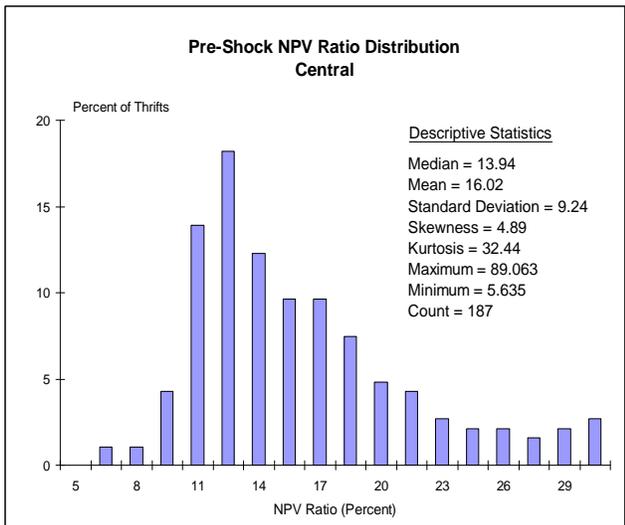
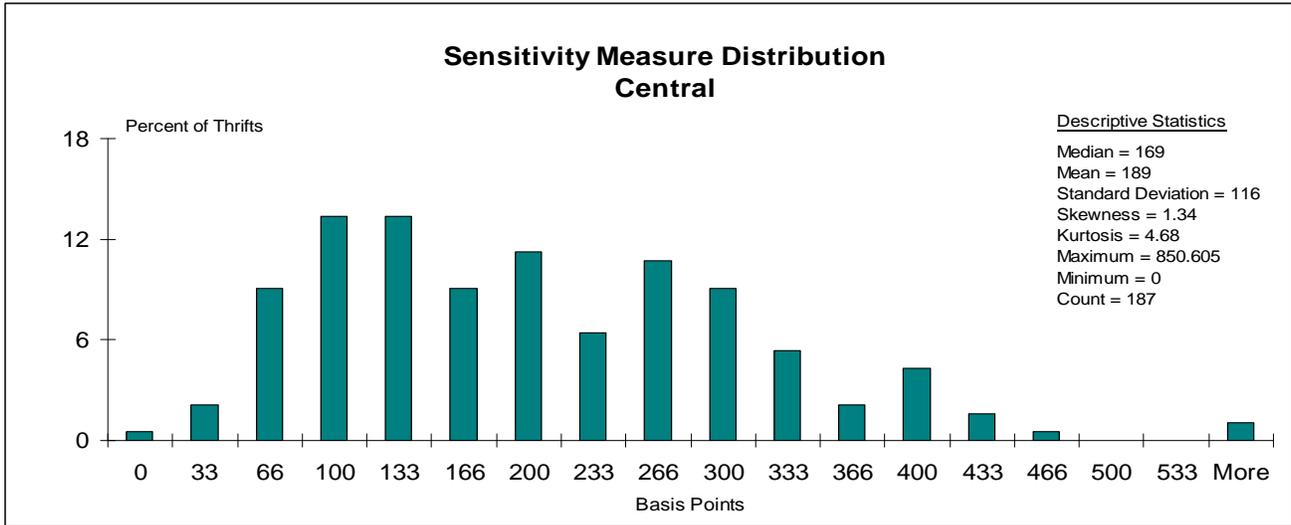
## Appendix B – Northeast Region



