Liquidity Analysis and Reporting

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Objectives

• Current trends
• Recent regulatory releases
• Consider a new approach
  – Better liquidity and NIM management
  – Meet changing examiner expectations
Senate Financial Reform Bill

- Provide for transparency of derivatives
- Separate regulation of large banks
- “Streamlines” federal bank supervision
- Stronger enforcement of regulations currently on the books
  - Higher capital standards
  - Stronger liquidity requirements
  - “Traditional” bank balance sheets
Regulatory Updates

- Interagency Advisory on IRR (1/7/2010)
- 10-CU-02 Business Lending (1/2010)
- 10-CU-03 Concentration Risk (3/2010)
- Interagency Policy Statement on Funding and Liquidity Risk Management (3/22/2010)
Current Trends

• US Consumer savings*
  – 11/2009   4.7%
  – 2/2010   3.4%
  – 3/2010   3.1%

• US Consumer debt **
  – 2005   +4.5%
  – 2006   +4.1%
  – 2007   +5.7
  – 2008   +1.5%
  – 2009   -4.4%
  – 2010 YTD   -0.4%

* Source: US Department of Commerce, Bureau of Economic Analysis
** Source: Federal Reserve Statistical Releases
Current Trends

• Will the funding always be there?
  – Retail deposit growth is very competitive
  – Wholesale funds have regulatory stigma

• Regulation is pointing towards bringing back the traditional depository structure

• Failure to consider long-term liquidity will compress NIM
Interagency Policy Statement on Funding and Liquidity Risk Mgt (3/22/2010)

- Provides framework that stresses diversity of funding sources
- Creates guidance for risk that occurs in correspondent banking relationships
- Does not impose requirements, does not intend on replacing examiner’s guides
Interagency Policy Statement on Funding and Liquidity Risk Mgt (3/22/2010)

• Three weaknesses of most financial institutions
  – Insufficient holdings of liquid assets
  – Funding illiquid assets with volatile short-term liabilities
  – Lack of meaningful cash-flow projections and liquidity contingency plans
Interagency Policy Statement on Funding and Liquidity Risk Mgt (3/22/2010)

- Emphasis of guidance is on
  - Cash-flow projections
  - Diversified funding sources
  - Stress testing
  - Cushion of liquid assets
  - Strong contingency funding plan
Interagency Policy Statement on Funding and Liquidity Risk Mgt (3/22/2010)

- Items that your policy needs to include:
  - Cash flow projections over specified time horizons for both expected and adverse conditions
  - Target amounts of liquid assets
  - Measures for unstable liabilities
    - Wholesale funding/total assets ratio
    - Volatile deposits/total deposits ratio
    - Short-term borrowings/total funding ratio
  - Concentration limits that address diversity of funding sources
Basel Committee on Banking Supervision

- International Framework for Liquidity Risk Measurement, Standards and Monitoring
  - [www.bis.org](http://www.bis.org)
  - Published 12/2009
  - Open for comment until 4/16/2010
  - “Key element of the financial crisis was inaccurate and ineffective management of liquidity risk”
Basel Committee on Banking Supervision

- Four main recommendations
  - Liquidity Coverage Ratio
  - Net Stable Funding Ratio
  - Address contractual maturity mismatch
  - Address concentration of funding
Basel Committee on Banking Supervision

• Liquidity Coverage Ratio
  – High quality liquid assets/Net cash outflows < 30 days
  – Ratio must be > 100%
  – High quality liquid assets:
    • Cash
    • Central bank reserves
    • Marketable securities (deep repo market exists)
    • Corporates (A- or better)
    • Government or central bank debt
    • Central bank eligible
Basel Committee on Banking Supervision

• Net Stable Funding Ratio

Available Amount of Stable Funding (ASF)
Required Amount of Stable Funding (RSF)

– Ratio must be > 100%
Basel Committee on Banking Supervision

• **ASF**
  
  – **100% Factor**
    1. Total Capital
    2. Preferred Stock with maturity > 1yr
    3. Total liabilities with effective maturity > 1yr
  
  – **85% Factor**
    1. Stable non-maturity retail deposits and term deposits < 1yr
  
  – **70% Factor**
    1. Less stable retail deposits < 1 yr (i.e. uninsured amounts)
  
  – **50% Factor**
    1. Unsecured wholesale funding
    2. Retail deposits provided by non-financial corporate customers
Basel Committee on Banking Supervision

• RSF
  – 0% Factor
    • Cash, money market instruments
    • Securities with maturities < 1yr
  – 5% Factor
    • Unencumbered UST’s, AGY, claims on central banks > 1yr
  – 20% Factor
    • Unencumbered corporate securities > 1yr and at least AA rated
  – 50% Factor
    • Gold, Equities
    • Corporates AA- to A-
    • Loans to corporate clients w maturity < 1yr
  – 85% Factor
    • Loans to retail clients w maturity < 1yr
  – 100% Factor – all other assets
Basel Committee on Banking Supervision

