Course Materials

LIQUIDITY AND FUNDS MANAGEMENT

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# National Perspective

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<td>P (L)</td>
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</table>
How Did We Get Here?

- In my opinion, the number one cause of the crisis was requiring the two main secondary players (Fannie and Freddie) to lower their credit standards.

- Starting with the Affordable-Housing Goals of 1992, Quotas for more lending to lower income groups grew as underwriting standards in 1995 allowed for 3% Down Payments followed by 0% down in 2000. By the crisis, 58% (32 million loans) of all mortgages were subprime and these GSEs owned 24 million of them (72%).

- Now, instead of this MBS product being used as historically intended to diversify IRR, we now were using it to expand credit risk …this was all Fannie/Freddie and Wall Street needed to find new profits. But, there more “culprits”.
• So, let’s look at all the culprits in this story …

• Congress – though intentions were good.
• Fannie/Freddie – same intentions but profits also an issue.
• Wall Street – someone had to package this and make it look good.
• Mortgage Bankers – more paper, more profits and, by the way, no skin in the game.
• Homeowners – knew they could not afford the mortgage but signed on anyway.
• Rating Agencies – someone had to make the paper good enough for investment grade.
• Buyers – if the yield looks too good to be true, it is.
• Too many banks competing for the same business.
End Result

• Too much housing for too little buyers led to significant losses, not only with the actual MBS product, but also at the community bank level where excessive Acquisition & Development lending occurred. Homeownership moved up to 68% but with foreclosures, now back to 64%.

• With housing in trouble, job losses led to over 10% unemployment and a recession. Recession led to lower tax collections which exacerbated the problem at the federal and state levels.

• We now have a debate on federal spending and little agreement on how best to fix the problem of deficit spending. We have also witnessed a significant decline in banks and credit unions.

• Lessons learned?
Lessons Learned

- Sound Risk Management concepts will protect those who stick with them.
- Banking in many of our states came through this crisis with little or no damage.
- But, in those states where real estate values were “exciting” and where de novo activity had been greatest, problems were significant.
  - The states that led the way included:
    - Georgia (92) | Florida (72) | Illinois (65) | California (40)
      - Georgia, Florida, and California also led the way as it relates to de novo activity in the 1995-2006 banking period.
  - The number of banks in these three states has been reduced by 48% in Georgia, 51% in Florida, 41% in California, and 31% in Illinois.
Lessons Learned

- Regulator Response:
  - Guidance on understanding risks in securities – avoid reliance on Rating Agencies.
  - Reminders of Board responsibilities for Management oversight.
  - Guidance on Liquidity Risk Management.
  - Guidance on Interest Rate Risk Management.
  - Discussion of Enterprise Risk Management (ERM).
  - Basically, Enhance Risk Management Procedures!
Lessons Learned

• Regulator Response:

  • During the crisis, Federal Reserve intervention to reduce Liquidity Risk through TAF, TAG, Increased Insurance Coverage \((12/31/10 – 12/31/12)\).

  • And, efforts to reduce the risk of recession through Quantitative Easing (QE).

  • Also, maintaining the Fed Funds Target at 0-25 bps from December 2008 to December 2015.

  • These two actions have led to very low interest rates which could spur corporate and consumer activity.
Is It Working?

- Double Dip has been avoided.
- Unemployment rate now under 5.0%.
- Inflation under 2%.
- Corporate profits up.
- Equity Markets at all-time highs.
- Housing recovery appears underway.
- But, GDP growth has been less than normal in a recovery.
  - “Is it working” appears to depend on your politics!
What Now?

• As was true at the end of our last crisis in 1992, we appear to have learned another lesson about how to get into trouble in the lending arena.

• This lesson should stick for another 20 years and, hopefully, more!

• The Banking Industry still faces lots of “help” from Congress and our Regulators – some of it positive and some not – but, in my view at least, all of it well-intentioned.

• This will sort itself out over the course of the next five years and with any luck we will be left with the good while the bad disappears.

• But, what is clear to me is that Risk Management Enhancement is the “It” in the Financial Services Industry.
What Now?

• And, to me, this concept of Enhancement is best embodied in the discussion around Enterprise Risk Management (ERM).

• In my view, we are early stage in terms of ERM in the Community Banking World and it is my belief that Regulators will give us time to create what is best for each of us.

• Though there will be consistent themes to the ERM process, each of us will have to create what is best for our organizations and we will have to focus on those risks that are most abundant – IRR, Credit, Liquidity lead the way today and each will have Stress Tests that will suggest specific Capital Needs.

• Whether you use the OCC guidance or something else, we will all be discovering the answers going forward.
ALCO Policy – Key Components

<table>
<thead>
<tr>
<th>Component</th>
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<tbody>
<tr>
<td>Liquidity Risk Management</td>
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<tr>
<td>Funds Management</td>
</tr>
<tr>
<td>Capital Management</td>
</tr>
<tr>
<td>Interest Rate Risk Management</td>
</tr>
<tr>
<td>Profit Spread Management</td>
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<tr>
<td>Investment Risk Management</td>
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</table>
Liquidity Risk

- Essentially, the Risk of a Bank Running Out of Money!
- We see both Asset-Based and Liability-Based Liquidity Concepts.

<table>
<thead>
<tr>
<th>ASSET-BASED</th>
<th>LIABILITY-BASED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fed Funds Sold</td>
<td>Access to FHLB Advances</td>
</tr>
<tr>
<td>Deposits</td>
<td>Brokered Deposits</td>
</tr>
<tr>
<td>Securities Portfolio</td>
<td>Fed Funds</td>
</tr>
</tbody>
</table>
Liquidity Risk

• The risk that an institution’s financial condition or overall safety and soundness is adversely affected by an inability (or perceived inability) to meet its obligations.

These Include:

- FUNDING MISMATCHES
- MARKET CONSTRAINTS ON THE ABILITY TO CONVERT ASSETS INTO CASH OR IN ACCESSING SOURCES OF FUNDS
- CONTINGENT LIQUIDITY EVENTS
Past Regulatory Oversight

• Much of the existing supervisory guidance on liquidity dates back to 1979 when the CAMEL ratings system was created.

• In the past, examiners tended to focus more on balance sheet position than liquidity management.