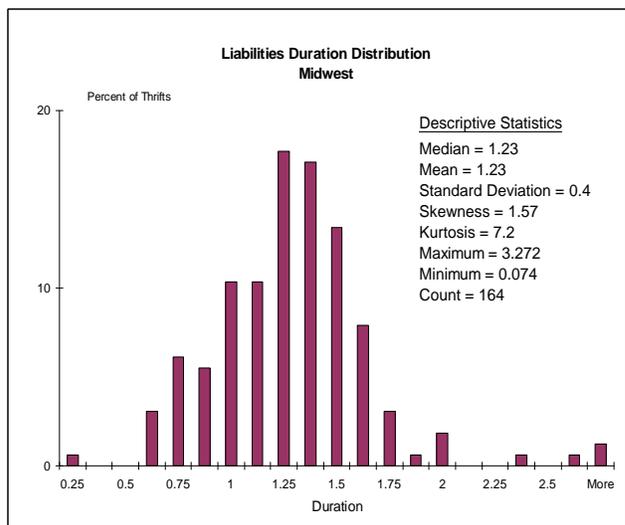
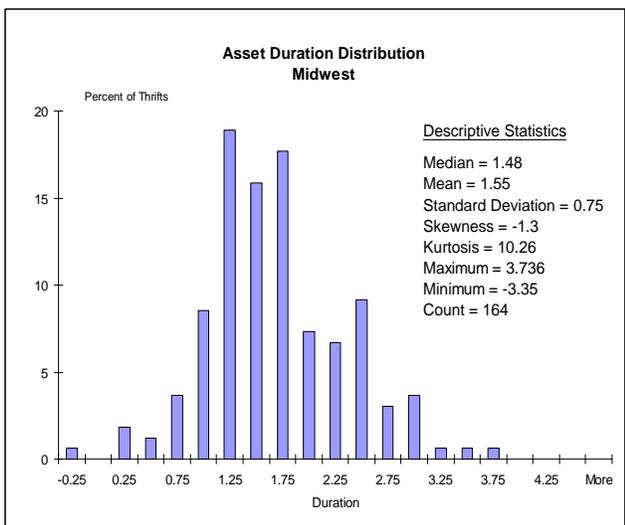
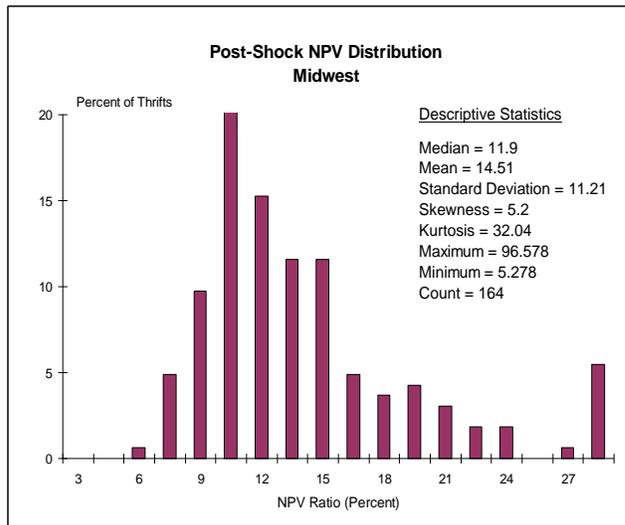
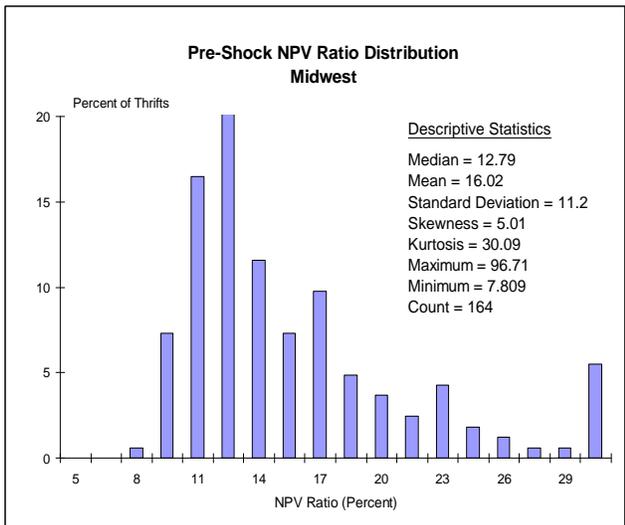
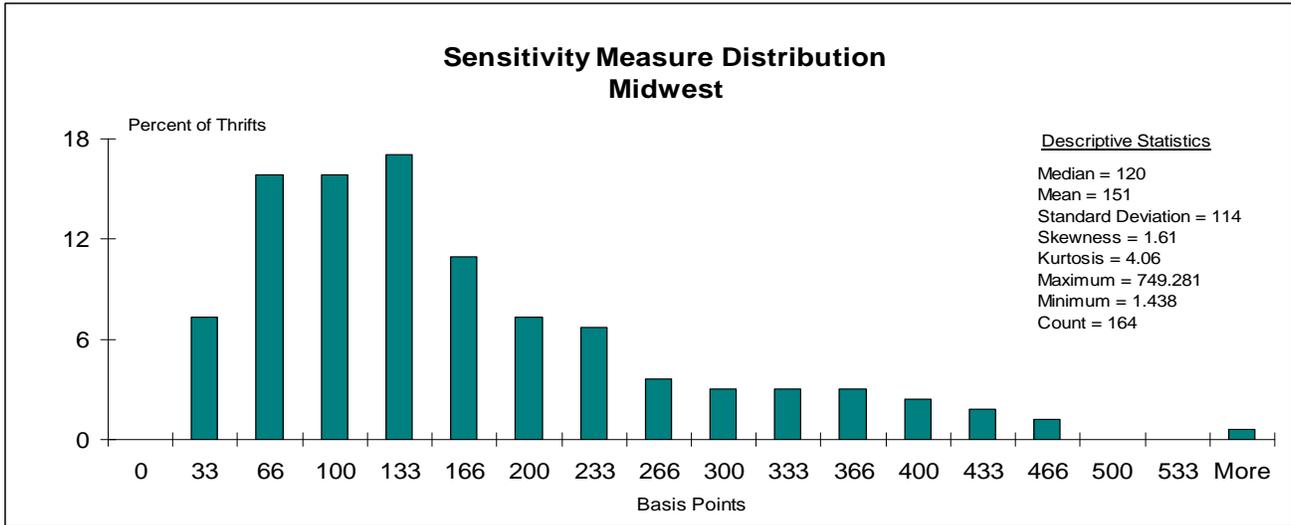
## Appendix C – Southeast Region



