

# CU\*Answers Regional Training 2014



Charles N. McQueen

**McQueen**  
Financial Advisors

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# Outline

- Introduction
- Liquidity reporting & new regulations
- Assumption stress testing
- Prepayment speed analysis
- Core deposit study
- ALM back testing



# Introduction

- **Regulatory view**
  - Interest rates are rising
  - Members will borrow funds
  - Members will withdrawal funds
  - Members will move from money market accounts to CD's
- **Liquidity Event – Are you ready?**

# Liquidity Reporting

## Goal:

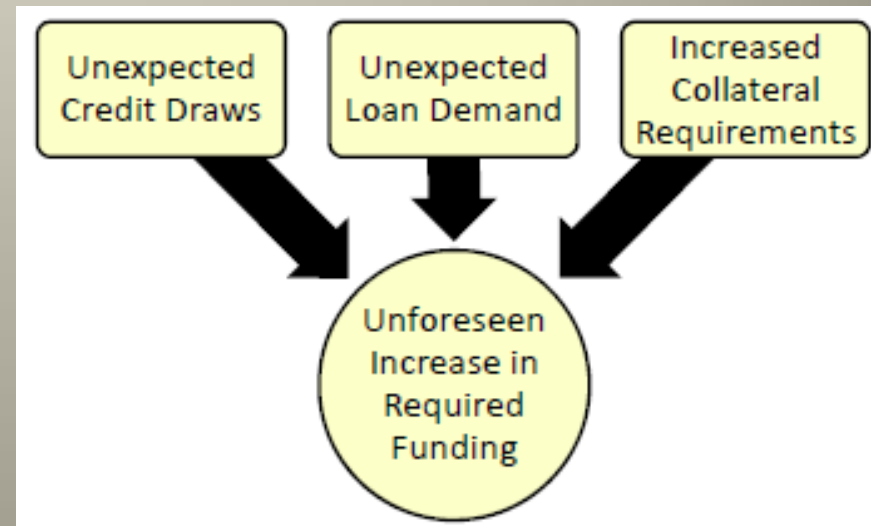
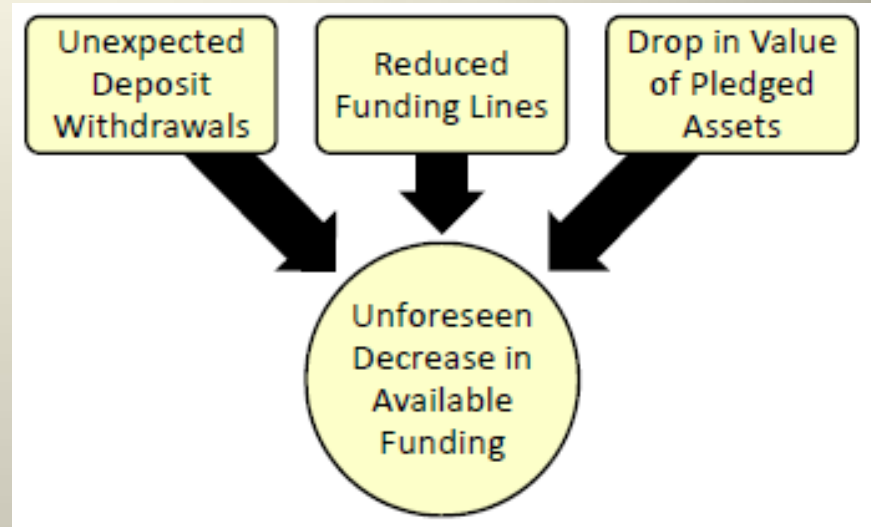
- View the steps to be prepared for examination
- Be prepared for potential higher interest rates



