The New Index Landscape

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Director, Index Business Development, The ICE
Legacy Freddie Mac Gold PC will be roughly 70% of outstanding index-eligible collateral at Go-Live, even if all exchanges occur.
ICE Data Indices UMBS Treatment

- New Fannie Mae UMBS issuance will be aggregated in existing legacy Fannie Mae cohorts.
- Freddie Mac and Fannie Mae pools will remain in separate cohorts.
- Existing Freddie Mac Gold pools:
  - Those not directly exchangeable will continue to be included within legacy Freddie Mac cohorts.
  - Exchanged Freddie Mac “mirror” pools and new-issue Freddie Mac UMBS to be combined in a new series of Freddie Mac UMBS cohorts.
- The qualification of Freddie Mac cohorts with respect to index size criteria will be based on the combined total of the legacy and UMBS cohorts for the same coupon and production year.
  - No impact on collateral represented in the index.
- All exchange-eligible legacy Freddie Mac pools assumed exchanged at the May 31 rebalancing.
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J.P. Morgan – MBS Agency Index (MAX)

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Global Index Research, JP Morgan
Implementation of Single Security initiative for MAX to track Mirrors and UMBS cohorts

**Available Cohorts**
MAX Index will provide two different options for tracking generics, including (1) count both Fannie Mae and new 55-day Freddie Mac generics as UMBS and (2) separate generics for Fannie Mae and 55-day Freddie Mac aggregates.

**Minimum Outstanding Eligibility**
The sum of both the 45-day and 55-day Freddie Mac outstanding balance will be used to satisfy the min. $500 million outstanding index inclusion criteria.

**Exchange Compensation**
For the purpose of index level calculations, the 10-day float compensation during the exchange period will not contribute to total returns.

**Factor Updates**
The monthly agency factor update will be unchanged at the 6th business day.

**Effective Date**
Implemented for May 31st, 2019 rebalance, along with more detailed estimated compositions prior to rebalance.
Aggregate count is estimated to increase to nearly 550 aggregates

Freddie Mac aggregates account for 28% ($1.6 tn) of MAX

Estimated MAX index cohort count after exchanges

<table>
<thead>
<tr>
<th>Agency/Program</th>
<th>Current</th>
<th>Estimated</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>FNMA</td>
<td>147</td>
<td>147</td>
<td>-</td>
</tr>
<tr>
<td>FNMA 30y</td>
<td>80</td>
<td>80</td>
<td>-</td>
</tr>
<tr>
<td>FNMA 20y</td>
<td>31</td>
<td>31</td>
<td>-</td>
</tr>
<tr>
<td>FNMA 15y</td>
<td>36</td>
<td>36</td>
<td>-</td>
</tr>
<tr>
<td>FHLMC 45-day</td>
<td>129</td>
<td>-</td>
<td>-129</td>
</tr>
<tr>
<td>FHLMC 45-day 30y</td>
<td>70</td>
<td>-</td>
<td>-70</td>
</tr>
<tr>
<td>FHLMC 45-day 20y</td>
<td>26</td>
<td>-</td>
<td>-26</td>
</tr>
<tr>
<td>FHLMC 45-day 15y</td>
<td>33</td>
<td>-</td>
<td>-33</td>
</tr>
<tr>
<td>FHLMC 55-day</td>
<td>-</td>
<td>129</td>
<td>129</td>
</tr>
<tr>
<td>FHLMC 55-day 30y</td>
<td>-</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>FHLMC 55-day 20y</td>
<td>-</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>FHLMC 55-day 15y</td>
<td>-</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>GNMA II</td>
<td>47</td>
<td>47</td>
<td>-</td>
</tr>
<tr>
<td>GNMA II 30y</td>
<td>42</td>
<td>42</td>
<td>-</td>
</tr>
<tr>
<td>GNMA II 15y</td>
<td>5</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>GNMA I 30y</td>
<td>77</td>
<td>77</td>
<td>-</td>
</tr>
<tr>
<td>GNMA I 15y</td>
<td>60</td>
<td>60</td>
<td>-</td>
</tr>
<tr>
<td>GNMA I 15y</td>
<td>17</td>
<td>17</td>
<td>-</td>
</tr>
<tr>
<td>UMBS</td>
<td>-</td>
<td>147</td>
<td>147</td>
</tr>
<tr>
<td>UMBS 30y</td>
<td>-</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>UMBS 20y</td>
<td>-</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td>UMBS 15y</td>
<td>-</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>Total</td>
<td>400</td>
<td>547</td>
<td>147</td>
</tr>
</tbody>
</table>

