

SPECIAL COMMENT

Default & Loss Rates of Structured Finance Securities: 1993-2009

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Analyst Contacts:

NEW YORK	1.212.553.1653
Julia Tung	1.212.553.1471
Vice President – Senior Credit Officer	
Julia.Tung@moody's.com	
Albert Metz	1.212.553.4867
Team Managing Director	
Albert.Metz@moody's.com	
Nicolas Weill	1.212.553.3877
Group Managing Director	
Nicolas.Weill@moody's.com	

Summary

This Special Comment presents Moody's eighth annual report of the material impairment and loss rates of global structured finance securities, covering the credit performance through year-end 2009 of all structured finance securities issued since 1993. The following are the highlights of this report:

- » The number of newly impaired tranches rose to 14,049 in 2009 from 12,726 in 2008. Of these, 13,153 experienced principal losses or were downgraded to Ca or C ("principal impairments"), while 896 experienced only interest shortfalls ("interest impairments").
- » The 12-month impairment rates rose for all rating categories in early to mid 2009, but have been on a downward trend since then. It is important to note that Moody's definition of material impairment includes a downgrade to Ca or C, which often occurs far in advance of any actual interest shortfall or principal write-down. While securities downgraded to Ca or C are expected to eventually experience losses, our short-term impairment rates will likely be higher than "default" rates calculated using alternative definitions.
- » As in the prior two years, material impairments were concentrated in U.S. RMBS/HEL and global CDOs ex CLOs, which accounted for 74% and 15% of new impairments, respectively. However, global CLOs, EMEA structured finance excluding CDOs & Other SF, and U.S. CMBS experienced the largest year-over-year percentage increases in the number of impairments.
- » Also similar to the past two years, transactions that closed between 2005 and 2007 contributed the bulk of impairments in 2009 with a combined 85% share of new impairments.
- » The average final loss severity rate (LGDs) for the 10,247 impaired securities that have reached a resolution (i.e. with zero outstanding principal balance) at the end of the study period was 85% as a share of the original balance. The high average LGD is a reflection of the poor performance of U.S. RMBS/HEL tranches from the 2005 to 2007 vintages, which accounted for 89% of the sample of resolved impairments. Moreover, the average LGD of the resolved impairments is expected to be higher than that of unresolved impairments because the resolved sample contains a disproportionately large number of tranches that were quickly and completely written down.

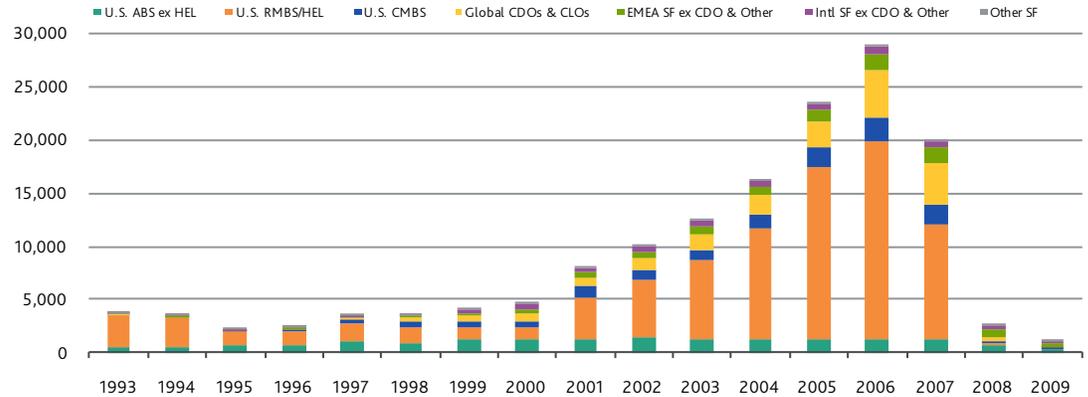
The term Structured Finance as used in this Special Comment differs from Moody's current definition of structured finance instrument [announced on July 14, 2010](#) ("Structured Finance Instrument"). Moody's current definition of Structured Finance Instruments reflects the definition of "structured finance instrument" in the European Regulation on Credit Rating Agencies, the description of "structured finance" contained in the U.S. Securities and Exchange Commission's Rule 17g-5(a)(3) and (b)(9), and similar concepts in other legislation and international principles such as Basel II, internal reviews and discussions with market participants. The reader of this Special Comment should be aware that the data collected and analyzed in connection with this Special Comment may not be identical to the data that Moody's would collect and analyze if Moody's were to apply its definition of the term "Structured Finance Instrument".

