

# Comparing Ratings on Jointly-Rated U.S. Structured Finance Securities: 2007 Update

## CONTACTS:\*

Richard Cantor  
Team Managing Director  
(212) 553-3628  
[richard.cantor@moodys.com](mailto:richard.cantor@moodys.com)

Gus Harris  
Group Managing Director  
(212) 553-1473  
[gus.harris@moodys.com](mailto:gus.harris@moodys.com)

Jian Hu  
Senior Vice President  
(212) 553-7855  
[jian.hu@moodys.com](mailto:jian.hu@moodys.com)

Noel Kirnon  
Senior Managing Director  
(212) 553-1647  
[noel.kirnon@moodys.com](mailto:noel.kirnon@moodys.com)

## WEBSITE:

[www.moodys.com](http://www.moodys.com)

## CONTENTS

- I. Summary
- II. Rating Comparisons by Structured Finance Sector
- III. Aaa vs. non-Aaa and Investment-Grade vs. Below-Investment Grade Rating Levels
- IV. The Effect of Seasoning
- V. Extrapolating to Non-Moody's-Rated SF Instruments and Future Rating Relationships
- VI. Conclusion

## I. SUMMARY

Last year, Moody's reported its findings from a study of jointly-rated U.S. structured finance ("SF") credits. We inferred our results from a database of more than 50,000 tranches rated by Moody's, as well as by Standard and Poor's Ratings ("S&P") and/or FitchRatings ("Fitch"). The database contained all such ratings outstanding on February 28, 2006<sup>1</sup>.

This report represents an update of our findings from last year. In this case, our database includes about 71,000 tranches that were rated by Moody's and at least one of S&P and Fitch and were outstanding on January 31, 2007. Otherwise, the methodology used to compare the ratings of the three agencies is identical to that used in the previous report.

Our conclusions are nearly identical to those from last year:

- When all ratings from all sectors are combined, on average, current ratings assigned for jointly-rated instruments differ by less than one notch, though for the reasons indicated below, the minimal difference is misleading if not considered with other findings.
  - Differences in ratings vary substantially across SF sectors.
  - Differences in ratings are greater for below-Aaa ratings than for Aaa ratings: while roughly 98% of the Moody's/S&P and Moody's/Fitch ratings are the same when the Moody's rating is Aaa, the percentage of same ratings drops to 60% and 55% *vis-à-vis* S&P and Fitch, respectively, when the Moody's rating is non-Aaa.
  - Differences in ratings are greater for below-investment-grade ratings than for investment-grade ratings; indeed in some rating categories for some asset classes, same-level ratings are the exception, rather than the norm.
  - Differences in ratings show some tendency to increase with the seasoning of the security, because financial markets and rating approaches vary over time; monitoring practices may also differ across agencies.

\* Jeremy Gluck contributed to this report as a research consultant.



<sup>1</sup> Moody's *Special Report*: "Comparing Ratings on Jointly-Rated U.S. Structured Finance Securities", May 25, 2006

- Differences reported here, while very large in many cases, are likely to greatly understate the differences between Moody's rating opinions and those of other agencies on securities that are not jointly rated because rating shopping often causes large differences in rating opinions to be unobserved by the market.<sup>2</sup>

The report is organized as follows: in Section II, we discuss the results by SF sector. Section III summarizes the results for **Aaa** vs. non-**Aaa** and investment-grade vs. below-investment-grade ratings. We then turn to the impact of seasoning in Section IV. In Section V we consider the implications for non-Moody's-rated tranches, as well as for future joint ratings. We provide some concluding remarks in Section VI.

## II. RATING COMPARISONS BY STRUCTURED FINANCE SECTOR

We begin by comparing jointly-rated SF securities in the aggregate, as well as broken down by broad sector: Residential Mortgage-Backed Securities (RMBS), Commercial Mortgage-Backed Securities (CMBS), Asset-Backed Securities (ABS) and Collateralized Debt Obligations (CDOs). Note that we include securities backed by home equity loans/lines of credit and manufactured housing loans in the ABS category.<sup>3</sup>

In order to compare ratings across agencies, Moody's again augmented its own ratings database with data on SF ratings by Fitch and S&P. The number of ratings for each broad rating category and SF sector are reported in *Figure 1*.

*Figure 1*  
**Count of Joint Ratings by Moody's Rating Level and Sector**

| Moody's Rating | Pairs with S&P |        |       |        |       | Pairs with Fitch |       |       |        |       |
|----------------|----------------|--------|-------|--------|-------|------------------|-------|-------|--------|-------|
|                | Total SF       | RMBS   | CMBS  | ABS    | CDO   | Total SF         | RMBS  | CMBS  | ABS    | CDO   |
| Aaa            | 29,687         | 16,558 | 2,126 | 9,046  | 1,957 | 16,553           | 7,693 | 1,468 | 6,730  | 662   |
| Aa             | 8,870          | 3,052  | 636   | 4,209  | 973   | 4,241            | 955   | 407   | 2,556  | 323   |
| A              | 8,408          | 2,086  | 628   | 4,816  | 878   | 4,264            | 383   | 426   | 3,101  | 354   |
| Baa            | 8,822          | 1,968  | 833   | 5,074  | 947   | 4,283            | 373   | 555   | 3,106  | 249   |
| Ba             | 2,837          | 484    | 611   | 1,294  | 448   | 1,390            | 149   | 326   | 824    | 91    |
| B              | 729            | 147    | 432   | 129    | 21    | 471              | 76    | 231   | 142    | 22    |
| Caa-below      | 194            | 10     | 30    | 107    | 47    | 447              | 7     | 55    | 319    | 66    |
| All Ratings    | 59,547         | 24,305 | 5,296 | 24,675 | 5,271 | 31,649           | 9,636 | 3,468 | 16,778 | 1,767 |

The overall number of observations has grown about 40% from 2006.<sup>4</sup> But as in the previous year, just about half of the joint-rating pairs are at the **Aaa** level. It also remains true that more than 80% of the ratings are from the ABS and RMBS sectors.

### Ratings of Structured Finance Securities in the Aggregate

*Figure 2* illustrates the relationships between Moody's ratings as of January 31, 2007 and those of S&P and Fitch for credits that were rated by Moody's and the indicated other agency.<sup>5</sup> For the purpose of the "Average" differential calculation, each rating is converted to a number (e.g., **Aaa=AAA=21**, **Aa1=AA+=20**, etc.) and the numerical equivalent of the S&P or Fitch rating is subtracted from the numerical equivalent of the Moody's rating. The averages are calculated based on number of ratings, not dollar volume.

2 Rating shopping in Structured Finance hides large systematic differences in rating opinions across agencies. Data detailing differences of opinion on non-jointly-rated securities are presented in the following Moody's *Special Reports*: "Moody's Views on 'Notching' CMBS Ratings in CDOs" (June 22, 2001), "Moody's Study of Ratings of Non-Moody's-Rated RMBS" (April 18, 2002), "Moody's Studies Ratings of Non-Moody's Rated CDOs and Confirms Rating Estimate Approach" (March 22, 2002).

3 Some market participants instead classify these as RMBS. Indeed, subprime mortgage credits are generally classified in the Home Equity subcategory.

4 More precisely, the number of joint ratings with S&P has increased by 43%, while that with Fitch rose by 37%.

5 Note that we have not distinguished between double- and triple-rated securities.

**Figure 2**  
**Comparison of Ratings for Jointly Rated Structured Finance Tranches**

| Moody's Rating    | Pairs with S&P |                               |                                |               |       |                | Pairs with Fitch |                               |                                |               |       |                |
|-------------------|----------------|-------------------------------|--------------------------------|---------------|-------|----------------|------------------|-------------------------------|--------------------------------|---------------|-------|----------------|
|                   | Average Gap*   | Average Gap if Moody's Lower± | Average Gap if Moody's Higher± | Moody's Lower | Same  | Moody's Higher | Average Gap*     | Average Gap if Moody's Lower± | Average Gap if Moody's Higher± | Moody's Lower | Same  | Moody's Higher |
| <b>Aaa</b>        | 0.03           | --                            | 2.07                           | --            | 98.5% | 1.5%           | 0.05             | --                            | 2.25                           | --            | 97.7% | 2.3%           |
| <b>Aa</b>         | (0.16)         | (1.17)                        | 1.88                           | 29.8%         | 60.3% | 9.9%           | (0.36)           | (1.28)                        | 1.90                           | 40.2%         | 52.0% | 7.8%           |
| <b>A</b>          | (0.40)         | (1.79)                        | 1.69                           | 31.4%         | 59.0% | 9.6%           | (0.50)           | (1.79)                        | 1.70                           | 34.7%         | 58.4% | 6.9%           |
| <b>Baa</b>        | (0.45)         | (1.78)                        | 1.42                           | 31.1%         | 61.6% | 7.2%           | (0.51)           | (1.72)                        | 1.78                           | 35.8%         | 58.0% | 6.2%           |
| <b>Ba</b>         | (0.55)         | (1.90)                        | 1.71                           | 34.3%         | 60.0% | 5.7%           | (0.80)           | (1.94)                        | 2.09                           | 47.9%         | 45.7% | 6.4%           |
| <b>B</b>          | (0.49)         | (2.47)                        | 1.86                           | 26.1%         | 65.8% | 8.1%           | (0.56)           | (2.49)                        | 2.91                           | 38.4%         | 48.0% | 13.6%          |
| <b>Caa-below</b>  | (2.16)         | (3.67)                        | 1.31                           | 65.5%         | 16.5% | 18.0%          | (0.17)           | (3.22)                        | 1.75                           | 23.7%         | 42.7% | 33.6%          |
| <b>All Rating</b> | (0.17)         | (1.66)                        | 1.74                           | 15.7%         | 79.3% | 5.1%           | (0.20)           | (1.68)                        | 1.96                           | 17.9%         | 77.1% | 5.0%           |

\*Number of refined, or alpha-numeric, rating notches. A negative number indicates that the Moody's rating is, on average, lower.