# Liquidity Reporting Updated Regulations

## New Liquidity Regulations:

- Policy
- Sources
- Monitoring



# Liquidity Reporting: Cumulative Pro-Forma Cash Flow

| <b>Available Funding: Start</b>        |                    | <b>1 to 30 Days</b> | <b>1 to 60 Days</b> | <b>1 to 90 Days</b> |
|--|--------------------|---------------------|---------------------|---------------------|
| Cash                                   |                    | 9,031               | 9,031               | 9,031               |
| Marketable Securities                  |                    | 23,179              | 23,179              | 23,179              |
| <b>Total Available Funding</b>         |                    | <b>32,211</b>       | <b>32,211</b>       | <b>32,211</b>       |
| <b>Sources of Funds</b>                |                    |                     |                     |                     |
| Loan Amortization/Payoffs              |                    | 651                 | 1,305               | 1,962               |
| Non-Maturity Deposit Growth            |                    | 254                 | 507                 | 761                 |
| Term Deposit Growth                    |                    | -                   | -                   | -                   |
| <b>Total Sources of Funds</b>          |                    | <b>904</b>          | <b>1,812</b>        | <b>2,723</b>        |
| <b>Uses of Funds</b>                   |                    |                     |                     |                     |
| New Loans                              |                    | (575)               | (1,154)             | (1,736)             |
| Non-Maturity Deposit Run-Off           |                    | -                   | -                   | -                   |
| Term Deposit Run-Off                   |                    | (11)                | (23)                | (34)                |
| Unanticipated Borrower Draws           |                    | -                   | -                   | -                   |
| Cash Required to Meet Expenses         |                    | (200)               | (400)               | (600)               |
| <b>Total Uses of Funds</b>             |                    | <b>(787)</b>        | <b>(1,577)</b>      | <b>(2,370)</b>      |
| <b>Net Sources &amp; Uses of Funds</b> |                    | <b>118</b>          | <b>235</b>          | <b>353</b>          |
| Projected Available Cash               |                    | 32,328              | 32,446              | 32,563              |
| Plus: Available Borrowings             |                    | 4,000               | 4,000               | 4,000               |
| <b>Available Funding: End</b>          |                    | <b>36,328</b>       | <b>36,446</b>       | <b>36,563</b>       |
| <b>Assumptions</b>                     | <b>Annual Rate</b> | <b>1 to 30 Days</b> | <b>1 to 60 Days</b> | <b>1 to 90 Days</b> |
| Loan Growth                            | -3.1%              | -0.26%              | -0.52%              | -0.78%              |
| Non-Maturity Deposit Growth            | 5.8%               | 0.48%               | 0.97%               | 1.45%               |
| Term Deposit Run-Off                   | -2.6%              | -0.22%              | -0.43%              | -0.65%              |
| Unanticipated Borrower Draws           |                    | None                |                     |                     |
| Borrowing Restrictions                 |                    | None                |                     |                     |

# Liquidity Reporting: 90 Day Stress Summary

| Scenario   | Non-Stressed | Mild         | Moderate                   | Severe                    |
|--|--------------|--------------|----------------------------|---------------------------|
| Available Funding: Start                               | 32,211       | 32,211       | 32,211                     | 32,211                    |
| Total Sources of Funds                                 | 2,723        | 1,962        | 1,962                      | 1,962                     |
| Total Uses of Funds                                    | (2,370)      | (3,978)      | (5,407)                    | (5,350)                   |
| Net Sources & Uses                                     | 353          | (2,016)      | (3,445)                    | (3,388)                   |
| Projected Available Funding                            | 32,563       | 30,195       | 28,766                     | 28,823                    |
| Plus: Available Borrowings [1]                         | 4,000        | 4,000        | 3,000                      | -                         |
| Available Funding: End                                 | 36,563       | 34,195       | 31,766                     | 28,823                    |
| <b>Scenario Assumptions (Annualized)</b>               |              |              |                            |                           |
| Loans  | 3.1% Run-Off | 7.5% Growth  | 15.0% Growth               | Lending Curtailed         |
| Non-Maturity Deposits                                  | 5.8% Growth  | 5.0% Run-Off | 10.0% Run-Off              | 25.0% Run-Off             |
| Term Deposits  | 2.6% Run-Off | 7.0% Run-Off | 15.0% Run-Off              | 20.0% Run-Off             |
| Unanticipated Borrower Draws (% of outstanding amount) | None         | 10%          | 20%                        | 100%                      |
| Borrowing Restrictions                                 | None         | None         | Line of Credit Reduced 25% | Line of Credit Eliminated |

