The Quarterly Review of Interest Rate Risk

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

Sensitivity Falls in the Third Quarter

A Note to the Reader on the Third Quarter 2006 Results: In the third quarter, OTS began producing interest rate risk reports with the *Enhanced* NPV Model. As noted in previous editions of this publication, the *Enhanced* NPV Model takes advantage of certain financial engineering techniques and methods that have been developed in recent years.

Arguably, the most important upgrade brought about by the model switch stems from our decision to replace the Legacy NPV Model's interest rate process. In the *Enhanced* NPV Model, OTS now uses the General-

Interest Rate Sensitivity Measure
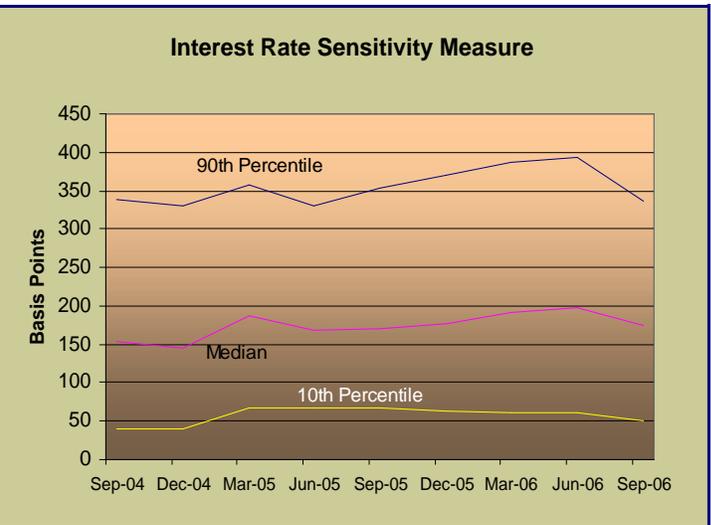
ized Ho-Lee (GHL) interest rate process for pricing certain fixed-income positions, in-

cluding single-family mortgage loans and securities.

Q & A with William McGuire on Core Deposit Valuations

William McGuire, Ph.D., is President and CEO of McGuire Performance Solutions, Inc. (MPS). Dr. McGuire founded MPS in 1995, bringing over 20 years of industry experience to assessing interest rate risk (IRR) and measuring core deposit behavior and value. He provides strategic direction, product development, and technical expertise to the firm.

As a former senior vice president with ALM model vendor Sendero Corporation, he headed its client services group. While a vice president at the Federal Home Loan Bank of Cincinnati, Dr.

McGuire managed an IRR reports service bureau and was a lead member of the team that designed Thrift Bulletin 13. He also has ten years of university teaching experience. Dr. McGuire is a frequent speaker at industry forums and has published extensively.

OTS. What is your educational and professional background?

WM. I have a BA, MA, and Ph.D. in economics. After teaching for ten years, I joined the FHLB of Cincinnati, just as FICO and FIRREA came into effect.

On loan to FSLIC, I was part of the team that drafted Thrift Bulletin 13. The FHLB of Cincinnati wanted to provide members with a solution to that policy statement, so I found myself producing interest rate risk reports in a service bureau mode.

After a brief stint with ALM model vendor IPS-Sendero, I founded McGuire Performance Solutions, Inc. (MPS) in 1995.

OTS. When did you start performing core deposit valuations?

Q & A with William McGuire on Core Deposit Valuations (continued)

(Continued from page 1)

WM. Our first core deposit valuation was produced in December 1995 based on data going back to December 1988.

OTS. How many people work for your firm and what are their backgrounds?

WM. McGuire Performance Solutions currently has nine FTEs, but we plan to expand to at least 12 shortly. Five MPS staff members telecommute from various locations in the United States, and the company has its headquarters in Scottsdale, AZ. Most MPS staff members have worked in banking at one time, except for our econometrician, who is on the faculty at Notre Dame University. Overall, the staff represents a good mix of financial modeling theory and lots of hard-earned banking experience.

OTS. How many core deposit valuations has MPS performed and what is the approximate breakdown between banks and thrifts?

WM. Over the last ten years, we have provided core deposit valuations for more than 200 franchises, representing roughly 175 financial institutions. About 25 of these institutions are thrifts and close to 50 are credit unions.

Asset sizes for these institutions range from $50 million to $375 billion, representing traditional branching, high convenience, and internet deposit gathering models.

OTS. What are the biggest obstacles you face when performing a core deposit valuation for a bank or thrift? Data quality? Inconsistent pricing behavior on the part of management? Lack of account history?

WM. I wouldn't call them obstacles in the sense that they get in the way of physically analyzing core deposit behavior and value. But we do regularly encounter several so-called "urban legends," which refer to potential problems associated with doing core deposit analyses. These legends are:

One can't get the data: Obtaining adequate data, which for us is ideally five years and at a minimum three years of monthly balances and rates paid history, is not nearly the problem it was once. Since 2000, almost all institutions archive information in retrievable formats. So having the data is not an issue, although system conversions sometimes lead to a loss of historical data. Getting data into the correct formats, i.e., total balances supplied, rates paid, and retained balances from fixed pools of account level information, can sometimes be a problem for the IT department. Our solution is to have a data "wizard" on the staff, who can use monthly data dumps to create the category-level times series values needed for general review and statistical analyses.

