All you ever wanted to know about mortgage banking

Douglas Winn
Frank Wilary
Michelle Methvin
Wilary Winn Background

Founded in 2003, Wilary Winn provides independent and objective, fee-based, financial advice to credit unions and banks located across the country. We currently have more than 425 clients in 49 states and the District of Columbia, including 30 of the top 100 credit unions.
Xceed Financial Credit Union Background

Xceed Financial is a full-service, federally chartered not-for-profit workplace credit union that focuses on meeting the needs of businesses and their employees throughout the United States. With roots going back 85 years, Xceed now has nearly $1 billion in assets and 70,000 members. Xceed Financial partners with more than 300 employers – also called “select employer groups” or SEGs – to deliver personal banking, wealth management services, and financial education to working adults and their families.
Today’s Presenters

Douglas Winn – President
Wilary Winn LLC

Mr. Winn co-founded Wilary Winn in the summer of 2003 and his primary responsibility is to set the firm's strategic direction.

Mr. Winn is a nationally recognized expert in financial institution accounting and regulatory reporting and has led seminars on the subject for many of the country's largest public accounting firms, the AICPA, the FDIC, the FFIEC and the NCUA. Mr. Winn began his career as a practicing CPA for Arthur Young & Company - now Ernst & Young.
Today’s Presenters

Frank Wilary – Principal
Wilary Winn LLC

Mr. Wilary co-founded Wilary Winn in 2003 and has over twenty years of diversified experience in the financial services industry.

His areas of expertise include asset-liability management, capital markets, derivatives, information systems and valuation of illiquid financial instruments. Frank’s primary responsibility is to lead the research, development and implementation of Wilary Winn's new business lines. He works to ensure that new products and services meet our firms' high standards and makes the critical determination of whether to buy or build valuation software and how to best utilize the system selected.
Michelle Methvin – Director, Secondary Marketing
Xceed Financial Credit Union

Michelle Methvin is Director of Secondary Marketing for Xceed Financial Credit Union. In this role, she is responsible for the Credit Union’s mortgage products and pricing, pipeline hedging, loan sale execution, mortgage analytics and Investor Relations. She joined the Xceed Financial team in 2015, bringing a distinguished career in Mortgage Banking, with over 15 years of experience in Secondary Marketing. Michelle started her career working for Mortgage Banking firms, including assisting in the growth and success of several start-up Mortgage Banking companies.
Topics Covered

• Overall Marketplace
• Secondary Market
• Regulatory Environment
• Best Price Execution
• Operational Considerations
• Interest Rate Risk and Hedging
• Mortgage Servicing Rights
• Accounting and Regulatory Reporting
Quarterly Mortgage Originations Estimates

Mortgage Origination Estimates ($Bil)

Source: Mortgage Bankers Association
## Mortgage Marketplace

(Dollars in Billions)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Lender</th>
<th>12M2016</th>
<th>4Q16</th>
<th>3Q16</th>
<th>2Q16</th>
<th>1Q16</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wells Fargo &amp; Company, IA</td>
<td>$244,450</td>
<td>$76,910</td>
<td>$68,780</td>
<td>$51,280</td>
<td>$43,480</td>
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<td>2</td>
<td>Chase, NJ</td>
<td>$117,401</td>
<td>$33,518</td>
<td>$30,671</td>
<td>$28,651</td>
<td>$24,382</td>
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<td>3</td>
<td>Quicken Loans Inc., MI</td>
<td>$96,700</td>
<td>$26,960</td>
<td>$26,700</td>
<td>$22,280</td>
<td>$19,300</td>
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<tr>
<td>4</td>
<td>FannieMac Financial, CA</td>
<td>$66,534</td>
<td>$22,039</td>
<td>$20,597</td>
<td>$16,109</td>
<td>$10,890</td>
</tr>
<tr>
<td>5</td>
<td>Bank of America Home Loans, NC</td>
<td>$64,160</td>
<td>$18,360</td>
<td>$16,070</td>
<td>$16,320</td>
<td>$12,620</td>
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<tr>
<td>6</td>
<td>U.S. Bank Home Mortgage, MN</td>
<td>$56,142</td>
<td>$14,330</td>
<td>$15,572</td>
<td>$14,240</td>
<td>$12,000</td>
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<td>7</td>
<td>Freedom Mortgage Corp., NJ</td>
<td>$53,958</td>
<td>$14,638</td>
<td>$16,749</td>
<td>$13,265</td>
<td>$9,306</td>
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<td>8</td>
<td>Caliber Home Loans, TX</td>
<td>$40,332</td>
<td>$12,064</td>
<td>$12,683</td>
<td>$9,367</td>
<td>$6,178</td>
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<td>9</td>
<td>JoerDepot.com, CA</td>
<td>$36,094</td>
<td>$11,584</td>
<td>$10,133</td>
<td>$8,422</td>
<td>$6,955</td>
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<td>10</td>
<td>PIMI Mortgage, NJ</td>
<td>$36,362</td>
<td>$8,721</td>
<td>$9,854</td>
<td>$10,159</td>
<td>$7,628</td>
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<td>11</td>
<td>AmeriHome Mortgage, CA</td>
<td>$32,530</td>
<td>$9,225</td>
<td>$8,643</td>
<td>$8,225</td>
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<td>12</td>
<td>Flagstar Bank, MI</td>
<td>$32,416</td>
<td>$8,562</td>
<td>$9,192</td>
<td>$8,320</td>
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<td>13</td>
<td>Citi, MO</td>
<td>$30,202</td>
<td>$7,152</td>
<td>$8,320</td>
<td>$6,258</td>
<td>$6,573</td>
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<td>14</td>
<td>SunTrust Mortgage Inc., VA</td>
<td>$29,310</td>
<td>$8,657</td>
<td>$8,453</td>
<td>$7,300</td>
<td>$4,900</td>
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<td>15</td>
<td>Stearns Lending LLC, CA</td>
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<td>$6,060</td>
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<td>16</td>
<td>United Wholesale Mortgage, Mi</td>
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<td>$6,646</td>
<td>$7,103</td>
<td>$6,403</td>
<td>$3,875</td>
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<td>17</td>
<td>Guaranteed Rate Inc., IL</td>
<td>$22,739</td>
<td>$5,980</td>
<td>$6,736</td>
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<td>$4,047</td>
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<td>18</td>
<td>BB&amp;T Mortgage, NC</td>
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<td>$5,160</td>
<td>$6,225</td>
<td>$5,577</td>
<td>$3,573</td>
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<tr>
<td>19</td>
<td>NATIONstar Mortgage, TX</td>
<td>$20,316</td>
<td>$5,338</td>
<td>$5,533</td>
<td>$5,204</td>
<td>$4,241</td>
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<tr>
<td>20</td>
<td>Ditech Financial LLC, PA (WaverlyGreenTree)</td>
<td>$20,300</td>
<td>$5,360</td>
<td>$5,250</td>
<td>$4,740</td>
<td>$4,970</td>
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<tr>
<td>21</td>
<td>Franklin American Mortgage Company, TN</td>
<td>$19,320</td>
<td>$4,784</td>
<td>$5,291</td>
<td>$5,139</td>
<td>$4,106</td>
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<tr>
<td>22</td>
<td>Finance of America Mortgage, PA</td>
<td>$17,970</td>
<td>$4,970</td>
<td>$5,510</td>
<td>$4,410</td>
<td>$3,080</td>
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<td>23</td>
<td>Fairway Independent Mortgage Corp., WI</td>
<td>$17,591</td>
<td>$4,827</td>
<td>$5,379</td>
<td>$4,648</td>
<td>$2,637</td>
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<tr>
<td>24</td>
<td>Guild Mortgage Co., CA</td>
<td>$15,965</td>
<td>$4,390</td>
<td>$4,742</td>
<td>$4,101</td>
<td>$2,732</td>
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<td>25</td>
<td>Pacific Union Financial, CA</td>
<td>$15,625</td>
<td>$4,335</td>
<td>$4,490</td>
<td>$3,900</td>
<td>$2,704</td>
</tr>
</tbody>
</table>
Mortgage Marketplace

1-4 First Mortgages for Credit Unions ($Bil)

Source: SNL Financial

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Mortgage Marketplace

Total Mortgage Debt Outstanding ($Bil)

Source: Federal Reserve Bank of St. Louis

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Delinquency Rates - All Loans (%)

Source: Mortgage Bankers Association
Mortgage Marketplace

Credit Union Advantages

• CFPB and Mortgage Brokers

• Banks and Basel III
Mortgage Marketplace

Banks and BASEL III

Commercial Banks 1-4 Family Serviced (000s)

Source: SNL Financial
Effect on Mortgage Brokers

<table>
<thead>
<tr>
<th>Number of Mortgage Brokers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
</tr>
<tr>
<td>Jan 2013</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mortgage Brokers Percentage of Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2006</td>
</tr>
<tr>
<td>2008</td>
</tr>
<tr>
<td>2012-2013</td>
</tr>
</tbody>
</table>

Source: NAMB – The Association of Mortgage Professionals
Mortgage Originations Forecast

Rise in interest rates can cause drop in refinance activity and potentially decrease in sales velocity

• Example $200,000 loan at 3.5% payment is $898.09

• $400,000 loan at 7% interest is $2,661.21 nearly 3 times the original payment
Secondary Market

Government Sponsored Entities – GSEs

- Federal National Mortgage Association – FNMA or Fannie Mae
- Federal Home Loan Mortgage Corporation – FHLMC or Freddie Mac
- Government National Mortgage Association – GNMA or Ginnie Mae
  - Federal Housing Agency or FHA
  - Veterans Administration or VA
  - Rural Housing
- Federal Home Loans Banks or FHLBs
- Aggregators
  - Commercial Banks
  - Non-regulated Originators
Secondary Market

• Fannie Mae
  – Chartered in 1938
  – Guarantor of FNMA MBS
    • Balance outstanding at 3/31/17 - $2.8 trillion

• Freddie Mac
  – Chartered in 1970
  – Guarantor of FHLMC PCs
    • Balance outstanding at 3/31/17 - $1.8 trillion
Secondary Market

• Federal Housing Finance Agency
  – Created in 2008
  – Primary regulator of FNMA, FHLMC and the FHLBanks
  – Conservator for FNMA and FHLMC since September 2008

• Federal Home Loan Banks
  – Created in 1932 as a cooperative – 11 banks
  – 7,100 members
  – $48.9 billion in mortgage loans held at 3/31/17
Secondary Market