# Assumption Stress Testing

- **The ALM report is a combination of math and assumptions.**
  - Deposit assumptions
  - Loan assumptions
    - Current replacement rate
    - +/- 100, 200, 300, 400, 500 replacement rates
    - Credit tiring
  - Investment assumptions





# Assumption Stress Testing

## Repricing/Growth Assumptions: Deposits

| Deposit Type        | Booked Rate | -100 | Repl. Rates | +100 | +200 | +300 | +400 | +500 |
|---------------------|-------------|------|-------------|------|------|------|------|------|
| NIB Deposits        | -           | -    | -           | -    | -    | -    | -    | -    |
| Shares              | 0.18        | 0.15 | 0.15        | 0.35 | 0.55 | 0.75 | 0.95 | 1.15 |
| Money Market        | 0.61        | 0.30 | 0.30        | 0.50 | 0.70 | 0.90 | 1.10 | 1.30 |
| Share Drafts        | 0.11        | 0.05 | 0.05        | 0.25 | 0.45 | 0.65 | 0.85 | 1.05 |
| IRA Shares          | 1.00        | 1.00 | 1.00        | 1.20 | 1.40 | 1.60 | 1.80 | 2.00 |
| Club Accounts       | 0.10        | 0.10 | 0.10        | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 6 Mo CD             | 0.35        | 0.35 | 0.35        | 1.10 | 1.85 | 2.60 | 3.35 | 4.10 |
| Jumbo 6 Mo CD       | 0.46        | 0.60 | 0.60        | 1.35 | 2.10 | 2.85 | 3.60 | 4.35 |
| 12 Mo CD            | 0.60        | 0.50 | 0.50        | 1.25 | 2.00 | 2.75 | 3.50 | 4.25 |
| Jumbo 12 Mo CD      | 0.81        | 0.75 | 0.75        | 1.50 | 2.25 | 3.00 | 3.75 | 4.50 |
| 18 Mo CD            | 4.44        | 0.50 | 0.50        | 1.25 | 2.00 | 2.75 | 3.50 | 4.25 |
| 24 Mo CD            | 1.09        | 0.60 | 0.60        | 1.35 | 2.10 | 2.85 | 3.60 | 4.35 |
| Jumbo 24 Mo CD      | 1.23        | 0.85 | 0.85        | 1.60 | 2.35 | 3.10 | 3.85 | 4.60 |
| 36 Mo CD            | 1.73        | 1.00 | 1.00        | 1.75 | 2.50 | 3.25 | 4.00 | 4.75 |
| Jumbo 36 Mo CD      | 1.82        | 1.25 | 1.25        | 2.00 | 2.75 | 3.50 | 4.25 | 5.00 |
| 48 Mo CD            | 1.75        | 1.25 | 1.25        | 2.00 | 2.75 | 3.50 | 4.25 | 5.00 |
| Jumbo 48 Mo CD      | 1.74        | 1.50 | 1.50        | 2.25 | 3.00 | 3.75 | 4.50 | 5.25 |
| 60 Mo CD            | 2.83        | 1.50 | 1.50        | 2.25 | 3.00 | 3.75 | 4.50 | 5.25 |
| Jumbo 60 Mo CD      | 2.39        | 1.75 | 1.75        | 2.50 | 3.25 | 4.00 | 4.75 | 5.50 |
| IRA CD              | 1.58        | 0.50 | 0.50        | 1.25 | 2.00 | 2.75 | 3.50 | 4.25 |
| FHLB Borrowed Funds | 2.68        | 2.68 | 2.68        | 3.68 | 4.68 | 5.68 | 6.68 | 7.68 |