Changes in institution pricing behavior render the past irrelevant: This gets a lot of attention, but we have found that when looking statisti-

cally at very long time frames, some as far back as 1988, that repricing behavior tends to be more stable relative to Treasury rate changes than what is often claimed. Yes, there are short periods of slower repricing response and similar times of faster response. But close to symmetric repricing dominates over the long run, which is the time horizon of core deposit valuation analyses.

Fundamental changes in core depositor behavior happen when interest rate levels change: The decision by a depositor to put money in a core deposit category or take it out represents an option. Option-related behavior is driven by spreads. Unless there is reason to believe in some kind of "money illusion" that afflicts depositors in high- versus low-rate environments, one would expect that depositor reactions to spreads (e.g., the one-year Treasury minus the rate paid) would be similar across a reasonable range of rate environments . This is what we have found over and over again; that there is no material difference between core depositor behaviors in 2000 versus 2003 versus 2006, once spread effects are taken into account.

New competitors render the past moot: There is no doubt that high convenience banking models and new internet high yield savings products have changed the competitive landscape. But the high convenience model has not (in the experience of our clients) taken many core

deposit balances from community banks and thrifts. It is dysfunctional, large banks that are paying the price in terms of lost funds there.

And traditional core deposits (e.g., checking and traditional savings and MMDAs) do not directly compete with internet products. So there has been much less impact on such balances from the internet than is claimed. Of course, high rate MMDAs and CDs are another story!

OTS. Do you think bank and thrift executives fully understand the intricacies of core deposit modeling and do they typically integrate your analysis into the decision making process?

WM. Core deposits are the Dr. Pepper of balance sheets – so misunderstood! There are many moving pieces (total balances supplied/liquidity, repricing, and retention/average lives), many players (the institution, local markets, the internet, etc.), and two drivers of depositor behavior (rate paid and non-rate influences, such as service, convenience, and product design). There is definitely still a need for education on what core deposits are, what to expect in terms of behaviors, and how they can be used in balance sheets.

Our clients do a better job of understanding and using core deposits in their balance sheets than institutions that I typically encounter in seminars and other presentations. This is proba-

Q & A with William McGuire on Core Deposit Valuations (continued)

(Continued from page 2)
bly to be expected, as our clients are not likely a random draw, since managers who are more core deposit knowledgeable are more likely to contract for our reports.

I can say that if a client is coming to us with the desire to enhance performance (e.g., by using our report's analyses to better manage pricing/volumes or matching longer term assets to quantified core deposit effective durations), then there is generally a higher level of understanding on their part.

If the motive is regulatory, however, there is often less interest in the bigger picture. But all of our reports have a good deal of educational content, so even there we hope to make some progress.

OTS. What is the most misunderstood aspect of core deposit valuation?

WM. The hardest concept for most people is retention behavior, i.e., how long do core deposit balances stay on the balance sheet? A large part of this is because one can't "see" average lives in standard financial reports. Also a factor is that people focus on accounts (which will decline in number), not overall retained balances (which are often much more stable since average account balances tend to rise over time).

Interestingly, even though one can't see retention per se, there are many people who have strong opinions about what are the correct average lives for core deposits.

We argue that to understand retention, one needs to look at historical data describing fixed pools of accounts over time. This seems conservative to many managers, since a typical question they pose is: Can't I always replace lost accounts?

But most people understand when the fixed pool approach is justified by reminding them that a regulatory view of available term is needed, since the derived average lives are going into a regulatory-oriented assessment of equity at risk. Once an institution is in resolution status there is no future, and hence no new accounts.

Right behind retention in being misunderstood is the myth that high rate/high beta MMDAs and similar types of products have any special value. Those balances are fine as funding sources, but they are in most cases pretty close to being overnight funds, and as such, they contribute virtually no IRR hedging.

We refer to this as "the curse of the internet," because in all of our analyses of internet "core deposits," we have found minimal premiums and negligible effective durations.

It is possible to buy funding, but one can't create effective duration on the internet - at least so far.

OTS. Among practitioners, what is the biggest source of theoretical disagreement when it comes to core deposit valuation?

WM. At one time, there was a split between people who believe in core deposit embedded premiums versus those who hold that core deposits should always be treated at book value in equity at risk analysis. That debate has been resolved in favor of the former group, mainly because the book value approach is resoundingly rejected in the empirical record of M&A transactions, even though the FDIC has obtained material core deposit premiums in some resolution cases.

A recent issue to come up, championed mainly by the Sendero Institute, is the idea that a proper test for equity at risk is long term margin viability, not current net economic value. According to this approach, the focus is on core deposit shifts to rate paid/volume linkages and their effect on long-term margin.

I see where the basic idea is coming from, but it is a long-term business planning approach with an implied future business plan and its execution. It may reflect a type of regulatory view. For example, a French regulator will normally be committed to keeping an ailing institution alive and hence there is some kind of future for it. But the approach does not align at all with the regulatory paradigm in this country.

In the United States, regulators move as quickly as possible to resolve a troubled institution. Once the resolution process is in motion, there is no future for the institution and no future

business plan. What the core deposits are worth today, from a present value/ premium perspective, is the only relevant question at that point.

Many other issues are debated, of course. The most important of these is where to truncate retention if existing balances do not run off at a reasonable point (which is often the case for checking type categories). In our statistical forecasting world, the truncation point is where confidence in the forecast is so diminished that there is a need to balloon remaining balances. In regulatory views, the truncation point often takes on other dimensions; for example, to define the longest average life that will be allowed.