Ginnie Mae

- Created in 1968 and issued first MBS in 1970
- Guarantees performance of issuer – full faith and credit
- Part of the Department of Housing and Urban Development
- $1.8 trillion of loans guaranteed at March 31, 2017
Secondary Market

Market Share Estimates

2016 Market Share:
New Single-Family Mortgage-Related Securities Issuances

- Private-label securities: 1%
- Ginnie Mae: 34%
- Fannie Mae: 39%
- Freddie Mac: 26%

Source: Fannie Mae 10K

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Secondary Market

Other Items of Note

• Conforming conventional mortgage limits
  – FNMA and FHLMC $424,150 – certain high cost areas $636,150
• FHA loan limits
  – Varies by county Ramsey County MN $332,350
  – FHA 203(b) – requires 3% down
• VA loan limit
  – No limit but guarantee amount is based on conforming conventional
  – No down payment required
  – Guarantee amount depends on veteran’s level of service
### Secondary Market

#### Retail Loan Origination Profit – Dollars per Loan

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Origination Fees</td>
<td>1,252</td>
<td>1,124</td>
<td>1,283</td>
<td>1,014</td>
<td>1,148</td>
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<tr>
<td>Other Origination-Related Income</td>
<td>557</td>
<td>629</td>
<td>569</td>
<td>521</td>
<td>528</td>
</tr>
<tr>
<td>Net Interest Income</td>
<td>34</td>
<td>71</td>
<td>144</td>
<td>138</td>
<td>89</td>
</tr>
<tr>
<td>Secondary Marketing Income</td>
<td>5,870</td>
<td>5,802</td>
<td>6,335</td>
<td>7,058</td>
<td>7,385</td>
</tr>
<tr>
<td><strong>Total Income</strong></td>
<td>7,713</td>
<td>7,625</td>
<td>8,331</td>
<td>8,730</td>
<td>9,151</td>
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</table>

<table>
<thead>
<tr>
<th>Expenses</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>3,513</td>
<td>4,079</td>
<td>4,837</td>
<td>4,874</td>
<td>5,081</td>
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<tr>
<td>Occupancy</td>
<td>270</td>
<td>317</td>
<td>466</td>
<td>403</td>
<td>387</td>
</tr>
<tr>
<td>Other</td>
<td>1,288</td>
<td>1,403</td>
<td>1,578</td>
<td>1,660</td>
<td>1,757</td>
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<tr>
<td>Corporate Allocation</td>
<td>347</td>
<td>392</td>
<td>407</td>
<td>396</td>
<td>418</td>
</tr>
<tr>
<td><strong>Total Expenses</strong></td>
<td>5,417</td>
<td>6,191</td>
<td>7,288</td>
<td>7,333</td>
<td>7,643</td>
</tr>
</tbody>
</table>

| Net Income                             | 2,296 | 1,434 | 1,043 | 1,398 | 1,508 |

Source: Mortgage Bankers Association’s Annual Performance Report 2013 - 2017

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## Retail Loan Origination Profit – Basis Points per Loan

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Origination Fees</td>
<td>60.30</td>
<td>56.57</td>
<td>63.27</td>
<td>45.08</td>
<td>51.51</td>
</tr>
<tr>
<td>Other Origination-Related Income</td>
<td>26.24</td>
<td>29.35</td>
<td>26.49</td>
<td>22.47</td>
<td>22.82</td>
</tr>
<tr>
<td>Net Interest Income</td>
<td>1.54</td>
<td>3.11</td>
<td>6.08</td>
<td>5.64</td>
<td>3.54</td>
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<tr>
<td>Secondary Marketing Income</td>
<td>274.71</td>
<td>269.26</td>
<td>280.78</td>
<td>306.08</td>
<td>312.51</td>
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<tr>
<td><strong>Total Income</strong></td>
<td>362.79</td>
<td>358.29</td>
<td>376.63</td>
<td>379.26</td>
<td>390.38</td>
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</table>

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>161.07</td>
<td>188.99</td>
<td>217.28</td>
<td>210.72</td>
<td>215.29</td>
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<tr>
<td>Occupancy</td>
<td>12.31</td>
<td>14.77</td>
<td>20.64</td>
<td>17.72</td>
<td>16.74</td>
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<tr>
<td>Other</td>
<td>59.89</td>
<td>66.09</td>
<td>73.75</td>
<td>74.21</td>
<td>76.95</td>
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<tr>
<td>Corporate Allocation</td>
<td>17.05</td>
<td>18.19</td>
<td>18.76</td>
<td>17.39</td>
<td>18.45</td>
</tr>
<tr>
<td><strong>Total Expenses</strong></td>
<td>250.32</td>
<td>288.03</td>
<td>330.42</td>
<td>320.04</td>
<td>327.43</td>
</tr>
</tbody>
</table>

| Net Income                    | 112.47| 70.26 | 46.21 | 59.22 | 62.95 |

Regulatory Environment

Consumer Financial Protection Bureau

- Dodd-Frank Title XIV Rulemaking
  - ATR/QM
  - 2013 HOEPA
  - ECOA Valuations Rule
  - TILA Higher-Priced Loans Appraisal Rule
  - Loan Originator Rule
  - RESPA and TILA Mortgage Servicing Rules
  - TILA Higher-Priced Mortgage Loans Escrow Rule
Regulatory Environment

Consumer Financial Protection Bureau

• Ability to Repay (ATR) and Qualified Mortgage (QM) Rule
  Effective January 10, 2014 amended several times through March 28, 2016

• General ATR Standard
  – One must make a reasonable, good-faith determination before, or when consummating a *covered* mortgage loan, that the consumer has a reasonable ability to repay the loan
Inclusions and Exclusions

Inclusions

- ATR/QM rule applies to almost all closed-ended consumer credit transactions secured by a dwelling including any real property attached to the dwelling.
  - Loans secured by residential structures that contain one to four units
  - Includes condominiums and co-ops
  - NOT limited to first liens or to loans on primary residences
Inclusions and Exclusions

Exclusions

• Open-ended credit plans (HELOCs)
• Time-share plans
• Reverse mortgages
• Temporary or bridge loans with terms of 12 months or less (with possible renewal)
• A construction phase of 12 months or less (with possible renewal) of a construction-to-permanent loan
• Consumer credit transactions secured by vacant land
ATR Underwriting Factors

1. Current or reasonably expected income or assets (other than the value of the property that secures the loan) that the consumer will rely on to repay the loan.

2. Current employment status (if you rely on employment income when assessing the consumer’s ability to repay).

3. Monthly mortgage payment for this loan. Calculate this using the introductory or fully-indexed rate, whichever is higher, and monthly, fully-amortizing payments that are substantially equal.

4. Monthly payment on any simultaneous loans secured by the same property.
ATR Underwriting Factors

5. Monthly payments for property taxes and insurance that you require the consumer to buy, and certain other costs related to the property such as homeowners association fees or ground rent.


7. Monthly debt-to-income ratio or residual income that is calculated using the total of all of the mortgage and non-mortgage obligations listed above, as a ratio of gross monthly income.

8. Credit history.
Who is Exempt from ATR

• Community Development Financial Institutions – HUD Designated:
  – Community Housing Development Organization
  – Down Payment Assistance Provider of Secondary Financing
• 501(c)(3) nonprofits – less than 200 loans of any type per year
• State Housing Agencies and their programs
• Extensions of Credit made under the Economic Stabilization Act
Qualified Mortgage

Types of QM

• General

• Temporary: sales to Fannie Mae and Freddie Mac until the earlier of January 10, 2021 or exit from conservatorship

• Small Creditor

• Small Creditor Balloon Payment
Qualified Mortgage

General QM Loan Features

• No more than 30 years
• No negative amortization or interest only
• Points and fees limited to 3% - higher thresholds for loans < $100,000
• Payment underwriting: based on maximum rate in first five years
• “Old-fashioned” underwriting
• Back-end ratio 43% or less
• No minimum down payment
Temporary QM

Loans under Temporary QM status must meet the same requirements as General QM loans regarding prohibitions on risky features, a max loan term of 30 years, and points-and-fees restrictions. They also must meet at least one of the following requirements:

- Eligible for purchase by Fannie Mae or Freddie Mac while operating under federal conservatorship or receivership
- Eligible to be insured by the Rural Housing Service
- Eligible to be guaranteed by the USDA
- FHA QM loan
- VA QM loan
Temporary QM

- Eligibility for purchase or guarantee by a GSE or insurance or guarantee by an agency can be established by:
  - Valid recommendation from a GSE Automated Underwriting System (AUS) or an AUS that relies on an agency underwriting tool
  - Back-end can exceed 43%
  - GSE or agency guidelines contained in official manuals
  - Written agreements between a GSE or agency and the creditor (or direct sponsor or aggregator of the creditor)
  - Individual loan waivers from a GSE or agency
Small Creditors

Small Creditor Criteria

- Assets below $2 billion (to be adjusted annually for inflation) at the end of the last calendar year

- Organization and its affiliates together originated no more than 2,000 first-lien, closed-end residential mortgages that are subject to the ATR requirements in the preceding calendar year
## ATR Requirements with Qualified Mortgages

<table>
<thead>
<tr>
<th>Loan feature limitations</th>
<th>General QM Definition</th>
<th>Agency/GSE QM (Temporary)</th>
<th>Small Creditor QM</th>
<th>Small Creditor Balloon QM</th>
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</thead>
<tbody>
<tr>
<td>Loan term limit</td>
<td>30 years</td>
<td>30 years</td>
<td>30 years</td>
<td>No more than 30 years, no less than 5 years</td>
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<tr>
<td>Points &amp; fees limit</td>
<td>3%²</td>
<td>3%³</td>
<td>3%³</td>
<td>3%³</td>
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<td>Payment Underwriting</td>
<td>Max rate in first 5 years</td>
<td>As applicable, per GSE or agency requirements</td>
<td>Max rate in first 5 years</td>
<td>Amortization schedule no more than 30 years</td>
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<td>Mortgage-related obligations</td>
<td>Included in underwriting monthly payment and DTI</td>
<td>As applicable, per GSE or agency requirements</td>
<td>Included in underwriting monthly payment and DTI</td>
<td>Included in underwriting monthly payment and DTI</td>
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<tr>
<td>Income or assets</td>
<td>Consider and verify</td>
<td>As applicable, per GSE or agency requirements</td>
<td>Consider and verify</td>
<td>Consider and verify</td>
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<tr>
<td>Employment status</td>
<td>No specific requirement, but included in underwriting income and DTI</td>
<td>As applicable, per GSE or agency requirements</td>
<td>No specific requirement, but included in underwriting income and DTI</td>
<td>No specific requirement, but included in underwriting income and DTI</td>
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<tr>
<td>Simultaneous loans</td>
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<td>Consider and verify</td>
<td>Consider and verify</td>
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<tr>
<td>Debt, alimony, child support</td>
<td>Consider and verify</td>
<td>As applicable, per GSE or agency requirements</td>
<td>Consider and verify</td>
<td>Consider and verify</td>
</tr>
<tr>
<td>DTI or Residual Income</td>
<td>DTI ≤ 43 percent</td>
<td>As applicable, per GSE or agency requirements</td>
<td>Consider and verify</td>
<td>Consider and verify</td>
</tr>
<tr>
<td>Credit History</td>
<td>Consider and verify</td>
<td>As applicable, per GSE or agency requirements</td>
<td>No specific requirement but may be included in underwriting debt and DTI</td>
<td>No specific requirement but may be included in underwriting debt and DTI</td>
</tr>
</tbody>
</table>

