FTR Analysis

Credit Subcommittee
July 18, 2014
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FTR Undiversified Analysis

- Time period June 2012 – November 2013 (18 months)
- Only undiversified portfolio months were considered
- Each data point represents one undiversified portfolio-month
  - e.g. 2 participants each with 2 accounts could have up to 72 portfolio-months
  - 769 actual portfolio months were analyzed
- Analysis compares current 3x undiversified adder with 1x undiversified adder
- Analysis was done without considering ARRs
• Terminology
  – Profit (Loss) – when portfolio experienced a profit (loss) for the month
    • FTR Target Allocations greater (less) than FTR cost
  – Shortfall – when credit requirement is less than loss (or when negative credit requirement is greater than profit)
  – Excess – when credit requirement is greater than loss (or when negative credit requirement is less than profit)
  – Collateral Requirement – positive-only credit requirement before consideration of ARRs
  – Portfolio months are color coded to distinguish between those with credit excess and those with credit shortfalls
Undiversified FTR Credit Requirement vs. FTR Profit/(Loss)
Current 3x Undiversified Adder
Jun 2012 – Nov 2013

Each point represents a member account/month

- No Credit Shortfall - 596
- Credit Shortfall Profits - 81
- Credit Shortfall Losses - 92

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### Undiversified 3X to 1X Comparison  
Jun 2012 – Nov 2013

<table>
<thead>
<tr>
<th>Credit Requirement Comparison</th>
<th>Profit/ (Loss)</th>
<th>Count</th>
<th>Credit Requirement Decrease (Count)</th>
<th>Collateral Requirement Impact</th>
<th>Remaining (Shortfall) Exceeding Collateral</th>
</tr>
</thead>
<tbody>
<tr>
<td>3X Excess to 1X Excess</td>
<td>Profit</td>
<td>230</td>
<td>230</td>
<td>($27,349,892)</td>
<td>$0</td>
</tr>
<tr>
<td>3X Excess to 1X Excess</td>
<td>(Loss)</td>
<td>77</td>
<td>77</td>
<td>($7,586,194)</td>
<td>$0</td>
</tr>
<tr>
<td>3X Excess to (1X Shortfall)</td>
<td>Profit</td>
<td>129</td>
<td>129</td>
<td>($9,563,447)</td>
<td>$0</td>
</tr>
<tr>
<td>(3X Shortfall) to (1X Shortfall)</td>
<td>Profit</td>
<td>175</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td>611</td>
<td>436</td>
<td>($44,499,533)</td>
<td>$0</td>
</tr>
<tr>
<td>3X Excess to (1X Shortfall)</td>
<td>(Loss)</td>
<td>45</td>
<td>45</td>
<td>($2,740,686)</td>
<td>($695,481)</td>
</tr>
<tr>
<td>(3X Shortfall) to (1X Shortfall)</td>
<td>(Loss)</td>
<td>87</td>
<td>32</td>
<td>($740,984)</td>
<td>($5,616,589)</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td>132</td>
<td>77</td>
<td>($3,481,670)</td>
<td>($6,312,070)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>743</td>
<td>513</td>
<td>($47,981,203)</td>
<td>($6,312,070)</td>
</tr>
</tbody>
</table>
• Time period June 2013 – May 2014
• Considered **Annual Buy Obligation** FTRs (no sells, self-schedules or options)
  – Each data point represents one Annual FTR
  – 66,392 Annual FTRs analyzed
• Graphs plot the following
  – Y - Greatest actual credit shortfall experienced in the planning period for each FTR
    • Considering 12 runout excess (or exposure) values for each Annual FTR
  – X – factor representing diversity of nodes at the endpoints of the FTR
    • Node counts at each end were multiplied to create a single diversity factor
      – Largest single node count was 1307
      – Larger diversity factors represent FTRs with highly diverse end points and vice-versa
FTR Credit Shortfalls
Counterflow FTRs

Diversity Factor

< Greatest Credit Shortfall

Diversity Factor
Despite similar medians, the 3.4 times greater mean of counterflow FTRs indicates disproportionate downside exposure to counterflow vs. prevailing flow FTRs

<table>
<thead>
<tr>
<th>Maximum Runout Credit Shortfall</th>
<th>Prevailing</th>
<th>Counterflow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>42,939</td>
<td>23,453</td>
</tr>
<tr>
<td>Median</td>
<td>(82)</td>
<td>(77)</td>
</tr>
<tr>
<td>Mean</td>
<td>(525)</td>
<td>(1,802)*</td>
</tr>
</tbody>
</table>

- Given the results of the two analyses, PJM plans to continue analysis of FTR Undiversified/counterflow exposure
FTR Analysis from 02/04/14 CS Meeting
Undiversified FTR Credit Requirement vs. FTR Profit/(Loss)
Jun 2012 – Nov 2013

Points Not Shown:
($261K), $7,668K
$4,000K, $1,200K
$3,100K, $0
$3,350K, $0
$0
$500
$1,000
$1,500
$2,000
$2,500
$3,000
$3,500
$4,000

FTR Credit Requirement (Member-Month)
FTR Net Profit/(Loss) (Member-Month)

$000s

No Credit Shortfall (565)  Credit Shortfall (46)