- Address the contractual maturity mismatch
  - Sources and uses report
  - Apply analysis to specific time horizons
  - Stress test some of your assumptions
    - Prepayments
    - Non-maturity deposit runoff
    - CD Renewals
Basel Committee on Banking Supervision

- Concentration of funding sources
  - Identify significant counterparties
    - More than 1% of total liabilities in aggregate
  - Identify significant product/instrument
    - More than 1% of total liabilities in aggregate
# Traditional Liquidity Analysis

## Liquidity:
<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash &amp; Due</td>
<td>$23,591</td>
</tr>
<tr>
<td>Interest Bearing Balances</td>
<td>1,486</td>
</tr>
<tr>
<td>Fed Funds Sold</td>
<td>-</td>
</tr>
<tr>
<td>Investment Securities</td>
<td>216,061</td>
</tr>
<tr>
<td>Less Pledged to Borrowings</td>
<td>(131,664)</td>
</tr>
<tr>
<td>Residential Mortgages</td>
<td>165,858</td>
</tr>
<tr>
<td>Less Pledged to Borrowings</td>
<td>(127,880)</td>
</tr>
<tr>
<td>Loans Held for Sale</td>
<td>28,355</td>
</tr>
<tr>
<td>Saleable Loans (cc, student)</td>
<td>20,047</td>
</tr>
<tr>
<td>Brokered CD Capacity</td>
<td>75,000</td>
</tr>
<tr>
<td>Lines of Credit</td>
<td>40,000</td>
</tr>
<tr>
<td><strong>Liquidity Sources</strong></td>
<td><strong>310,854</strong></td>
</tr>
</tbody>
</table>

## Funding Needs:
<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overnight Borrowings</td>
<td>$27,122</td>
</tr>
<tr>
<td>Other Borrowings Due &lt;30 Days</td>
<td>-</td>
</tr>
<tr>
<td>10% of CDs Maturing &lt;30 Days</td>
<td>22,016</td>
</tr>
<tr>
<td>10% of Jumbo CDs Maturing &lt;30 Days</td>
<td>6,400</td>
</tr>
<tr>
<td>5% NMD Runoff (Worst Case)</td>
<td>19,545</td>
</tr>
<tr>
<td><strong>Total Needs</strong></td>
<td><strong>75,084</strong></td>
</tr>
</tbody>
</table>

## Additional Information:
- Basic Surplus: 120,770
- Total Surplus (w/borrowings): 235,770
- Total Assets: 1,053,690
- Liquidity Ratio: 11%
- Liquidity Ratio (incl. borr. cap.): 22%
Traditional Liquidity Analysis

• Liquidity is usually only a major concern at problem institutions
• “Pass / Fail” threshold was the default
• Regulators developed standard analysis methods
  – Geared towards identifying failure threats
  – Focused on liquidation view
Weaknesses of Traditional Analysis

- Static view
- Dated financials
- Does not account for:
  - Asset growth
  - Deposit behavior
- All funding is created equal
- No consideration of broader ALM impact
Improved Liquidity Analysis

• Approach liquidity measurement like IRR
• Incorporate strategic plan and budget
• Measure results for distinct time horizons
• Evaluate scenarios
  – Interest rate changes may only be an element
  – Consider best / worst / most likely
• Dynamic cash flows
Step 1: Compile Realistic Numbers

• Cash & Due is not completely liquid
• Determine true asset sale/pledge values
  – Show at current market values
  – Haircuts often apply for pledging
  – Many loan types require time to liquidate
• Accurately reflect borrowing capacity
  – FHLB or Corporate CU lines should be questioned
  – FHLB-required stock purchases should be netted
  – Collateral must be categorized properly
  – Brokered CDs take several days to settle
Step 2: Forecast

• Project asset and deposit growth
• Forecast realistic deposit volatility
• Remember other key funding needs
  – Dividend payments
  – Debt service
  – Derivative contracts
  – Anticipated acquisitions
• Apply scenarios and rate shocks to identify risks
## Step 3: Report & Analyze

