Analyzing STACR® Transactions Using a Bloomberg Terminal

November 2019
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Introduction

This booklet showcases functionality on Bloomberg Terminal for analyzing a STACR security with accurate up-to-date data and analytics.

The Bloomberg Transition Model (BTM) is a sophisticated loan-level transition model that assesses various variables such as the loan attributes, macroeconomic variables, zip code-level home price appreciation and other key drivers to determine the probability of a loan transitioning from one state to another.

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Super Yield Table (SYT)

SYT <GO> provides scenario-based valuation and risk analysis for STACR securities so you can determine whether the security meets your investment criteria. To access the function as shown below first load a STACR bond: STACR 2019-DNA4 M2 <MTGE> enter, then run <SYT> enter.

Toolbar and Setting

- The **toolbar** allows you to manage your saved YT/SYT worksheets and scenarios and also makes it easy to export your analysis to a Microsoft® Excel spreadsheet. You can select defaults affecting the function’s layout and calculations and create collateral stratifications to analyze the STACR bond's layered risk.
Super Yield Table (SYT)

Security Description
• The *security description* section allows you to quickly reference key descriptive and performance information for the loaded STACR bond to add context to your analysis.

Scenario Inputs
• The *scenario inputs* section displays the individual assumptions you can input to perform "what if" analysis on a STACR bond. Your inputs in this section affect the calculations and analytical results in the report display section of the screen.

Report Display
• The *report display* section consolidates seven mortgage analysis functions, including four of the primary STACR bond analytical functions (YT, CFT, SPA, and MTCS) into one fluid workflow.
• Enter your scenario assumptions once, then seamlessly transition between interactive Yield Table (YT), Cash Flow (CFT), Structure Paydown (SPA), and Credit Support (MTCS) reports.
• The base case for STACR securities is 10 CPR, 0 CDR, 0 SEV; You can also run the BTM model or change various inputs in this section. Any field that is highlighted in yellow can be edited. For a step-by-step guide on how to use the function press the <HELP> key once; if you need further assistance press the <HELP> key twice to reach Bloomberg customer support.

Benchmark Curve
• The *benchmark curve* section provides transparency into the benchmark rates (treasury/swap/Eurodollar) driving spreads and other calculations. In some cases, you can enter your own rates for the points on the curve used to interpolate a benchmark rate that matches the STACR bond's average life.
Super Yield Table (SYT)

Yield Table

- The *yield table* screen includes the following features to enhance your analysis:

  - Click-through scenario tags allow you to access the Cash Flows (CFT) report, Structure Paydown (SPA) report, Credit Support (MTCS) report, or Total Return (HZ1). The scenario assumptions that automatically appear in the report are determined by the scenario link you click.
Super Yield Table (SYT)

- Once you click through you will see the left half of the screen with the scenario you are running and the right half with the analytics you choose to show from the dropdown, e.g., CFT, SPA, MTCS, HZ1.
Bloomberg’s Credit Model BTM (SYT BTM)

Enhance Your Credit Risk Transfer Bond Valuation

- The *Bloomberg Transition STACR Model (BTM)* helps investors evaluate the Credit Risk Transfer (CRT) securities issued by Freddie Mac. BTM, a simulated loan-level transition model, takes each loan state into account along with: origination and dynamic loan-level attributes, macroeconomic variables, CBSA–level HPA (home price appreciation), and other variables to determine the probability of transitioning from one state to another. The BTM model tracks a loan’s status throughout its entire life, capturing borrower behavior.

Accessing BTM on SYT<GO>

- To incorporate the new Bloomberg Transition Model into your analysis, first load a STACR bond in SYT: STACR 2013-DN1 M2 <MTGE> Enter “BTM” as the Prepay input to access BTM. Going forward, you can use the shortcut SYT BTM <GO> to load the model right into SYT.
  - Type BTM into the *prepay input* box to invoke the BTM model.
  - BTM can be run in its *base scenario* with the single input in prepay as shown in column 1, or can be stressed to see both a *bear and bull case* as seen in columns 2 and 3.
  - BTM *cashflow button* highlights that BTM is driving the scenario.