• Liquidity measures focused on assets as the liquidity source.
  • Investments ➔ Liquid
  • Loans ➔ Illiquid

• Deposits were considered the only stable source of funding:
  • Skepticism related to other sources of funding
Past Regulatory Oversight

- This focus on the balance sheet did result in examiners spending most of their time on ratio’s gleaned from a bank’s assets and liabilities.
  - Loans / Deposits
  - Loans / Assets

- Net Non-Core Funding Dependence = (Non-Core Liabilities – Short-Term Investments) / Long-Term Assets … (where Non-Core Liabilities = Time Deposits > $250K + Borrowed Money+Repo+Fed Funds Purchased; Short-Term Investments = Interest Bearing Bank Balances+Fed Funds Sold+Repo+Debt Securities <1 year; and Long-term Assets = Net Loans/Leases + Loans/Leases Held For Sale + (HTM & AFS Securities-Debt Securities< 1 year) + OREO.)

- Pledged Securities / Total Securities
Interagency Policy Statement

Funding & Liquidity Risk Management (4/10)

- The guidance outlines elements of sound liquidity risk management.
- Under the guidance, institutions should:

  1) Provide for effective corporate governance
  2) Establish appropriate strategies, policies, procedures, & limits
  3) Have in place comprehensive liquidity risk measurement & monitoring systems
  4) Maintain adequate levels of highly liquid assets
  5) Maintain a diverse mix of existing & potential funding sources
  6) Actively manage intraday liquidity & collateral
  7) Develop a comprehensive contingency funding plan (CFP)
  8) Implement sufficient internal controls and internal audit processes
Modern Perspective

- Traditional funding sources are still well regarded, but:

- Diversified funding is considered a positive
- High quality liquid assets are essential
- Both liquidity position & risk management are important
- "What if?" planning is essential
Diversified Funding

• Funding strategy should provide effective diversification in sources of funding.
  • Sources should be diversified in the short, medium, and long term.
  • Sources should be diversified across a full range of retail, as well as, secured and unsecured wholesale sources.
  • Limits that address counterparties, secured vs. unsecured, instrument type, and geographic market should be implemented.

• Funding concentrations should be avoided.
  • Undue over-reliance on any one source of funding is considered an UNSAFE and UNSOUND practice.
Highly Liquid Assets

• A critical component to effectively responding to potential liquidity stress is the availability of a cushion of highly liquid assets without legal, regulatory, or operational impediments (unencumbered) that can be sold or pledged to obtain funds in a range of stress scenarios.

• The size of the cushion should be supported by estimates of liquidity needs performed under stress testing, as well as, aligned with risk tolerance.
Contingency Funding Plan

- Contingent liquidity events arise from unexpected situations.

- ALL institutions should have a formal CFP that clearly identifies the strategies for addressing liquidity shortfalls in emergency situations.

- The Plan should:
  - Delineate policies to manage a range of stress environments.
  - Establish clear lines of responsibility.
  - Articulate clear implementation and escalation procedures.
  - Be regularly tested and updated to ensure that it is operationally sound.
### Measurement Tools

**Static Balance Sheet Ratios**
- Net Non-Core Funding Dependence
- Large Depositors to Total Deposits
- Loans to Deposits
- Pledged / Total Securities
- Loans to Assets

**Contingency Funding Plans**
- Cash Flow Modeling
- Scenario Analysis
- Pro Forma Cash Flows
The CFP concept became a relevant topic in 2007 – regulators knew that the string of increasingly profitable years was coming to an end and, with it, they felt another Liquidity measure was needed.

Prior to this, our industry was very comfortable with the concept of Ratio Analysis as a method for measuring liquidity risk and this measure is still in use.

But, Ratio Analysis is considered a ‘static’ measure dependent on consistent trends in the industry.
And, since regulators were aware in late 2007 that earnings for the industry would be dramatically down from those profits of 2006, there was a need for a more ‘dynamic’ measurement concept.

Whereas Ratio Analysis focuses on historic data such as Loans/Assets, Net Non-Core Funding Dependency, etc, the idea behind a CFP was to actually create a forward-looking tool.

Hence, the CFP became the stress test concept for Liquidity as it focused on the ‘what if’ scenario of significant losses in retail deposits and an institution’s reaction to that event.
Contingency Funding Plan

- At this point, all banks must have a CFP and these plans tend to be very customized to the institution – the more sophisticated the institution, the more sophisticated the CFP!

- But, there is one item of consistency in all CFP’s – there must be stress tests conducted which depict your organization’s ability to replace lost retail deposits in a high stress environment.

- We suggest three different stress tests – cash flows – to indicate your ability to replace lost deposits.

- Base Case, Short-term External Event, and Long-Term (minimum of one year) Stress resulting in Failure.
Contingency Funding Plan

- Stress Tests appear to be causing stress…

- 3 Scenarios
  - Base Case
  - Short Term | External Crisis Case
  - “Going Out Of Business Case”
Contingency Funding Plan

Base and Short-Term
- 12 Months Cash Flow
- 7-10 Days Cash Flow

Going Out of Business
- Simulate the Event
  - Triggering Events
  - Deposit Loss
  - Funding Availability
  - Reaction to Event
Going Out of Business Scenario is the Key

Our Suggestion
Monthly cash flows for 12 months using Quarter Ends as Key ‘Triggering’ Events:

1st Quarter End
• NPA RATIO INCREASES FROM 1% TO 5%
• DEPOSIT AMOUNT OF 5% OF ASSETS NEEDS TO BE REPLACED
• HOW?

2nd Quarter End
• TRIGGERING EVENTS – ANOTHER 5%
• HOW?

3rd Quarter End
• TRIGGERING EVENTS – ANOTHER 10%
• HOW?
A Key Issue is the solution set for new funding in this third scenario:

- If specific Funding Sources have been abused in the past, choices will be limited.

- If use of Non-Core Funding has been appropriate, finding new sources will be workable.

- Strategy – Use those sources that will disappear as the situation deteriorates.
Contingency Funding Plan

- Key question is which Funding Sources will be available as your situation deteriorates:

- Loss of Well Capitalized Status is crucial given the importance of Brokered Deposits – this leads to use of Brokered Deposits in early stages knowing that Source will not be available in later stages.

**FINAL STAGE PROVIDERS (THEORETICALLY)**

- FEDERAL RESERVE
- FHLB
- INTERNET CDs (QWICKRATE)
Contingency Funding Plan

- We also see another form of a CFP that is focused on Ratio Analysis and uses different benchmarks to determine a course of action ...
- Green Light = my benchmark is below normal (eg. L/D = 75%) and no action is necessary.
- Yellow Light = my benchmark is elevated but not dangerous (eg. L/D=80%) and I now need to consider a course of action should this continue.
- Red Light = my benchmark is elevated beyond my comfort level (eg. L/D=85%) and I must take an action to reduce the figure.