# Assumption Stress Testing

## Loan Repricing Assumptions

| Loan Type                 | Booked Rate | -100  | Base  | +100  | +200  | +300  | +400  | +500  |
|---------------------------|-------------|-------|-------|-------|-------|-------|-------|-------|
| Closed End Loans          | 6.46        | 5.50  | 5.50  | 6.00  | 6.50  | 7.00  | 7.50  | 8.00  |
| Fixed Home Equity         | 6.36        | 6.57  | 6.57  | 7.57  | 8.57  | 9.57  | 10.57 | 11.57 |
| Mortgage Fixed            | 5.12        | 3.62  | 3.62  | 4.12  | 4.62  | 5.12  | 5.62  | 6.12  |
| Balloon Mtg               | 5.61        | 3.62  | 3.62  | 4.12  | 4.62  | 5.12  | 5.62  | 6.12  |
| Commercial Alliance Loans | 6.18        | 5.82  | 5.82  | 6.82  | 7.82  | 8.82  | 9.82  | 10.82 |
| VISA                      | 10.00       | 10.95 | 10.95 | 10.95 | 10.95 | 10.95 | 10.95 | 10.95 |
| Dealer Loans              | 6.83        | 6.52  | 6.52  | 6.52  | 8.52  | 9.52  | 10.52 | 11.52 |
| Other Loans               | 14.33       | 14.97 | 14.97 | 14.97 | 15.97 | 16.47 | 16.97 | 17.47 |
| HELOC - 1                 | 3.33        | 3.33  | 3.33  | 3.33  | 5.33  | 6.33  | 7.33  | 8.33  |
| Mortgage Floating         | 4.88        | 6.75  | 6.75  | 6.75  | 8.75  | 9.75  | 10.75 | 11.75 |

# Assumption Stress Testing

## Loan Prepayment Assumptions Cont.

### Constant Prepayment Rate (CPR)

| Loan Type                               | Booked Rate | -100         | Base CPR     | +100        | +200        | +300        | +400        | +500        |
|---|-------------|--------------|--------------|-------------|-------------|-------------|-------------|-------------|
| Closed End Loans                        | 6.46        | 8.00         | 7.00         | 6.00        | 5.00        | 4.00        | 3.00        | 2.00        |
| Fixed Home Equity                       | 6.36        | 14.33        | 11.44        | 9.72        | 8.58        | 7.44        | 6.86        | 5.72        |
| Mortgage Fixed                          | 5.12        | 17.87        | 15.12        | 12.85       | 11.34       | 9.83        | 9.07        | 7.56        |
| Balloon Mtg                             | 5.61        | 18.50        | 27.68        | 23.53       | 20.76       | 17.99       | 16.61       | 13.84       |
| Commercial Alliance Loans               | 6.18        | 13.20        | 12.00        | 11.04       | 9.60        | 8.64        | 7.80        | 6.96        |
| VISA                                    | 10.00       | 8.50         | 8.00         | 7.50        | 6.50        | 5.00        | 4.00        | 3.00        |
| Dealer Loans                            | 6.83        | 8.00         | 7.00         | 6.00        | 5.00        | 4.00        | 3.00        | 2.00        |
| Other Loans                             | 14.33       | 8.00         | 7.00         | 6.00        | 5.00        | 4.00        | 3.00        | 2.00        |
| HELOC - 1                               | 3.33        | 24.00        | 14.58        | 12.09       | 10.44       | 8.78        | 7.95        | 6.29        |
| Mortgage Floating                       | 4.88        | 20.00        | 18.00        | 16.00       | 14.00       | 12.00       | 10.00       | 8.00        |
| <b>Weighted Average Prepayment Rate</b> |             | <b>11.87</b> | <b>10.44</b> | <b>9.05</b> | <b>7.84</b> | <b>6.64</b> | <b>5.78</b> | <b>4.64</b> |