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AICPA Conference on Credit Unions
Small Creditor QM Loans

Small Creditor QMs lose QM status if sold or otherwise transferred less than three years after consummation. However, a Small Creditor QM keeps its QM status if it meets one of the following criteria:

– It is sold more than three years after consummation

– It is sold to another creditor that meets the criteria regarding number of originations and asset size, at any time

– It is sold pursuant to a supervisory action or agreement, at any time

– It is transferred as part of a merger or acquisition of or by the creditor, at any time
Rules

Offering the Appropriate Mix to Members

Conforming and Salable Products vs. Portfolio Products

- Conforming Products are those that are eligible for sale to the GSE’s (Fannie, Freddie, FHLB). Many credit unions decide to hold these in portfolio for interest income and balance sheet growth.

- Portfolio products can also include non-conforming loans (i.e. non-QM), jumbo loans and ARM products.
Safe Harbor and Rebuttable Presumption

Safe Harbor and Rebuttable Presumption for First-Lien Residential Mortgages

• If APR less than Average Prime Offer Rate (APOR) plus 1.5%
  → safe harbor

• If APR greater than APOR plus 1.5%
  → rebuttable presumption

http://www.ffiec.gov/ratespread/
Safe Harbor and Rebuttable Presumption

Safe Harbor and Rebuttable Presumption for Subordinate-Lien Residential Mortgages

• If APR less than APOR plus 3.5%
  → safe harbor

• If APR greater than APOR plus 3.5%
  → rebuttable presumption
Points and Fees

• Limited to 3% if loan is greater than $100,000

• Defined under the Home Ownership and Equity Protection Act (HOEPA)

• Percentage limits go up for smaller loan sizes
Points and Fee Caps for Smaller Loans

<table>
<thead>
<tr>
<th>Loan Amount</th>
<th>Percentage Cap of the Total Loan Amount</th>
<th>Dollar Amount Cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;= $100,000</td>
<td>3%</td>
<td>N/A</td>
</tr>
<tr>
<td>&gt;= $60,000 and &lt; $100,000</td>
<td>N/A</td>
<td>$3,000</td>
</tr>
<tr>
<td>&gt;= $20,000 and &lt; $60,000</td>
<td>5%</td>
<td>N/A</td>
</tr>
<tr>
<td>&gt;= $12,500 and &lt; $20,000</td>
<td>N/A</td>
<td>$1,000</td>
</tr>
<tr>
<td>&lt; $12,500</td>
<td>8%</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Points and Fees Definitions

• LLPAs are points and fees
• Bona fide discount points are not subject to APOR limitations
• Finance Charge - for the limit, you do not have to include:
  – Interest Differential
  – MIPs
  – Federal or State MIPs
• Points and Fees include direct or indirect compensation paid to a loan originator – does not include employee compensation
Points and Fee Definitions

• Real estate fees generally excluded unless there is compensation or the fee is paid to an affiliate

• Credit Life and other premiums rolled into loan amount are included unless consumer is sole beneficiary

• Maximum prepayment fee included
Operational Considerations

Pricing and Developing a Rate Sheet

• Target profit margin
  – Net of Loan Officer Compensation
  – Includes Servicing Value (released or retained)

• Pricing methodology
  – Salable loans priced based off of live pricing issued by GSE
  – Portfolio products based on specified index plus margin

• Rate Volatility
  – Margins are sensitive to market movements. Pricing should be monitored and adjusted daily.
Operational Considerations

Rate Sheet Examples

### 30/25 Year Fixed Rate Conforming

<table>
<thead>
<tr>
<th>Interest Rate</th>
<th>15 Day Lock</th>
<th>45 Day Lock</th>
<th>60 Day Lock</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.375</td>
<td>2.250</td>
<td>2.375</td>
<td>2.625</td>
</tr>
<tr>
<td>3.500</td>
<td>1.250</td>
<td>1.375</td>
<td>1.625</td>
</tr>
<tr>
<td>3.625</td>
<td>0.500</td>
<td>0.625</td>
<td>0.875</td>
</tr>
<tr>
<td>3.750</td>
<td>(0.125)</td>
<td>0.000</td>
<td>0.250</td>
</tr>
<tr>
<td>3.875</td>
<td>(0.625)</td>
<td>(0.500)</td>
<td>(0.250)</td>
</tr>
<tr>
<td>4.000</td>
<td>(1.250)</td>
<td>(1.125)</td>
<td>(0.875)</td>
</tr>
<tr>
<td>4.125</td>
<td>(2.000)</td>
<td>(1.875)</td>
<td>(1.625)</td>
</tr>
<tr>
<td>4.250</td>
<td>(2.825)</td>
<td>(2.500)</td>
<td>(2.250)</td>
</tr>
</tbody>
</table>

### 7/1 CMT ARM

**Caps: 5/2/5 Margin: 2.75**

<table>
<thead>
<tr>
<th>Interest Rate</th>
<th>15 Day Lock</th>
<th>45 Day Lock</th>
<th>60 Day Lock</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.000</td>
<td>0.750</td>
<td>0.875</td>
<td>1.125</td>
</tr>
<tr>
<td>3.125</td>
<td>0.125</td>
<td>0.250</td>
<td>0.500</td>
</tr>
<tr>
<td>3.250</td>
<td>(0.125)</td>
<td>0.000</td>
<td>0.250</td>
</tr>
<tr>
<td>3.375</td>
<td>(0.625)</td>
<td>(0.375)</td>
<td>(0.125)</td>
</tr>
<tr>
<td>3.500</td>
<td>(1.000)</td>
<td>(0.875)</td>
<td>(0.625)</td>
</tr>
<tr>
<td>3.625</td>
<td>(1.375)</td>
<td>(1.250)</td>
<td>(1.000)</td>
</tr>
<tr>
<td>3.750</td>
<td>(1.600)</td>
<td>(1.375)</td>
<td>(1.125)</td>
</tr>
<tr>
<td>3.875</td>
<td>(1.825)</td>
<td>(1.600)</td>
<td>(1.250)</td>
</tr>
</tbody>
</table>
Operational Considerations

Compensation Structures

- Mortgage Loan Officers are generally compensated based on the volume and number of loans originated.
  - Anti-Steering (Product Selection)
  - Department of Labor overtime rules
    - Exempt vs. Non-Exempt
  - Tiered MLO compensation structure
    - Units Closed
    - Volume Originated
Loan Originator Qualification and Compensation

• The Secure and Fair Enforcement for Mortgage Licensing Act of 2008 “SAFE”

• Fairly broad definition of loan originator – Credit Unions

• Compensation:
  – Prohibits loan officers’ compensation from being based on the terms of a transaction
  – Prohibits loan officers in a transaction from being compensated by both a consumer and another person
  – Allows certain contributions to certain retirement plans and bonus pools based on mortgage-related profits
Loan Originator Qualification and Compensation

• Qualifications:
  – Loan originators must be registered under the National Mortgage Licensing System “NMLS”
  – Requires non-loan originator employees who are not required to be licensed be trained and pass a criminal background check

• Requires loan originator identification on loan documents
• Requires written procedures
• Restricts the use of mandatory arbitration clauses
Operational Considerations

Regulatory Compliance

- NCUA
  - Generally assumes standard industry guidelines with overlays on product terms held in portfolio
  - Guideline variations

- GSE’s
  - Establish industry standard for guidelines in origination mortgage loans

- Originator is responsible for ensuring compliance with HMDA, TILA, RESPA and ATR/QM Requirements.
Mortgage Banking

Reasons to Originate Residential Mortgage Loans:

• Business opportunity

• Important customer relationship
Mortgage Banking

After a Financial Institution Has Committed to Making Residential Mortgage Loans It Has Two Choices:

• Hold the loans on the balance sheet

• Sell the loans
Mortgage Banking

Benefits of Holding Prime Credit, Fixed Rate Residential Mortgages

• Relatively low credit risk
• Higher yield than MBS and other Agency investments
• Higher yield than vehicle loans (generally)
• GSE loans are fungible
• QM versus non-QM
Financial Institution Risks

Credit Risk
Liquidity Risk
Interest Rate Risk
Operations Risk
Legal Risk
Reputation Risk
Repricing Risk
Basis Risk
Yield Curve Risk
Option Risk

Originating and holding fixed rate residential mortgages entails risk
Interest Rate Risk

Interest Rate Risk for Holding Fixed Rate Residential Mortgages

• Potential for a gap or mismatch between asset and liability durations because of the longer term and market volatility

• Difficult to accurately estimate prepayment speeds and effectively offset the optionality component in residential mortgages
### ALM Profile Example for Residential Mortgages

<table>
<thead>
<tr>
<th>Economic Value of Equity</th>
<th>Asset</th>
<th>-200</th>
<th>-100</th>
<th>Base</th>
<th>+100</th>
<th>+200</th>
<th>+300</th>
<th>+400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed rate 1st mortgage - fair value</td>
<td>104.23%</td>
<td>103.42%</td>
<td>99.16%</td>
<td>93.78%</td>
<td>88.58%</td>
<td>84.04%</td>
<td>79.62%</td>
<td></td>
</tr>
<tr>
<td>Change from base case</td>
<td>5.08%</td>
<td>4.26%</td>
<td>19.36%</td>
<td>7.58%</td>
<td>5.77%</td>
<td>4.97%</td>
<td>4.85%</td>
<td>4.51%</td>
</tr>
</tbody>
</table>

Fair value gains are limited in the falling rate environment due to the forecasted increased prepayments from refinancing activity.
Interest Rate Risk

Option Risk

- High coupon residential mortgage loans relative to the current market have more call risk – likely to refinance

- Low coupon mortgage loans relative to the current market have more extension risk – likely to be held longer than originally expected
Interest Rate Risk

FDIC Roundtable Discussion on IRR Management

“From an investor’s perspective, there is a “flaw” in the basic mortgage that is used here in the United States: it has an option in it.”