Advantage = allows for other than pure wholesale solutions.
Liquidity Risk Measurement Tools

• This evolution from static (Ratio Analysis) to dynamic (CFP) measurement tool has also occurred in the Interest Rate Risk arena where we have moved from ‘Gap’ analysis to ‘Simulation’.

• The key to both changes is Stress Testing – also of interest, creating new tools does not necessarily mean your examiner will be comfortable with both.

• In the Liquidity arena, you will continue to see reliance on Ratio Analysis – in fact, much of your ‘L’ rating may be connected to this measurement tool as opposed to the CFP.

• But, we also note that more sophisticated and larger organizations are experiencing a focus on the CFP and the various stress tests being conducted.
A Possible Suggestion…

- We believe the first ALCO Policy may have been created by Adam with help from Eve – we also believe that most of us have, in some way, used a template from elsewhere to create our own Policy.

- And, we also believe that having more as opposed to less was a fairly common technique used to impress our examiners.

- As a result, you may find that you have a significant number of Liquidity Ratios in your policy.
Liquidity Risk Measurement Tools

• Given that Ratio Analysis no longer holds the importance it once did, you may want to examine your ratios to see if any might be eliminated.

  • *Remember that the key to all measurement tools is not only that you have them, but that you also monitor them.*

• We believe that you can cover this tool with about five ratios – make certain you know which one(s) your primary examiner likes then use those you feel are best for your bank.

• But, show these ratios to your Board at each meeting – if you are within the limits set for these ratios, move on.
Contingency Funding Plan

- Your plan will have to include solutions other than simply replacing lost retail deposits with wholesale funding.

- Your should mention such solutions as shrinking the balance sheet, selling loans, liquidating securities, and any other that might help you manage the loss of deposits.

- In our view, the “Stress” is an unexpected loss of retail deposits brought on by either internal or external events.
Where Are We Today?

• We know that liquidity has not been an issue ...
  • Term Auction Facility
  • Expanded Coverage
  • Lack Of Loan Demand

• But, funding has been and will be an issue as the economy improves.
How Did We Get Here?

• The equity markets continue to be volatile, but there is one major issue facing our industry …

• The baby-boomer generation (1946-1964).

• How long will they continue to accept low yields as they close in on retirement?
# Equity Returns

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<th>DOW</th>
<th>S&amp;P 500</th>
<th>Nasdaq</th>
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<td>3.15%</td>
<td>8.99%</td>
<td>8.59%</td>
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<tr>
<td>2005</td>
<td>(.60%)</td>
<td>3.00%</td>
<td>1.40%</td>
<td>3.30%</td>
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<tr>
<td>2006</td>
<td>16.30%</td>
<td>13.60%</td>
<td>9.50%</td>
<td>17.00%</td>
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<td>2007</td>
<td>6.40%</td>
<td>3.50%</td>
<td>9.80%</td>
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<tr>
<td>2008</td>
<td>(33.80%)</td>
<td>(38.50%)</td>
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<td>2009</td>
<td>18.80%</td>
<td>23.50%</td>
<td>43.90%</td>
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<tr>
<td>2010</td>
<td>11.02%</td>
<td>12.80%</td>
<td>16.90%</td>
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<tr>
<td>2011</td>
<td>5.50%</td>
<td>0.00%</td>
<td>(1.80%)</td>
<td>(4.20%)</td>
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<tr>
<td>2012</td>
<td>7.30%</td>
<td>13.40%</td>
<td>15.90%</td>
<td>14.60%</td>
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<tr>
<td>2013</td>
<td>26.50%</td>
<td>29.60%</td>
<td>38.30%</td>
<td>37.00%</td>
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<tr>
<td>2014</td>
<td>7.50%</td>
<td>11.40%</td>
<td>13.40%</td>
<td>3.50%</td>
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<tr>
<td>2015</td>
<td>(2.20%)</td>
<td>(.70%)</td>
<td>(5.70%)</td>
<td>(5.70%)</td>
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<tr>
<td>2016</td>
<td>13.40%</td>
<td>9.50%</td>
<td>7.50%</td>
<td>19.50%</td>
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## Mutual Fund Assets (Trillions)

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<th>MMA</th>
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<tr>
<td>2004</td>
<td>1.851</td>
<td>4.343</td>
<td>1.901</td>
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<tr>
<td>2005</td>
<td>1.979</td>
<td>4.886</td>
<td>2.026</td>
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<td>2006</td>
<td>2.227</td>
<td>5.833</td>
<td>2.338</td>
<td>10.398</td>
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<td>2007</td>
<td>2.501</td>
<td>6.414</td>
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<td>2008</td>
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<td>2.924</td>
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<td>2010</td>
<td>3.432</td>
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<td>2011</td>
<td>3.727</td>
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<td>4.420</td>
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<td>2.693</td>
<td>13.052</td>
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<td>2013</td>
<td>4.553</td>
<td>7.762</td>
<td>2.718</td>
<td>15.033</td>
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<td>2014</td>
<td>4.812</td>
<td>8.314</td>
<td>2.725</td>
<td>15.851</td>
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<tr>
<td>2015</td>
<td>4.749</td>
<td>8.147</td>
<td>2.754</td>
<td>15.650</td>
</tr>
<tr>
<td>2016</td>
<td>5.038</td>
<td>8.578</td>
<td>2.728</td>
<td>16.344</td>
</tr>
</tbody>
</table>
In our view, this is the single most significant reason for deposits beginning to flow out of our system and back to the equity markets...

There are simply too many blue-chips stocks with 3.0% or higher dividend yields with good growth prospects to encourage investors returning to the equity markets.