±Average gap for those cases in which the Moody's rating is lower/higher.

As *Figure 2* demonstrates, Moody's ratings are lower than those of both Fitch and S&P by about two-tenths of a notch, essentially the same as the difference observed last year.

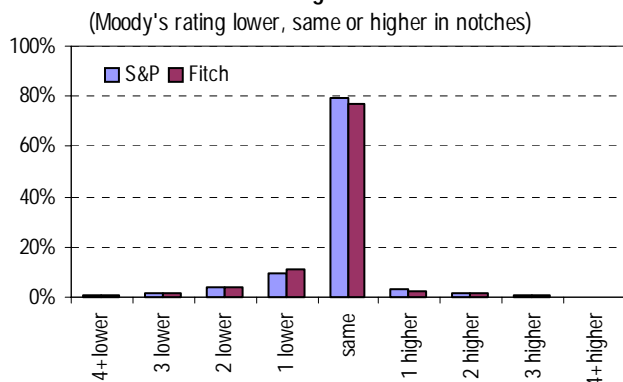
As before, the average<sup>6</sup> rating gaps tend to rise as the Moody's rating level falls.<sup>7</sup> The ratings of Moody's and S&P and/or Fitch remain the same for a very high proportion (around 98%) of **Aaa** ratings, but the frequency with which the Moody's rating matches that of the other agency at the less-than-**Aaa** level falls significantly (to about 60% at most rating levels vs. S&P<sup>8</sup>, and 40-60% vs. Fitch).

Also duplicating last year's result, when the Moody's rating is below the rating of another agency, the average gap exceeds two notches for the single-B and Caa-below rating levels. At the Ba up to single-A rating levels, the difference still exceeds one-and-a-half notches compared to both S&P and Fitch. With respect to both agencies, Moody's ratings for jointly-rated instruments have been higher in about 5% of all cases, or about one-third as often as they have been lower.

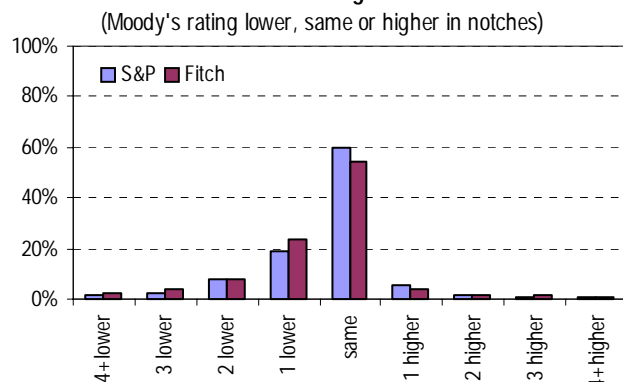
We can again augment this picture by considering not just the average rating differential, but the *distribution* of rating differentials with respect to both Moody's vs. S&P's and Moody's vs. Fitch's ratings. These are shown in *Figure 3*.

**Figure 3**  
**Rating Gap Distribution for Jointly Rated U.S. Structured Finance Tranches**

**Figure 3a: US Structured Finance Rating Gaps - All Rating Levels**



**Figure 3b: US Structured Finance Rating Gap - Non-Aaa Rating Levels**



6 One might also term this the "net" gap in the sense that positive and negative differences are netted. For example, if Moody's rating were one notch higher in one case and one notch lower in another, the average gap for the two data points would be calculated as zero.

7 Note that at the **Aaa** level, the average differential must be positive since the other agency's rating cannot be higher than the equivalent of **Aaa** and will be lower in rare instances. At very low Moody's rating levels (e.g., **Caa1** or below), there may also be a slight bias toward a negative gap in that we know *a priori* that the Moody's rating is low. Interestingly, the exceptions to the lower-rating/larger-average-rating-gap relationships are the same as in 2006--for Moody's vs. Fitch at the B and Caa-below levels, and for Moody's vs. S&P at the B level.

8 The notable exception here is the Caa-below range, where the Moody's/S&P ratings are at the same level only about one-sixth of the time.

Figures 3a and 3b again demonstrate that the ratings of Moody's/S&P or Moody's/Fitch for jointly-rated instruments are the same in a high proportion (nearly 80%) of cases, but much of this is again attributable to the equivalency at the **Aaa** level.<sup>9</sup> Across all rating levels, Moody's ratings have run one notch lower about 10% of the time and two or more notches lower about 6% of the time, roughly the same proportions that we observed the previous year.

For non-**Aaa** ratings, the proportion of securities that agencies rated the same is only about 60% for Moody's/S&P and 55% for Moody's/Fitch, about the same as last year (Figure 3b above and Figure 13 below). In the roughly 40-45% of cases where the ratings differ, Moody's rating is again lower more than 75% of the time (Figure 3b and Figure 13 below). In the remaining quarter of such cases, where the Moody's rating is *higher* than that of another agency, the rating differential is similar in magnitude to cases where the Moody's rating is lower.

## Ratings of RMBS

An exceptionally high proportion of RMBS ratings are **Aaa**--about 68% of the joint Moody's/S&P RMBS ratings and around 80% of the Moody's/Fitch ratings. With this in mind, Figure 4 shows the relationship between Moody's and S&P's or Fitch's ratings on jointly-rated RMBS tranches.

*Figure 4*  
**Comparison of Ratings for Jointly Rated RMBS Tranches<sup>10</sup>**

| Moody's Rating    | Pairs with S&P |                              |                               |               |       |                | Pairs with Fitch |                              |                               |               |       |                |
|-------------------|----------------|------------------------------|-------------------------------|---------------|-------|----------------|------------------|------------------------------|-------------------------------|---------------|-------|----------------|
|                   | Average Gap    | Average Gap if Moody's Lower | Average Gap if Moody's Higher | Moody's Lower | Same  | Moody's Higher | Average Gap      | Average Gap if Moody's Lower | Average Gap if Moody's Higher | Moody's Lower | Same  | Moody's Higher |
| <b>Aaa</b>        | 0.02           | --                           | 1.92                          | --            | 98.8% | 1.2%           | 0.03             | --                           | 2.11                          | --            | 98.6% | 1.4%           |
| <b>Aa</b>         | (0.20)         | (1.09)                       | 1.83                          | 41.0%         | 45.5% | 13.5%          | (0.79)           | (1.18)                       | 2.06                          | 76.5%         | 18.0% | 5.4%           |
| <b>A</b>          | (0.28)         | (1.74)                       | 1.86                          | 33.0%         | 51.1% | 16.0%          | (0.73)           | (2.04)                       | 2.00                          | 47.5%         | 40.5% | 12.0%          |
| <b>Baa</b>        | (0.42)         | (1.80)                       | 1.45                          | 31.7%         | 57.9% | 10.4%          | (0.74)           | (2.06)                       | 1.71                          | 44.5%         | 45.3% | 10.2%          |
| <b>Ba</b>         | (0.37)         | (2.04)                       | 1.56                          | 27.7%         | 59.5% | 12.8%          | (1.21)           | (2.54)                       | 1.88                          | 55.7%         | 33.6% | 10.7%          |
| <b>B</b>          | (0.55)         | (2.07)                       | 1.00                          | 27.9%         | 69.4% | 2.7%           | (1.33)           | (2.18)                       | 4.00                          | 65.8%         | 31.6% | 2.6%           |
| <b>Caa-below</b>  | (2.60)         | (4.71)                       | 2.33                          | 70.0%         | 0.0%  | 30.0%          | 1.14             | (2.00)                       | 3.00                          | 28.6%         | 14.3% | 57.1%          |
| <b>All Rating</b> | (0.08)         | (1.49)                       | 1.78                          | 11.3%         | 83.7% | 5.0%           | (0.14)           | (1.57)                       | 2.04                          | 12.6%         | 84.6% | 2.8%           |

Consistent with the very high proportion of **Aaa** ratings and the trivially positive rating gap at the **Aaa** level, the average rating differential is smaller for RMBS than for SF securities as a whole. However, for non-**Aaa** ratings, the differentials *vis-à-vis* Fitch are actually greater than those in the jointly-rated SF population, while the gap vs. S&P is about the same as that for SF in general.

For example, at the **Aa** rating level, the proportion of U.S. RMBS tranches that were rated the same by Moody's and Fitch is only 18% and Moody's ratings have been lower in over 90% of the cases where the ratings differ, resulting in an average gap of -0.79. Moreover, the average Moody's /Fitch gap for **Ba** and **B**-rated RMBS exceeds one notch. Also, for non-**Aaa** ratings, the Moody's/Fitch gap tends to substantially exceed the Moody's/S&P gap (Figure 13 below).<sup>11</sup> Another case worth noting is that in which Moody's rating is in the **Ba** range and the other agency is Fitch. At this rating level, the ratings are the same only 34% of the time. Furthermore, the Moody's rating is lower for more than 80% of those observations (or 56% of the total observations at this rating level) in which the ratings are different and the average gap when the Moody's rating is lower is about 2 ½ notches. Thus in many of these instances, the Moody's rating is noninvestment-grade while the Fitch rating could be investment grade.