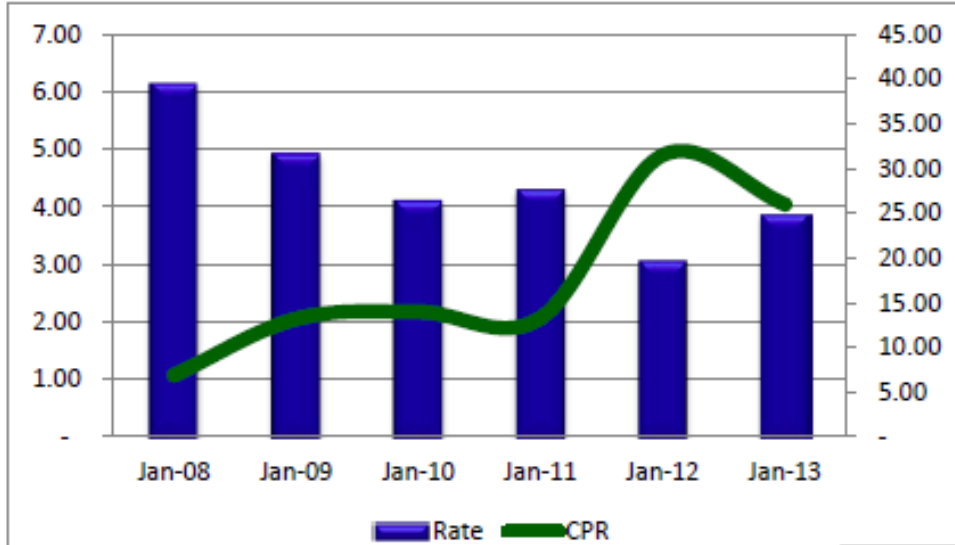
# Prepayment Speed Analysis

- **Prepayment Speed Analysis**
  - Market rates vs. your rates
  - Unique situation
    - Car loans in Michigan
    - What is unique in your portfolio?