The Distribution of Global Structured Finance Ratings

Structured finance issuance fell for the third straight year, experiencing a 56% decline in new ratings compared to 2008, which made 2009 the lowest issuance year over the entire study period (Exhibit 1). The number of new ratings was down across all sectors with U.S. RMBS/HEL and global CDOs and CLOs experiencing the sharpest declines.

EXHIBIT 1

Number of New Ratings by Closing Year

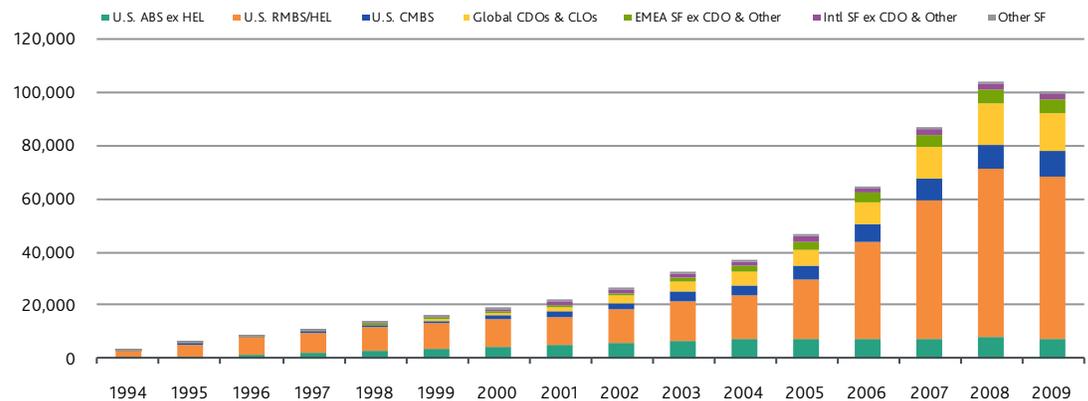


Note: Data includes Moody's-rated transactions only

As a result, the numbers of outstanding ratings shrank for the first time in history, down 4% between January 2008 and January 2009 (Exhibit 2). Again, the decrease in outstanding ratings affected all sectors with the exception of two small sectors; international structured finance excluding CDOs & Other SF and the Other structured finance category both experienced small increases in outstanding ratings.

EXHIBIT 2

Number of Ratings Outstanding at the Beginning of the Year



Note: Data includes Moody's-rated transactions only

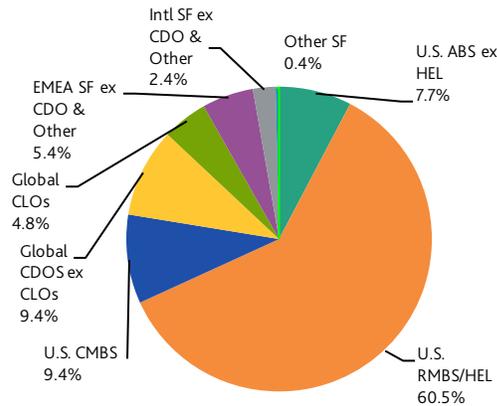
Although U.S. RMBS/HEL and global CDOs and CLOs have experienced the largest contraction in ratings, strong issuance from prior years still led these sectors to claim the largest percentage of outstanding ratings in the beginning of 2009 (Exhibit 3A). U.S. RMBS/HEL accounted for 60% of outstanding ratings and global CDOs and CLOs combined accounted for approximately 14%. With the recent downgrade activity, the distribution of outstanding ratings also changed between 2008 and

2009 (Exhibit 3B).¹ Thirty-seven percent of outstanding ratings were Aaa at the beginning of 2009 versus 50% at the beginning of 2008, 72% of ratings were investment-grade at the beginning of 2009 compared with 88% at the same in 2008, and 16% of ratings were Caa or below versus 4% in the beginning of 2008.