Figure 5 summarizes the distribution of rating differentials for the same RMBS tranches. Consistent with the information in Figure 4, and again reflective of the high number of **Aaa** tranches, ratings of jointly-rated U.S. RMBS have tended to be more similar across agencies than for other SF securities. Of the slightly more than

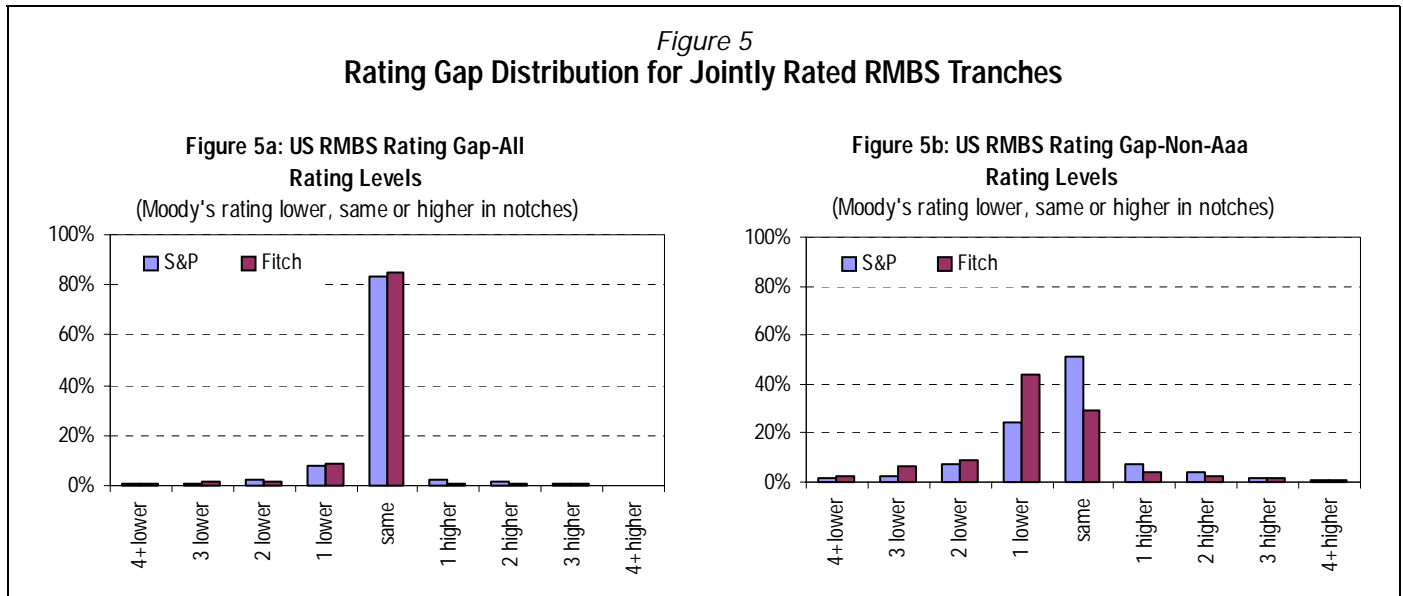
<sup>9</sup> Please refer to Section III for more discussions on why there are differences in rating gaps between **Aaa** and non-**Aaa** rated securities.

<sup>10</sup> The unusually high proportion of cases in which the Moody's rating is lower at the **Aa** level is addressed in footnote 20. Note that the anomalous "Moody's Higher" figure for Moody's-rated **Caa** RMBS vs. Fitch is based on only four joint ratings.

<sup>11</sup> It may seem surprising that the average Moody's/S&P gap across the All Ratings category is very similar to the corresponding Moody's/Fitch gap when, at most rating levels, the average Moody's/Fitch gap is larger. The reason is that a higher proportion of Moody's/Fitch pairs are at the **Aaa** level, for which the gap cannot be negative. Note that there are only seven observations for the Moody's/Fitch figures at the **Caa-below** rating level. Also, since the number of Moody's/S&P pairs is much larger than the number of Moody's/Fitch pairs, the two joint rating populations are significantly different.

10% of rating pairs for which the Moody's rating is lower than that of the other agency, about two-thirds are one notch lower and the rest are two or more notches lower.

Still, the average gap for cases in which Moody's rating is lower exceeds two notches for all but the **Aaa** and **Aa** levels *vis-à-vis* Fitch's ratings (Figure 4). In fact, for non-**Aaa** ratings, Moody's rating tends to be lower than the corresponding Fitch rating in more than 60% of the cases (Figure 5b and Figure 13). Differences *vis-à-vis* S&P are also large, primarily at the noninvestment-grade rating levels. Conversely, the rating gaps when Moody's rating is higher than that of another agency may also be large.



### Ratings of CMBS

In contrast with the RMBS case, most of the Moody's ratings assigned to jointly-rated CMBS are not at the **Aaa** level.<sup>12</sup> Hence we would expect a greater divergence between Moody's ratings and those of the other agencies within the CMBS sector as a whole.

Indeed, Figure 6 shows that less than 80% of Moody's ratings for jointly-rated CMBS are the same as those of other agencies (versus roughly 84% for the RMBS sector). Duplicating the pattern from last year, the rating gaps do not tend to rise as the (Moody's) rating level falls. Rather, there remains a spike in the gap at the single-A level (and, to a lesser extent, the Baa level) *vis-à-vis* both S&P and Fitch. At those levels, the average Moody's rating gap in cases where the Moody's rating is lower exceeds two notches *vis-à-vis* S&P, and exceeds three notches relative to Fitch. Here too, the combination of a high frequency of cases in which the Moody's rating is below that of Fitch at the Ba level (more than 95% of the subset for which the ratings are different) and a sizeable rating differential in such cases (2.30 notches) leads to a relatively large number of pairs in which the Moody's rating is noninvestment-grade while the Fitch rating could be investment grade.

CMBS remains the only SF sector in which the average rating gap *vis-à-vis* Fitch clearly exceeds the average Moody's/S&P gap. The difference is somewhat more pronounced this year with the average Moody's/Fitch gap (-0.45) about triple the average Moody's/S&P gap (-0.14), though the absolute difference remains small.

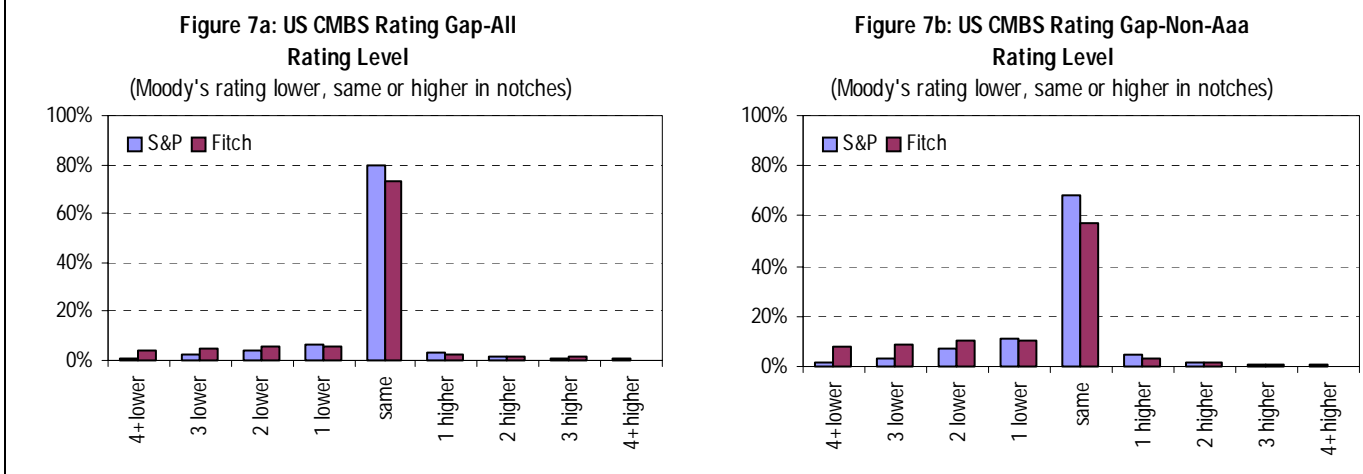
<sup>12</sup> Specifically, only 40% of Moody's/S&P ratings are **Aaa** on the Moody's side, while the comparable number for Moody's/Fitch is 42%.