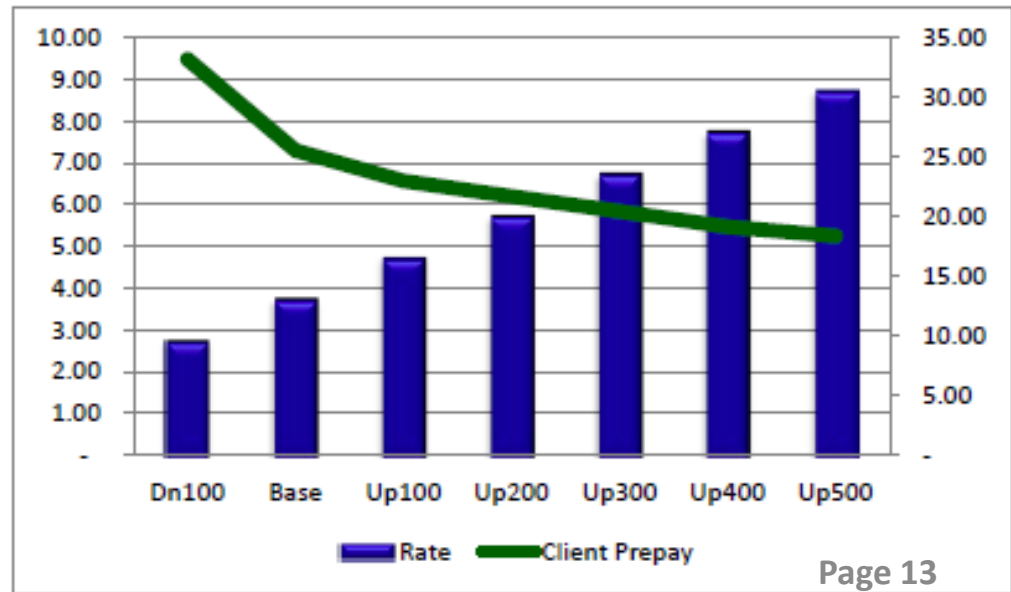


# Prepayment Speed Analysis Cont.

Historical 30 Yr FNMA Commitment Rate & Prepay Speeds



30 Year Mortgages and Prepay



# Prepayment Speed Analysis Cont.

| Category                 | Prior Year Rate | Prior Year Balance (000) | Total Prepay/Paid Off (000) | Prepay Percentage |
|--------------------------|-----------------|--------------------------|-----------------------------|-------------------|
| Mtg Fx 10 Yr             | 3.19            | 9,251                    | 1,798                       | 19.44             |
| Mtg Fx 15 Yr             | 3.45            | 21,409                   | 4,565                       | 21.32             |
| Mtg Fx 30 Yr             | 5.30            | 42,934                   | 9,667                       | 22.52             |
| Mortgage Floating        | 3.78            | 28,164                   | 4,714                       | 16.74             |
| Comm/BusLoans Fx 5 Yr    | 6.06            | 43,825                   | 8,213                       | 18.74             |
| Comm/BusLoans Fx 7 Yr    | 5.80            | 938                      | 56                          | 5.97              |
| Comm/BusLoans Fx 10 Yr   | 5.15            | 4,025                    | 601                         | 14.94             |
| Comm Alliance Floating   | 5.83            | 5,563                    | 1,083                       | 19.46             |
| Auto Loans               | 3.81            | 41,120                   | 9,775                       | 23.77             |
| Indirect - Used Auto     | 6.11            | 28,328                   | 6,259                       | 22.09             |
| Indirect - New Auto      | 6.27            | 16,414                   | 3,801                       | 23.16             |
| Indirect - Driving Sense | 5.84            | 4,053                    | 1,164                       | 28.72             |
| Indirect - HIP           | 12.03           | 4,123                    | 622                         | 15.08             |
| Indirect - RV            | 5.65            | 5,202                    | 648                         | 12.46             |
| Fixed Home Equity        | 5.72            | 20,392                   | 3,756                       | 18.42             |
| Signature Fixed          | 12.16           | 7,845                    | 1,889                       | 24.08             |
| Recreational             | 5.49            | 4,838                    | 949                         | 19.61             |
| Other Loans              | 4.58            | 515                      | 134                         | 26.01             |
| <b>Total Loans</b>       | <b>5.56</b>     | <b>347,301.09</b>        | <b>59,695</b>               | <b>21.10</b>      |

