The Decision to Use Credit Enhancement

California Debt and Investment Advisory Commission
Fundamentals of Debt Financing
October 2-3, 2008

Presented by: David Brodsly,
Managing Director
Outline of Presentation

- **Before** the world as we know it ended
- **How** the world ended
- **After** the world as we know it ended
Before the world as we know it ended

- A brief history of bond insurance
  - In the 1980’s, several insurance companies organized themselves into “monoline” businesses, that is they insured one thing: municipal bonds
    - Working with the rating agencies, they achieved AAA ratings
    - Wrote insurance policies that guaranteed the payment of principal and interest to bond holders when due
    - Insured Bonds were assigned the AAA ratings of the insurer
  - Companies charged a premium that effectively split the savings with the borrower
    - Issuers saved money from interest cost, investors gained stability in credit quality, bond insurers and their stockholders made money
    - Bond insurers sponsored all the big parties at public finance conferences and gave away the best swag
Before the world as we know it ended

- Why insurance worked for investors
  - Retail safety and portfolio effect
  - Institutional liquidity (“Liquidity is King”)

- Why insurance worked for issuers
  - The cost-benefit analysis
    - Priced as basis points against total P & I
    - Value to maturity
    - Value to call
  - The tax analysis
    - Cost of insurance could be included in calculation of arbitrage yield, if insurance was cost effective
    - Allowed issuer to earn back premium through proceeds investment
## Example of Insurance Analysis

### City of Fresno - Sewer System Revenue Bonds
**Insurance Analysis to Call (PSA)**

<table>
<thead>
<tr>
<th>Maturity</th>
<th>PV of Uninsured Debt Service to Call</th>
<th>PV of Insured Debt Service to Call</th>
<th>PV of Insured Debt Service Benefit</th>
<th>Allocable Insurance Cost</th>
<th>Benefit/(Cost) of Insurance</th>
<th>Is Value of Insurance to Call Economic?</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/17/2020</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>9/17/2021</td>
<td>5,569,648.81</td>
<td>5,532,528.81</td>
<td>37,121.00</td>
<td>50,527.00</td>
<td>(13,406.00)</td>
<td>No</td>
</tr>
<tr>
<td>9/17/2022</td>
<td>4,048,832.20</td>
<td>4,031,711.20</td>
<td>37,121.00</td>
<td>46,994.67</td>
<td>(9,873.67)</td>
<td>No</td>
</tr>
<tr>
<td>9/17/2023</td>
<td>6,153,533.58</td>
<td>6,113,319.16</td>
<td>40,214.42</td>
<td>59,186.67</td>
<td>(18,972.55)</td>
<td>No</td>
</tr>
<tr>
<td>9/17/2024</td>
<td>6,467,549.43</td>
<td>6,423,745.59</td>
<td>43,307.84</td>
<td>69,858.30</td>
<td>(20,551.49)</td>
<td>No</td>
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<tr>
<td>9/17/2025</td>
<td>6,707,490.11</td>
<td>6,754,194.27</td>
<td>43,307.84</td>
<td>69,104.40</td>
<td>(25,796.56)</td>
<td>No</td>
</tr>
<tr>
<td>9/17/2026</td>
<td>7,146,952.65</td>
<td>7,099,661.40</td>
<td>46,401.26</td>
<td>74,388.77</td>
<td>(25,987.51)</td>
<td>No</td>
</tr>
<tr>
<td>9/17/2027</td>
<td>7,514,663.45</td>
<td>7,465,158.79</td>
<td>49,494.67</td>
<td>80,478.00</td>
<td>(30,984.12)</td>
<td>No</td>
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<tr>
<td>9/17/2028</td>
<td>7,858,264.69</td>
<td>7,845,676.60</td>
<td>52,588.09</td>
<td>86,735.63</td>
<td>(34,147.54)</td>
<td>No</td>
</tr>
<tr>
<td>9/17/2029</td>
<td>8,303,610.57</td>
<td>8,251,226.48</td>
<td>52,504.09</td>
<td>90,485.09</td>
<td>(34,980.00)</td>
<td>No</td>
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<tr>
<td>9/17/2030</td>
<td>8,730,878.23</td>
<td>8,671,800.81</td>
<td>58,774.02</td>
<td>100,831.61</td>
<td>(41,858.00)</td>
<td>No</td>
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<tr>
<td>9/17/2031</td>
<td>9,178,275.54</td>
<td>9,117,460.70</td>
<td>61,868.34</td>
<td>108,036.50</td>
<td>(46,438.16)</td>
<td>No</td>
</tr>
<tr>
<td>9/17/2032</td>
<td>9,648,910.00</td>
<td>9,580,047.85</td>
<td>61,868.34</td>
<td>116,530.81</td>
<td>(54,692.07)</td>
<td>No</td>
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<tr>
<td>9/17/2033</td>
<td>10,143,677.13</td>
<td>10,076,715.57</td>
<td>64,961.76</td>
<td>125,261.72</td>
<td>(80,300.06)</td>
<td>No</td>
</tr>
<tr>
<td>9/17/2034</td>
<td>10,662,472.33</td>
<td>10,594,417.15</td>
<td>68,055.17</td>
<td>134,580.54</td>
<td>(66,525.36)</td>
<td>No</td>
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<tr>
<td>9/17/2035</td>
<td>11,208,385.01</td>
<td>11,135,133.09</td>
<td>74,242.01</td>
<td>144,907.48</td>
<td>(70,665.48)</td>
<td>No</td>
</tr>
<tr>
<td>9/17/2036</td>
<td>11,735,178.85</td>
<td>11,710,036.54</td>
<td>74,242.01</td>
<td>155,196.90</td>
<td>(80,953.80)</td>
<td>No</td>
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<tr>
<td>9/17/2037</td>
<td>12,250,262.59</td>
<td>12,206,247.33</td>
<td>83,522.26</td>
<td>166,471.46</td>
<td>(82,949.20)</td>
<td>No</td>
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</tbody>
</table>