We have demonstrated on many occasions that truncation is not as important an input as often thought. This is because, while a 17.5 year truncation will produce a much longer average life than a 12.5 year truncation, the implications for present values and effective durations (which define equity at risk in hedging) are much less. This, of course, is because discounting is so great at far away time points that cash flows in the distant future don't add much to value calculations.

This is why we now emphasize effective durations, not average lives, in discussion about the equity at risk hedging contributions of core deposits. Effective durations also illustrate why internet core deposits lack in hedging value – they may

Q & A with William McGuire on Core Deposit Valuations(continued)

(Continued from page 3)
indeed be long term. If an institution overpays for funding and floats the rate paid, why would depositors ever leave?), but the balances have minimal effective duration because of their rapid and material repricing.

OTS. How do most non-OTS regulated institutions estimate the value of core deposits and how do other bank regulators typically view this analysis?

WM. The most common approach we see (again in our ALM model verification reports) is the use of OTS valuations from the website. The Farin Foresight and the PROFITstar ALM models even offer these as built-in choices (although they are not defaults). FDICIA 305 based inputs also pop up once in a while, either directly or as a "nothing longer than five years" rule.

We also see a fair number of internal studies, most modeled on the Farin & Parliament decay rate analysis methodology. This produces rough estimates of typical average runoff for present value calculations. But it can't be fine tuned to reflect today's specific interest rate environment and the same decay rates must be used in all scenarios.

Our statistically based behavior estimates are used by a growing number of institutions. This is mainly in the form of institution-specific analyses. But there are around 75 users of our core deposit index. This is a web delivered service (separate reports for banks/thrifts and credit unions), where users enter current balances and rates paid and their core deposits are valued based on averages of our national experience based on runoff forecasts. The user can specify their own category level of repricing, truncation points, non-interest inputs, but most use our defaults.

A few high-end ALM models have the capability to analyze retention and create present value inputs, and when we verify such models sometimes that functionality is being used. The level of analysis here tends to be pretty basic, however, being limited to pre-defined four-factor models.

OTS. OTS is in the process of revising its core deposit valuation models. What advice can you provide?

WM. Because there are many moving pieces involved with core deposit valuations, any forecast model must be based on a comprehensive analysis of historical data. This is going to result in an n-factor model that must be updated regularly. So the first things to plan on are: collecting lots of data and that the resulting model, if it is to accurately predict, will include many variables.

Core deposits need to be analyzed at an appropriate level of granularity. It is important to separate personal versus business categories, define tier categories where required, and have special treatments for high beta categories. Different core deposit gathering models have different behaviors. Traditional branching related deposits behave in different ways than do balances obtained in high convenience banking models, and internet deposits are much different than either of these.

Local or regional differences in core deposit behavior also exist, adding another layer of specificity to any ideal solution. Finally, plan on frequent updates to keep the model's predictive capability fresh. This requires an ongoing data maintenance program and regular re-estimations of the model's underlying equations.■

Editor's Note: The views expressed are William McGuire's and do not necessarily reflect those of OTS. Mr. McGuire can be contacted at McGuire Performance Solutions at info@mpsaz.com.

Sensitivity Falls in the Third Quarter (continued)

(Continued from page 1)

As noted previously, the GHL Model is analytically superior to the interest rate process used in the Legacy NPV Model. The GHL Model is calibrated to both the level of rates and swaption volatilities and thus produces a distribution of future mortgage rates that is more consistent with market expectations. As a result, the Enhanced NPV Model now produces effective duration estimates for products such as single-family mortgages that are more in-line with third-party estimates.

Our decision to use the GHL Model, however, makes it difficult to compare the IRR results for this quarter with those of previous quarters. Our research shows that a large percentage of the decline in median sensitivity and median effective duration of assets is attributed to the new interest rate process. Accordingly, all comparisons to prior quarters should be made with caution.

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The third quarter saw median interest rate sensitivity drop to 175 basis points, down from 198 in the second quarter. Sensitivity decreased due to a downward shift in the yield curve in the third quarter that caused the effective duration gap between assets and liabilities to decrease for the industry.

Both the median pre-shock Net Portfolio Value (NPV) ratio and the median post-shock NPV ratio fell slightly between the second and third quarters.

The third quarter saw

the Treasury yield curve shift downward, displaying a more pronounced humped, inverted shape than in the previous quarter. Between June 2006 and September 2006, rates fell along the yield curve for all maturities, but considerably more for medium and long-term-term maturities. For example, the three-month yield fell by 12 basis points, the six-month yield fell by 25 basis points, the 10-year yield rose by 57 basis points, and the 30-year yield rose by 49 basis points.

The target rate for federal funds remained unchanged at the August, September, and October 2006 meetings of the Federal Open Market Committee. However, the continuing unfavorable shape of the yield curve kept downward pressure on net interest income.

Average net interest margin fell to 265 basis points in the third quarter, down 15 basis points from the previous quarter. Net interest income fell for the industry because liability costs rose more than asset yields. Over the quarter, interest income rose 15 basis points, while interest expense rose 30 basis points.

Consistent with the decline in net income in the third quarter, thrift profitability fell from the previous quarter. The average return on assets (ROA) for the industry fell to 1.08 percent in the third quarter, down from 1.11 percent in the previous quarter.

The decline in ROA in the third quarter was driven

by lower net interest margin and fee income, and higher loan loss provisions. Partially offsetting these negative impacts to third-quarter profitability were higher other noninterest income and lower noninterest expense and taxes.