Hence, we think this a great time to ‘spruce’ up your funds management policy.
Summary

• My belief – Liquidity was not an issue this time …
  • Fed action – term auction facility
  • FDIC – expanded coverage / full coverage on NIB accounts
  • Loan environment and lack of capital for leverage
  • Enhanced non-core funding opportunities

• In the future examiners will again focus on ratio analysis but also be interested in your CFP. With a strong core and non-core strategy/policies-procedures, you will have a liquidity concept that will survive any crisis.
## Role of Wholesale Funding

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</thead>
<tbody>
<tr>
<td>Deposits (Millions)</td>
<td>$9,036</td>
<td>$9,227</td>
<td>$9,423</td>
<td>$10,186</td>
<td>$10,817</td>
<td>$11,192</td>
<td>$11,764</td>
<td>$12,190</td>
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</tr>
<tr>
<td>Mutual Funds</td>
<td>$9,603</td>
<td>$11,112</td>
<td>$11,833</td>
<td>$11,632</td>
<td>$13,052</td>
<td>$15,034</td>
<td>$15,852</td>
<td>$15,651</td>
<td>$16,344</td>
</tr>
<tr>
<td>Total Wholesale Funding</td>
<td>$3,503</td>
<td>$2,481</td>
<td>$2,270</td>
<td>$2,080</td>
<td>$2,074</td>
<td>$2,078</td>
<td>$2,225</td>
<td>$2,327</td>
<td>$2,295</td>
</tr>
<tr>
<td>Total Assets</td>
<td>$13,841</td>
<td>$13,087</td>
<td>$13,319</td>
<td>$13,891</td>
<td>$14,451</td>
<td>$14,731</td>
<td>$15,554</td>
<td>$15,968</td>
<td>$16,780</td>
</tr>
<tr>
<td>WF/TA</td>
<td>25.3%</td>
<td>19.00%</td>
<td>17.00%</td>
<td>15.00%</td>
<td>14.30%</td>
<td>14.10%</td>
<td>14.30%</td>
<td>14.6%</td>
<td>13.7%</td>
</tr>
</tbody>
</table>
Creating a Funding Strategy

The issue …

- Non-Core funding is simply too dominant a player in the funding arena to be ignored.

- At its peak in 2008, non-core funding represented 25% of the total funding for our industry and it is difficult to see where this $3.4 trillion in funding will come from in the future.
Creating a Funding Strategy

- The issue ... no doubt in our minds that “core deposits” are the key to any banking franchise.

- But, we think the regulatory environment is still playing “catch up” with the facts of the deposit business.

- We accept DDA, Savings, and MMA as “core” but given the ease of deposit gathering information and the “penalties” for early withdrawal, we have some doubts about CDs.
Creating a Funding Strategy

• You be the judge…

• Five Year FHLB Advance – 2.20%

• Two Year CD To Price Sensitive Depositor – 1.20%

• Which Would You Rather Have Today?

• Which is More Volatile?
As we mentioned earlier, the “baby-boomer” (1946-1964) generation will have a lot to do with future core deposit growth.

But, that is just one reason why depending exclusively on core may not be a good strategy.

We see three reasons for having both a sound “core” and “non-core” strategy going forward.
Creating a Funding Strategy

Availability

Interest Rate Risk Management

Pricing Efficiency

Risk Management
### Availability

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Brokered Deposits</td>
<td>$.629</td>
<td>$.497</td>
<td>$.610</td>
<td>$.794</td>
<td>$.760</td>
<td>$.823</td>
<td>$.930</td>
<td>$.890</td>
</tr>
<tr>
<td>Growth Rate</td>
<td>4.1%</td>
<td>3.8%</td>
<td>7.3%</td>
<td>5.6%</td>
<td>2.2%</td>
<td>5.9%</td>
<td>2.9%</td>
<td>6.6%</td>
</tr>
</tbody>
</table>
Pricing comparisons between core and non-core are difficult due to the many pricing concepts in play today, so compare these rates with yours:

5/22/17

<table>
<thead>
<tr>
<th></th>
<th>1 YEAR</th>
<th>3 YEAR</th>
<th>5 YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>FHLB ATLANTA</td>
<td>1.34%</td>
<td>1.75%</td>
<td>2.09%</td>
</tr>
<tr>
<td>BROKERED</td>
<td>1.35%</td>
<td>1.90%</td>
<td>2.25%</td>
</tr>
</tbody>
</table>
Maturity Issues

• The period from January 2008 through today has been marked by significant loan problems coupled with fewer opportunities for loan growth.

• This has resulted in an unusual expansion of “liquid” assets as well as securities portfolios. At 12/31/06, this combination of assets comprised 27% of the industry balance sheet and we showed a 91% L/D ratio. At 12/31/16, over 44% of our assets were in this combination and our L/D ratio was 71%.

• As a result, we have a significantly longer asset structure supported by the same short-term liability structure – are you comfortable with your EVE calculation in an up 400 bps simulation?
Maturity Issues

• On the asset side, low loan demand coupled with low rates created a demand from borrowers for fixed rate loan structures. The Commercial Mini-Perm Conundrum and this same weak loan demand also led to a much larger securities portfolio – by its nature, a fixed rate concept.

• On the liability side, depositors were faced with historically low term yields and that led to a move away from time to money market or DDA choices. At 12/31/2007, time deposits represented 38% of bank deposits. By 12/31/16, 14% of total deposits (Total Deposits over that period up $4.7 trillion – Time Deposits down $960 billion).

• It is hard for me to imagine that our industry does not have a serious IRR problem in a rising rate environment.
Maturity Issues

Bottom Line

• Fixing your Interest Rate Risk problem will require some form of non-core funding.

• And, it will require that you understand your own institution’s non-maturity deposit behavior.

• P.S. – your examiner may not believe your model!
Conclusion

• We think this all leads to this conclusion.

• Have a carefully defined non-core funding strategy.

• What are the key elements for making this happen?
Funds Management

• The ALCO policy should describe the various funding sources you will use.

• The policy should also indicate the limit you will place on the use of wholesale funding sources – I would suggest using % of assets.

• And, your policy should indicate limits for each specific source of funding - % of assets.

• Remember that the two largest sources of wholesale funding for community banks are FHLB advances and brokered deposits.
### Wholesale & Non-Core Funding Report

As of Date: March 1, 2017 | Total Assets = $100,000,000 | Total Policy Limit = 40%

<table>
<thead>
<tr>
<th>SOURCE (POLICY LIMIT)</th>
<th>AVAILABILITY</th>
<th>USAGE</th>
<th>RATE/TERM</th>
</tr>
</thead>
<tbody>
<tr>
<td>FHLB Advances</td>
<td>$25,000,000</td>
<td>$5,000,000</td>
<td>2.25%</td>
</tr>
<tr>
<td>Brokered Deposits</td>
<td>$25,000,000</td>
<td>$4,000,000</td>
<td>1.50%</td>
</tr>
<tr>
<td>CDARS</td>
<td>$15,000,000</td>
<td>$2,000,000</td>
<td>1.65%</td>
</tr>
<tr>
<td>CDC Deposits</td>
<td>$10,000,000</td>
<td>$2,000,000</td>
<td>.75%</td>
</tr>
<tr>
<td>QwickRate</td>
<td>$15,000,000</td>
<td>$4,000,000</td>
<td>1.25%</td>
</tr>
<tr>
<td>Fed Funds Purchased</td>
<td>$15,000,000</td>
<td>$0</td>
<td>N/A</td>
</tr>
<tr>
<td>Fed Discount Window</td>
<td>$20,000,000</td>
<td>$0</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>$125,000,000</strong></td>
<td><strong>$17,000,000</strong></td>
<td></td>
</tr>
</tbody>
</table>

Total Policy Limit = $40,000,000 | Usage = $17,000,000 / 17%

KPNCONSULTING
Non-Core (Wholesale) Funding Sources

- When we think about non-core funding, we may want to consider those sources that require no collateral and those that do.