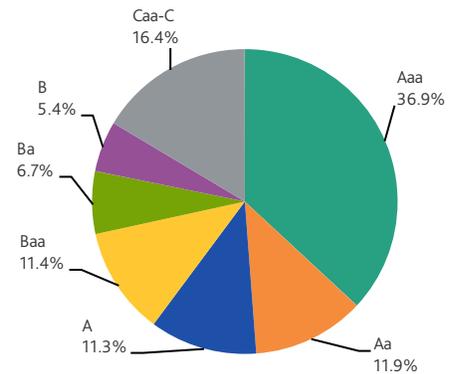
EXHIBIT 3

Distribution of Outstanding Ratings on 1/1/2009

3A: By Sector



3B: By Rating

**Total: 99,962****Structured Finance Material Impairments in 2009**

Moody's first introduced the concept of material impairment in 2003 in order to differentiate the definition of default between the corporate and structured finance sectors.² We further segmented material impairments into two categories: principal impairments and interest impairments.³ Principal impairments include securities that had outstanding principal write-downs or losses and securities that were downgraded to Ca or C, even if they have not yet experienced an interest shortfall or principal write-down.⁴ Interest impairments, or interest impaired securities, include securities that are not principal impaired, but have outstanding interest shortfalls.⁵

The actual impairment classification is based on a security's status as of the end of the study period. For example, a security that initially experienced an interest shortfall before suffering a principal write-down several months later would be classified as a principal impairment with an impairment date equal to when the interest shortfall occurred. If, however, the interest shortfall is cured before the principal write-down occurs, then the impairment date coincides with the date of the principal write-down. Lastly, if a tranche was not downgraded to Ca/C and all interest shortfalls and principal write-downs were cured (repaid) as of the end of the study period, then it would no longer be considered impaired and would not appear in our sample of impairments.

Using this criteria, the number of material impairments increased to 14,049 in 2009 from 12,726 in 2008 as the global economic downturn continued to negatively impact the performance of structured

¹ In Exhibit 3B and in all other exhibits in the report that reference ratings, the numbers represent a ratings summary of instruments rated by the Structured Finance group and could include certain instruments that may not fall under the definition of a Structured Finance instrument.

² See Moody's Special Comment, "[Payment Defaults and Material Impairments of U.S. Structured Finance Securities: 1993-2002](#)," December 2003.

³ See the glossary in Appendix I for further details on the definition of impairment.

⁴ Securities that have been downgraded to Ca/C are expected to sustain losses ultimately.

⁵ Historically, interest shortfalls have had a much greater chance of being cured than principal losses and thus, we distinguish between interest impaired securities and principal impaired securities due to the difference in the stability of its impairment status.

finance transactions (Exhibit 4). In total, 13,153 of the impairments were principal impairments and 896 were interest impairments. Note that interest impairments were relatively infrequent in prior years because most interest impairments are eventually either cured, and thus removed from the list of impairments, or become principal impairments.

EXHIBIT 4

Principal and Interest Impairments by Impairment Year

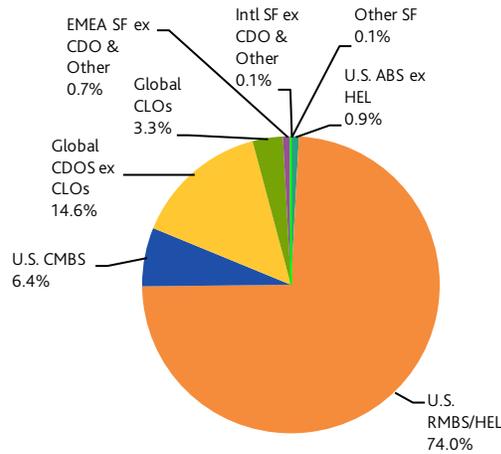
IMPAIRMENT YEAR	PRINCIPAL IMPAIRMENTS	INTEREST IMPAIRMENTS	TOTAL IMPAIRMENTS
1994	3	0	3
1995	1	0	1
1996	17	0	17
1997	37	0	37
1998	25	0	25
1999	52	2	54
2000	50	0	50
2001	101	2	103
2002	270	3	273
2003	195	15	210
2004	231	4	235
2005	89	1	90
2006	104	3	107
2007	2,134	13	2,147
2008	12,634	92	12,726
2009	13,153	896	14,049
Total	29,096	1,031	30,127

Exhibit 5 presents the distribution of 2009 material impairments by sector and vintage. U.S. RMBS/HEL continued to dominate, making up almost three-quarters of impairments in 2009. Global CDOs ex CLOs were the second largest contributor at 15%. While U.S. CMBS and global CLOs accounted for much smaller shares, the number of impairments in these sectors grew between 2008 and 2009. As has been the case for the last two years, impairments were concentrated in the 2005 to 2007 vintages, which combined accounted for 85% of newly impaired securities.