Total thrift earnings for the third quarter were $4.29 billion, up two percent from the from the previous quarter. This represents the seventh consecutive quarter with industry earnings of $4 billion or higher.

The 30-year mortgage rate, as measured by the contract interest rate on Freddie Mac commitments for fixed-rate, 30-year mortgages, fell to 6.31 percent at the end of the third quarter, down from 6.78 percent from the prior quarter.

Lower mortgage interest rates during the third quarter increased mortgage origination volumes. Total thrift mortgage originations were $172.1 billion, up from $171.1 billion in the previous quarter.

Third-quarter one-to-four-family mortgage originations rose to $149.9 billion, up from $148.5 billion in the previous quarter. This represents a one percent increase.

Mortgage refinancing volume was $46.6 billion in the third quarter, down 13 percent from the previous quarter. Consistent with the decline in the volume of mortgage refinancings, mortgage refinancing activity accounted for 27.1 percent of total mortgage originations in the third quarter, down from 31.3 percent in

the previous quarter.

This decrease in mortgage refinancing activity for thrifts is consistent with the mortgage refinancing activity of all lenders, where the proportion fell to 43 percent from 40 percent.

The ARM share of total thrift mortgage originations fell to 26 percent in the third quarter, down from 37 percent in the prior quarter. Consistent with this decline, the ARM share of total one-to-four-family mortgages held by thrifts in their portfolios declined to 61.7 percent in the third quarter, down from 63.3 percent in the prior quarter.

Between June 2006 and September 2006, thrift portfolio holdings of single-family mortgages relative to total assets were down over the quarter and year to 54.6 percent of assets. Mortgage-backed securities rose to 12.9 percent of assets in the third quarter, up from 11.4 percent at the end of the previous quarter.

On the liabilities side of the balance sheet, total variable-rate borrowings rose from $256.5 billion to $271.5 billion. Over the same period, total fixed-rate, fixed-maturity deposits rose from $388.7 billion to $417.9 billion. Also, balances in MMDA accounts rose to $197.7 billion in the third quarter, up from $195.9 billion in the prior quarter.

The industry's median effective duration of assets fell from 2.16 to 1.96 between June 2006 and September 2006. This repre-

Interest Rates and ARM Market Share

Interest Rates

CMT Yield Curves

Maturity in Months

— March 31, 2006   — June 30, 2006   — September 30, 2006

ARM Market Share of Originations

ARM Share of Thrift Mortgage Portfolios
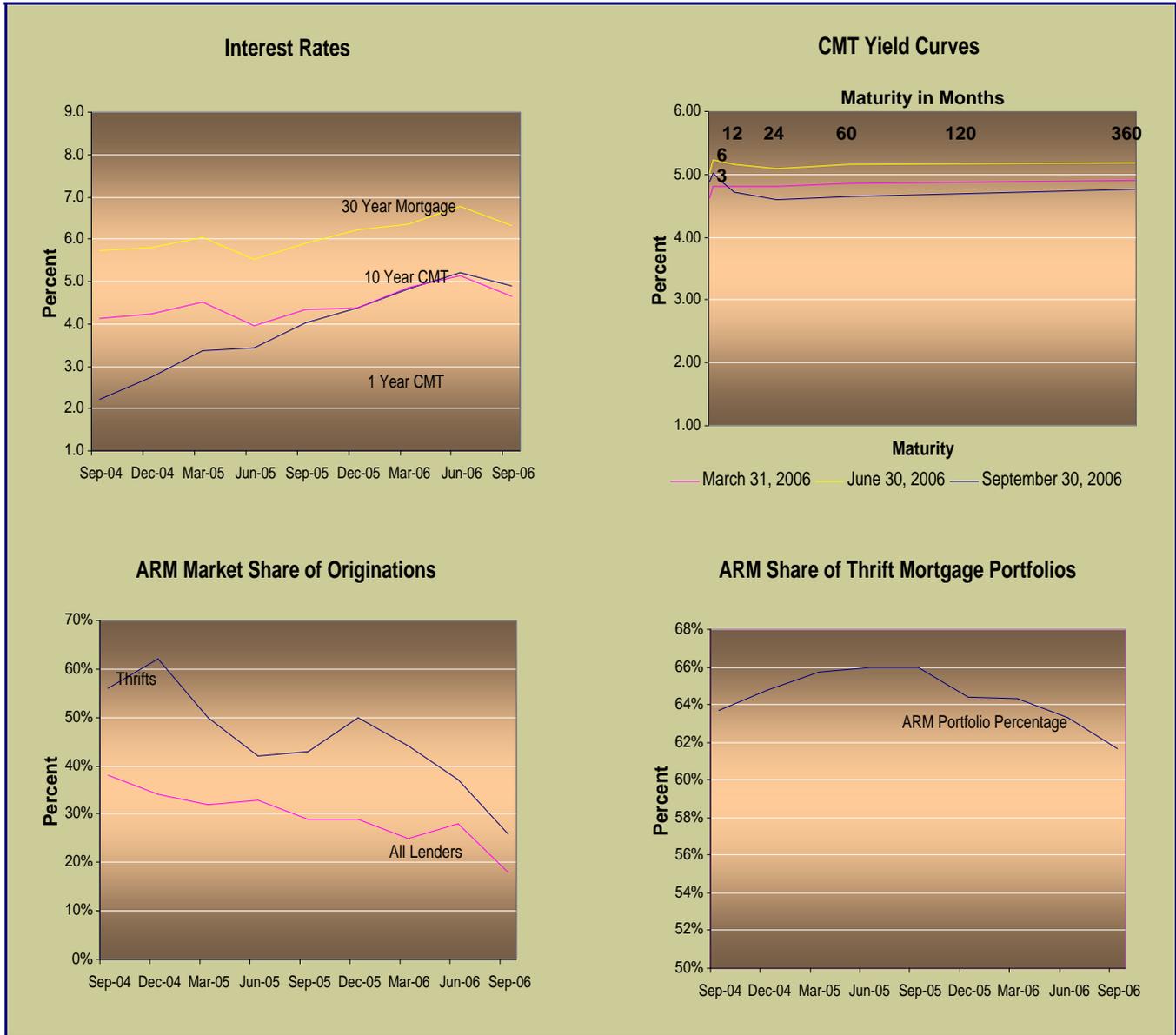
Sensitivity Falls in the Third Quarter (continued)