*Figure 6*  
**Comparison of Ratings for Jointly Rated CMBS Tranches**

| Moody's Rating    | Pairs with S&P |                              |                               |               |       |                | Pairs with Fitch |                              |                               |               |       |                |
|-------------------|----------------|------------------------------|-------------------------------|---------------|-------|----------------|------------------|------------------------------|-------------------------------|---------------|-------|----------------|
|                   | Average Gap    | Average Gap if Moody's Lower | Average Gap if Moody's Higher | Moody's Lower | Same  | Moody's Higher | Average Gap      | Average Gap if Moody's Lower | Average Gap if Moody's Higher | Moody's Lower | Same  | Moody's Higher |
| <b>Aaa</b>        | 0.08           | --                           | 2.13                          | --            | 96.2% | 3.8%           | 0.10             | --                           | 2.37                          | --            | 95.7% | 4.3%           |
| <b>Aa</b>         | 0.02           | (1.44)                       | 2.17                          | 21.4%         | 63.7% | 14.9%          | (0.49)           | (1.75)                       | 1.93                          | 40.5%         | 48.2% | 11.3%          |
| <b>A</b>          | (0.41)         | (2.17)                       | 1.85                          | 26.1%         | 65.3% | 8.6%           | (1.15)           | (3.14)                       | 1.72                          | 40.6%         | 51.9% | 7.5%           |
| <b>Baa</b>        | (0.38)         | (2.10)                       | 1.40                          | 24.5%         | 66.1% | 9.4%           | (0.87)           | (3.09)                       | 1.53                          | 31.0%         | 63.2% | 5.8%           |
| <b>Ba</b>         | (0.36)         | (1.73)                       | 1.36                          | 23.7%         | 72.7% | 3.6%           | (0.93)           | (2.30)                       | 1.80                          | 41.4%         | 57.1% | 1.5%           |
| <b>B</b>          | (0.22)         | (1.67)                       | 1.31                          | 15.3%         | 81.7% | 3.0%           | (0.67)           | (2.82)                       | 2.33                          | 24.7%         | 74.0% | 1.3%           |
| <b>Caa-below</b>  | (0.73)         | (1.79)                       | 1.00                          | 46.7%         | 43.3% | 10.0%          | (1.69)           | (2.84)                       | 1.71                          | 67.3%         | 20.0% | 12.7%          |
| <b>All Rating</b> | (0.14)         | (1.87)                       | 1.84                          | 13.8%         | 79.7% | 6.5%           | (0.45)           | (2.63)                       | 1.97                          | 21.3%         | 73.3% | 5.4%           |

The rating differentials for jointly-rated CMBS remain larger than those in the RMBS sector as well (*Figure 7*). In addition, the Moody's rating lies below the S&P rating for about 14% of these instruments and below the Fitch rating in about 20% of the cases—almost identical to last year's pattern. More than half of these cases in which the Moody's rating is lower arise from multi-notch differentials. For non-**Aaa** ratings, the differences are even more evident—most of the cases in which Moody's rating is lower in this range are characterized by multi-notch gaps (*Figure 7b*). When Moody's rating is higher (about 6% of the time relative to both S&P and Fitch), the average gap is around 1 ½ to two notches

*Figure 7*  
**Rating Gap Distribution for Jointly Rated CMBS Tranches**



## Ratings of ABS

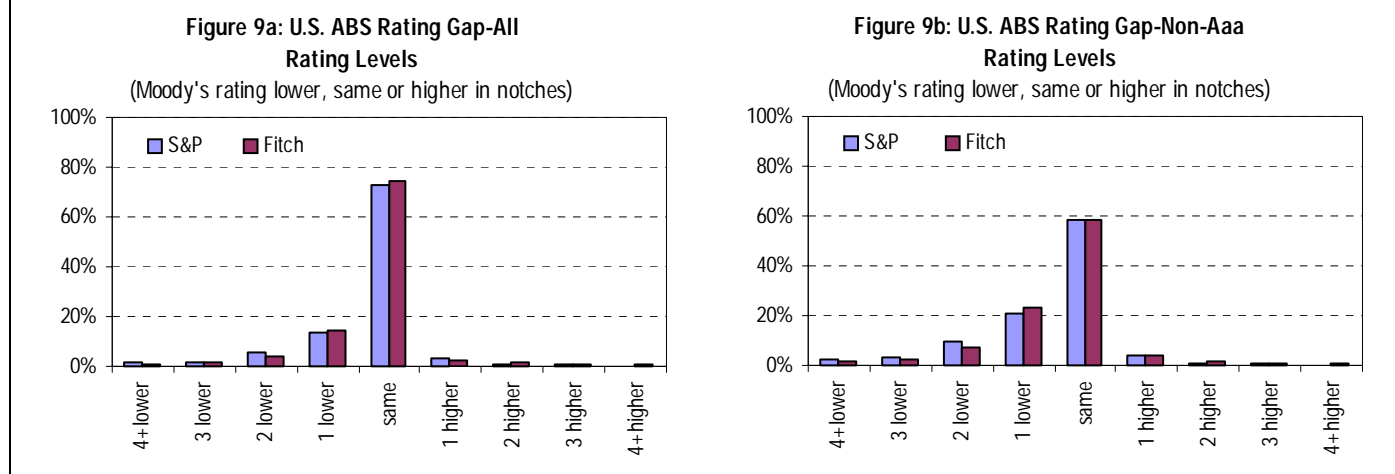
As before, only about 40% of Moody's ratings for jointly-rated U.S. ABS are **Aaa**, suggesting that rating differentials will be larger here than in RMBS and similar to CMBS. One notable difference here, however, is that the gap *vis-à-vis* S&P is larger than that relative to Fitch, though each remains below one-third of a notch (see *Figure 8*). Relative to both agencies, Moody's rating is lower for about 80% of the 25% to 30% of cases when the ratings differ. Rating gaps do tend to grow as the rating level declines with particularly large gaps when Moody's rating is single-B or Caa-below. As was true the previous year, Moody's ratings are lower than those of S&P for a majority of the below-investment-grade Moody's ratings (*Figure 13*).

*Figure 8*  
**Comparison of Ratings for Jointly Rated ABS Tranches**

| Moody's Rating    | Pairs with S&P |                              |                               |               |       |                | Pairs with Fitch |                              |                               |               |       |                |
|-------------------|----------------|------------------------------|-------------------------------|---------------|-------|----------------|------------------|------------------------------|-------------------------------|---------------|-------|----------------|
|                   | Average Gap    | Average Gap if Moody's Lower | Average Gap if Moody's Higher | Moody's Lower | Same  | Moody's Higher | Average Gap      | Average Gap if Moody's Lower | Average Gap if Moody's Higher | Moody's Lower | Same  | Moody's Higher |
| <b>Aaa</b>        | 0.03           | --                           | 2.23                          | --            | 98.6% | 1.4%           | 0.05             | --                           | 2.29                          | --            | 97.9% | 2.1%           |
| <b>Aa</b>         | (0.20)         | (1.20)                       | 1.78                          | 26.7%         | 66.3% | 7.0%           | (0.23)           | (1.25)                       | 1.81                          | 28.5%         | 64.4% | 7.0%           |
| <b>A</b>          | (0.54)         | (1.76)                       | 1.51                          | 36.2%         | 57.2% | 6.6%           | (0.43)           | (1.51)                       | 1.54                          | 33.8%         | 60.6% | 5.6%           |
| <b>Baa</b>        | (0.55)         | (1.71)                       | 1.38                          | 36.9%         | 57.1% | 6.0%           | (0.44)           | (1.46)                       | 1.78                          | 36.9%         | 57.6% | 5.4%           |
| <b>Ba</b>         | (0.88)         | (1.89)                       | 1.94                          | 50.3%         | 46.1% | 3.6%           | (0.74)           | (1.71)                       | 1.92                          | 50.7%         | 42.8% | 6.4%           |
| <b>B</b>          | (1.29)         | (3.57)                       | 2.19                          | 53.5%         | 18.6% | 27.9%          | 0.06             | (2.56)                       | 2.89                          | 41.5%         | 19.7% | 38.7%          |
| <b>Caa-below</b>  | (2.75)         | (4.28)                       | 1.24                          | 71.0%         | 5.6%  | 23.4%          | 0.08             | (3.39)                       | 1.79                          | 16.9%         | 46.4% | 36.7%          |
| <b>All Rating</b> | (0.30)         | (1.70)                       | 1.66                          | 22.4%         | 72.9% | 4.7%           | (0.21)           | (1.51)                       | 1.90                          | 20.6%         | 74.1% | 5.3%           |

Though the Moody's rating is lower around 20% of the time across all rating levels, multi-notch gaps are a bit less common relative to both S&P and Fitch in comparison to the CMBS case (*Figure 9a*). In about 30-40% of the cases in which the Moody's rating is lower, the discrepancy is more than a single notch. The average Moody's gap vs. both agencies exceeds two notches, given a lower Moody's rating, for single-B and Caa-below ratings. For non-**Aaa** ratings (*Figure 9b* and *Figure 13* below), the share of joint ratings for which the Moody's rating is the same as S&P or Fitch falls below 60%. In more than a third of such cases, Moody's rating is lower.

*Figure 9*  
**Rating Gap Distribution for Jointly Rated ABS Tranches**



### Ratings of CDO Tranches

The picture for jointly-rated U.S. CDOs continues to differ from that for the other SF sectors. The average rating gap *vis-à-vis* both S&P and Fitch has narrowed slightly in the last year and is trivially different from zero (*Figure 10*) even though the proportion of **Aaa** ratings in this sector is again about the same as that in the ABS sector.

In particular, the proportion of CDO tranches that were rated the same by Moody's and S&P is close to or above 80% for all rating levels except single-B and Caa-below.<sup>13</sup> In fact, the proportion of Moody's/S&P ratings that are the same across all rating levels is above 88%, the highest such proportion across all SF sectors and both of the other rating agencies.