Dynamic BTM on CRT for CMP Subscribers

- BTM on SYT <GO> for STACR securities will use vectors generated during our overnight batch run each night. In order to use current market environments or BTM Transition Dials, you must be a CMP subscriber.
Bloomberg’s Credit Model BTM (SYT BTM)

View BTM Projected Vectors

- BTM forecasts loan level prepayment speeds, delinquency rates and liquidation rates which can all be viewed on the Classic Speeds tab. The severity vector is based on the fixed severity approach defined for Credit Events on the Reference Pool. Enter STACR 2019-DNA4 M2 <Mtge> SYT BTM <GO> and then click on 1) BTM and toggle to Vectors to view vector projections of the Bloomberg Credit Model.

- The vectors dropdown allows the user to see the BTM generated vectors.
- The BTM can be shown in graphical or table format.
Bloomberg’s Credit Model BTM (OAS1 New)

Analytics/Market Environment Tabs

- The *performance tab* provides ZV/Static Analytics, Weighted Average Model Projections, and Key Rate Durations.
- OAS analytics and Advanced Durations are blank as the Terminal provides single path risk analytics only. We do provide multi-path risk analytics (via LMM) through our premium product CMP. For more information on single/multi-path risk analytics, see our the “MBS Risk Flipbook” located on BPS<GO> >> MBS & Cash Str Products >> Predictive Models.
- Market Environment tab provides interest/mortgage rates and volatility info used in the analytics.
Collateral Performance (CLP)

CLP <GO> displays current and historical collateral statistics from monthly servicer or trustee reports, so you can follow changes in the underlying collateral to determine the riskiness of a potential investment. To access the function first load a STACR bond: STACR 2018-DNA3 M2 <MTGE> enter, then run <CLP> enter.

Control Area
- The control area displays a series of tabs you can use to navigate different types of collateral performance data. The top right of the control area shows the selected collateral group and, for securities supported by more than one collateral group, allows you to change the collateral group under analysis. You can also export data to Microsoft Excel.
Collateral Performance (CLP)

CLP Tabs

- CLP organizes collateral performance statistics into a series of tabs, making it easy to find the information you need.

<table>
<thead>
<tr>
<th>Tab Name</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classic</td>
<td>Displays a general overview of collateral performance metrics for your loaded STACR security. The yellow and white fonts that appear on this tab highlight frequently referenced delinquency metrics.</td>
</tr>
<tr>
<td>Delnq</td>
<td>Displays data related to the delinquency status of the loans.</td>
</tr>
<tr>
<td>Mods</td>
<td>Displays collateral metrics related to modified loans.</td>
</tr>
<tr>
<td>Characteristics</td>
<td>Displays collateral metrics that provide insight into the descriptive characteristics of the collateral.</td>
</tr>
<tr>
<td>Speeds</td>
<td>Displays collateral performance metrics related to historical prepayment and default speeds.</td>
</tr>
<tr>
<td>Custom</td>
<td>Allows you to customize the collateral performance metrics that appear on the tab.</td>
</tr>
<tr>
<td>Transition</td>
<td>Displays collateral performance data related to the collateral's transition between different delinquency statues.</td>
</tr>
<tr>
<td>All</td>
<td>Consolidates all collateral performance metrics from the previous tabs onto one screen.</td>
</tr>
</tbody>
</table>

Metrics

- The *metrics* section displays the names of collateral performance metrics that you can track historically.

Sparklines

- The column of *sparklines* provides a visual representation of collateral performance history, so you can understand the overall direction of a performance metric at a glance.

Performance History

- The *performance history* section on each tab displays monthly performance statistics for the selected collateral group, so you can identify how the collateral group has performed historically.
- The yellow and white fonts that appear in some rows highlight frequently referenced delinquency metrics.
Paydown Information (PDI)

PDI <GO> allows you to analyze historical period-by-period payment details for STACR securities. Data points may include interest payments, principal payments, ending balance factors, coupons, and losses. To access the function first load a STACR bond: STACR 2018-DNA3 M2 <MTGE> enter, then run <PDI> enter.

Control Area

- The control area is organized into a toolbar and a series of tabs and displays descriptive information for the loaded STACR security for quick reference.

- The toolbar displays the ticker for the STACR security under analysis and allows you to export data to a Microsoft Excel spreadsheet.