“When you invest in a mortgage, there are three things that can happen - and two of them are bad. One event is that rates go up and the value of the loan goes down. A second event is that rates go down and the customer pays off the loan. A third event is that rates stay exactly the same and you earn exactly what you thought you were going to earn.”

“…asset liability management is an art, not a science. I think you have to look at your models as a series of tools that help you build a circle around what your real exposures are and what your opportunities are.”
### Interest Rate Risk

#### Utilize ALM Models to Measure, Monitor and Control Overall IRR Exposure (partial ALM positions shown)

<table>
<thead>
<tr>
<th>Account</th>
<th>Weighted Avg. Coupon</th>
<th>Avg. Life</th>
<th>Modified Duration</th>
<th>Book Value</th>
<th>Fair Value</th>
<th>Fair Value Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Rate Mortgage 5 year</td>
<td>3.23</td>
<td>0.65</td>
<td>0.63</td>
<td>5,256,820</td>
<td>5,260,753</td>
<td>100.07%</td>
</tr>
<tr>
<td>Fixed Rate Mortgage 10 year</td>
<td>3.37</td>
<td>2.77</td>
<td>2.56</td>
<td>35,801,822</td>
<td>36,104,434</td>
<td>100.85%</td>
</tr>
<tr>
<td>Fixed Rate Mortgage 15 year</td>
<td>3.57</td>
<td>3.65</td>
<td>3.29</td>
<td>46,488,398</td>
<td>46,298,242</td>
<td>99.59%</td>
</tr>
<tr>
<td>Fixed Rate Mortgage 20 year</td>
<td>3.72</td>
<td>4.62</td>
<td>3.94</td>
<td>50,939,710</td>
<td>50,405,424</td>
<td>98.95%</td>
</tr>
<tr>
<td>Fixed Rate Mortgage 30 year</td>
<td>4.00</td>
<td>5.94</td>
<td>4.95</td>
<td>71,928,900</td>
<td>71,376,690</td>
<td>99.23%</td>
</tr>
</tbody>
</table>

| Total Assets                          | 3.78                 | 2.94      | 2.31              | 1,398,844,944 | 1,402,094,864 | 100.23%          |
| Free Checking                         | 0.00                 | 3.61      | 3.56              | 111,615,697  | 107,051,315  | 95.91%           |
| Regular Savings                       | 0.15                 | 4.37      | 4.28              | 243,434,541  | 235,875,983  | 96.90%           |
| High Yield Savings (MMDA)             | 0.80                 | 3.05      | 3.00              | 201,178,565  | 202,605,421  | 100.71%          |
| Share Certificates                    | 1.69                 | 2.04      | 1.97              | 288,615,659  | 292,777,642  | 101.44%          |

| Total Liabilities                     | 0.72                 | 3.25      | 3.18              | 1,187,918,287 | 1,178,926,563 | 99.24%           |

| Total Equity                          | 210,926,657          | 223,168,302 | 105.80%           |

Manage duration when holding long term fixed rate mortgages
### Interest Rate Risk

#### Overall ALM Position in a Shocked Environment

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Fair Value of Assets</th>
<th>Fair Value of Liabilities</th>
<th>Fair Value of Equity</th>
<th>% Change from Base</th>
<th>NCUA Risk Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>-300</td>
<td>1,414,993,595</td>
<td>1,199,928,829</td>
<td>215,064,765</td>
<td>-3.63%</td>
<td>Low</td>
</tr>
<tr>
<td>-200</td>
<td>1,415,086,641</td>
<td>1,204,302,001</td>
<td>210,784,640</td>
<td>-5.55%</td>
<td>Low</td>
</tr>
<tr>
<td>-100</td>
<td>1,416,112,956</td>
<td>1,205,751,816</td>
<td>210,361,140</td>
<td>-5.74%</td>
<td>Low</td>
</tr>
<tr>
<td>Base</td>
<td>1,402,094,864</td>
<td>1,178,926,563</td>
<td>223,168,302</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>1,374,803,536</td>
<td>1,153,085,305</td>
<td>221,718,232</td>
<td>-0.65%</td>
<td>Low</td>
</tr>
<tr>
<td>200</td>
<td>1,345,125,584</td>
<td>1,128,911,068</td>
<td>216,214,516</td>
<td>-3.12%</td>
<td>Low</td>
</tr>
<tr>
<td>300</td>
<td>1,316,687,447</td>
<td>1,106,279,504</td>
<td>210,407,943</td>
<td>-5.72%</td>
<td>Low</td>
</tr>
<tr>
<td>400</td>
<td>1,289,984,606</td>
<td>1,085,076,426</td>
<td>204,908,180</td>
<td>-8.18%</td>
<td>Low</td>
</tr>
</tbody>
</table>

ALM results measured against pre-determined risk policy thresholds
Mortgage Banking

Residential Mortgage Sales Have Benefits and Risks

• Benefits
  – Reduce interest rate and credit risks
  – Generate potential gains

• Risks
  – Reinvestment risk
  – Repurchase risk
  – Generate potential losses if the loan sales are not hedged or loans have been priced incorrectly
  – Potential loss of customer relationships if the loan is sold servicing released
Operational Considerations

Quality Control

• The Loan Quality Initiative (LQI), established by the GSE’s, outlines the requirements for monitoring the origination of a mortgage loan.
  – Internal Audits
    • Pre-Closing QC Review
    • Post Closing QC Review
  – Third Party Monitoring
    • Monthly review of targeted samplings of originated loans
      – Vendors:  
        » TenA, The StoneHill Group, New Oak
Operational Considerations

Loan Origination Software

• The Loan Origination System is needed to support:
  – Eligibility
  – Pricing/Product availability
  – Generation of the loan application (automated)
  – Generation of Loan Closing Documents
  – Incorporation of third-party vendors to include: appraisal orders, income and asset verification, e-signing, etc.

• Software Vendors
  – Optimal Blue
  – Mortgage Cadence
  – ALM First (hedge software)
  – Mortgage Capital Management (hedge software)
Operational Considerations

Use of Third Parties

• Compliance

• Underwriting

• CUSO Fulfillment
Operational Considerations

Control Over Origination Flow

- All internal loan procedures are aligned to Secondary Market requirements and guidelines to ensure eligibility for loan sale.
  - Product guidelines
  - Data Quality
  - Lock Policy
  - Pipeline Management
  - Lock desk
Best Price Execution

Residential Mortgage Sales Decision Should be Based on a Best Price Execution Analysis

• Where do I sell?

• How do I sell?

• What is my true economic sales price?
Best Price Execution

Where Do I Sell?

• GSE

• Aggregator
Best Price Execution

How Do I Sell?

• Loan by loan or bulk

• Servicing released or retained

• Best efforts or mandatory
## Best Price Execution

### Bulk Mandatory versus Best Efforts

<table>
<thead>
<tr>
<th></th>
<th>Mandatory</th>
<th>Best Efforts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commitment Type</td>
<td>Multiple loans</td>
<td>Single loan</td>
</tr>
<tr>
<td>Loan Substitution</td>
<td>Permitted</td>
<td>Not allowed</td>
</tr>
<tr>
<td>Price Level</td>
<td>Higher</td>
<td>Lower</td>
</tr>
<tr>
<td>Pair-off Fee</td>
<td>Yes</td>
<td>No, unless loan closes and is not delivered</td>
</tr>
<tr>
<td>Risk Level</td>
<td>High</td>
<td>Low</td>
</tr>
</tbody>
</table>
Best Price Execution

Servicing Released

• Receive service release premium at time of sale

• Transfer of customer information to potential competitor

• Potential required repurchases
Best Price Execution

Pricing Components

- Interest rate / coupon
- Loan type
- Term
- Lock length
- Value of servicing
- Loan-level price adjustments
- Buy ups and buy downs
- Loan size
- Other adjustments
Best Price Execution

Best Efforts vs. Mandatory TBA

- 30 year fixed rate, conventional
- $200,000 loan amount
- 4.00% interest rate
- 30 day interest rate lock
- 80% LTV

- 720 FICO
- Single family residence
- Purchase transaction
- No subordinate financing
- With escrows
### Best Execution Analysis

<table>
<thead>
<tr>
<th></th>
<th>Best efforts</th>
<th>Best efforts</th>
<th>Mandatory</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30 day</td>
<td>30 day</td>
<td>TBA forward</td>
</tr>
<tr>
<td>cash price</td>
<td>cash price</td>
<td>cash price</td>
<td>FNMA price</td>
</tr>
<tr>
<td>(SRP excluded)</td>
<td>(SRP included)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.00% loan price</td>
<td>100.996</td>
<td>102.664</td>
<td></td>
</tr>
<tr>
<td>4.00% loan / 3.50% security price</td>
<td></td>
<td></td>
<td>102.594</td>
</tr>
<tr>
<td>Loan Level Price Adjustment</td>
<td>-0.75</td>
<td>-0.75</td>
<td>-0.75</td>
</tr>
<tr>
<td>Servicing Release Premium (SRP)</td>
<td>1.841</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retained Servicing Value</td>
<td></td>
<td></td>
<td>1.208</td>
</tr>
<tr>
<td>Price</td>
<td>102.087</td>
<td>101.914</td>
<td>103.052</td>
</tr>
<tr>
<td>Difference</td>
<td>(0.965)</td>
<td>(1.138)</td>
<td></td>
</tr>
</tbody>
</table>
Best Price Execution

TBA Forwards

- Although bulk mandatory delivery offers the best mortgage pricing execution and greater potential profitability, this delivery method presents numerous operational challenges.