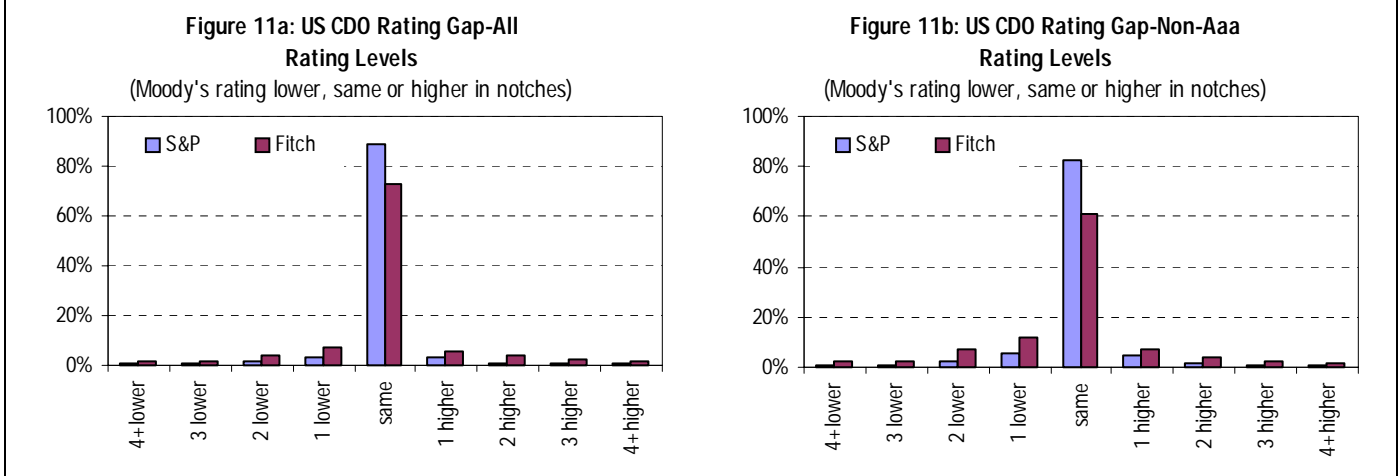
<sup>13</sup> The number of CDO observations in the single-B and Caa categories is less than 50, with the exception of Moody's/Fitch at the Caa-below level. Please refer to *Figure 1*.

*Figure 10*  
**Comparison of Ratings for Jointly Rated CDO Tranches**

| Moody's Rating | Average Gap | Pairs with S&P               |                               |               |       |                | Pairs with Fitch |                              |                               |               |       |                |
|----------------|-------------|------------------------------|-------------------------------|---------------|-------|----------------|------------------|------------------------------|-------------------------------|---------------|-------|----------------|
|                |             | Average Gap if Moody's Lower | Average Gap if Moody's Higher | Moody's Lower | Same  | Moody's Higher | Average Gap      | Average Gap if Moody's Lower | Average Gap if Moody's Higher | Moody's Lower | Same  | Moody's Higher |
| Aaa            | 0.03        | --                           | 2.30                          | --            | 98.8% | 1.2%           | 0.20             | --                           | 2.27                          | --            | 91.1% | 8.9%           |
| Aa             | (0.02)      | (1.30)                       | 2.13                          | 14.0%         | 78.3% | 7.7%           | (0.02)           | (1.44)                       | 2.02                          | 24.5%         | 58.8% | 16.7%          |
| A              | 0.07        | (2.33)                       | 1.59                          | 4.9%          | 83.7% | 11.4%          | (0.18)           | (1.97)                       | 1.98                          | 21.5%         | 66.1% | 12.4%          |
| Baa            | (0.03)      | (2.46)                       | 1.63                          | 4.9%          | 89.4% | 5.7%           | (0.14)           | (1.90)                       | 2.23                          | 19.7%         | 69.9% | 10.4%          |
| Ba             | (0.08)      | (2.14)                       | 1.93                          | 9.6%          | 83.7% | 6.7%           | (0.15)           | (1.97)                       | 3.00                          | 33.0%         | 50.5% | 16.5%          |
| B              | (0.86)      | (2.00)                       | 1.67                          | 66.7%         | 4.8%  | 28.6%          | (0.82)           | (2.00)                       | 3.00                          | 68.2%         | 13.6% | 18.2%          |
| Caa-below      | (1.66)      | (2.77)                       | 1.25                          | 63.8%         | 27.7% | 8.5%           | (0.29)           | (3.77)                       | 1.36                          | 19.7%         | 47.0% | 33.3%          |
| All Rating     | (0.01)      | (1.90)                       | 1.83                          | 5.9%          | 88.5% | 5.5%           | (0.01)           | (1.89)                       | 2.12                          | 14.8%         | 72.5% | 12.7%          |

Both the greater symmetry in the distribution of rating differences, as well as the higher degree of convergence for Moody's/S&P ratings, can be seen in *Figure 11*. With respect to both S&P and Fitch, for those cases in which the Moody's rating is lower, the average Moody's gap mostly approaches or surpasses two notches. When the Moody's rating is higher, the gap exceeds two notches for **Aaa** and Aa ratings *vis-à-vis* S&P and for most rating levels *vis-à-vis* Fitch.<sup>14</sup>

*Figure 11*  
**Rating Gap Distribution for Jointly Rated CDO Tranches**



<sup>14</sup> Particularly with respect to synthetic CDOs, there is a relatively large market for single-rated tranches. Because many of these tranches represent thin, but relatively senior, slices of the capital structure, they are often characterized by low default probability but high loss given default. Other things equal, Moody's expected-loss-based ratings will tend to be lower here than those of agencies that focus on probability of default for such tranches - see footnote 20. Thus, Moody's would not rate many of these types of CDOs. Furthermore, though synthetics are included in our database, joint ratings of synthetics (where they exist) are more difficult to track because many synthetic tranches are not generally assigned CUSIPs or other commonly used identifiers.



### III. AAA VS. NON-AAA AND INVESTMENT-GRADE VS. BELOW-INVESTMENT GRADE RATING LEVELS

We have seen again in the sector data that the alignment between ratings on jointly-rated SF securities is much closer for **Aaa**-rated tranches than for others. In this section, we reiterate our explanation from last year's report of why this pattern can be expected and describe the empirical differences between **Aaa** and non-**Aaa** rating using the 2007 data. We also look at the distinction between investment-grade and below-investment-grade ratings in the 2007 data.

#### **Aaa Ratings are Different**<sup>15</sup>

##### ***Aaa (AAA) is the highest possible rating***

Though obvious, it is important to note that **Aaa (AAA)** represents the highest rating. As we observed earlier, this implies that if Moody's rates a tranche **Aaa**, the gap between Moody's rating of the tranche and that of another agency cannot be negative. We have also seen that in the vast majority of cases where a **Aaa** rating is assigned - upwards of 95% for each of the major SF sectors - the joint ratings will be equivalent.

Because **Aaa (AAA)** is the highest rating, a tranche that just meets an agency's **Aaa/AAA** criteria will get the same rating as one that greatly surpasses the **Aaa/AAA** criteria. To the extent that an underwriter meets the **Aaa/AAA** standard for the most conservative of the agencies with respect to a particular structure, then it will exceed the standards for any other agencies from which a **Aaa/AAA** rating is also sought. Though in this case the agencies have somewhat different views of the instrument's creditworthiness (e.g., regarding the likelihood of a future downgrade), the expression of each of the agencies' views must be the same-**Aaa/AAA**.

##### ***Structurers have a strong incentive to meet each agency's Aaa/AAA criteria***

**Aaa** tranches tend to be much larger than those with below-**Aaa** ratings. Moreover, the largest possible set of SF investors can invest in **Aaa**-rated instruments, based on either regulatory criteria or internal guidelines.<sup>16</sup> In order to appeal to a wide range of investors, underwriters are more likely to seek multiple ratings on the most senior tranches than on more junior ones. This is reflected in the very large proportion of **Aaa/AAA** joint ratings in our dataset.

While multiple **Aaa/AAA** ratings are desirable from the underwriter's perspective, split ratings are not. A split rating for a more junior tranche is less troublesome because investors understand that ratings volatility is greater for more junior instruments. Also, investors in lower-rated instruments are likely to be less sensitive to small differences in ratings or to accept just one rating.<sup>17</sup> In this range, the disparity in rating opinions is likely to be greater<sup>18</sup> and there is an incentive to select the more favorable of these disparate opinions. By contrast, the failure to achieve a **Aaa/AAA** rating for a senior tranche can be extremely costly in terms of the present value of the increased spread on the instrument. Investors demand such a higher spread in part because of the greater regulatory capital charge associated with a **Aa/AA** instrument.

##### ***Moody's Expected Loss Approach Favors Larger, More Senior Tranches***

Each rating agency applies its own criteria to the evaluation of SF tranches. Moody's has long relied on an *Expected Loss* (EL) criterion as opposed to a criterion that focuses primarily on default probability. Senior instruments, which typically have thick tranche sizes, not only have low probabilities of loss, but they will generally suffer small proportionate losses in the event that they do not pay off in full.<sup>19</sup>

This implies that, other things equal, an EL approach will be more favorable to large senior tranches than a default probability approach, and less favorable toward more junior tranches that tend to be of thinner size.<sup>20</sup> As

15 Please note that much of this subsection and the next are reproduced from our 2006 report.

16 In some cases, investors may not be prohibited from buying lower-rated instruments, but may face a higher regulatory capital charge.