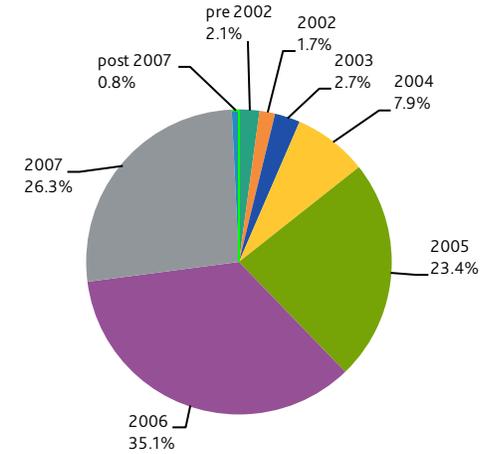
EXHIBIT 5

Distribution of Material Impairments in 2009

5A: By Sector



5B: By Vintage



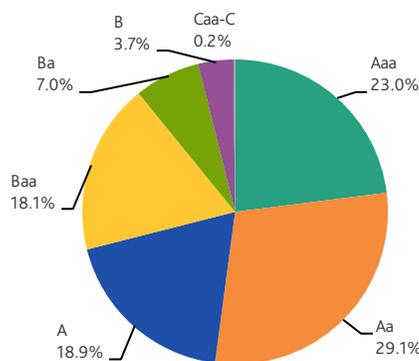
Total: 14,049

Securities that were originally rated Aa contributed the largest share of impairments in 2009 (29%) and those that were originally rated Aaa made up the second largest percentage (Exhibit 6A). However, note that this is a reflection of the distribution of ratings issued rather than the relative performance of the ratings. From Exhibit 6B we see that historically, while there have been many more investment-grade impairments than speculative-grade impairments, this is because there are many more investment-grade ratings issued in the first place. The cumulative impairment rate to date, which is the total number of impairments divided by the number of ratings issued as of the end of 2009, still generally increases as the original rating declines.

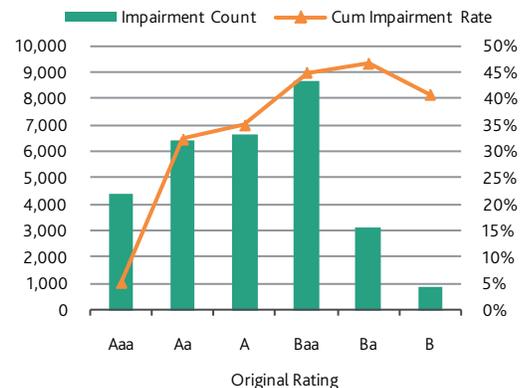
EXHIBIT 6

Distribution of Material Impairments by Original Rating

6A: In 2009



6B: From 1993-2009



The distribution of impairments by impairment year and sector is shown in greater detail in Exhibit 7. While U.S. RMBS/HEL and global CDOs ex CLOs have the largest numbers of impairments, the number of newly impaired securities increased only moderately for U.S. RMBS/HEL in 2009 and the number actually declined for global CDOs ex CLOs in contrast to almost all other sectors. U.S.

CMBS, global CLOs, and EMEA structured finance excluding CDOs & Other SF all experienced a greater number of impairments in 2009 than in their entire history combined.

EXHIBIT 7

Material Impairments by Impairment Year and Sector

Impairment Year	U.S. ABS ex HEL	U.S. RMBS/HEL	U.S. CMBS	Global CDOs ex CLOs	Global CLOs	EMEA SF ex CDO & Other	Intl SF ex CDO & Other	Other SF
1994	0	0	3	0	0	0	0	0
1995	0	1	0	0	0	0	0	0
1996	0	17	0	0	0	0	0	0
1997	0	37	0	0	0	0	0	0
1998	4	21	0	0	0	0	0	0
1999	12	38	2	1	1	0	0	0
2000	15	23	0	10	2	0	0	0
2001	29	17	5	50	2	0	0	0
2002	117	17	17	110	5	0	7	0
2003	99	34	23	49	5	0	0	0
2004	144	20	20	49	0	2	0	0
2005	17	29	21	19	4	0	0	0
2006	32	32	22	17	3	1	0	0
2007	20	1,504	8	591	0	3	0	21
2008	21	9,745	79	2,824	22	8	11	16
2009	120	10,393	898	2,054	463	100	13	8
Total	630	21,928	1,098	5,774	507	114	31	45

As a result of the increased number of impairments, the 12-month impairment rate rose to new highs in early to mid 2009 for all rating categories (Exhibits 8A and 8B). Note in particular that there were a large number of downgrades to Ca/C in the first quarter of 2009. Impairment rates since then have been declining, with investment-grade ratings seeing the greatest drop.