- Achieving profitability is highly dependent on proper estimation of pull-through / fallout on the locked mortgage pipeline.
## Mandatory Positions and Inaccurate Pull-Through Assumptions

<table>
<thead>
<tr>
<th>Accurate Pull-Through Forecast</th>
<th>Rate Decrease 50 bps, Low Pull-Through</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRLC position</td>
<td>10,000,000</td>
</tr>
<tr>
<td>Expected fallout 20%</td>
<td>2,000,000</td>
</tr>
<tr>
<td>Expected pull-through</td>
<td>8,000,000</td>
</tr>
<tr>
<td>Actual pull-through</td>
<td>8,000,000</td>
</tr>
<tr>
<td>TBA forward position</td>
<td>8,000,000</td>
</tr>
<tr>
<td>TBA Price advantage</td>
<td>77,180</td>
</tr>
<tr>
<td>Pair-off loss</td>
<td>0</td>
</tr>
<tr>
<td>Net impact</td>
<td>77,180</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>IRLC position</td>
<td>10,000,000</td>
</tr>
<tr>
<td>Expected fallout 20%</td>
<td>2,000,000</td>
</tr>
<tr>
<td>Expected pull-through</td>
<td>8,000,000</td>
</tr>
<tr>
<td>Actual pull-through</td>
<td>2,000,000</td>
</tr>
<tr>
<td>TBA forward position</td>
<td>8,000,000</td>
</tr>
<tr>
<td>TBA Price advantage</td>
<td>19,295</td>
</tr>
<tr>
<td>Pair-off loss</td>
<td>(170,625)</td>
</tr>
<tr>
<td>Net impact</td>
<td>(151,330)</td>
</tr>
</tbody>
</table>
Mortgage Banking

Servicing Costs

• You can compete with the giant servicers on cost by keeping it simple – limit the number of investors, use one remittance method, service fixed rate loans only and use existing employees to service the loans.

• Smaller servicers have historically generated less ancillary income per loan than the giant servicers, providing them with an opportunity to increase income and broaden their customer relationships on retained loans.
Mortgage Banking

Retained Mortgage Servicing Rights

- MSRs are a modified interest only strip

- Valuation is relatively complex

- Maintain contact with member – second most important product
Hedging

Hedging with TBAs (Bulk Mandatory Forwards)

• An interest rate lock commitment (IRLC) is a cross between an option and a forward commitment

• Pricing and risk

• Mitigate risk by hedging
  – Estimate fall-out on locked pipeline
  – Control interest rate with lock-in agreements
  – Manage pair-offs and market movement
  – Prepare mark-to-market and position reports
  – Potentially engage 3rd party expertise
Hedging

Hedging – Mortgage Capital Management

To a mortgage originator, hedging refers to the purchase or sale of financial instruments designed to neutralize the risk of interest rate movement on the mortgage pipeline.
Hedging

Fallout Risk

• Rate lock does not close
• Borrower renegotiates rate or discount points
• Loan closing date is extended
Hedging

Factors Affecting Pull-through

• Market interest rates
• Type of origination – retail or wholesale
• Length of lock
• Purpose of loan – purchase or refinance
• Type of loan – fixed or variable
• Processing status of loan
Hedging

Unexpected Outcomes – Mortgage Capital Management

**Fallout risk is realized** when an excess amount of mandatory (MBS TBA) coverage is used to hedge a price protected (optional) pipeline in a declining interest rate environment. After interest rates drop significantly, loans that have been locked-in by borrowers may cancel or be renegotiated at lower rates leaving the mandatory (MBS TBA) coverage unfillable with closed loans. This situation usually requires that the (MBS TBA) coverage trades be bought back from investors at a loss. Or conversely, when rates rise and not enough mandatory (MBS TBA) coverage was placed to hedge the ever increasing amount of loans closing from reduced fallout in a rising rate environment.
### Sample Fallout Review

<table>
<thead>
<tr>
<th>MONTH</th>
<th>LOCKS</th>
<th>CLOSINGS</th>
<th>FALLOUT</th>
<th>FALLOUT %</th>
<th>REN AMT</th>
<th>RF%</th>
<th>TOTAL FALLOUT</th>
<th>ACTUAL TOT FALL %</th>
<th>WAD FORCAST Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jul</td>
<td>154,482,706</td>
<td>123,689,458</td>
<td>29,197,231</td>
<td>18.9%</td>
<td>3,537,654</td>
<td>2.3%</td>
<td>32,734,885</td>
<td>21.2%</td>
<td>18.5%</td>
</tr>
<tr>
<td>Aug</td>
<td>141,346,521</td>
<td>113,043,168</td>
<td>27,209,205</td>
<td>19.3%</td>
<td>5,060,205</td>
<td>3.6%</td>
<td>32,269,411</td>
<td>22.8%</td>
<td>21.0%</td>
</tr>
<tr>
<td>Sep</td>
<td>167,818,927</td>
<td>141,195,830</td>
<td>24,333,744</td>
<td>14.5%</td>
<td>4,816,403</td>
<td>2.9%</td>
<td>29,150,148</td>
<td>17.4%</td>
<td>18.7%</td>
</tr>
<tr>
<td></td>
<td>463,648,154</td>
<td>377,928,456</td>
<td>80,740,181</td>
<td>17.4%</td>
<td>13,414,263</td>
<td>2.9%</td>
<td>94,154,444</td>
<td>20.3%</td>
<td>19.4%</td>
</tr>
</tbody>
</table>
### Sample Position Report

#### LOCKS BY STATUS

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>DOCUMENTS IN</th>
<th>DOCUMENTS OUT</th>
<th>APPROVED</th>
<th>SUBMITTED</th>
<th>IN PROCESS</th>
<th>GRAND TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>FHLMC30</td>
<td>0</td>
<td>451,630</td>
<td>154,000</td>
<td>223,462</td>
<td>417,000</td>
<td>1,248,082</td>
</tr>
<tr>
<td>FNMA15</td>
<td>0</td>
<td>1,210,630</td>
<td>4,894,745</td>
<td>773,500</td>
<td>3,367,532</td>
<td>10,246,377</td>
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<tr>
<td>FNMA20</td>
<td>0</td>
<td>0</td>
<td>341,600</td>
<td>89,500</td>
<td>557,700</td>
<td>988,800</td>
</tr>
<tr>
<td>FNMA30</td>
<td>1,978,260</td>
<td>23,091,499</td>
<td>72,028,897</td>
<td>16,241,540</td>
<td>46,184,945</td>
<td>161,524,941</td>
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<tr>
<td>GNMA15</td>
<td>0</td>
<td>114,977</td>
<td>0</td>
<td>0</td>
<td>141,498</td>
<td>256,475</td>
</tr>
<tr>
<td>GNMA30</td>
<td>312,730</td>
<td>5,305,439</td>
<td>9,242,229</td>
<td>1,187,598</td>
<td>8,796,479</td>
<td>24,844,475</td>
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<tr>
<td>GNMA130</td>
<td>2,520,808</td>
<td>9,165,657</td>
<td>34,441,538</td>
<td>10,149,866</td>
<td>25,809,442</td>
<td>82,087,421</td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td><strong>4,811,798</strong></td>
<td><strong>39,339,732</strong></td>
<td><strong>121,102,905</strong></td>
<td><strong>28,665,466</strong></td>
<td><strong>87,274,596</strong></td>
<td><strong>281,194,551</strong></td>
</tr>
</tbody>
</table>

Hedging
Hedging

### Sample Dynamic Hedge Recommendation

<table>
<thead>
<tr>
<th>Mand Coverage:</th>
<th>2,724,076</th>
<th>&amp;</th>
<th>Puts ATM:</th>
<th>7,264,732</th>
<th>&amp;</th>
<th>Calls ATM:</th>
<th>16,196,490</th>
<th>OR</th>
<th>Delta Hedge:</th>
<th>(1,741,804)</th>
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</thead>
<tbody>
<tr>
<td>(POS=SELL/NEG=BUY)</td>
<td>(POS=BUY/NEG=SELL)</td>
<td>(POS=BUY/NEG=SELL)</td>
<td>(POS=SELL/NEG=BUY)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Shock Analysis

![Shock Analysis Graph](image)

SHOCK ANALYSIS

AICPA Conference on Credit Unions
Operational Risk

• Clean data
• Ability to deliver loans when agreed
• Recourse and repurchase risk
  – SRP refunds
  – Violation of origination representations and warranties
• Software
• Third party hedging providers
  – MCM
  – Optimal Blue
  – Compass Analytics
  – ALM First
Mortgage Banking

Guidance

• Interagency advisory on mortgage banking – February 2003

• Interagency advisory on accounting and reporting for commitments to originate and sell mortgage loans – May 2005

• OCC Comptroller’s Handbook Mortgage Banking February 2014
Mortgage Banking Derivatives

Interagency Advisory on Accounting and Reporting for Commitments to Originate and Sell Mortgage Loans

• Issued May 3, 2005

• Provides guidance on accounting and reporting for commitments to:
  – Originate mortgage loans that will be held for resale; and
  – Sell mortgage loans under mandatory and best efforts sales contracts
Mortgage Banking Derivatives

Noncompliance Issues Noted in the Advisory

• Reporting the value of derivative loan sales agreements as assets, when in fact they were liabilities, and vice-versa

• Failing to report the derivatives and their changes in fair value on the balance sheet and income statement
Mortgage Banking Derivatives

Interest Rate Lock Commitments (IRLCs)

• Interest rate lock in commitments on mortgage loans that will be held for resale are derivatives

• Commitments to originate mortgage loans to be held for investment and other types of loans are generally not derivatives
Mortgage Banking Derivatives

IRLC Value

• IRLCs should be initially recorded at fair value

• Subsequent changes in fair value are to be measured and reported on the balance sheet and income statement
Mortgage Banking Derivatives

Value of IRLC – Example

- Loan Amount: $250,000
- Price to the borrower at lock-in: Par or 100
- Locked Interest Rate: 4.375%
- Market Interest Rate: 4.000%
- Sales Price (locked with investor): 101.50
- Value of Servicing: 1.000% or $2,500
- Projected Origination Costs: 1.000% or $2,500
## Mortgage Banking Derivatives