- Generally speaking, the requirement of collateral will result in less expensive pricing as the lender has a more secure “loan”.

- Also, generally speaking the unsecured sources are actually dependent on the use of the FDIC “Shield”.

- Nearly all of these sources were developed after the year 1985 which means that for most sources, their first real test as it relates to dependency just occurred.
## Wholesale Funding Sources

<table>
<thead>
<tr>
<th>Funding Without Collateral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fed Funds Purchased</td>
</tr>
<tr>
<td>Brokered Deposits</td>
</tr>
<tr>
<td>CDARS</td>
</tr>
<tr>
<td>QwickRate (Internet Listed CD)</td>
</tr>
<tr>
<td>Charity Deposits Corporation</td>
</tr>
<tr>
<td>Municipal Deposits</td>
</tr>
</tbody>
</table>
Fed Funds

- Excess Liquidity in the Banking System.
- Large Institutions Tend To be Short While Community-Based Institutions Tend to be Long.
- Buyers / Sellers Trade All Day to Settle the Following Day
  - though there is also a term market as well.
- Pricing is set by direction of the Federal Reserve through their FOMC (Federal Open Market Committee) process and trades typically within a range of that concept.
- What is today’s concept from the Fed?
Fed Funds – FOMC Schedule

- The normal schedule of meetings is for 8 each year.
  - 2017 Meeting Schedule includes sessions for:
    - Jan 31-Feb 1
    - March 14-15
    - May 2-3
    - June 13-14
    - July 25-26
    - Sept 19-20
    - Oct 31-Nov 1
    - Dec 12-13
Fed Funds

• The Fed has changed the Target three times since December 2008 (0-25 bps) and that was in December 2015 (up 25 bps), December 2016 (up 25 bps), and March 2017 (up 25 bps) …

• Prime = Target + 300 bps .. This defines your loan business ..

• Ten-Year Treasury .. 2.30% .. This defines your investment business plus your fixed rate loan business.
Fed Funds

- It is crucial that your institution have a belief about these two rates.
- And that this belief be embedded in your strategic plan.
- Class Belief?
Fed Funds

**History of Fed Funds Rates – FOMC**

<table>
<thead>
<tr>
<th>Period</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 1996 – March 1997</td>
<td>5.25%</td>
</tr>
<tr>
<td>March 1997 – November 1998</td>
<td>5.50% - 4.75%</td>
</tr>
<tr>
<td>November 1998 – May 2000</td>
<td>4.75% - 6.50%</td>
</tr>
<tr>
<td>January 2001 – June 2003</td>
<td>6.50% - 1.00%</td>
</tr>
<tr>
<td>June 2004 – September 2007</td>
<td>1.00% - 5.25%</td>
</tr>
<tr>
<td>September 2007 – December 2015</td>
<td>5.25% - 0-.25%</td>
</tr>
</tbody>
</table>
Brokered Deposits

“The FDIC, in its manual of examinations, states that the use of brokered deposits should not be discouraged, and it should not have any stigma attached to it, provided that the bank uses it in a prudent manner and as part of an overall liability management program.”

- American Banker
## Brokered CD History

<table>
<thead>
<tr>
<th>Year End</th>
<th>Institutions</th>
<th>Deposits (Billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>2,473</td>
<td>$429</td>
</tr>
<tr>
<td>2005</td>
<td>2,850</td>
<td>$482</td>
</tr>
<tr>
<td>2006</td>
<td>3,341</td>
<td>$540</td>
</tr>
<tr>
<td>2007</td>
<td>3,339</td>
<td>$586</td>
</tr>
<tr>
<td>2008</td>
<td>3,938</td>
<td>$829</td>
</tr>
<tr>
<td>2009</td>
<td>3,659</td>
<td>$629</td>
</tr>
<tr>
<td>2010</td>
<td>3,758</td>
<td>$497</td>
</tr>
<tr>
<td>2011</td>
<td>3,038</td>
<td>$610</td>
</tr>
<tr>
<td>2012</td>
<td>2,790</td>
<td>$704</td>
</tr>
<tr>
<td>2013</td>
<td>2,624</td>
<td>$760</td>
</tr>
<tr>
<td>2014</td>
<td>2,569</td>
<td>$823</td>
</tr>
<tr>
<td>2015</td>
<td>2,542</td>
<td>$930</td>
</tr>
<tr>
<td>2016</td>
<td>2,526</td>
<td>$890</td>
</tr>
</tbody>
</table>
# Brokered Players

<table>
<thead>
<tr>
<th>BANK</th>
<th>ASSETS</th>
<th>BROKERED DEPOSITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wells Fargo</td>
<td>$1.7T</td>
<td>$85B</td>
</tr>
<tr>
<td>TD Bank</td>
<td>$269 B</td>
<td>$76 B</td>
</tr>
<tr>
<td>Citibank</td>
<td>$1.3 T</td>
<td>$60 B</td>
</tr>
<tr>
<td>Goldman Sachs Bank</td>
<td>$159 B</td>
<td>$52 B</td>
</tr>
<tr>
<td>US Bank</td>
<td>$441 B</td>
<td>$39 B</td>
</tr>
<tr>
<td>Bank of America</td>
<td>$1.7 T</td>
<td>$37 B</td>
</tr>
<tr>
<td>E*Trade Bank</td>
<td>$36 B</td>
<td>$25 B</td>
</tr>
<tr>
<td>American Express</td>
<td>$86 B</td>
<td>$21 B</td>
</tr>
<tr>
<td>Discover Financial Bank</td>
<td>$91 B</td>
<td>$20 B</td>
</tr>
<tr>
<td>JP Morgan Chase</td>
<td>$2.1 T</td>
<td>$13 B</td>
</tr>
</tbody>
</table>
Wholesale Brokered Deposits

- In 1985, Chase Manhattan Bank was looking for a solution to a more efficient CD issuance...

- Merrill Lynch was looking for a solution to a risk-free investment product for their clients...

- The FDIC had the solution…
Wholesale Brokered Deposits

• Chase Issues A $50 Million CD …

• Merrill Breaks It Into $100,000 CDs …

• Question – Would FDIC Allow “Pass Through” of Coverage To Each Investor?