Source: J.P. Morgan as of January 31, 2019. Highlighted are the new cohorts to accommodate flexibility for Single Security. Note that UMBS will include both FNMA and FHLMC 55-day, which will have the option of being broken out.

Top 20 FHLMC Gold 45-day aggregates in current composition

<table>
<thead>
<tr>
<th>JPM MAX Index Aggregate</th>
<th>Weight (%)</th>
<th>Balance ($bn)</th>
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<tbody>
<tr>
<td>FHLMC Gold 30y 3 2016</td>
<td>2.5</td>
<td>150</td>
</tr>
<tr>
<td>FHLMC Gold 30y 4 2018</td>
<td>2.1</td>
<td>123</td>
</tr>
<tr>
<td>FHLMC Gold 30y 3.5 2017</td>
<td>2.0</td>
<td>121</td>
</tr>
<tr>
<td>FHLMC Gold 30y 3.5 2015</td>
<td>1.5</td>
<td>90</td>
</tr>
<tr>
<td>FHLMC Gold 30y 4 2017</td>
<td>1.3</td>
<td>75</td>
</tr>
<tr>
<td>FHLMC Gold 30y 4.5 2018</td>
<td>1.2</td>
<td>67</td>
</tr>
<tr>
<td>FHLMC Gold 30y 3 2013</td>
<td>1.1</td>
<td>68</td>
</tr>
<tr>
<td>FHLMC Gold 30y 3.5 2016</td>
<td>1.0</td>
<td>60</td>
</tr>
<tr>
<td>FHLMC Gold 30y 3.5 2012</td>
<td>0.8</td>
<td>49</td>
</tr>
<tr>
<td>FHLMC Gold 30y 3 2012</td>
<td>0.7</td>
<td>44</td>
</tr>
<tr>
<td>FHLMC Gold 30y 4 2014</td>
<td>0.7</td>
<td>41</td>
</tr>
<tr>
<td>FHLMC Gold 30y 3.5 2018</td>
<td>0.6</td>
<td>39</td>
</tr>
<tr>
<td>FHLMC Gold 30y 3 2015</td>
<td>0.6</td>
<td>36</td>
</tr>
<tr>
<td>FHLMC Gold 30y 3.5 2013</td>
<td>0.6</td>
<td>33</td>
</tr>
<tr>
<td>FHLMC Gold 30y 3.5 2014</td>
<td>0.5</td>
<td>29</td>
</tr>
<tr>
<td>FHLMC Gold 15y 2.5 2016</td>
<td>0.5</td>
<td>23</td>
</tr>
<tr>
<td>FHLMC Gold 15y 2.5 2013</td>
<td>0.4</td>
<td>22</td>
</tr>
<tr>
<td>FHLMC Gold 15y 3 2017</td>
<td>0.4</td>
<td>20</td>
</tr>
<tr>
<td>FHLMC Gold 30y 4 2015</td>
<td>0.3</td>
<td>19</td>
</tr>
<tr>
<td>FHLMC Gold 30y 4.5 2009</td>
<td>0.3</td>
<td>19</td>
</tr>
</tbody>
</table>

Sum of Top 20 = 19.4 × 1,148

Source: J.P. Morgan, as of February 13, 2019