### Value of IRLC – Example

<table>
<thead>
<tr>
<th></th>
<th>Inception</th>
<th>Rates Increase 50 bp</th>
<th>Loan Has Been Processed</th>
<th>Rates Drop 100 bp</th>
<th>Loan Has Been Approved</th>
<th>Loan at Close</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Loan Amount</strong></td>
<td>(A)</td>
<td>$250,000</td>
<td>$250,000</td>
<td>$250,000</td>
<td>$250,000</td>
<td>$250,000</td>
</tr>
<tr>
<td><strong>Lock In Interest Rate</strong></td>
<td></td>
<td>4.375%</td>
<td>4.375%</td>
<td>4.375%</td>
<td>4.375%</td>
<td>4.375%</td>
</tr>
<tr>
<td><strong>Market Interest Rate</strong></td>
<td></td>
<td>4.000%</td>
<td>4.500%</td>
<td>3.500%</td>
<td>3.500%</td>
<td>3.500%</td>
</tr>
<tr>
<td><strong>Market Value</strong></td>
<td>(B)</td>
<td>101.50%</td>
<td>99.50%</td>
<td>99.50%</td>
<td>103.50%</td>
<td>103.50%</td>
</tr>
<tr>
<td><strong>Servicing Value</strong></td>
<td>(C)</td>
<td>1.00%</td>
<td>1.00%</td>
<td>1.00%</td>
<td>1.00%</td>
<td>1.00%</td>
</tr>
<tr>
<td><strong>Origination Costs</strong></td>
<td>(D)</td>
<td>1.00%</td>
<td>1.00%</td>
<td>0.50%</td>
<td>0.50%</td>
<td>0.25%</td>
</tr>
<tr>
<td><strong>Borrower Price</strong></td>
<td>(E)</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
<tr>
<td><strong>Value as a Percent of Loan</strong></td>
<td>(F)</td>
<td>1.50%</td>
<td>-0.50%</td>
<td>0.00%</td>
<td>4.00%</td>
<td>4.25%</td>
</tr>
<tr>
<td><strong>Dollar Value (A)*(F)</strong></td>
<td>(G)</td>
<td>$3,750</td>
<td>$(1,250)</td>
<td>$-</td>
<td>$10,000</td>
<td>$10,625</td>
</tr>
<tr>
<td><strong>Pull-through Percentage</strong></td>
<td>(H)</td>
<td>30.00%</td>
<td>30.00%</td>
<td><strong>60.00%</strong></td>
<td>60.00%</td>
<td><strong>80.00%</strong></td>
</tr>
<tr>
<td><strong>Net Value (G)*(H)</strong></td>
<td>(I)</td>
<td>$1,125</td>
<td>$(375)</td>
<td>$-</td>
<td>$6,000</td>
<td>$8,500</td>
</tr>
<tr>
<td><strong>Value Recorded</strong></td>
<td></td>
<td>$1,125</td>
<td>$(1,500)</td>
<td>$375</td>
<td>$6,000</td>
<td>$2,500</td>
</tr>
</tbody>
</table>
Mortgage Banking Derivatives

Additional Economic Considerations for IRLCs

- Changes in interest rates can also affect the value of the servicing asset

- Pull-through assumptions in the marketplace are more complex than the simplified example
Mortgage Banking Derivatives

Mandatory Delivery Commitment

• Has a “specified underlying” - the specified price
• Requires little or no initial net investment
• Has a “notional amount” - the principal amount of the loan
• Requires or permits net settlement by paying a pair-off fee based on then current market prices
• Is a derivative
Mortgage Banking Derivatives

Best Efforts Delivery Commitment

• An institution commits to deliver an individual loan of a specified principal amount and quality to an investor if the loan to the underlying borrower closes

• Generally not considered a derivative until the loan closes because it does not meet the net settlement criteria

• The result is that the change in the value of best efforts contracts will not offset the change in the value of the IRLCs for accounting purposes unless fair value is elected

• An institution will want to elect fair value if they want a “hedge” against the fluctuation in the value of the IRLC
## Mortgage Banking Derivatives

### Value of Forward Loan Sales Commitment – Valuation Example

<table>
<thead>
<tr>
<th>Loan Amount</th>
<th>(A) 250,000</th>
<th>(A) 250,000</th>
<th>(A) 250,000</th>
<th>(A) 250,000</th>
<th>(A) 250,000</th>
<th>(A) 250,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock In Interest Rate</td>
<td>4.375%</td>
<td>4.375%</td>
<td>4.375%</td>
<td>4.375%</td>
<td>4.375%</td>
<td>4.375%</td>
</tr>
<tr>
<td>Market Interest Rate</td>
<td>4.000%</td>
<td>4.500%</td>
<td>4.500%</td>
<td>3.500%</td>
<td>3.500%</td>
<td>3.500%</td>
</tr>
<tr>
<td>Market Value</td>
<td>(B) 101.50%</td>
<td>99.50%</td>
<td>99.50%</td>
<td>103.50%</td>
<td>103.50%</td>
<td>103.50%</td>
</tr>
<tr>
<td>Servicing Value</td>
<td>(C) 1.00%</td>
<td>1.00%</td>
<td>1.00%</td>
<td>1.00%</td>
<td>1.00%</td>
<td>1.00%</td>
</tr>
<tr>
<td>Sales Price including SRP</td>
<td>(D) 102.50%</td>
<td>102.50%</td>
<td>102.50%</td>
<td>102.50%</td>
<td>102.50%</td>
<td>102.50%</td>
</tr>
<tr>
<td>Value as a Percent of Loan (D)-(B)-(C)</td>
<td>(E) 0.00%</td>
<td>2.00%</td>
<td>2.00%</td>
<td>-2.00%</td>
<td>-2.00%</td>
<td>-2.00%</td>
</tr>
<tr>
<td>Dollar Value (A)*(F)</td>
<td>(F) $</td>
<td>- $ 5,000</td>
<td>$ 5,000</td>
<td>$ (5,000)</td>
<td>$ (5,000)</td>
<td>$ (5,000)</td>
</tr>
<tr>
<td>Pull-through Percentage</td>
<td>(G) 30.00%</td>
<td>30.00%</td>
<td>60.00%</td>
<td>60.00%</td>
<td>80.00%</td>
<td>100.00%</td>
</tr>
<tr>
<td>Net Value (G)*(H)</td>
<td>(H) $</td>
<td>- $ 1,500</td>
<td>$ 3,000</td>
<td>$ (3,000)</td>
<td>$ (4,000)</td>
<td>$ (5,000)</td>
</tr>
<tr>
<td>Value Recorded</td>
<td>(I) $</td>
<td>- $ 1,500</td>
<td>$ 1,500</td>
<td>$ (6,000)</td>
<td>$ (1,000)</td>
<td>$ (1,000)</td>
</tr>
</tbody>
</table>

- **Loan Amount**: The original amount of the loan as stated.
- **Lock In Interest Rate**: The interest rate locked in at the inception of the loan.
- **Market Interest Rate**: The current market interest rate at various points in time.
- **Market Value**: The market value of the loan at each rate.
- **Servicing Value**: The servicing value at each rate.
- **Sales Price including SRP**: The sales price including servicing rights at each rate.
- **Value as a Percent of Loan (D)-(B)-(C)**: The value as a percent of the loan at each rate.
- **Dollar Value (A)*(F)**: The dollar value at each rate.
- **Pull-through Percentage**: The pull-through percentage at each rate.
- **Net Value (G)*(H)**: The net value at each rate.
- **Value Recorded**: The value recorded at each rate.
Mortgage Banking Derivatives

Netting of Derivatives for Reporting Purposes

• May net gains and losses of individual derivative commitments only under certain conditions, generally only under the legal right of offset

• The value of sales commitments covering the pipeline may not be netted against the value of the IRLCs, they must be reported separately

• The value of sales commitments covering the warehouse may not be netted against the value of the warehouse loans, they must be reported separately
## Mortgage Banking Derivatives

### Loans Held for Sale – Valuation Example

<table>
<thead>
<tr>
<th></th>
<th>Loan at Close</th>
<th>Rates Increase 50 bp</th>
<th>Rates Drop 100 bp</th>
<th>Loan at Sale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loan Amount</td>
<td>$250,000</td>
<td>$250,000</td>
<td>$250,000</td>
<td>$250,000</td>
</tr>
<tr>
<td>Lock In Interest Rate</td>
<td>4.375%</td>
<td>4.375%</td>
<td>4.375%</td>
<td>4.375%</td>
</tr>
<tr>
<td>Market Interest Rate</td>
<td>4.000%</td>
<td>4.500%</td>
<td>3.500%</td>
<td>3.500%</td>
</tr>
<tr>
<td>Market Value</td>
<td>(B) 103.50%</td>
<td>101.50%</td>
<td>105.50%</td>
<td>101.50%</td>
</tr>
<tr>
<td>Servicing Value</td>
<td>(C) 1.00%</td>
<td>1.00%</td>
<td>1.00%</td>
<td>1.00%</td>
</tr>
<tr>
<td>Borrower Price</td>
<td>(D) 100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
<tr>
<td>Value as a Percent of Loan (B)+(C)-(D)</td>
<td>(E) 4.50%</td>
<td>2.50%</td>
<td>6.50%</td>
<td>2.50%</td>
</tr>
<tr>
<td>Dollar Value (A)* (F)</td>
<td>(F) $11,250</td>
<td>$6,250</td>
<td>$16,250</td>
<td>$6,250</td>
</tr>
<tr>
<td>Pull-through Percentage</td>
<td>(G) 100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
<tr>
<td>Net Value (G)* (H)</td>
<td>(H) $11,250</td>
<td>$6,250</td>
<td>$16,250</td>
<td>$6,250</td>
</tr>
<tr>
<td>Value Recorded</td>
<td>$11,250</td>
<td>(5,000)</td>
<td>10,000</td>
<td>(10,000)</td>
</tr>
</tbody>
</table>
Risk Weighting Loans

Single Family One-to-Four

- Prudently underwritten first 50% (if bank holds first and second and no intervening, liens treated as first)

- Seconds, 90 day+, non-accrual, modified – 100%
  - HAMP loans are not modifications
Mortgage Banking Derivatives

Income Statement Effect

Changes in the fair value of the IRLCs, sales commitments and LHFS (depending on the circumstances) are reported as “other noninterest income” or “other noninterest expense.”
Off Balance Sheet Exposure

- Over the counter derivative contracts (e.g. mortgage banking derivatives)
  - If less than one year and interest rate risk: 0% risk weight
Mortgage Banking Derivatives

NCUA Call Report

- Derivative information should be entered in Sections 1 – 5 of Appendix D in the 5300

- Detailed instructions for these entries can be found in our Accounting and Regulatory Guidance for the Mortgage Partnership Finance® Program manual that can be downloaded from our website at www.wilwinn.com in the Insights and Resources section
Mortgage Servicing Rights

Regulatory Perspective

• Inter-Agency Advisory Mortgage Banking February 2003
  – Need to comply with rules on interest rate risk
  – Need to consider how mortgage banking affects strategic, business and asset/liability plans
  – Establish asset/capital limits for mortgage banking
Mortgage Servicing Rights

Retained Mortgage Servicing Rights (MSRs)

• MSRs are a modified interest only strip

• Many types of underlying loans

• Value varies significantly by type of MSR
Mortgage Servicing Rights

Major Valuation Components

- Loan amount
- Servicing fee percentage – varies by investor and type of loan
- Ancillary income
- Expected loan life – prepayment and loan term
- Discount rate
- Costs to service – market costs
- Delinquency rate and foreclosure losses – recourse versus non-recourse
Mortgage Servicing Rights