17 Investors in more junior tranches, especially those with below-investment-grade ratings, are less likely to be regulated than those who purchase more highly rated tranches. Specifically, they are more likely to be hedge funds. Since they are not concerned with regulatory capital charges, they do not face a higher cost to invest in lower-rated tranches; indeed, given the "true" risk of the instrument that they perceive, unregulated investors benefit from higher spreads associated with lower ratings.

18 The high potential for disparate views stems from the high sensitivity of lower-rated tranches to differences in assumptions and methodology. Lower-rated tranches tend to be thinly sliced and receive cash flows only after obligations to more senior tranches have been satisfied.

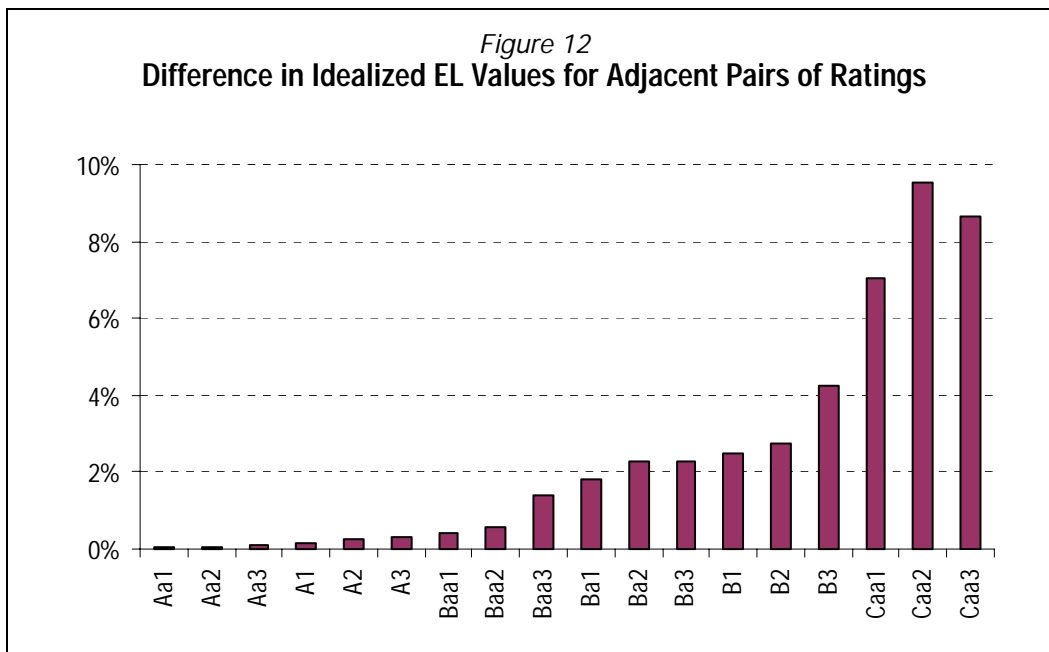
19 This, however, depends partly on transaction type. A small loss given default (LGD) would be more characteristic of structures backed by a well diversified pool, such as that backing a residential mortgage or credit card transaction, than a "lumpy" pool-say, a low-diversity CDO. Also, it has become increasingly common in synthetic CDOs to offer relatively thin **Aaa**-rated tranches. For a detailed discussion of this topic in the CDO context, see "Expected Loss and Probability of Default Approaches to Rating Collateralised Debt Obligations and the Scope for 'Rating Shopping'," Peretyatkin, Vladislav and W. Perraudin, Birkbeck College, University of London, September 2002 and "CDO Rating Methodology: Some Thoughts on Model Risk and Its Implications," Fender, Ingo and J. Kiff, *Journal of Credit Risk*, Vol. 1, No. 3, Summer 2005.

a result, the gap between Moody's rating and that of an agency that uses a default probability approach will tend to be more positive for (typically senior) **Aaa**-rated credits than for lower rating levels.

### Notches Are Not All Created Equal

So far, we have treated all rating notch gaps as if they were equivalent. For example, we have not distinguished between a one-notch gap at the Aa/AA level vs. a one-notch gap at the Ba/BB level. But in fact, the difference in EL (or default probability) with each one-notch change in rating grows sharply as one moves down the rating scale.<sup>21</sup>

Figure 12 shows the difference in Moody's idealized EL targets at a 10-year horizon from higher to lower ratings. The first bar represents the difference in EL between **Aaa** and **Aa1**, the second the difference between Aa1 and Aa2, etc. It is evident that the values of the differences grow enormously as one moves into the below-investment-grade ratings. Thus the significance of a one-notch rating gap for low ratings is much greater than that for high ratings.<sup>22</sup> Conversely, a relatively small absolute difference in EL for investment-grade ratings could result in a multiple notch ratings difference.



### What the Data Show

To hone in on the **Aaa** vs. non-**Aaa** distinction, as well as the difference between investment-grade and below-investment-grade instruments, we restate the results above by collapsing several of the rating categories (Figure 13).

20 This phenomenon explains, in part, the significantly higher percentage of Aa-rated RMBS tranches that are rated higher by S&P and Fitch (Figure 4). This phenomenon is also common in single-tranche bespoke synthetic CDOs, which will typically tend to be single rated (not rated by Moody's). "Slicing-off" the bottom portion of a **Aaa/AAA**-rated senior tranche to create a super-senior tranche and a thinner, now subordinated tranche has been common in RMBS (and single-tranche synthetic CDOs). While the default probability of the newly-created subordinated tranche is the same as that of the original **Aaa/AAA**-rated tranche, as the level of protection supporting them is the same, the loss given default of the subordinated tranche is greater than that of the original **Aaa/AAA**-rated tranche, given the subordinated tranche's smaller size. A default probability rating approach would result in the newly created subordinated tranche achieving a **Aaa/AAA** rating. However, given the subordinated tranche's higher EL loss, Moody's often rates such tranches, when it does rate such tranches, no higher than Aa.

21 The fineness of the gradations in EL (or, for other agencies, in default probability) targets at high rating levels suggests a potential for greater ratings disparity at high, rather than low levels. We do not observe this because 1) senior tranches tend to be "thick" and to have high credit enhancement so that they are less sensitive to small variations in assumed transaction performance and 2) as we have argued above, structurers have an incentive to meet the rating standards of each agency for more senior (especially **Aaa**) tranches.

22 We refer here to the *absolute* differences in EL from one rating to the next. The *relative* differences tend to be larger at very high rating levels. From the perspective of an investor considering the meaning of a rating on a particular instrument, the incremental risk to the investor's portfolio depends on the absolute risk level, not the relative level. Of course, other factors like default correlation also affect incremental portfolio risk.

Figure 13  
Comparison of Ratings for Jointly Rated SF Tranches by High-Low Rating Range