(Continued from page 5)
sents the first quarterly decrease in the effective duration of assets since the second quarter of 2005.

The decrease in longer-term interest rates during the third quarter caused a rise in the rate of projected one- to four-family mortgage prepayments. As a result of the increase in prepayments, the durations of both single-

family mortgages and total assets fell.

In its November 2006 *Prepayment Report and Commentary*, Bear Stearns & Co. observes that since its August prepayment report, mortgage rates have rallied almost 50 basis points, but prepayments on most coupons have declined. Aggregate prepayment on FNMA 30-year coupons of 5.0 percent, 5.5 per-

cent, 6.0 percent, and 6.5 percent in August were 8.7, 11.4, 12.7, and 16.5 CPR respectively, compared to 8.0, 10.4, 11.9, and 15.5 CPR in November.

According to Bear, Stearns, while the decline in speeds on the discount 5.0 percent and 5.5 percent coupons is consistent with seasonal patterns and housing market fundamentals, the de-

cline in speeds on the premium coupons is a key finding. This would suggest that the weak housing market is starting to impact the refinancing profile of recent mortgage originations.

The third quarter saw the industry's median effective duration of liabilities fall from 1.33 to 1.29. The sharp drop in the effective duration of

Duration and NPV Sensitivity Measures

Median Effective Duration Gap

Median Pre- and Post-Shock NPV Ratios

Estimated Change in NPV: +200bp Rate Change
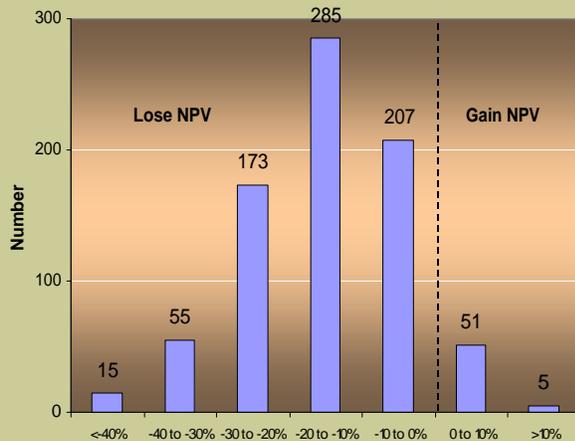
Estimated Change in NPV: -200bp Rate Change
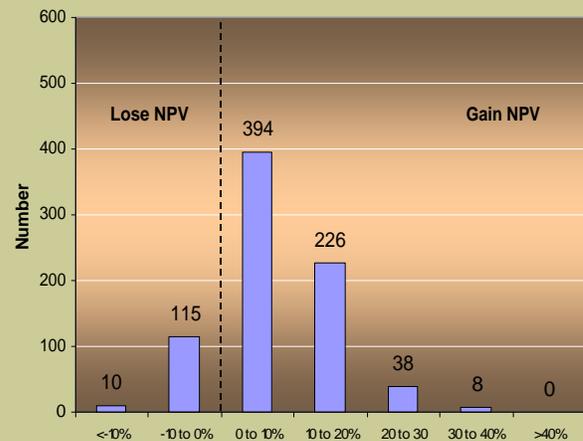
Sensitivity Falls in the Third Quarter (continued)

(Continued from page 6)
assets resulted in a decrease in the duration gap for the thrift industry in the third quarter.

The median effective duration gap declined to 0.62 in the second quarter, up from 0.81 in the prior quarter.

Both the median pre- and post-shock NPV ratios fell slightly between the second and third quarters. The median pre-shock NPV ratio fell to 13.1 percent in the third quarter, down from 13.3 percent in the previous quarter.

The median post-shock NPV ratio dropped, falling from 11.3 percent in the previous quarter to 11.1 percent in the second quarter. Median sensitivity increased from 191 basis points to 202 basis points.

The number of thrifts with a post-shock NPV ratio below four percent fell to six, down from seven institutions in the second quarter.

Of the thrifts that submitted Schedule CMR data in the third quarter, about 93 percent would have experienced a loss of net portfolio value if rates rose by 200 basis points.

In contrast, if rates fell by 200 basis points, about 84 percent of thrifts would have experienced increases in their net portfolio values.