Valuation Components Detail

• Servicing fees are earned monthly based on remaining principal balance
• Servicing costs should be calculated in dollars per loan
• Ancillary income includes late fees, insurance income and other fees earned
• Float and escrows (impounds) add value
### PWC Assumption Survey – Range of Assumptions

#### Ancillary Income

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>High</th>
<th>Average</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>FNMA / FHLMC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed</td>
<td>15.68</td>
<td>69.17</td>
<td>36.58</td>
<td>37.20</td>
</tr>
<tr>
<td>ARM</td>
<td>13.46</td>
<td>65.95</td>
<td>37.45</td>
<td>39.00</td>
</tr>
<tr>
<td>GNMA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed - FHA</td>
<td>27.87</td>
<td>68.70</td>
<td>49.60</td>
<td>48.00</td>
</tr>
<tr>
<td>Fixed - VA</td>
<td>24.91</td>
<td>69.99</td>
<td>48.94</td>
<td>48.54</td>
</tr>
<tr>
<td>ARM</td>
<td>32.19</td>
<td>70.00</td>
<td>53.02</td>
<td>53.00</td>
</tr>
<tr>
<td>FNMA / FHLMC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed</td>
<td>8.77%</td>
<td>10.85%</td>
<td>9.56%</td>
<td>9.32%</td>
</tr>
<tr>
<td>ARM</td>
<td>9.00%</td>
<td>10.85%</td>
<td>9.72%</td>
<td>9.48%</td>
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<tr>
<td>GNMA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed - FHA</td>
<td>9.82%</td>
<td>13.26%</td>
<td>10.94%</td>
<td>10.45%</td>
</tr>
<tr>
<td>Fixed - VA</td>
<td>9.82%</td>
<td>13.26%</td>
<td>11.01%</td>
<td>10.74%</td>
</tr>
<tr>
<td>ARM</td>
<td>9.90%</td>
<td>15.70%</td>
<td>12.64%</td>
<td>12.67%</td>
</tr>
<tr>
<td>FNMA / FHLMC</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed</td>
<td>40.36</td>
<td>77.94</td>
<td>62.00</td>
<td>62.29</td>
</tr>
<tr>
<td>ARM</td>
<td>44.56</td>
<td>85.00</td>
<td>67.61</td>
<td>67.34</td>
</tr>
<tr>
<td>GNMA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed - FHA</td>
<td>48.76</td>
<td>122.98</td>
<td>81.07</td>
<td>78.81</td>
</tr>
<tr>
<td>Fixed - VA</td>
<td>49.11</td>
<td>98.77</td>
<td>73.88</td>
<td>74.38</td>
</tr>
<tr>
<td>ARM</td>
<td>50.00</td>
<td>119.69</td>
<td>78.82</td>
<td>78.79</td>
</tr>
</tbody>
</table>

Survey as of November 30, 2016

AICPA Conference on Credit Unions
Mortgage Servicing Rights

Stochastic Modeling

• Supply prices to solve for option adjusted spread (“OAS”) with a Monte Carlo Simulation

• Works best with residential mortgage loans and securities

• Interest rate movement is random

• Multiple simulations (thousands) of interest rate movements are performed for estimating probability distributions
Mortgage Servicing Rights

Random Paths Assuming a 4% Starting Rate and Mean Reversion

Random Rate Paths

Rates Levels

Monthly Periods
Mortgage Servicing Rights

OAS Advantages

• Use of a probabilistic model consistent with the current term structure of interest rates and the assumed level of volatility

• Development of explicit pricing and valuation for embedded options, such as the prepayment option

• Use of simulation methodology that is more theoretically sound, approximating the methodologies used to value hedge instruments and mortgage securities
Mortgage Servicing Rights

OAS Disadvantages

• Lack of precise market prices for specific MSAs. The OAS used in the model, like the discount rate used in static analysis, is arbitrary.

• Requirement of more resources than static analysis in terms of computing power, software, and model sophistication.

• Lack of set standards for OAS computation. OAS model results are highly dependent on input assumptions such as volatility, prepayment speed, default rates, inflation, the appropriate risk-free rate (Treasury or LIBOR), and the setting of model parameters, all of which can result in different OAS and MSA values.

• Lack of consistency in OAS model methodology that may result in asset valuation differences.
Mortgage Servicing Rights

Other Key Valuation Variables

• Production channel – retail versus wholesale

• Current economic conditions in the region

• Recent changes in home prices
## Mortgage Servicing Rights

### Valuation of Conforming Conventional

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Change</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>1.119%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepayments increase 30%</td>
<td>1.014%</td>
<td>-0.104%</td>
<td>-9.3%</td>
</tr>
<tr>
<td>Servicing costs increase 30%</td>
<td>1.058%</td>
<td>-0.061%</td>
<td>-5.4%</td>
</tr>
<tr>
<td>Delinquencies increase 30%</td>
<td>1.115%</td>
<td>-0.003%</td>
<td>-0.3%</td>
</tr>
<tr>
<td>Discount rate increases 30%</td>
<td>0.997%</td>
<td>-0.122%</td>
<td>-10.9%</td>
</tr>
</tbody>
</table>

Source: Wilary Winn, June 30, 2017
Mortgage Servicing Rights

MSR Yield Curve and Negative Convexity

30 Year Conforming Conventional Par Rate Servicing Fee Value

Source: Wilary Winn, June 30, 2017

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Mortgage Servicing Rights

Value of MSR Asset

- MSR Value %
- Prepayment Speed

Mortgage Servicing Rights

Managing Run-Off Risk

• The operational / macro hedge

• Hedge with derivatives

• Utilize appropriate amortization methodology
Mortgage Servicing Rights

Accounting Implications

Accounting and reporting for MSRs is set forth in FAS ASC 860-50
Mortgage Servicing Rights

Strategic Alliances

• Have loans sub-serviced as you build scale
• Contract with others to generate ancillary income
• Consider outsourcing specialized functions such as foreclosure
• Join industry alliances
• Hire an expert to assist with hedge
Mortgage Servicing Rights

Existence of Servicing - FAS ASC 860-50-25-1

A servicing asset or liability arises each time an institution undertakes an obligation to service a financial asset by entering into a servicing contract in connection with –

1. A transfer that meets the requirements for true sale

or

2. The acquisition or assumption of a servicing obligation not related to the financial assets of the servicer.
The benefits of the servicing, including the servicing fees, ancillary income, float, etc. must exceed “adequate compensation” in order to have a servicing asset. If not, the servicer has a liability. Adequate compensation includes a profit and is determined by the marketplace. It is based on marketplace costs, not the servicer’s internal costs.
Mortgage Servicing Rights

Initial Recording

• Servicing assets and liabilities must be reported separately

• A servicing asset can become a servicing liability over its life and vice versa
Mortgage Servicing Rights

Initial Recording

• Record MSR at fair value – quoted price for exact or similar asset would be best – discounted cash flow can be used in the absence of trade information

• Industry believes MSRs are Level 2 or Level 3 assets based on a discounted cash flow model

• Value excess servicing separately - true IO
  – Creation of the IO does not violate true sale, if part of overall consideration for the 100% sale of the loan
Mortgage Servicing Rights

How to Account for the MSR After Initial Recording?

• FAS ASC paragraph 860-50-35-1 allows the asset to be measured and reported in one of two ways:
  1. Amortization Method
  2. Fair Value Method

• A servicer can select either method, but cannot switch methodologies unless it moves to the Fair Value method at the beginning of the fiscal year before interim financial statements have been released. A servicer cannot go back to the amortization method after it has elected Fair Value.
Mortgage Servicing Rights

Amortization Method

Amortize the MSR in proportion and over the period of estimated net servicing income (level yield method) and assess servicing assets for impairment based on fair value at each reporting date.
Mortgage Servicing Rights

Impairment

• Impairment is best measured at the loan level and is reported at the predominant risk characteristic stratum

• There is a difference between temporary impairment, which is accounted for through an allowance and permanent impairment, which requires a direct write-off
### ABC Credit Union – 202.5 Million Servicing Portfolio Valuation as of June 30, 2017