- Tabs allow you to select the type of historical data you want to display.

- Security Description provides descriptive information for the loaded STACR security. For STACR bonds, the Group field displays data for the collateral group associated with the loaded security/bond/tranche. The collateral group field gives you the flexibility to select a different collateral group from within the deal for analysis on the Collateral and Performance tabs.
Paydown Information (PDI)

Summary Tab

- The **summary tab** highlights key historical paydown data points and is divided into a series of sections:

  - **Control area** allows you change securities, export data to Microsoft Excel, view basic descriptive data for the loaded STACR security, or display a different tab of analysis.

  - **Trend charts** display data from the corresponding columns of the history table in chart format, so you can quickly understand the overall direction of the metric over the life of the collateral.

  - **History table** displays a period-by-period history of the STACR bond and the collateral so you can assess historical performance and trends. The data is organized under Bond and Collateral headings.
Paydown Information (PDI)

Paydown Tab

- The *paydown tab* provides period-by-period factor, coupon, and cash flow information for the loaded STACR bond and is divided into the following sections:

  - **Control area** allows you change securities, export data to Microsoft Excel, view basic descriptive data for the loaded security, or display a different tab of analysis.
  
  - **Security details** displays descriptive information for the loaded STACR bond and allows you to customize the cash flows based on your original balance.
  
  - **History table** displays a period-by-period history of the STACR bond so you can assess historical performance and trends.

- Control area allows you change securities, export data to Microsoft Excel, view basic descriptive data for the loaded security, or display a different tab of analysis.

- Security details displays descriptive information for the loaded STACR bond and allows you to customize the cash flows based on your original balance.

- History table displays a period-by-period history of the STACR bond so you can assess historical performance and trends.

- The historical pay down data is calculated based on the reported factor and coupon rather than the actual historical payment amount. The historical amount actually paid is based on events, including deferred interest and losses, and can be viewed in the Class Payment (PAID) function.

- Trend charts display data from the corresponding columns of the history table in chart format, so you can quickly understand the overall direction of the metric over the life of the STACR bond.
Paydown Information (PDI)

Collateral Tab

- The **collateral tab** provides period-by-period data for the collateral group associated with the selected STACR bond, and is divided into the following sections:

  - **Control area** allows you change securities, export data to Microsoft Excel, view basic descriptive data for the loaded security, or display a different tab of analysis.
  - **Collateral description** displays a descriptive information for the loaded STACR bond and associated collateral group.
  - **History table** displays a period-by-period history of collateral data so you can assess historical performance and trends.
  - **Trend charts** display data from the corresponding columns of the history table in chart format, so you can quickly understand the overall direction of the metric over the life of the collateral.
Paydown Information (PDI)

Performance Tab

- The *performance tab* provides period-by-period prepayment and/or loss data for the security and is divided into the following sections:

  - **Control area** allows you change securities, export data to Microsoft Excel, view basic descriptive data for the loaded STACR security, or display a different tab of analysis.
  - **Security details** displays a descriptive information for the loaded STACR bond and associated collateral group.
  - **History table** displays a period-by-period history of collateral data so you can assess historical performance and trends.
  - **Trend charts** display data from the corresponding columns of the history table in chart format, so you can quickly understand the overall direction of the metric over the life of the collateral.
BTM Excel API and Core Mortgage Premium
**XLTP XRSA <GO> BTM Excel API**

- Basic Excel API features are included as part of the Bloomberg Terminal subscription, including the ability to run BTM using STACR cashflows from the prior day (i.e., no model dials, scenario analysis, etc.)
- Type XLTP XRSA <GO> to download an Excel template to get started.