The thrift industry would have lost 19 percent of its net

Interest Rate Risk Measures

Thrifts 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	% Change in NPV
	Jun-06	Sep-06	Jun-06	Sep-06
+300	7.50%	7.47%	-35%	-31%
+200	8.88%	8.60%	-22%	-19%
+100	10.06%	9.55%	-10%	-9%
Base	10.99%	10.29%	0%	0%
-100	11.62%	10.76%	7%	6%
-200	11.80%	10.93%	9%	8%
-300	N/A	N/A	N/A	N/A

Post-Shock NPV Ratio and Sensitivity Measure Matrix June 2006

	Under 100bp	101-200bp	201-400bp	Over 400bp	Total
Over 10%	159	150	174	42	525
6% to 10%	25	61	126	26	238
4% to 6%	1	1	20	4	26
Below 4%	0	0	3	4	7
Total	185	212	323	76	796

Minimal	Moderate	Significant	High

Post-Shock NPV Ratio and Sensitivity Measure Matrix September 2006

	Under 100bp	101-200bp	201-400bp	Over 400bp	Total
Over 10%	175	147	170	21	513
6% to 10%	36	90	114	12	252
4% to 6%	2	6	10	2	20
Below 4%	0	2	3	1	6
Total	213	245	297	36	791

Minimal	Moderate	Significant	High

Sensitivity Falls in the Third Quarter (continued)

(Continued from page 7)
portfolio value if rates rose by 200 basis points in the third quarter. On the other hand, the industry would have gained eight percent if rates fell by 200 basis points.

The number of thrifts with a post-shock NPV ratio below six percent fell to 26 institutions in the third quar-ter, down from 33 in the prior quarter. The number of thrifts with interest rate sensitivity of 100 basis points or below rose to 213 in the third quarter, up from 185 in the previous quarter.

The number of thrifts with over 400 basis points in interest rate sensitivity fell to 36 in the third quarter, down from 76 in the prior quarter. These results are consistent with an overall decrease in the interest rate sensitivity of the thrift industry in the third quarter.

Based on TB 13a guid-ance for the "S" rating, 620 thrifts (78.4 percent) initially would be assigned a minimal interest rate risk rating, 141 thrifts (17.8 percent) a moder-ate rating, 24 thrifts (3.03 per-cent) a significant rating, and six thrifts (0.7 percent) a high rating in the first quarter.

The number of thrifts with significant or high inter-est rate risk fell to 30 in the third quarter, down from 57 in the prior quarter.■

Comparative Trends in the Four OTS Regions

Median Sensitivity by OTS Region

■ All Thrifts ■ Northeast □ Southeast ■ Midwest □ West
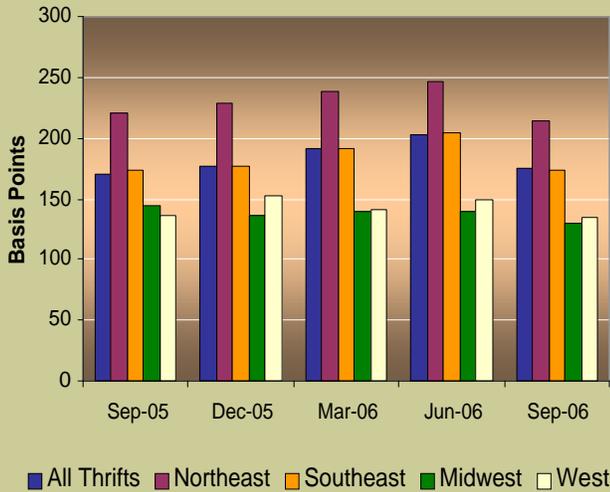
Median Assets Duration by OTS Region
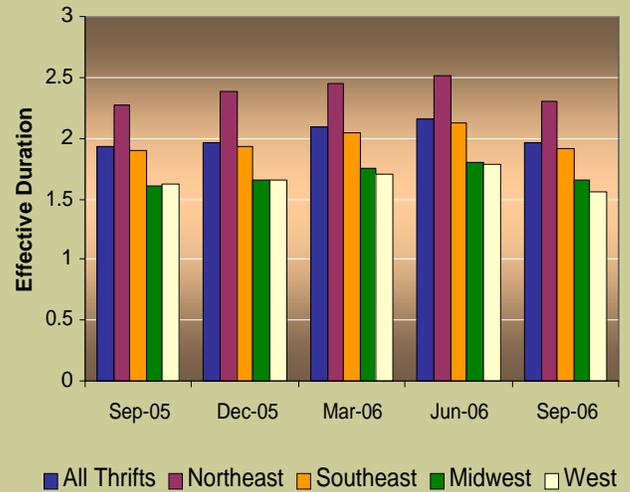
■ All Thrifts ■ Northeast □ Southeast ■ Midwest □ West