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1) Average Arbitrage Yield of the Uninsured and Insured Financings
Before the world as we know it ended

- The growing dominance of bond insurance
  - In California, bond insurance would often achieve 80% market penetration
  - Solid AA-rated credits would still find insurance to be cost effective
- New entrants
  - XL, CIFG, Assured Guaranty
- Price competition

<table>
<thead>
<tr>
<th>$71,023,000</th>
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<tbody>
<tr>
<td>City of Los Angeles</td>
</tr>
<tr>
<td>General Obligation Bonds</td>
</tr>
<tr>
<td>Series 2006-A</td>
</tr>
<tr>
<td>Rated: Moody’s Aaa</td>
</tr>
<tr>
<td>S&amp;P AAA</td>
</tr>
<tr>
<td>Fitch AAA</td>
</tr>
<tr>
<td>Underlying Rating: Moody’s Aa2</td>
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<tr>
<td>S&amp;P AA</td>
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<tr>
<td>Fitch AA</td>
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<tr>
<td>MBIA Insurance: 14.4 basis points</td>
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<td>$150,000</td>
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</table>
How the world ended

- To increase profits and diversify their exposure, bond insurers wrote various guarantees on structured products
  - Growing business insuring collateralized mortgage obligations
- The housing market implodes
  - The mortgage market implodes from sub-prime mortgages
  - Information on bond insurer exposure to mortgage-backed securities shakes investor confidence
- Rating agencies reconsider their rating models and put ratings on watch
- Self-fulfilling prophecies
  - New issue market dries up
  - Stock value plummets
  - Ability to raise new capital crippled
- Insurance market magnified in variable rate market
  - Issuer felt the impact from the collapse of the auction rate market and the putting of insured VRDO’s to liquidity banks
How the world ended

- The dominos tumble
  - CIFG, Ambac, MBIA, XL, FGIC loose their AAA’s
  - Radian and ACA off the radar
- FSA and Assured Guaranty survive as kings of the hill
- Berkshire Hathaway sticks its toes in the market
- But then, even the mighty fall, as Moody’s puts FSA and AG on Negative Credit Watch
Insurance Ratings Update as of September 5, 2008

<table>
<thead>
<tr>
<th></th>
<th>Moody’s</th>
<th>S&amp;P</th>
<th>Fitch</th>
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<td></td>
<td>Rating</td>
<td>Outlook</td>
<td>Rating</td>
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<td>ACA</td>
<td>Not Rated</td>
<td></td>
<td>Not Rated</td>
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<tr>
<td>Ambac</td>
<td>Aa3</td>
<td>Negative Outlook</td>
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<td>Ba2</td>
<td>Developing Watch</td>
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<td>B1</td>
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<td>BB</td>
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<td>FSA</td>
<td>Aaa</td>
<td>Negative Watch</td>
<td>AAA</td>
</tr>
<tr>
<td>MBIA</td>
<td>A2</td>
<td>Negative Outlook</td>
<td>AA</td>
</tr>
<tr>
<td>Radian</td>
<td>A3</td>
<td>Negative Outlook</td>
<td>BBB+</td>
</tr>
<tr>
<td>XLCA</td>
<td>B2</td>
<td>Positive Watch</td>
<td>BBB-</td>
</tr>
</tbody>
</table>
After the world as we know it ended

- Half of the municipal bond world has been downgraded: $1.3 trillion
- Insurance penetration for the month of August 2008 was 8%, relative to 53% for August 2007
- Insurers struggle to rise from the ashes
  - New company formed by Ambac out of dormant Connie Lee
  - Maintaining market relevance
- The World of Credit in Flux
  - Increasing concern for credit
  - The global credit scale and ratings inflation
  - Can we trust the structured rating?
- Is there a future for bond insurance?
  - Investors want credit protection and liquidity
  - Berkshire Hathaway can write its own ticket
- Are letter-of-credit banks the next shoe?