ABC Credit Union - $202.5 MM Servicing Portfolio Valuation as of June 30, 2017

<table>
<thead>
<tr>
<th>Principal Balance</th>
<th># of Loans</th>
<th>WAC</th>
<th>WAM</th>
<th>Age</th>
<th>Average Life</th>
<th>Service Fee</th>
<th>T&amp;I</th>
<th>Prepayment PSA</th>
<th>Servicing Multiple</th>
<th>Fair Value %</th>
<th>Fair Value $</th>
<th>Book Value</th>
<th>Fair Value + Book Value</th>
<th>Bal. Sheet Impact</th>
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</thead>
<tbody>
<tr>
<td>30 &amp; 25 year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>less than 4.000%</td>
<td>77,446,553</td>
<td>410</td>
<td>3.675%</td>
<td>332</td>
<td>28</td>
<td>8.67</td>
<td>0.250%</td>
<td>182,814</td>
<td>119</td>
<td>4.95</td>
<td>1.237%</td>
<td>957,775</td>
<td>30,943</td>
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<tr>
<td>4.000% - 6.000%</td>
<td>74,728,349</td>
<td>480</td>
<td>4.266%</td>
<td>330</td>
<td>30</td>
<td>7.36</td>
<td>0.250%</td>
<td>188,353</td>
<td>161</td>
<td>4.36</td>
<td>1.090%</td>
<td>814,517</td>
<td>26,812</td>
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<td>greater than 6.000%</td>
<td></td>
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</tr>
<tr>
<td>Total 30 &amp; 25 year</td>
<td>152,174,903</td>
<td>890</td>
<td>3.965%</td>
<td>311</td>
<td>29</td>
<td>8.03</td>
<td>0.250%</td>
<td>371,167</td>
<td>140</td>
<td>4.66</td>
<td>1.165%</td>
<td>1,772,292</td>
<td>57,754</td>
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<td>20 year</td>
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<tr>
<td>less than 3.625%</td>
<td>2,361,247</td>
<td>13</td>
<td>3.413%</td>
<td>211</td>
<td>29</td>
<td>6.62</td>
<td>0.250%</td>
<td>4,094</td>
<td>111</td>
<td>4.13</td>
<td>1.032%</td>
<td>24,380</td>
<td>2,703</td>
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<td>3.625% - 5.625%</td>
<td>3,151,886</td>
<td>25</td>
<td>3.873%</td>
<td>212</td>
<td>28</td>
<td>6.37</td>
<td>0.250%</td>
<td>8,612</td>
<td>130</td>
<td>3.97</td>
<td>0.992%</td>
<td>31,274</td>
<td>5,635</td>
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<td></td>
</tr>
<tr>
<td>Total 20 year</td>
<td>5,513,132</td>
<td>38</td>
<td>3.676%</td>
<td>212</td>
<td>28</td>
<td>6.48</td>
<td>0.250%</td>
<td>12,706</td>
<td>122</td>
<td>4.04</td>
<td>1.069%</td>
<td>55,654</td>
<td>8,339</td>
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<tr>
<td>15 year</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>less than 3.250%</td>
<td>23,477,226</td>
<td>158</td>
<td>2.934%</td>
<td>150</td>
<td>30</td>
<td>4.82</td>
<td>0.250%</td>
<td>57,841</td>
<td>127</td>
<td>3.34</td>
<td>0.834%</td>
<td>195,894</td>
<td>(13,782)</td>
<td>(13,782)</td>
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<tr>
<td>3.250% - 5.250%</td>
<td>20,025,222</td>
<td>178</td>
<td>3.448%</td>
<td>147</td>
<td>33</td>
<td>4.56</td>
<td>0.250%</td>
<td>59,793</td>
<td>147</td>
<td>3.10</td>
<td>0.774%</td>
<td>155,049</td>
<td>30,972</td>
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<tr>
<td>greater than 5.250%</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Total 15 year</td>
<td>43,502,449</td>
<td>336</td>
<td>3.171%</td>
<td>149</td>
<td>31</td>
<td>4.70</td>
<td>0.250%</td>
<td>117,633</td>
<td>156</td>
<td>3.23</td>
<td>0.807%</td>
<td>350,942</td>
<td>17,190</td>
<td>(13,782)</td>
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<td>12 year &amp; less</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>less than 3.000%</td>
<td>827,612</td>
<td>6</td>
<td>2.805%</td>
<td>93</td>
<td>30</td>
<td>3.28</td>
<td>0.250%</td>
<td>3,358</td>
<td>124</td>
<td>2.61</td>
<td>0.653%</td>
<td>5,400</td>
<td>6,366</td>
<td>(966)</td>
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<tr>
<td>3.000% - 5.000%</td>
<td>475,934</td>
<td>8</td>
<td>3.164%</td>
<td>87</td>
<td>35</td>
<td>2.93</td>
<td>0.250%</td>
<td>840</td>
<td>134</td>
<td>1.69</td>
<td>0.422%</td>
<td>2,008</td>
<td>2,174</td>
<td>(165)</td>
</tr>
<tr>
<td>greater than 5.000%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total 12 year &amp; less</td>
<td>1,303,547</td>
<td>14</td>
<td>2.936%</td>
<td>91</td>
<td>32</td>
<td>3.15</td>
<td>0.250%</td>
<td>4,198</td>
<td>128</td>
<td>2.27</td>
<td>0.568%</td>
<td>7,409</td>
<td>8,539</td>
<td>(1,131)</td>
</tr>
<tr>
<td>Grand Total</td>
<td>202,494,030</td>
<td>1,278</td>
<td>3.780%</td>
<td>287</td>
<td>30</td>
<td>7.24</td>
<td>0.250%</td>
<td>505,704</td>
<td>138</td>
<td>4.32</td>
<td>1.080%</td>
<td>2,186,297</td>
<td>82,152</td>
<td>(14,913)</td>
</tr>
</tbody>
</table>

Current Impairment Reserve: -

(Additional) / Excess Impairment Reserve: (14,913)
Mortgage Servicing Rights

Fair Value Method

- The fair value is determined at each reporting period
- The asset is adjusted to equal its fair value
- The difference is taken into income or expense for that reporting period
- Institutions that hedge their servicing rights portfolios can benefit from the fair value method because the accounting is less complex than under FAS ASC Topic 815 – Derivatives and Hedging. Institutions that do not hedge their portfolios and that elect the fair value method could experience earnings volatility.
Mortgage Servicing Rights

Inter-Agency Advisory – MSRs

• Requires comprehensive documentation of valuation process

• Valuation must be based on reasonable and support-able assumptions and major changes to assumptions must be approved

• Compare assumptions to actual results

• Use appropriate amortization and recognize impairment timely
Mortgage Servicing Rights

Recommendations

- Understand the major assumptions used in the model
- Mark to the model and run shock analyses at least quarterly
- Understand the current market
- Seek expert advice when needed
Mortgage Lending

CFPB National Servicing Standards

• Effective January 10, 2014

• Exempts small servicers - - under 5,000 loans
Mortgage Servicing Rights

NCUA Call Report Requirements for Mortgage Servicing Rights

1. Servicing fees are included in Non-Interest Income – Page 5, line 12.
2. Loan servicing expenses are included in Non-Interest Expense – Page 5, line 25.
3. Total amount of 1st mortgage loans sold into the secondary market year-to-date is reported on Schedule A, line 16.
4. Amount of real estate loans sold but serviced by the credit union (dollar amount of servicing) is reported on Schedule A, line 18.
5. The MSR book value is reported on Schedule A, line 19.
6. MSR book value risk weighted at 250% under new risk-based capital rule.
Federal Home Loan Banks

MPF Credit Enhancement Fee

• Paid to member for assuming a portion of the credit risk (credit obligation) on mortgage defaults

• Determined by the quality of the loans at the pool level and the MPF program selected

• Fee paid monthly over the life of the loans

• Sensitive to prepayments
Federal Home Loan Banks

Credit Enhancement Obligation Variables

• Cumulative prepayment rate (CPR)
• Cumulative default rate (CDR)
• Severity of actual losses
• First loss account
• Obligation cap percentage
## Federal Home Loan Banks

### Credit Enhancement Economics

<table>
<thead>
<tr>
<th>CPR %</th>
<th>0.00%</th>
<th>0.02%</th>
<th>0.04%</th>
<th>0.08%</th>
<th>0.16%</th>
<th>0.32%</th>
</tr>
</thead>
<tbody>
<tr>
<td>6%</td>
<td>0.49%</td>
<td>0.42%</td>
<td>0.34%</td>
<td>0.17%</td>
<td>0.05%</td>
<td>-0.03%</td>
</tr>
<tr>
<td>9%</td>
<td>0.43%</td>
<td>0.37%</td>
<td>0.30%</td>
<td>0.12%</td>
<td>-0.01%</td>
<td>-0.09%</td>
</tr>
<tr>
<td>12%</td>
<td>0.38%</td>
<td>0.33%</td>
<td>0.26%</td>
<td>0.13%</td>
<td>-0.05%</td>
<td>-0.13%</td>
</tr>
<tr>
<td>15%</td>
<td>0.34%</td>
<td>0.29%</td>
<td>0.23%</td>
<td>0.11%</td>
<td>-0.09%</td>
<td>-0.17%</td>
</tr>
<tr>
<td>18%</td>
<td>0.31%</td>
<td>0.26%</td>
<td>0.21%</td>
<td>0.10%</td>
<td>-0.11%</td>
<td>-0.21%</td>
</tr>
<tr>
<td>21%</td>
<td>0.28%</td>
<td>0.24%</td>
<td>0.19%</td>
<td>0.09%</td>
<td>-0.10%</td>
<td>-0.24%</td>
</tr>
<tr>
<td>24%</td>
<td>0.25%</td>
<td>0.21%</td>
<td>0.17%</td>
<td>0.08%</td>
<td>-0.09%</td>
<td>-0.26%</td>
</tr>
</tbody>
</table>
Mortgage Servicing Rights

How Wilary Winn Can Help

• Wilary Winn can perform a valuation of a servicer’s entire mortgage servicing portfolio. The valuation will include determining the values of the MSR at the Loan Level and assisting with any questions related to the accounting for the portfolio.

• For those electing the amortization method for MSRs, Wilary Winn will incorporate the MSR into a loan level basis roll forward file, that will provide information necessary to produce the amortization journal entries going forward. The file will also include a section where newly sold loans can be added and the amount of the new MSR will be calculated; the amortization for these loans will also be calculated.
<table>
<thead>
<tr>
<th>Title</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPF SSFA CALCULATOR</td>
<td></td>
</tr>
<tr>
<td>A GUIDE TO REPORTING UNDER BASEL III FOR FHLB MPF** PROGRAM PARTICIPANTS</td>
<td></td>
</tr>
<tr>
<td>ACCOUNTING AND REGULATORY GUIDANCE FOR THE MORTGAGE PARTNERSHIP FINANCE** PROGRAM (UPDATED MAY 2016)</td>
<td></td>
</tr>
<tr>
<td>ACCOUNTING AND REGULATORY REPORTING FOR MORTGAGE SERVICING RIGHTS</td>
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<tr>
<td>ACCOUNTING AND REGULATORY REPORTING FOR MORTGAGE BANKING DERIVATIVES</td>
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<tr>
<td>FFIEC TRAINING ON MORTGAGE BANKING DERIVATIVES AND MORTGAGE SERVICING RIGHTS</td>
<td></td>
</tr>
<tr>
<td>MORTGAGE LENDING IN THE NEAR TERM - THE GOOD, THE BAD, AND THE UGLY</td>
<td></td>
</tr>
<tr>
<td>RECENT TRENDS IN THE PERFORMANCE OF POOLED TRUST PREFERRED SECURITIES (UPDATED MARCH 2014)</td>
<td></td>
</tr>
<tr>
<td>TRUPS RECOVERIES REMAIN VOLATILE</td>
<td></td>
</tr>
<tr>
<td>OTHER THAN TEMPORARY IMPAIRMENT (&quot;OTTI&quot;) OF FIXED INCOME SECURITIES WEBINAR FOR MCGLADREY &amp; PULLEN</td>
<td></td>
</tr>
<tr>
<td>SALES OF SEASONED LOANS</td>
<td></td>
</tr>
<tr>
<td>MORTGAGE SERVICING RIGHTS</td>
<td></td>
</tr>
</tbody>
</table>
Wilary Winn LLC
First National Bank Building
332 Minnesota Street, Suite W1750
St. Paul, MN 55101
651-224-1200

www.wilwinn.com
Services and Contact Information

• Mortgage Servicing Rights and Mortgage Banking Derivatives:
  – Eric Nokken  enokken@wilwinn.com

• Asset Liability Management, Concentration Risk, Capital Stress Testing and CECL:
  – Matt Erickson  merickson@wilwinn.com

• Private Label MBS/CMOs, ASC 310-30 and TDRs
  – Frank Wilary  fwilary@wilwinn.com

• Mergers and Acquisitions, Goodwill Impairment Testing
  – Douglas Winn  dwinn@wilwinn.com
Thank you