• Answer – Yes, But Only If The Issuer Was “Well Capitalized”
Wholesale Brokered Deposits

- From 1985 Through The Early 1990’s, Brokered CDs Were For Large issuers Only …

- Wall Street Just Wanted Large Profitable Deals …

- But, Regional Players Began To Spring Up in 1992 and Their Market Was Community Banks …

- Class Use?
Expanded FDIC Coverage & Flow of Funds

The Deposit Network® Directs the Distribution of Funds to banks throughout the U.S.

Bank’s Customer - Commercial, Public, Individual
$1,500,000

Your Bank
$250,000

Network Custodian
$1,250,000

Bank 1
$245,000
Bank 2
$245,000
Bank 3
$245,000
Bank 4
$245,000
Bank 5
$245,000
Bank 6
$25,000

BOTTOM LINE FOR THE CUSTOMER: ALL FUNDS ARE 100% INSURED
ICS®, the Insured Cash Sweep® service, and CDARS® enable Promontory Network members to offer customers access to multi-million-dollar FDIC insurance through a single relationship. Members use the services to:

- Build valuable relationships and better serve their customers—all while enhancing their profitability
- Manage liquidity
- Replace higher-cost funding (e.g., repurchase sweeps and letters of credit) and reduce collateralization requirements

With ICS, your customers can place their funds into demand deposit accounts (using the ICS demand option), money market deposit accounts (using the ICS savings option), or both. With CDARS, your customers can place their funds into CDs.

Use of the CDARS and ICS services is subject to the terms, conditions, and disclosures set forth in the applicable program agreements, including the applicable Participating Institution Agreement and Deposit Placement Agreement. Limits apply, and customer eligibility criteria may apply. ICS program withdrawals are limited to six per month when using the ICS savings option.

CDARS, ICS, Insured Cash Sweep, One-Way Buy, and One-Way Sell are registered service marks of Promontory Interfinancial Network, LLC. Reciprocal and Floating-Rate Funding are service marks of Promontory Interfinancial Network, LLC.
ICS and CDARS

Deposits Tend to be Large and “Sticky”

Offering ICS and CDARS can help your bank attract and retain sophisticated, safety-conscious customers of all types.

Plus, ICS and CDARS deposits tend to be large (averaging $2.1M per customer for CDARS and $2.5M per customer for ICS) and “sticky,” thereby lowering customer acquisition costs and providing more opportunities for cross-selling.

CDARS deposits reinvest at a rate of approximately 80%.\(^1\)

<table>
<thead>
<tr>
<th>Customer Type</th>
<th>Average Holdings per Customer</th>
<th>Average Holdings Across All Customer Types(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Entities</td>
<td>$5,000,000</td>
<td>$2,400,000</td>
</tr>
<tr>
<td>Banks and Credit Unions</td>
<td>$4,900,000</td>
<td></td>
</tr>
<tr>
<td>Estates and Trusts</td>
<td>$2,900,000</td>
<td></td>
</tr>
<tr>
<td>Corporations</td>
<td>$2,200,000</td>
<td></td>
</tr>
<tr>
<td>Partnerships</td>
<td>$1,800,000</td>
<td></td>
</tr>
<tr>
<td>Individuals</td>
<td>$1,800,000</td>
<td></td>
</tr>
<tr>
<td>Nonprofits</td>
<td>$1,400,000</td>
<td></td>
</tr>
<tr>
<td>Associations and Clubs</td>
<td>$1,100,000</td>
<td></td>
</tr>
</tbody>
</table>
| \(^1\) Promontory Interfinancial Network calculates the reinvestment rate as the percentage of the aggregate balance of CDARS deposits that are reinvested through CDARS within 28 days of maturity.  
\(^2\) As of 12/31/16.
ICS and CDARS appeal to all types of customers
ICS and CDARS

How Do They Work?

When your bank places a customer's deposit using either service, that deposit is divided into amounts under the standard FDIC insurance maximum of $250,000 and is placed in deposit accounts at other Promontory Network banks. By working directly with just one bank, yours, the customer can access FDIC coverage from many. And the customer enjoys the convenience of working with and receiving communications and statements (only one monthly statement per service or service option) from your bank—a bank they know and trust.

• Deposits are placed in demand deposit accounts when using the ICS demand option, money market deposit accounts when using the ICS savings option, or CDs when using CDARS.
ICS and CDARS

How Do They Work?

Your bank can receive dollar-for-dollar reciprocal funding (through ICS Reciprocal- and CDARS Reciprocal). Or, if it’s flush with cash, it can sell the excess funds to banks that need funding and earn fee income (through ICS One-Way Sell and CDARS One-Way Sell). And, your bank can switch back and forth between Reciprocal and One-Way Sell as its funding needs dictate.
ICS and CDARS

Your Bank Retains Control!

Your bank establishes the interest rates for funds placed through ICS and CDARS

- Confidential information is protected
- Customer communicates only with your bank’s service team
- Customer receives a monthly statement from your bank

YOUR BANK OWNS THE CUSTOMER RELATIONSHIP
Retail Brokered Deposits

• In 2000, IDC Deposits was Formed to Provide an FDIC-Enhanced Money Market Product …

• Form Most of Their early years, They Worked Through Bankers Banks, Particularly, the Pacific Coast Bankers Bank.

• As the First to Market With an MMA Product, They were able To Grow their Business Without Competition Until Promontory Created Their MMA Product.

• In 2010, IDC Changed it’s Name to Charity Deposits Corp To Recognize Their Product’s use with Charitable Organizations.
Retail Brokered Deposits

- Charity Deposits Corp has several product forms ...

- For funding, banks are able to take MMA’s on their books simply by requesting funding from the network ...

- The network custodian is Wells Fargo and their role is to match investors with borrowers ...

- With this arrangement, called Target Account, the funds stay with you but are subject to withdrawal should the network need the funds ...
Retail Brokered Deposits

- Charity Deposits Corp also assists financial institutions support community non-profits by rewarding organizations you choose with part of the profit they receive by providing funding to your bank …

- Additionally, CDC provides grant assistance to non-profits and offers your bank a partnership that can enhance your own community support effort …
Retail Brokered Deposits

• Reich & Tang is Another MMA Provider That Works in Much The Same Way as Charity Deposits Corp.

• Other Players in This Arena Include StoneCastle Partners with both an MMA and CD Solution, Anova Financial Corp, and PMA Funding.