Median Pre-Shock NPV Ratio by OTS Region

■ All Thrifts ■ Northeast □ Southeast ■ Midwest □ West

Median Post-Shock NPV Ratio by OTS Region

■ All Thrifts ■ Northeast □ Southeast ■ Midwest □ West
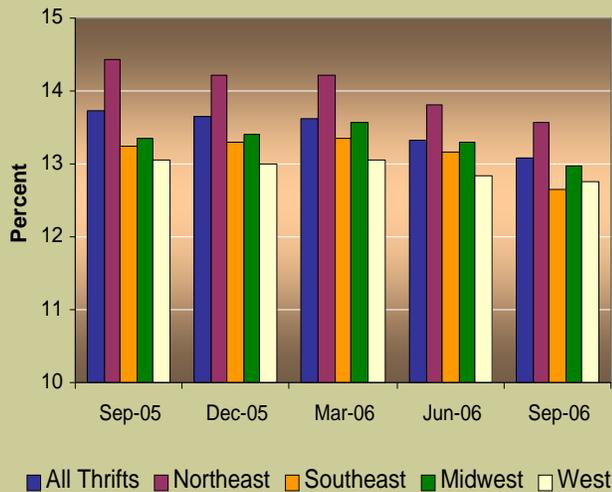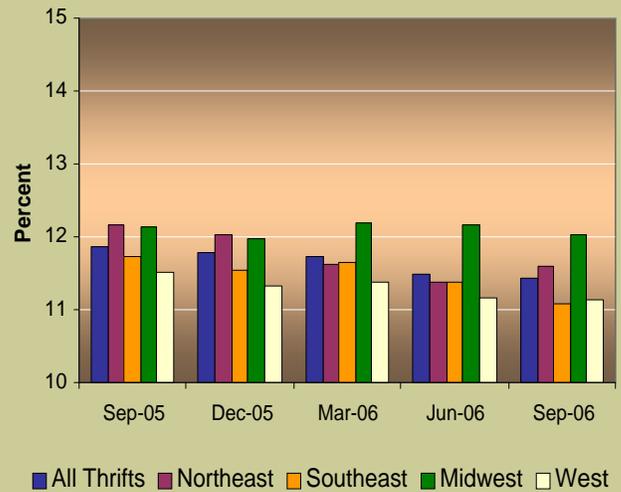
Regional Comparisons

At the end of the third quarter, the Northeast Region had the highest median sensitivity at 214 basis points, while the Midwest Region had the lowest median sensitivity at 129 basis points.

All four OTS regions experienced a decrease in their median sensitivities. The Northeast, Southeast, Midwest, and West Regions saw their median sensitivities drop by 33, 32, 11, and 14 basis points, respectively.

The Northeast Region had the highest median pre-shock NPV ratio at 13.6 percent, while the Southeast Region had the lowest median pre-shock NPV ratio at 12.6 percent. The Midwest Region had the highest median post-shock NPV ratio, while the Southeast Region had the lowest.

All four OTS regions saw their median asset durations fall. The Northeast Region had the highest asset duration, at 2.3, while the West Region had the lowest, at 1.56, at the end of the third quarter.

All four OTS regions saw little to no change in their median liability durations in the third quarter. ■

Appendix A — All Thrifts

Sensitivity Measure Distribution
All Thrifts

Percent of Thrifts

Descriptive Statistics
Median = 175
Mean = 187
Standard Deviation = 113
Skewness = 0.61
Kurtosis = -0.03
Maximum = 615.732801012097
Minimum = 0
Count = 791

Basis Points

Pre-Shock NPV Ratio Distribution
All Thrifts

Percent of Thrifts

Descriptive Statistics

Median = 13.08
Mean = 15.34
Standard Deviation = 8.6
Skewness = 4.43
Kurtosis = 27.77
Maximum =
87.5612387852421
Minimum =
4.05066107094706
Count = 791

NPV Ratio (Percent)

Post-Shock NPV Distribution
All Thrifts

Percent of Thrifts

Descriptive Statistics
Median = 11.43
Mean = 13.47
Standard Deviation = 8.65
Skewness = 4.51
Kurtosis = 28.7
Maximum =
86.7913235818498
Minimum =
2.10135562496944
Count = 791

NPV Ratio (Percent)

Asset Duration Distribution
All Thrifts

Percent of Thrifts

Descriptive Statistics

Median = 1.96
Mean = 1.93
Standard Deviation = 0.73
Skewness = -0.09
Kurtosis = 0.28
Maximum =
4.26667509256372
Minimum = -
1.36025579281962
Count = 791

Duration

Liabilities Duration Distribution
All Thrifts

Percent of Thrifts

Descriptive Statistics

Median = 1.29
Mean = 1.28
Standard Deviation = 0.41
Skewness = 0.25
Kurtosis = 2.18
Maximum =
3.46045502975462
Minimum =
0.00193086257240181
Count = 791

Duration

Appendix B — Northeast Region

Sensitivity Measure Distribution
Northeast

Percent of Thrifts

Descriptive Statistics

Median = 214
Mean = 218
Standard Deviation = 104
Skewness = 0.39
Kurtosis = 0.28
Maximum =
615.732801012097
Minimum = 11.386107212199
Count = 243

Basis Points

Pre-Shock NPV Ratio Distribution
Northeast

Percent of Thrifts

Descriptive Statistics

Median = 13.57
Mean = 16.06
Standard Deviation = 8.07
Skewness = 3.6
Kurtosis = 19.95
Maximum =
76.3676960067924
Minimum =
6.79265460884481
Count = 243

NPV Ratio (Percent)

Post-Shock NPV Distribution
Northeast

Percent of Thrifts

Descriptive Statistics

Median = 11.6
Mean = 13.89
Standard Deviation = 8.27
Skewness = 3.61
Kurtosis = 20
Maximum =
75.4545333525851
Minimum =
2.10135562496944
Count = 243

NPV Ratio (Percent)

Asset Duration Distribution
Northeast

Percent of Thrifts

Descriptive Statistics

Median = 2.3
Mean = 2.19
Standard Deviation = 0.65
Skewness = -0.62
Kurtosis = 0.91
Maximum =
4.11060159746788
Minimum =
0.112161116375325
Count = 243