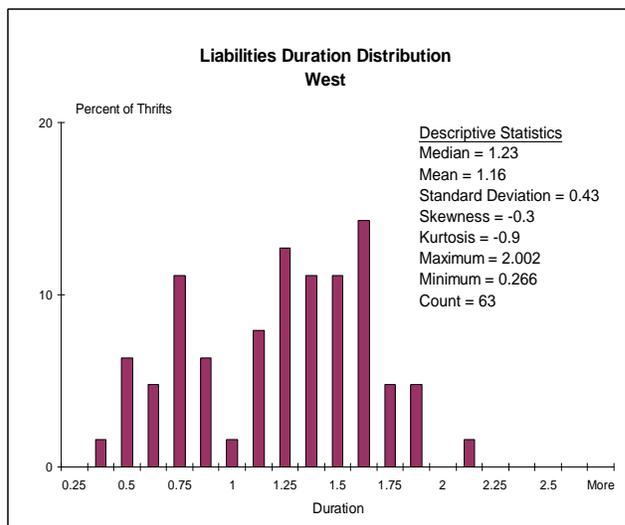
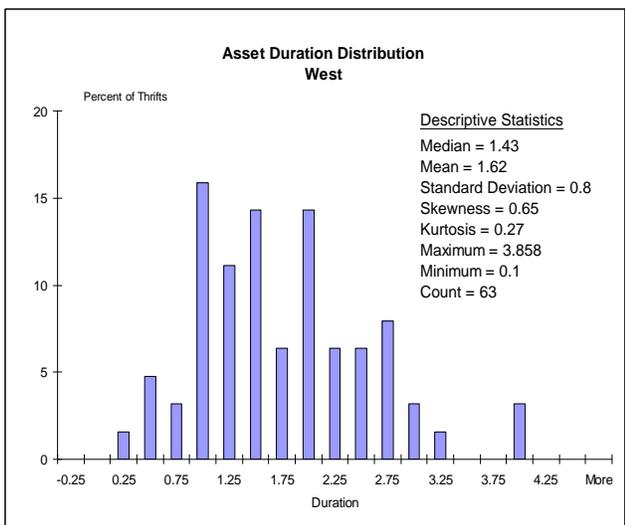
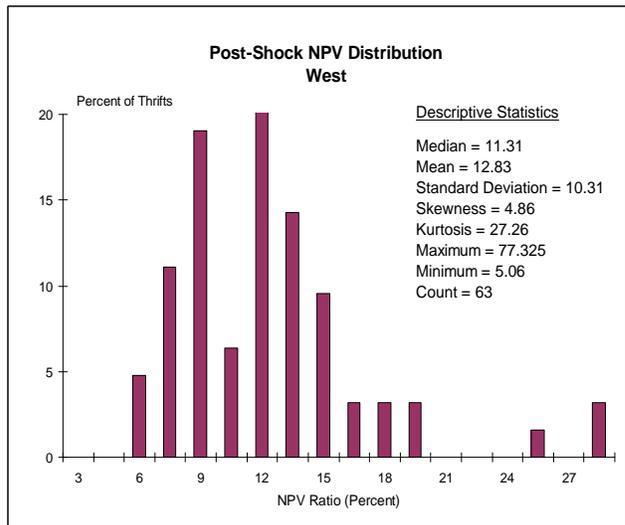
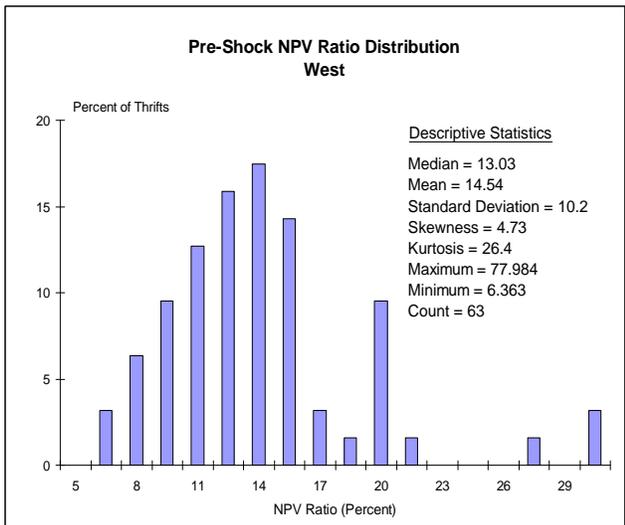
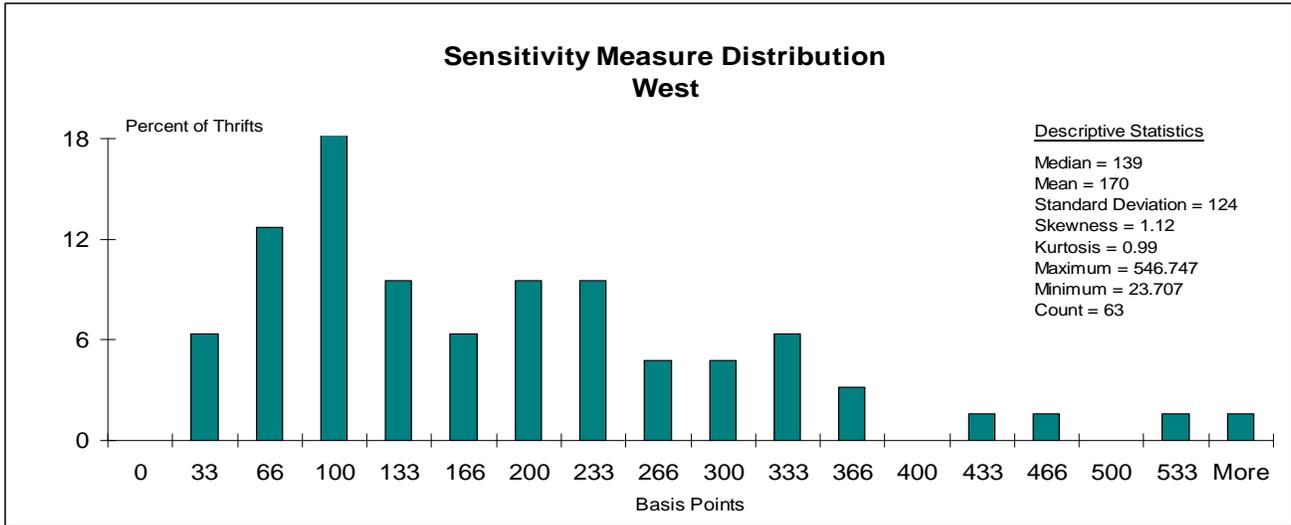
## Appendix D – Central Region



## Appendix E – Midwest Region



## Appendix F – West Region



## *Glossary*

**Duration:** A first-order approximation of the price sensitivity of a financial instrument to changes in yield. The higher the duration, the greater the instrument's price sensitivity. For example, an asset with a duration of 1.6 would be predicted to appreciate in value by about 1.6 percent for a 1 percent decline in yield.

**Effective Duration:** The average rate of price change in a financial instrument over a given discrete range from the current market interest rate (usually, +/-100 basis points).

**Estimated Change in NPV:** The percentage change in base case NPV caused by an interest rate shock.

**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 of three.

**NPV Model:** Currently measures how five hypothetical changes in interest rates (three successive 100 basis point increases and two successive 100 basis point decreases ) affect the estimated market value of a thrift's net worth.

**Post-Shock NPV Ratio:** Equity-to-assets ratio, following an adverse 200 basis point interest rate shock (assuming a normal interest rate environment), expressed in present value terms (i.e., post-shock NPV divided by post-shock present value of assets). Also referred to as the exposure ratio.

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

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