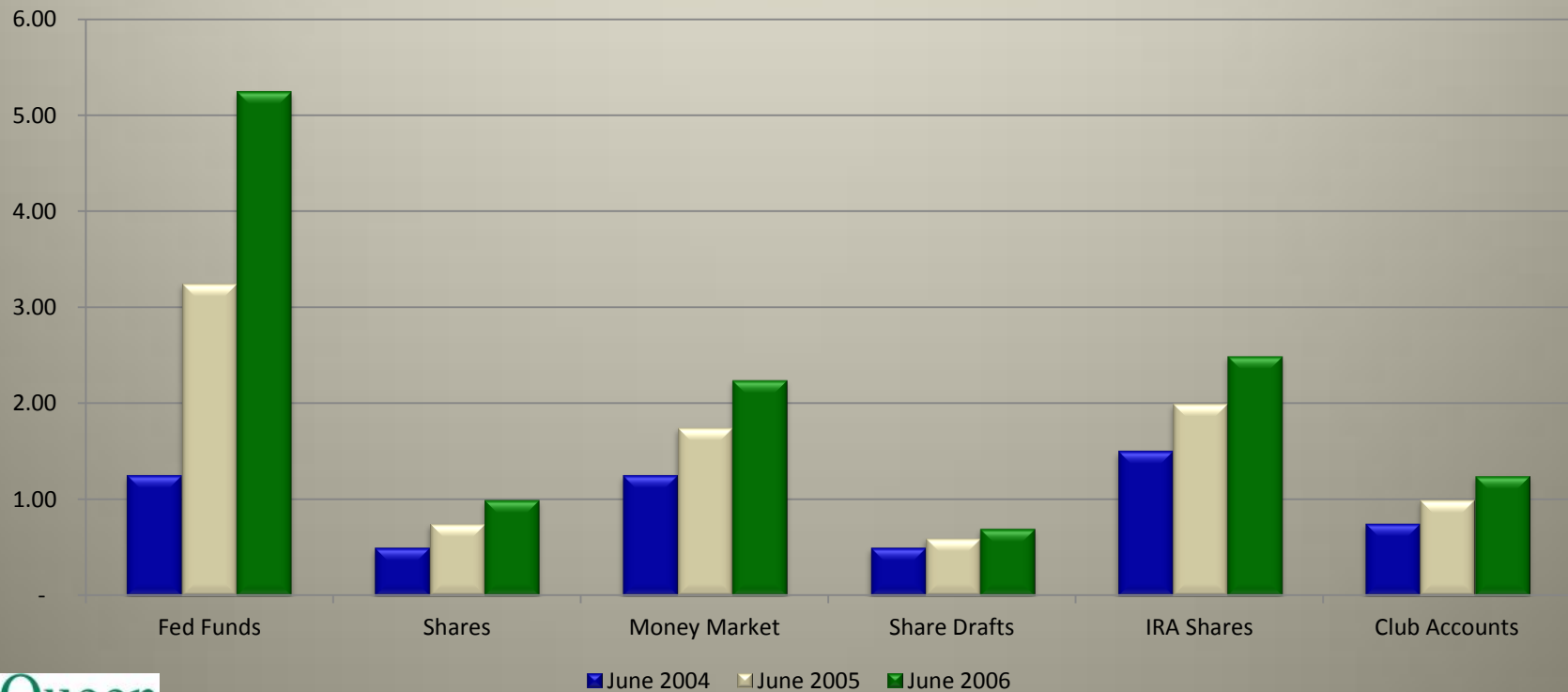
# Core Deposit Study

- **Core Deposit Study**
  - Sets the duration (term) of your non-maturity deposits
  - Significant component of NEVE analysis
- **Other components**
  - Surge deposits
  - Disintermediation



# Core Deposit Study

|              | Fed Funds | Shares | Money Market | Share Drafts | IRA Shares | Club Accounts |
|--------------|-----------|--------|--------------|--------------|------------|---------------|
| June 2004    | 1.25      | 0.50   | 1.25         | 0.50         | 1.50       | 0.75          |
| June 2005    | 3.25      | 0.75   | 1.75         | 0.60         | 2.00       | 1.00          |
| June 2006    | 5.25      | 1.00   | 2.25         | 0.70         | 2.50       | 1.25          |
| Total Change | 4.00      | 0.50   | 1.00         | 0.20         | 1.00       | 0.50          |
| Per 100      | 1.00      | 0.13   | 0.25         | 0.05         | 0.25       | 0.13          |





# Core Deposit Study Cont.

| Category      | 2013 Count | Decay Rate | Retention Rate | Per Core Deposit Study |                | Current ALM Term in Months | Suggested Term in Months |
|---------------|------------|------------|----------------|------------------------|----------------|----------------------------|--------------------------|
|               |            |            |                | Term in Years          | Term in Months |                            |                          |
| NIB Deposits  | 102        | 19.9%      | 80.1%          | 3.1 Yrs                | 37             | 36                         | 36                       |
| Shares        | 16,855     | 8.5%       | 91.5%          | 7.8 Yrs                | 94             | 36                         | 72                       |
| Money Market  | 649        | 7.9%       | 92.1%          | 8.4 Yrs                | 101            | 36                         | 60                       |
| Share Drafts  | 6,908      | 7.9%       | 92.1%          | 8.4 Yrs                | 101            | 36                         | 60                       |
| IRA Shares    | 586        | 10.1%      | 89.9%          | 6.5 Yrs                | 78             | 36                         | 50                       |
| Club Accounts | 1,552      | 10.9%      | 89.1%          | 6.0 Yrs                | 72             | 12                         | 24                       |

[1] We recommend a retention rate of no more than 10 years.