---

<table>
<thead>
<tr>
<th>Security ID</th>
<th>NAME</th>
<th>Prepayment</th>
<th>Price</th>
<th>Yield</th>
<th>I Spread</th>
<th>WAL</th>
<th>Duration</th>
<th>Principal Window</th>
<th>Bond Loss</th>
<th>Collat Loss</th>
<th>Collat Liquidated</th>
<th>Weighted Avg VPR Proj</th>
<th>Weighted Avg CDR Proj</th>
<th>Severity Proj</th>
<th>Weighted Avg Delinquency Proj</th>
</tr>
</thead>
<tbody>
<tr>
<td>65336HC55</td>
<td>NHEU 2006-HE1 M1</td>
<td>100 BTM</td>
<td>96.21</td>
<td>4.8170</td>
<td>250.00</td>
<td>2.31</td>
<td>2.16</td>
<td>04/18/04/23</td>
<td>0.00%</td>
<td>12.43%</td>
<td>26.29%</td>
<td>6.55%</td>
<td>3.88%</td>
<td>40.92%</td>
<td>11.02%</td>
</tr>
<tr>
<td>742934A11</td>
<td>RALU 2007-QS5 A11</td>
<td>100 BTM</td>
<td>74.55</td>
<td>4.6310</td>
<td>202.11</td>
<td>5.29</td>
<td>4.20</td>
<td>04/18/09/56</td>
<td>21.73%</td>
<td>10.21%</td>
<td>22.47%</td>
<td>11.34%</td>
<td>3.87%</td>
<td>48.24%</td>
<td>9.15%</td>
</tr>
<tr>
<td>32053LAK8</td>
<td>THAMS 2007-FA2 1A10</td>
<td>100 BTM</td>
<td>53.06</td>
<td>4.6020</td>
<td>228.00</td>
<td>2.35</td>
<td>3.51</td>
<td>04/18/06/26</td>
<td>62.07%</td>
<td>6.73%</td>
<td>15.36%</td>
<td>11.64%</td>
<td>2.88%</td>
<td>43.39%</td>
<td>6.25%</td>
</tr>
<tr>
<td>65951GAC6</td>
<td>BAFC 2007-2 TA2</td>
<td>100 BTM</td>
<td>85.12</td>
<td>5.1240</td>
<td>254.50</td>
<td>4.86</td>
<td>3.97</td>
<td>04/18/02/38</td>
<td>6.02%</td>
<td>13.27%</td>
<td>25.81%</td>
<td>11.10%</td>
<td>5.25%</td>
<td>51.87%</td>
<td>13.04%</td>
</tr>
<tr>
<td>74934VAD9</td>
<td>RASC 2007-KS2 A14</td>
<td>100 BTM</td>
<td>87.83</td>
<td>4.5480</td>
<td>200.00</td>
<td>8.49</td>
<td>7.20</td>
<td>07/22/03/33</td>
<td>0.00%</td>
<td>15.78%</td>
<td>31.24%</td>
<td>7.98%</td>
<td>4.60%</td>
<td>51.72%</td>
<td>12.01%</td>
</tr>
<tr>
<td>466247B85</td>
<td>JPMMT 2005-S3 AP</td>
<td>100 BTM</td>
<td>61.85</td>
<td>4.4060</td>
<td>200.00</td>
<td>3.39</td>
<td>2.90</td>
<td>05/18/11/25</td>
<td>28.62%</td>
<td>0.10%</td>
<td>0.42%</td>
<td>20.58%</td>
<td>0.10%</td>
<td>7.92%</td>
<td>0.60%</td>
</tr>
<tr>
<td>12568RAC1</td>
<td>CWL 2004-5 A3</td>
<td>100 BTM</td>
<td>100.85</td>
<td>3.9540</td>
<td>200.00</td>
<td>0.67</td>
<td>0.64</td>
<td>05/18/07/39</td>
<td>0.00%</td>
<td>4.89%</td>
<td>4.90%</td>
<td>13.18%</td>
<td>1.35%</td>
<td>100.32%</td>
<td>1.53%</td>
</tr>
<tr>
<td>75406GA3C</td>
<td>RASC 2004-EM02 A3</td>
<td>100 BTM</td>
<td>98.80</td>
<td>4.2840</td>
<td>217.28</td>
<td>0.99</td>
<td>0.96</td>
<td>04/18/04/02</td>
<td>0.00%</td>
<td>25.43%</td>
<td>36.39%</td>
<td>9.17%</td>
<td>7.17%</td>
<td>78.94%</td>
<td>14.27%</td>
</tr>
<tr>
<td>12667S3B6</td>
<td>CWL 2005-AB2 2A3</td>
<td>100 BTM</td>
<td>99.87</td>
<td>3.4130</td>
<td>170.85</td>
<td>0.18</td>
<td>0.17</td>
<td>04/18/07/18</td>
<td>0.00%</td>
<td>15.30%</td>
<td>36.72%</td>
<td>7.60%</td>
<td>6.42%</td>
<td>49.10%</td>
<td>15.58%</td>
</tr>
<tr>
<td>86356EE77</td>
<td>SAIL 2006-2 A4</td>
<td>100 BTM</td>
<td>90.14</td>
<td>4.2160</td>
<td>140.12</td>
<td>13.00</td>
<td>9.21</td>
<td>02/23/03/58</td>
<td>43.96%</td>
<td>12.31%</td>
<td>25.63%</td>
<td>6.42%</td>
<td>3.51%</td>
<td>46.51%</td>
<td>9.77%</td>
</tr>
<tr>
<td>76095SE72</td>
<td>RAMP 2003-5L 1A1</td>
<td>100 BTM</td>
<td>107.36</td>
<td>4.8800</td>
<td>250.00</td>
<td>2.78</td>
<td>2.43</td>
<td>05/18/08/54</td>
<td>0.00%</td>
<td>8.59%</td>
<td>17.70%</td>
<td>21.88%</td>
<td>6.70%</td>
<td>57.40%</td>
<td>13.87%</td>
</tr>
<tr>
<td>61755FA9C3</td>
<td>MSST 2007-1 A3</td>
<td>100 BTM</td>
<td>84.03</td>
<td>5.1920</td>
<td>250.00</td>
<td>6.64</td>
<td>5.38</td>
<td>12/18/06/35</td>
<td>0.00%</td>
<td>11.84%</td>
<td>21.43%</td>
<td>6.58%</td>
<td>2.84%</td>
<td>51.68%</td>
<td>7.53%</td>
</tr>
</tbody>
</table>
Core Mortgage Premium: Features