• The Key To a Sound Funds Management Policy is to Understand Who These Players Are and How They Can Help You With Your Plan For Wholesale Funding.

• The FDIC Shield …
QwickRate

Profile

Premier, non-brokered marketplace

- 31 years serving community banks
- 3,000+ institutions in 50 states
- Billion dollar institutions to de novos
- Unbiased, nationwide CD rates
- No transaction fees
- Automated QwickTools™ speed the process

Activity

Robust marketplace activity

- Average $1.3 billion dollars monthly
- 52,000+ average monthly log-ins

Customers validate value

- 92% subscription renewal rate
- 94% rate experience a 9 or 10
- 100% say expectations exceeded
QwickRate

FUNDING
QwickRate Non-brokered Marketplace
INVESTING

✓ All FDIC-insured institutions are welcome
✓ Perfect way to augment local deposits and replace brokered funds
✓ Opportunity to earn additional yield over Fed Funds

Helping Both Sides Of Your Balance Sheet
All Listing Services Are Not The Same

Public Internet Websites / Networks (Consumer)

- Uncontrolled audience open to all investors including consumers and third parties
- Do not identify participants or users or ask for their information
- Smaller deposits
- CIP (Customer Identification Program) rules apply

QwickRate Non-brokered Marketplace (Institutional)

- Controls audience - financial institutions and corporations. **No INDIVIDUALS**
- Participants **pre-screened** prior to granting access
- Tools (eContact) help confirm direct investors
- Larger deposits ($250K)
- CIP minimized – institution readily identifiable
All Listing Services Are Not The Same

View Rates
All Listing Services Are Not The Same

View Activity By Position For Term

Activity by Position for Rate Term: 1 Yr – February 2017

- **20%** – 108.98M
  Avg Rate: 1.18%
- **45%** – 247.66M
  Avg Rate: 1.30%
- **13%** – 68.97M
  Avg Rate: 1.25%
- **23%** – 124.61M
  Avg Rate: 1.28%

View Activity by Position: 1 Yr Monthly View
Yes, deposits generated in QwickRate are non-brokered.

Meet FDIC classification as a *non-brokered* deposit listing service

- Charge subscription fees only
- Do not charge fee on number or dollar value of CDs placed
- Perform no services except gathering and transmission of information
- Is not involved in placing deposits

- Opinion from FDIC confirms status
## Wholesale Funding Sources

<table>
<thead>
<tr>
<th>Funding With Collateral</th>
</tr>
</thead>
<tbody>
<tr>
<td>FHLB Advances</td>
</tr>
<tr>
<td>Federal Reserve Discount Window</td>
</tr>
<tr>
<td>Repurchase Agreements</td>
</tr>
</tbody>
</table>
FHLB Districts

MAP OF THE REGIONAL FHLBANKS

Des Moines region also includes Alaska, Hawai‘i, Guam, American Samoa, and Northern Mariana Islands

New York region also includes Puerto Rico and Virgin Islands
## FHLB System Financial Metrics

<table>
<thead>
<tr>
<th></th>
<th>12/31/08</th>
<th>12/31/09</th>
<th>12/31/10</th>
<th>12/31/11</th>
<th>12/31/12</th>
<th>12/31/13</th>
<th>12/31/14</th>
<th>12/31/15</th>
<th>12/31/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advances</td>
<td>$929</td>
<td>$631</td>
<td>$479</td>
<td>$418</td>
<td>$426</td>
<td>$499</td>
<td>$571</td>
<td>$634</td>
<td>$705</td>
</tr>
<tr>
<td>Investments</td>
<td>$306</td>
<td>$284</td>
<td>$330</td>
<td>$271</td>
<td>$266</td>
<td>$243</td>
<td>$270</td>
<td>$273</td>
<td>$292</td>
</tr>
<tr>
<td>Mortgages</td>
<td>$87</td>
<td>$72</td>
<td>$61</td>
<td>$54</td>
<td>$49</td>
<td>$45</td>
<td>$44</td>
<td>$45</td>
<td>$48</td>
</tr>
<tr>
<td>Total Assets</td>
<td>$1,349</td>
<td>$1,016</td>
<td>$878</td>
<td>$766</td>
<td>$762</td>
<td>$834</td>
<td>$913</td>
<td>$969</td>
<td>$1,057</td>
</tr>
<tr>
<td>Capital-to-Asset Ratio</td>
<td>3.81%</td>
<td>4.22</td>
<td>5.00</td>
<td>5.20</td>
<td>5.58</td>
<td>5.40</td>
<td>5.10</td>
<td>4.95</td>
<td>4.96</td>
</tr>
<tr>
<td>Net Income</td>
<td>$1.2</td>
<td>$1.9</td>
<td>$2.1</td>
<td>$1.6</td>
<td>$2.6</td>
<td>$2.5</td>
<td>$2.26</td>
<td>$2.86</td>
<td>$3.41</td>
</tr>
</tbody>
</table>
FHLB System: How It Works

FHLBanks
Office of Finance

FHLBanks

Institution
Member

Homes

Investors
Community
Investment
FHLB Borrowing Structure

- **Credit Line:**
  - Percent of assets (adjusts with changes in balance sheet)

- **Collateral:**
  - Collateral type (SFR, MF, CRE, Securities, etc.)
  - Collateral arrangement (Blanket, Physical, Custody)
  - Collateral classes are fungible

- **Stock:**
  - Membership stock + activity-based stock
  - Class A or Class B stock
  - Membership requirement = .50% of qualifying mortgage assets
  - Activity requirement currently = 4.50%
Repurchase Agreements

- A repurchase agreement, also known as a Repo, RP, or sale and repurchase agreement, is the sale of securities together with an agreement for the seller to buy back the securities at a later date.

- The repurchase price should be greater than the sale price, the difference effectively representing interest, sometimes called the repo rate.

- The party that is buying the security effectively acts as the lender while the seller of the security is the borrower, using the security as collateral for a loan with a fixed rate of interest.

- A Reverse Repo transaction is essentially just the other side of the repo transaction. The label is determined by the dealer’s viewpoint, i.e. If the dealer borrows money, it is a repo (lends money – reverse repo).
Repurchase Agreements

• In many ways, this transaction is much like a fed funds purchased borrowing except that it is collateralized.