# ALM Back Testing

- **Goal** – Determine if our ALM report is accurate
- **How?**
  - Compare actual results to projected results
  - Net-interest income vs. net income
  - Annual frequency

# ALM Back Testing Cont.

## Rate Variance Analysis:

| <i>Interest Rates</i> | <b>Actual<br/>12/31/2012</b> | <b>Unchanged<br/>Projected</b> | <b>Actual<br/>12/31/2013</b> | <b>Average<br/>Rate</b> | <b>Average<br/>Balance</b> | <b>Rate<br/>Variance</b> | <b>Effect to<br/>Income</b> |
|-----------------------|------------------------------|--------------------------------|------------------------------|-------------------------|----------------------------|--------------------------|-----------------------------|
| Loans                 | 5.22%                        | 4.88%                          | 4.76%                        | 4.87%                   | 33,031                     | -0.01%                   | (4)                         |
| Investments           | 1.39%                        | 1.39%                          | 1.22%                        | 1.31%                   | 49,795                     | -0.09%                   | (42)                        |
| Fed Funds             | 0.20%                        | 0.20%                          | 0.20%                        | 0.20%                   | 7,177                      | 0.00%                    | -                           |
| Non Maturity Deposits | 0.16%                        | 0.16%                          | 0.15%                        | 0.16%                   | 7,177                      | 0.00%                    | -                           |
| Term Deposits         | 0.82%                        | 0.74%                          | 0.78%                        | 0.80%                   | 16,283                     | 0.06%                    | (10)                        |
|                       |                              |                                |                              |                         |                            |                          | <u>(56)</u>                 |

## Volume Variance Analysis:

| <i>Balance</i>        | <b>Actual<br/>12/31/2012</b> | <b>Unchanged<br/>Projected</b> | <b>Actual<br/>12/31/2013</b> | <b>Average<br/>Rate</b> | <b>Variance<br/>Balance</b> | <b>Average<br/>Rate</b> | <b>Effect to<br/>Income</b> |
|-----------------------|------------------------------|--------------------------------|------------------------------|-------------------------|-----------------------------|-------------------------|-----------------------------|
| Loans                 | 31,897                       | 31,897                         | 34,165                       | 33,031                  | 1,134                       | 4.87%                   | 55                          |
| Investments           | 50,024                       | 50,024                         | 49,567                       | 49,795                  | (228)                       | 1.31%                   | (3)                         |
| Fed Funds             | 6,677                        | 6,677                          | 7,678                        | 7,177                   | 501                         | 0.20%                   | 1                           |
| Non Maturity Deposits | 66,361                       | 66,361                         | 69,425                       | 67,893                  | 1,532                       | 0.16%                   | (2)                         |
| Term Deposits         | 16,947                       | 16,947                         | 15,619                       | 16,283                  | (664)                       | 0.80%                   | 5                           |
|                       |                              |                                |                              |                         |                             |                         | <u>56</u>                   |

# ALM Back Testing Cont.

## Federal Funds Rate

|               |          |
|---------------|----------|
| 12/31/2012    | 0.25     |
| 12/31/2013    | 0.25     |
| <b>Change</b> | <b>-</b> |

## Rate and Volume Summation:

|  |          |
|--|----------|
| Differences due to Rates:                | (56)     |
| Differences due to Volumes:              | 56       |
| <b>Change Related to Rate and Volume</b> | <b>-</b> |

## Net Interest Income Projected vs. Actual

|   |               |
|---|---------------|
| Net Interest Income Projected 12/31/12  | 2,036         |
| Net Interest Income Actual 12/31/13     | 1,998         |
| <b>Difference Actual to Projected</b>   | <b>(38)</b>   |
| <b>Difference Actual to Projected %</b> | <b>-1.85%</b> |

## Comparison

|  |             |
|--|-------------|
| <b>Net Interest Income Projected vs Actual</b> | <b>(38)</b> |
| <b>Explained Variance</b>                      | <b>-</b>    |
| <b>Unexplained Variance</b>                    | <b>(38)</b> |

-1.8%

# Summary

- **Steps to ensure ALM reporting:**
  - Liquidity reporting & new regulations
  - Assumption stress testing
  - Prepayment speed analysis
  - Core deposit study
  - ALM back testing

# Questions?

## **McQueen Financial Advisors, Inc.**

*Charles N. McQueen*

26676 Woodward Avenue

Royal Oak, MI 48067

248-548-8400

Charley@m-f-a.com