### Primary Liquidity:

<table>
<thead>
<tr>
<th>Category</th>
<th>12/31/08</th>
<th>1 month</th>
<th>3 months</th>
<th>6 months</th>
<th>12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash &amp; due</td>
<td>23,591</td>
<td>23,591</td>
<td>23,591</td>
<td>23,591</td>
<td>23,591</td>
</tr>
<tr>
<td>Interest-bearing balances</td>
<td>1,486</td>
<td>1,486</td>
<td>1,486</td>
<td>1,486</td>
<td>1,486</td>
</tr>
<tr>
<td>FHLB gross borrowing capacity</td>
<td>345,015</td>
<td>345,015</td>
<td>345,015</td>
<td>345,015</td>
<td>345,015</td>
</tr>
<tr>
<td>Less current borrowings</td>
<td>(259,544)</td>
<td>(180,000)</td>
<td>(180,000)</td>
<td>(180,000)</td>
<td>(180,000)</td>
</tr>
<tr>
<td>Less FHLB stock purchase needed</td>
<td>(2,000)</td>
<td>(2,000)</td>
<td>(2,000)</td>
<td>(2,000)</td>
<td>(2,000)</td>
</tr>
<tr>
<td>Forecasted New Deposits</td>
<td>5,384</td>
<td>16,288</td>
<td>32,986</td>
<td>67,655</td>
<td></td>
</tr>
<tr>
<td>Total Primary Liquidity</td>
<td>104,650</td>
<td>187,578</td>
<td>198,482</td>
<td>215,180</td>
<td>249,850</td>
</tr>
</tbody>
</table>

### Secondary Liquidity:

<table>
<thead>
<tr>
<th>Category</th>
<th>12/31/08</th>
<th>1 month</th>
<th>3 months</th>
<th>6 months</th>
<th>12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brokered CD Availability</td>
<td>0</td>
<td>50,000</td>
<td>50,000</td>
<td>50,000</td>
<td>50,000</td>
</tr>
<tr>
<td>National CD Availability</td>
<td>0</td>
<td>10,000</td>
<td>20,000</td>
<td>20,000</td>
<td>20,000</td>
</tr>
<tr>
<td>Guaranteed LOCs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total Secondary Liquidity</td>
<td>0</td>
<td>60,000</td>
<td>70,000</td>
<td>70,000</td>
<td>70,000</td>
</tr>
</tbody>
</table>

### Potential Funding Outflow:

<table>
<thead>
<tr>
<th>Category</th>
<th>12/31/08</th>
<th>1 month</th>
<th>3 months</th>
<th>6 months</th>
<th>12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>NMD Runoff Forecast</td>
<td>724</td>
<td>2,534</td>
<td>7,601</td>
<td>15,201</td>
<td>30,403</td>
</tr>
<tr>
<td>Maturing CD Runoff Forecast</td>
<td>1,093</td>
<td>4,736</td>
<td>14,208</td>
<td>9,472</td>
<td>56,833</td>
</tr>
<tr>
<td>National CD Runoff Forecast</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Maturing Brokered CDs (not renewed)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Maturing Borrowings (not renewed)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Swap Payments</td>
<td>625</td>
<td>1,250</td>
<td>5,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dividend Payments</td>
<td>1,400</td>
<td>2,800</td>
<td>5,600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forecasted Asset Growth</td>
<td>17,562</td>
<td>53,567</td>
<td>109,858</td>
<td>231,170</td>
<td></td>
</tr>
<tr>
<td>Total Potential Funding Outflow</td>
<td>1,817</td>
<td>26,231</td>
<td>76,001</td>
<td>138,582</td>
<td>329,006</td>
</tr>
</tbody>
</table>
Step 3: Report & Analyze

Funding Coverage Forecast:

<table>
<thead>
<tr>
<th></th>
<th>Millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>09/30/04</td>
<td>$50,000</td>
</tr>
<tr>
<td>1 month</td>
<td>$100,000</td>
</tr>
<tr>
<td>3 months</td>
<td>$150,000</td>
</tr>
<tr>
<td>6 months</td>
<td>$200,000</td>
</tr>
<tr>
<td>12 months</td>
<td>$250,000</td>
</tr>
</tbody>
</table>

Risk Limit Compliance:

<table>
<thead>
<tr>
<th>Metric</th>
<th>Current</th>
<th>Limit</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Surplus Coverage</td>
<td>5760.1%</td>
<td>&gt; 150.0%</td>
<td>Pass</td>
</tr>
<tr>
<td>Total Surplus Coverage</td>
<td>5760.1%</td>
<td>&gt; 250.0%</td>
<td>Pass</td>
</tr>
<tr>
<td>Primary Surplus / Assets</td>
<td>9.8%</td>
<td>&gt; 5.0%</td>
<td>Pass</td>
</tr>
<tr>
<td>Total Surplus / Assets</td>
<td>9.8%</td>
<td>&gt; 10.0%</td>
<td>Fail</td>
</tr>
</tbody>
</table>
Benefits

- Integrates liquidity management into ALM program
- Forward-looking and dynamic
- Enables evaluation of impact on NIM from funding options
- Helps ALCO members see choices more clearly
- Demonstrates more sophisticated approach to liquidity management
Resources Needed

• Reasonable budget process
  – Includes input from functional areas
  – Includes identification of key cash flow issues

• Effective forecasting model