Premium Analytics for the STACR Market
• Use a programmatic API to access all of the features of Bloomberg’s cashflow and analytics system, including the BTM model for STACR bonds.
• Includes all Terminal features and more: Enhanced BTM dials, Custom HPA input, Dynamic BTM mode in SYT BTM <GO>.

STACR Scenario Analysis with BTM
• Perform scenario analysis, including horizon analysis, by shifting rates, HPA, or Unemployment.

Full User Input Customization including BTM Model Dials
• Dial BTM’s Sub-Model Components and Transitions using scalers or time-series based vectors.
• Mix and match user inputs and BTM to fully customize the analytics for your STACR.

Intra-day STACR Analytics with DAPI
• Use Bloomberg’s powerful Desktop API technology to run CMP programmatically using Python, C#, Java or C++.
• Bring this technology into Excel formulas with an Excel Wrapper.

End of day STACR Enterprise Analytics
• Run positions and scenarios overnight using an Enterprise batch system.
• Get results using a RESTful Web API to power downstream systems.
Core Mortgage Premium: Excel Wrapper

Flexible API (using Excel Wrapper)

- Build custom worksheets using a rich Excel wrapper to CMP Desktop.

**Inputs**

- **Key Rate Durations**
  - **ZV**
  - **Proj. VPR** (Selected Month)
  - **Proj. CPR** (Selected Month)
  - **Proj. Severity** (Selected Month)
  - **Proj. Delinquency** (Selected Month)

**Outputs**

- **WAL "S" Curve**
- **DM "S" Curve**
- **Analytic Output**

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For More Information on the BTM Model:

Run the following functions on the Terminal:

• BMMI <GO> for BTM/LMM Model Whitepapers and Error Reports:
  • BMMI <GO> >> Whitepapers >> BTM - Bloomberg Loan Transition Model Documents
  • BMMI <GO> >> Whitepapers >> LMM - Bloomberg LIBOR Market Model Documents
  • BMMI <GO> >> Model Projections >> BTM Model Error Reports

• BPS <GO> for “How To” Cheat Sheets/Videos/Flipbooks:
  • BPS <GO> >> MBS & Cash Str Products >> Predictive Models

• CMP <GO> for information regarding CMP

• MTGH <GO> for general mortgage help and information