• There are three types of repurchase agreements use in the markets – Tri-party agreements, Deliverable, and Held-in-Custody. Tri-party agreements are by far the dominant form.
Lending Programs

- Primary Credit
  - Lend funds (‘no questions asked’) on a short-term basis to institutions in generally sound condition

- Secondary Credit
  - Lend funds (‘questions asked’) on a short-term basis to institutions that do not qualify for primary credit

- Seasonal Credit
  - Lend funds to institutions that can demonstrate seasonality in the lending and deposit-taking activities (limited to DI’s <$500MM total deposits)
# Federal Reserve Discount Window

- Wide Range Of Collateral

<table>
<thead>
<tr>
<th>SECURITIES</th>
<th>LOANS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TREASURY</td>
<td>1-4 FAMILY</td>
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<tr>
<td>AGENCY</td>
<td>CONSUMER</td>
</tr>
<tr>
<td>MUNICIPAL</td>
<td>COMMERCIAL &amp; INDUSTRIAL</td>
</tr>
<tr>
<td>CMO</td>
<td>COMMERCIAL REAL ESTATE</td>
</tr>
<tr>
<td>ABS</td>
<td>CONSTRUCTION</td>
</tr>
<tr>
<td>CMBS</td>
<td>AGRICULTURE</td>
</tr>
<tr>
<td>CORPORATE BONDS</td>
<td>RAW LAND</td>
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</table>
Federal Reserve Discount Window Website

www.frbdiscountwindow.org

- Summary of Credit programs & Collateral Information
- Federal Reserve Board Press Releases
- Frequently Asked Questions (FAQs)
- Acceptable Collateral and Margin Table
- List of Reserve Bank contacts & phone numbers

www.federalreserve.gov/monetarypolicy/bst.htm

- Detailed explanation of Credit & Liquidity Programs & balance sheet
Funds Management

- Crisis Issue – Funding …
- Strategic Plan > Policies/Procedures > Measure/Monitor
- Was Your Funding Strategy in your Plan?
- Did You Have Limits Set On All and Specific Limits On Each?
- Did You Provide Regular Feedback To Your Board?
Using Non-Core Funding

- As we figure out the correct amount of Capital a bank needs, we may be looking at increasing profits through the process of leverage and this is where longer term, more complex funding structures may be of value.

- You may also want to use these longer term, more complex funding sources to begin hedging your IRR issue.

- Example – leveraging through the purchase of $1 million MBS.

- Yield at purchase 2.50% with expected life of 5 years. If you fund from the core, your initial cost will be quite low but your five-year cost could increase significantly in a rising rate environment.
Using Non-Core Funding

• Example – leveraging through the purchase of $1 million MBS.

• Option 1: Fund with a five-year FHLB advance = 2.09% - “safe” spread .41%.

• Option 2: Fund with a “floating to fixed” FHLB advance priced for the first two years at LIBOR then the final three years at 1.75%.
Using Non-Core Funding

- Example – leveraging through the purchase of $1 million MBS.

- Option 2: For two years, no change in overnight rate and no change in LIBOR: LIBOR = 1.20% for two years, then 1.75% for final three means average cost of 1.53% and “safe” spread of .97%.

- Question – is it worth the risk of no change in rates to gain .56%?
  - Option 1 Spread = .41%
  - Option 2 Spread = .97%
Using Non-Core Funding

• This is what CFO’s are faced with when looking at funding options and this is why having a “plan” for your beliefs about interest rate movement is so key to your future.

• Most of the complex funding structures are found at the FHLB so your analysis is made simpler by only having to look in one place (generally speaking).

• Many more structures than just this one are available to you through your FHLB membership.
★★ We think liquidity and funds management should be viewed as connected concepts.

★★ We have no doubt that core deposits are the key to your franchise value.

★★ But, we also believe that growth will require the use of non-core or wholesale funding techniques.

★★ Spell It Out For Board and Regulators!
Exam Strategy

• The non-core funding alternatives really are the key to success in our exam so understanding the characteristics (maturity structure, brokered or not, other considerations for use such as stock purchase, and limitations on use) are important.

• Understanding core options (DDA, MMA, Savings Accounts, CD’s under $250,000) and non-core options (brokered deposits including CDARS, Demand Deposit Marketplace, Insured Cash Sweep, IDC Money Market Account); Fed Funds and who sets the rate; FHLB Advances including Daily Rate Credit, Fixed Rate Credit; Repo; Discount Window; and QwickRate).

• Thanks
Questions?

Karl Nelson
Founder & CEO, KPN Consulting

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Tel: (770) 262-8446
Web: www.kpnconsulting.net
### FHLBank Atlanta Rate Indications as of May 22, 2017

<table>
<thead>
<tr>
<th>FRC (&lt;$5mm)</th>
<th>Rate</th>
<th>FRC Hybrid ($5mm+)</th>
<th>Rate</th>
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<tbody>
<tr>
<td>1 Mo</td>
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</tr>
<tr>
<td>3 Mo</td>
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<td>7 Yr</td>
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<tr>
<td>10 Yr</td>
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Act/360; 12 months or less; Act/Act greater than 12 months; Monthly Interest, Asymmetrical Prepay

### Convertible

<table>
<thead>
<tr>
<th>Term</th>
<th>5yr</th>
<th>7yr</th>
<th>10yr</th>
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<tbody>
<tr>
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<tr>
<td>5yr</td>
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<td>1.84</td>
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<td>7yr</td>
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<td>N/A</td>
<td>2.30</td>
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<td>3yr</td>
<td>1.51</td>
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<td>1.49</td>
</tr>
<tr>
<td>5yr</td>
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<tr>
<td>7yr</td>
<td>N/A</td>
<td>N/A</td>
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### DRC: Daycount - Act/360, Rates Daily, Monthly Interest

<table>
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<th>Term</th>
<th>5yr</th>
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### Floating to Fixed

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<td>7yr</td>
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### Forward Starting FRC Hybrid

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<tbody>
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<td>1yr</td>
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<td>2yr</td>
<td>2.16</td>
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### Quarterly Dividend

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<th>Quarter</th>
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<th>4Q 2015</th>
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<tbody>
<tr>
<td>4Q 2016</td>
<td>4.77%</td>
<td>4.84%</td>
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<tr>
<td>4Q 2015</td>
<td>3.85%</td>
<td>3.86%</td>
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### Economic Indicators

- FOMC Minutes
  - POMC Minutes: 5/24
- Durable Goods Orders: 5/26

### Treasury Levels:

- 2 Year: 1.29%
- 3 Year: 1.46%
- 5 Year: 1.80%
- 10 Year: 2.25%
- 30 Year: 2.91%

### US Treasuries

- 2 Year: 4.40%
- 5 Year: 3.90%
- 10 Year: 3.20%

### Economic Indicators

- Real GDP (Q1 Q2, est): 2.56
- SIFMA: early bond close: 2.56