Duration

Liabilities Duration Distribution
Northeast

Percent of Thrifts

Descriptive Statistics

Median = 1.37
Mean = 1.38
Standard Deviation = 0.41
Skewness = 0.4
Kurtosis = 2.68
Maximum =
3.08035041817373
Minimum =
0.00193086257240181
Count = 243

Duration

Appendix C — Southeast Region

Sensitivity Measure Distribution
Southeast

Percent of Thrifts

Descriptive Statistics

Median = 173
Mean = 190
Standard Deviation = 116
Skewness = 0.6
Kurtosis = -0.33
Maximum =
530.676742733737
Minimum = 0
Count = 281

Basis Points

Pre-Shock NPV Ratio Distribution
Southeast

Percent of Thrifts

Descriptive Statistics

Median = 12.64
Mean = 14.69
Standard Deviation = 7.47
Skewness = 4.36
Kurtosis = 34.06
Maximum =
87.5612387852421
Minimum =
4.05066107094706
Count = 281

NPV Ratio (Percent)

Post-Shock NPV Distribution
Southeast

Percent of Thrifts

Descriptive Statistics

Median = 11.07
Mean = 12.79
Standard Deviation = 7.5
Skewness = 4.5
Kurtosis = 35.96
Maximum =
86.7913235818498
Minimum =
2.56612824043479
Count = 281

NPV Ratio (Percent)

Asset Duration Distribution
Southeast

Percent of Thrifts

Descriptive Statistics

Median = 1.92
Mean = 1.94
Standard Deviation = 0.72
Skewness = 0.28
Kurtosis = 0.1
Maximum =
4.26667509256372
Minimum =
0.426822003600522
Count = 281

Duration

Liabilities Duration Distribution
Southeast

Percent of Thrifts

Descriptive Statistics

Median = 1.22
Mean = 1.23
Standard Deviation = 0.36
Skewness = 0.3
Kurtosis = 0.92
Maximum =
2.65734427126608
Minimum =
0.110798427398573
Count = 281

Duration

Appendix D — Midwest Region

Sensitivity Measure Distribution
Midwest

Percent of Thrifts

Basis Points

Descriptive Statistics
Median = 129
Mean = 155
Standard Deviation = 109
Skewness = 1.07
Kurtosis = 0.94
Maximum =
555.796249373353
Minimum = 0
Count = 186

Pre-Shock NPV Ratio Distribution
Midwest

Percent of Thrifts

NPV Ratio (Percent)

Descriptive Statistics
Median = 12.97
Mean = 15.22
Standard Deviation = 8.49
Skewness = 5.05
Kurtosis = 34.96
Maximum =
80.7643419235772
Minimum =
7.65377303662257
Count = 186

Post-Shock NPV Distribution
Midwest

Percent of Thrifts

NPV Ratio (Percent)

Descriptive Statistics
Median = 12.02
Mean = 13.66
Standard Deviation = 8.39
Skewness = 5.24
Kurtosis = 37.39
Maximum =
79.4266723906839
Minimum =
4.80454077347918
Count = 186

Asset Duration Distribution
Midwest

Percent of Thrifts

Duration

Descriptive Statistics
Median = 1.66
Mean = 1.71
Standard Deviation = 0.68
Skewness = -0.06
Kurtosis = 1.76
Maximum =
3.73103046221793
Minimum = -
1.36025579281962
Count = 186

Liabilities Duration Distribution
Midwest

Percent of Thrifts

Duration

Descriptive Statistics
Median = 1.28
Mean = 1.26
Standard Deviation = 0.4
Skewness = 0.75
Kurtosis = 5.01
Maximum =
3.46045502975462
Minimum =
0.0962043737840042
Count = 186

Appendix E — West Region

Sensitivity Measure Distribution
West

Percent of Thrifts

Descriptive Statistics

Median = 135.25
Mean = 161
Standard Deviation = 115
Skewness = 0.95
Kurtosis = 0.98
Maximum = 559.928354853173
Minimum = 6.72144024828299
Count = 81

Basis Points

Pre-Shock NPV Ratio Distribution
West

Percent of Thrifts

Descriptive Statistics
Median = 12.75
Mean = 15.74
Standard Deviation = 12.97
Skewness = 4
Kurtosis = 16.47
Maximum =
82.6528754596971
Minimum =
5.51083081769835
Count = 81

NPV Ratio (Percent)

Post-Shock NPV Distribution
West

Percent of Thrifts

Descriptive Statistics
Median = 11.13
Mean = 14.14
Standard Deviation = 13.04
Skewness = 4.02
Kurtosis = 16.64
Maximum =
81.7753283111021
Minimum =
4.64068307519735
Count = 81

NPV Ratio (Percent)

Asset Duration Distribution
West

Percent of Thrifts

Descriptive Statistics
Median = 1.56
Mean = 1.67
Standard Deviation = 0.81
Skewness = 0.17
Kurtosis = -0.22
Maximum =
3.75799177987116
Minimum =
0.134664684579588
Count = 81

Duration

Liabilities Duration Distribution
West

Percent of Thrifts

Descriptive Statistics
Median = 1.29
Mean = 1.16
Standard Deviation = 0.52
Count = 243
Kurtosis = -0.57
Maximum =
2.24646712720563
Minimum =
0.0803365566408696
Count = 81

Duration

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).

Sensitivity Measure: The difference between Pre-shock and Post– shock NPV Ratios (expressed in basis points).

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 symmetric will have a skewness statistic of zero.

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