| Moody's Rating    | Pairs with S&P |                              |                               |               |       |                | Pairs with Fitch |                              |                               |               |       |                |  |
|-------------------|----------------|------------------------------|-------------------------------|---------------|-------|----------------|------------------|------------------------------|-------------------------------|---------------|-------|----------------|--|
|                   | Average Gap    | Average Gap if Moody's Lower | Average Gap if Moody's Higher | Moody's Lower | Same  | Moody's Higher | Average Gap      | Average Gap if Moody's Lower | Average Gap if Moody's Higher | Moody's Lower | Same  | Moody's Higher |  |
| <b>ALL SF</b>     |                |                              |                               |               |       |                |                  |                              |                               |               |       |                |  |
| <b>Aaa</b>        | 0.03           | --                           | 2.07                          | --            | 98.5% | 1.5%           | 0.05             | --                           | 2.25                          | --            | 97.7% | 2.3%           |  |
| <b>non-Aaa</b>    | (0.37)         | (1.66)                       | 1.69                          | 31.2%         | 60.1% | 8.6%           | (0.48)           | (1.68)                       | 1.87                          | 37.6%         | 54.5% | 7.9%           |  |
| <b>Inv. Grade</b> | (0.14)         | (1.58)                       | 1.75                          | 14.4%         | 80.7% | 4.9%           | (0.17)           | (1.58)                       | 1.93                          | 16.1%         | 79.6% | 4.3%           |  |
| <b>BIG#</b>       | (0.62)         | (2.16)                       | 1.69                          | 34.3%         | 58.9% | 6.8%           | (0.63)           | (2.19)                       | 2.10                          | 41.3%         | 45.6% | 13.1%          |  |
| <b>RMBS</b>       |                |                              |                               |               |       |                |                  |                              |                               |               |       |                |  |
| <b>Aaa</b>        | 0.02           | --                           | 1.92                          | --            | 98.8% | 1.2%           | 0.03             | --                           | 2.11                          | --            | 98.6% | 1.4%           |  |
| <b>non-Aaa</b>    | (0.30)         | (1.49)                       | 1.75                          | 35.4%         | 51.4% | 13.1%          | (0.82)           | (1.57)                       | 1.99                          | 62.5%         | 29.4% | 8.1%           |  |
| <b>Inv. Grade</b> | (0.07)         | (1.44)                       | 1.79                          | 10.8%         | 84.3% | 4.9%           | (0.11)           | (1.46)                       | 2.02                          | 11.5%         | 85.9% | 2.6%           |  |
| <b>BIG</b>        | (0.44)         | (2.15)                       | 1.57                          | 28.4%         | 60.8% | 10.8%          | (1.18)           | (2.40)                       | 2.27                          | 58.2%         | 32.3% | 9.5%           |  |
| <b>CMBS</b>       |                |                              |                               |               |       |                |                  |                              |                               |               |       |                |  |
| <b>Aaa</b>        | 0.08           | --                           | 2.13                          | --            | 96.2% | 3.8%           | 0.10             | --                           | 2.37                          | --            | 95.7% | 4.3%           |  |
| <b>non-Aaa</b>    | (0.28)         | (1.87)                       | 1.75                          | 23.0%         | 68.6% | 8.4%           | (0.86)           | (2.63)                       | 1.77                          | 37.0%         | 56.8% | 6.3%           |  |
| <b>Inv. Grade</b> | (0.09)         | (1.94)                       | 1.91                          | 11.9%         | 80.8% | 7.3%           | (0.36)           | (2.67)                       | 1.98                          | 17.9%         | 76.1% | 6.1%           |  |
| <b>BIG</b>        | (0.31)         | (1.72)                       | 1.32                          | 21.0%         | 75.5% | 3.5%           | (0.90)           | (2.52)                       | 1.87                          | 37.4%         | 60.1% | 2.5%           |  |
| <b>ABS</b>        |                |                              |                               |               |       |                |                  |                              |                               |               |       |                |  |
| <b>Aaa</b>        | 0.03           | --                           | 2.23                          | --            | 98.6% | 1.4%           | 0.05             | --                           | 2.29                          | --            | 97.9% | 2.1%           |  |
| <b>non-Aaa</b>    | (0.50)         | (1.70)                       | 1.59                          | 35.4%         | 58.0% | 6.6%           | (0.38)           | (1.51)                       | 1.82                          | 34.4%         | 58.2% | 7.4%           |  |
| <b>Inv. Grade</b> | (0.26)         | (1.61)                       | 1.64                          | 20.5%         | 75.0% | 4.5%           | (0.19)           | (1.42)                       | 1.83                          | 18.9%         | 76.8% | 4.3%           |  |
| <b>BIG</b>        | (1.04)         | (2.26)                       | 1.86                          | 52.0%         | 40.9% | 7.1%           | (0.45)           | (1.97)                       | 2.09                          | 41.3%         | 41.2% | 17.5%          |  |
| <b>CDOs</b>       |                |                              |                               |               |       |                |                  |                              |                               |               |       |                |  |
| <b>Aaa</b>        | 0.03           | --                           | 2.30                          | --            | 98.8% | 1.2%           | 0.20             | --                           | 2.27                          | --            | 91.1% | 8.9%           |  |
| <b>non-Aaa</b>    | (0.03)         | (1.90)                       | 1.78                          | 9.4%          | 82.5% | 8.1%           | (0.14)           | (1.89)                       | 2.07                          | 23.7%         | 61.4% | 14.9%          |  |
| <b>Inv. Grade</b> | 0.01           | (1.73)                       | 1.83                          | 4.7%          | 90.0% | 5.3%           | 0.02             | (1.75)                       | 2.12                          | 12.8%         | 75.6% | 11.5%          |  |
| <b>BIG</b>        | (0.25)         | (2.33)                       | 1.83                          | 16.9%         | 75.4% | 7.8%           | (0.28)           | (2.38)                       | 2.12                          | 32.4%         | 44.7% | 22.9%          |  |

#Below investment grade

Consistent with the sector data presented earlier and with last year's report, there are important distinctions in rating gaps for jointly-rated instruments depending on whether credits are rated **Aaa** vs. non-**Aaa**, or investment-grade vs. below-investment-grade. The distinction by investment-grade/below-investment-grade is typically a bit sharper than that by **Aaa**/non-**Aaa**.<sup>23</sup>

In some sectors, depending on the other rating agency, most of the below-investment-grade ratings are different (usually higher than Moody's, but sometimes lower). In two cases, the average rating differential is more than one notch (below-investment-grade ABS vs. S&P and below-investment grade RMBS vs. Fitch).

Also, there are cases in which the Moody's rating is lower than that of another agency for *most* of the joint rating pairs. Specifically, the Moody's rating is lower more than half the time for below-investment-grade ABS *vis-à-vis* S&P, and for non-**Aaa** and below-investment-grade RMBS vs. Fitch. These cases also tend to be associated with relatively large rating gaps when the Moody's rating is lower. In no case is the Moody's rating higher for the majority of joint-rating observations.

23 The tendency for rating gaps to be larger for non-**Aaa** ratings is not evident when looking at the "Average Gap if Moody's Higher" figures. This is attributable to selection bias. We know that if the Moody's rating is **Aaa**, it is as high as possible and could exceed the rating of another agency by multiple notches. As we have noted, the proportion of rating pairs for which the Moody's rating is higher is significantly smaller than that of cases where the Moody's rating is lower.

## IV. THE EFFECT OF SEASONING

One would generally expect a tighter relationship between joint ratings of new instruments than of seasoned credits for the following reasons:

- Rating methodologies change over time—all rating agencies revise and update their methodologies from time to time. Changes in the underlying instruments themselves may call for new analytical approaches. Methodologies may also change in response to new empirical information about the performance of underlying collateral pools or about the performance of past ratings within a sector. Finally, rating analysts may seek to incorporate new modeling techniques that have been introduced into the financial markets.
- Even if we were to hold methodologies constant, ratings of an instrument from different agencies that were initially very close to each other (perhaps even identical) may drift apart over time because of differences in monitoring practices. The differences may relate to interpretations of the underlying information or simply to the speed of rating changes in response to changes in transaction performance.

In order to examine the impact of seasoning, we have again stratified our data set into several broad vintage buckets. The buckets, as well as the number of observations per bucket, are reported in *Figures 14a* (Moody's/S&P joint ratings) and *14b* (Moody's/Fitch joint ratings).

*Figure 14a*

**Number of Observations per Vintage Bucket-Joint Moody's/S&P Ratings**

| Vintage (Years) | All SF |        |       | RMBS   |     | CMBS  |     | ABS    |     | CDO   |     |
|-----------------|--------|--------|-------|--------|-----|-------|-----|--------|-----|-------|-----|
|                 | All    | IG     | BIG   | IG     | BIG | IG    | BIG | IG     | BIG | IG    | BIG |
| 0-1             | 19,958 | 18,804 | 1,154 | 7,931  | 172 | 1,183 | 240 | 7,904  | 567 | 1,786 | 175 |
| 2-3             | 27,048 | 25,627 | 1,421 | 11,527 | 312 | 1,638 | 422 | 10,612 | 555 | 1,850 | 132 |
| 4-5             | 9,457  | 8,743  | 714   | 3,770  | 139 | 765   | 275 | 3,408  | 184 | 800   | 116 |
| 6+              | 3,084  | 2,613  | 471   | 436    | 18  | 637   | 136 | 1,221  | 224 | 319   | 93  |

*Figure 14b*

**Number of Observations per Vintage Bucket-Joint Moody's/Fitch Ratings**

| Vintage (Years) | All SF |        |     | RMBS  |     | CMBS |     | ABS   |     | CDO |     |
|-----------------|--------|--------|-----|-------|-----|------|-----|-------|-----|-----|-----|
|                 | All    | IG     | BIG | IG    | BIG | IG   | BIG | IG    | BIG | IG  | BIG |
| 0-1             | 9,198  | 8,741  | 457 | 3,681 | 28  | 778  | 142 | 3,902 | 270 | 380 | 17  |
| 2-3             | 12,356 | 11,681 | 675 | 3,491 | 99  | 890  | 184 | 6,683 | 371 | 617 | 21  |
| 4-5             | 5,305  | 4,940  | 365 | 1,551 | 78  | 377  | 121 | 2,635 | 133 | 377 | 33  |
| 6+              | 4,790  | 3,979  | 811 | 681   | 27  | 811  | 165 | 2,273 | 511 | 214 | 108 |

The vintage buckets—transaction closing date 0-1 years in the past, 2-3 years in the past, etc.—are chosen to provide meaningful age distinctions while retaining a reasonable number of observations per sector.<sup>24</sup> In order to keep the number of observations per bucket reasonably large, we have only distinguished ratings as investment grade (IG) or below-investment grade (BIG). Even so, we have a very small number of observations in a few of the vintage/sector/rating-level cells. The problem has been exacerbated by a substantial drop in the number of observations in the 4-5 year and 6+ year buckets in comparison with our 2006 data. At the same time, the number of data points in the 2-3 year bin has increased significantly.

The average rating notch differentials for each of these combinations are reported in *Figures 15a* and *15b*. As before, a negative number indicates that the Moody's rating is lower than that of the other agency.

<sup>24</sup> To be more precise, the vintage is measured as: 2007 minus the closing year of transaction. Thus, for example, the "0-1" bucket covers transactions that closed in 2006 and early 2007.

Figure 15a

## Average Rating Notch Difference per Vintage Bucket-Joint Moody's/S&amp;P Ratings

| Vintage (Years) | All SF |        |        | RMBS   |        | CMBS   |        | ABS    |        | CDO    |        |
|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                 | All    | IG     | BIG    | IG     | BIG    | IG     | BIG    | IG     | BIG    | IG     | BIG    |
| 0-1             | (0.14) | (0.12) | (0.42) | (0.02) | (0.43) | 0.01   | (0.05) | (0.26) | (0.69) | (0.01) | (0.04) |
| 2-3             | (0.20) | (0.18) | (0.44) | (0.14) | (0.35) | 0.03   | (0.12) | (0.30) | (0.85) | 0.00   | 0.02   |
| 4-5             | (0.11) | (0.05) | (0.89) | 0.05   | (0.45) | (0.40) | (0.48) | (0.11) | (2.05) | 0.08   | (0.52) |
| 6+              | (0.35) | (0.18) | (1.28) | (0.02) | (2.06) | (0.25) | (1.03) | (0.27) | (1.61) | 0.10   | (0.70) |

Figure 15b

## Average Rating Notch Difference per Vintage Bucket-Joint Moody's/Fitch Ratings

| Vintage (Years) | All SF |        |        | RMBS   |        | CMBS   |        | ABS    |        | CDO    |        |
|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                 | All    | IG     | BIG    | IG     | BIG    | IG     | BIG    | IG     | BIG    | IG     | BIG    |
| 0-1             | (0.17) | (0.15) | (0.51) | (0.12) | (1.00) | (0.04) | (0.20) | (0.21) | (0.65) | (0.01) | (0.12) |
| 2-3             | (0.18) | (0.17) | (0.46) | (0.10) | (0.53) | (0.19) | (0.10) | (0.22) | (0.60) | (0.01) | (0.76) |
| 4-5             | (0.18) | (0.11) | (1.07) | (0.11) | (1.97) | (0.64) | (1.12) | (0.06) | (0.74) | 0.04   | (0.09) |
| 6+              | (0.36) | (0.30) | (0.64) | (0.18) | (1.48) | (0.71) | (2.21) | (0.23) | (0.16) | 0.11   | (0.28) |

As in the previous year, there is some tendency for rating differentials to increase with transaction age, but the pattern is inconsistent. For SF instruments in the aggregate, the greatest gaps are indeed in the 6+ year category. Also as before, the gap is almost invariably greater for below-investment-grade than for investment-grade credits.<sup>25</sup> For particular vintage/sector/rating level combinations, the gaps may be quite large. For joint pairs with S&P, the average gap exceed two notches for below-investment-grade RMBS with 6+ years of seasoning and below-investment-grade ABS with 4-5 years seasoning. Relative to Fitch, the average below-investment-grade gaps approach or exceed two notches for 4-5 year RMBS and 6+ year CMBS.

25 The exceptions are the 2-3 year CDO bin vs. S&P, along with the 2-3 year CMBS and 6+ year ABS bins vs. Fitch.

## V. EXTRAPOLATING TO NON-MOODY'S-RATED SF INSTRUMENTS AND FUTURE RATING RELATIONSHIPS<sup>26</sup>

### Non-Moody's Rated Instruments

All of the data that we have examined above relate to instruments rated by Moody's and either Fitch or S&P (or both). Investors, however, are often faced with decisions regarding the creditworthiness of instruments rated by a single agency other than Moody's, or those rated by S&P and Fitch (but not by Moody's). They may wonder, for example, about the ratings that other agencies might have assigned to such prospective investments. What do our findings suggest about instruments rated by one or more agencies other than Moody's?

Unfortunately, one cannot easily extrapolate from the ratings that Moody's and another agency would assign to an instrument to other cases. The situation in which a credit is jointly rated by Moody's and another agency is fundamentally different from that in which Moody's does not rate the credit.

The difference arises primarily from selection bias, which is closely linked to "rating shopping" in this context.<sup>27</sup> The very fact that a particular agency is chosen to rate a credit suggests that the agency's rating may be higher than the rating that would be assigned by another agency, were the other agency to actually give its rating. Underwriters prefer higher ratings, other things equal, which tend to reduce the cost of issuance in comparison to lower ratings. If an underwriter requires only one rating, but solicits proposed ratings from multiple agencies, it has an incentive to choose the highest rating. If two ratings are needed, the underwriter has an incentive to choose the highest two.

Because underwriters work with rating agencies on a frequent basis, there may be little need to actually solicit multiple ratings. As part of their rating agency selection process, underwriters can often run internal models to estimate the ratings that each agency would assign.

As we noted above, underwriters also try to avoid split ratings, as split ratings may raise a red flag for investors.<sup>28</sup> While such split ratings are particularly undesirable for highly rated credits, they may also introduce some concerns for investors in lower-rated credits. Seeking a single rating eliminates the possibility of a split rating.

Finally, though we have focused on non-Moody's ratings here, the situation would be similar from the perspective of any other agency. That is, because structurers have an incentive to choose the highest rating(s), there is an *a priori* possibility that an instrument not rated by Agency X in a market where Agency X is active might have received a lower rating from Agency X than from the agency(ies) that actually assigned ratings. We note, however, that though this incentive exists, its impact may be offset by investor demand for the opinions of a particular agency or a particular set of agencies. Also, investors may seek multiple ratings, even for noninvestment-grade credits, to satisfy internal/external investment guidelines or simply because they value a diversity of opinion.

### Future Ratings Relationships

It is also difficult to extrapolate future joint-rating relationships from current joint-rating relationships; this is especially true for future relationships between actual/prospective ratings of singly-rated securities. As we observed earlier, rating methodologies should and do change over time. Each of the agencies frequently publishes revisions of earlier approaches as well as entirely new methodologies.

Even aside from changes in methodology, financial markets evolve over time, so that each of the broad SF sectors will change in composition. For example, it is not at all clear that the relationships that once held for a particular type of CDO are relevant for CDOs backed by entirely different collateral pools. The CDO sector once consisted primarily of U.S. transactions backed by non-investment-grade corporate bonds. Now, the market is global and collateral pools are often comprised of (or, if synthetic, reference) investment-grade credits, which are often SF obligations themselves rather than corporate instruments.

Against this backdrop of evolving financial markets and rating approaches, it is very unlikely that the relationships between ratings from different agencies would remain constant over time.

26 Because we believe this to be a key point, we reproduce this section from our 2006 report.

27 For example, see "Rating Shopping-Now the Consequences," Nomura Fixed Income Research, February 16, 2006, as well as Peretyatkin and Perraudin and Fender and Kiff, *op cit*.

28 Many investors must use the lower of the two ratings to calculate regulatory capital requirements or to test compliance with internal investment guidelines.

## VI. CONCLUSION

In 2006, we assembled a large database of Moody's ratings, as well as those of S&P and Fitch, on U.S. SF instruments. While we saw that for such jointly-rated securities, in the aggregate,

- Rating differentials are generally less than one notch
- Moody's ratings have been, on average, a small fraction of a notch lower in comparison to those of both S&P and Fitch

We also noted that such "conclusions" are incomplete and mask the true nature of the underlying data. We noted significant differences in these relationships across the various SF sectors, across rating levels and across vintages. In general, the rating gaps tends to be larger for:

- Lower-rated credits, for which differences in Expected Loss are greater
- Credits rated further in the past, and
- For ABS vs. S&P and CMBS and RMBS vs. Fitch.

Notwithstanding some relatively large rating differences for jointly rated SF securities, we expressed caution against extrapolating these findings to non-Moody's rated securities and to future rating relationships. The differences observed for jointly-rated securities would understate the true extent of divergent credit opinions since much of the differences go unobserved due to rating shopping.

In this report, we have repeated last year's analysis by producing a snapshot of Moody's ratings, along with those of S&P and Fitch, as of January 31, 2007. The results are strikingly similar and all the primary conclusions that we reached last year remain valid.

Doc ID# SF95627

© Copyright 2007, Moody's Investors Service, Inc. and/or its licensors and affiliates including Moody's Assurance Company, Inc. (together, "MOODY'S"). All rights reserved. **ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY COPYRIGHT LAW AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.** All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, such information is provided "as is" without warranty of any kind and MOODY'S, in particular, makes no representation or warranty, express or implied, as to the accuracy, timeliness, completeness, merchantability or fitness for any particular purpose of any such information. Under no circumstances shall MOODY'S have any liability to any person or entity for (a) any loss or damage in whole or in part caused by, resulting from, or relating to, any error (negligent or otherwise) or other circumstance or contingency within or outside the control of MOODY'S or any of its directors, officers, employees or agents in connection with the procurement, collection, compilation, analysis, interpretation, communication, publication or delivery of any such information, or (b) any direct, indirect, special, consequential, compensatory or incidental damages whatsoever (including without limitation, lost profits), even if MOODY'S is advised in advance of the possibility of such damages, resulting from the use of or inability to use, any such information. The credit ratings and financial reporting analysis observations, if any, constituting part of the information contained herein are, and must be construed solely as, statements of opinion and not statements of fact or recommendations to purchase, sell or hold any securities. **NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY SUCH RATING OR OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.** Each rating or other opinion must be weighed solely as one factor in any investment decision made by or on behalf of any user of the information contained herein, and each such user must accordingly make its own study and evaluation of each security and of each issuer and guarantor of, and each provider of credit support for, each security that it may consider purchasing, holding or selling.

MOODY'S hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MOODY'S have, prior to assignment of any rating, agreed to pay to MOODY'S for appraisal and rating services rendered by it fees ranging from \$1,500 to approximately \$2,400,000. Moody's Corporation (MCO) and its wholly-owned credit rating agency subsidiary, Moody's Investors Service (MIS), also maintain policies and procedures to address the independence of MIS's ratings and rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold ratings from MIS and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually on Moody's website at [www.moody.com](http://www.moody.com) under the heading "Shareholder Relations — Corporate Governance — Director and Shareholder Affiliation Policy."