EXHIBIT 8A

Trailing 12-month Impairment Rates (Aaa, Aaa, A)

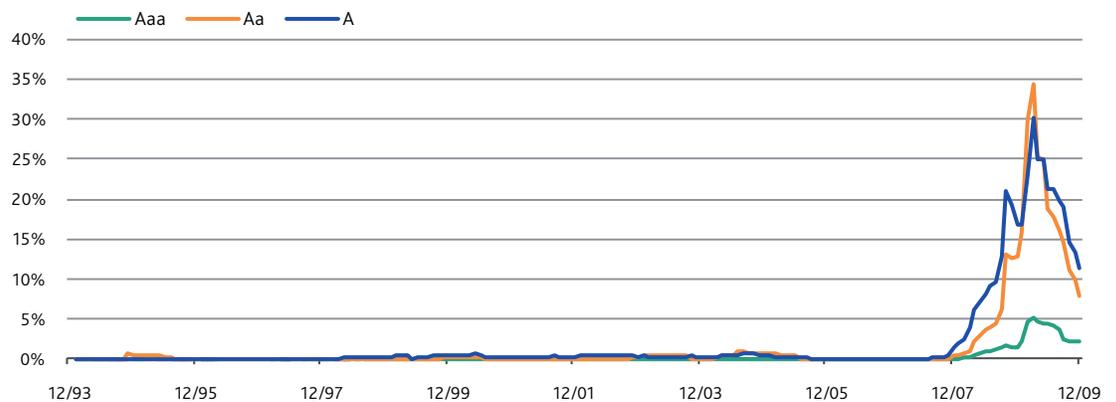
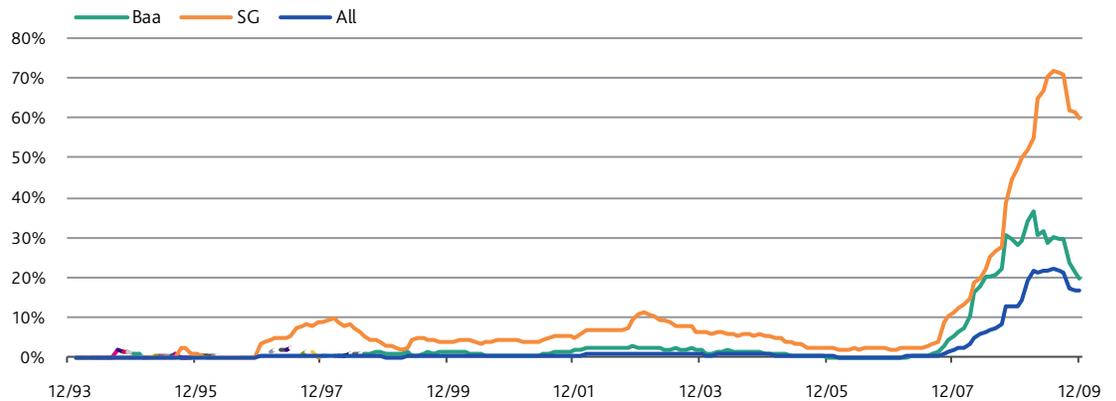


EXHIBIT 8B

Trailing 12-month Impairment Rates (Baa, Speculative-grade, All)



The 2006 vintage has exhibited the worst performance to date due to distressed U.S. RMBS/HEL and global CDO transactions that closed in this year (Exhibit 9). Forty-percent of all impairments can be attributed to this vintage and 42% of ratings issued from this vintage were impaired as of the end of 2009. The 2007 vintage has the second highest share of impairments (26%) and the second highest cumulative impairment rate (39%).

EXHIBIT 9

Material Impairments by Closing Year, 1993-2009

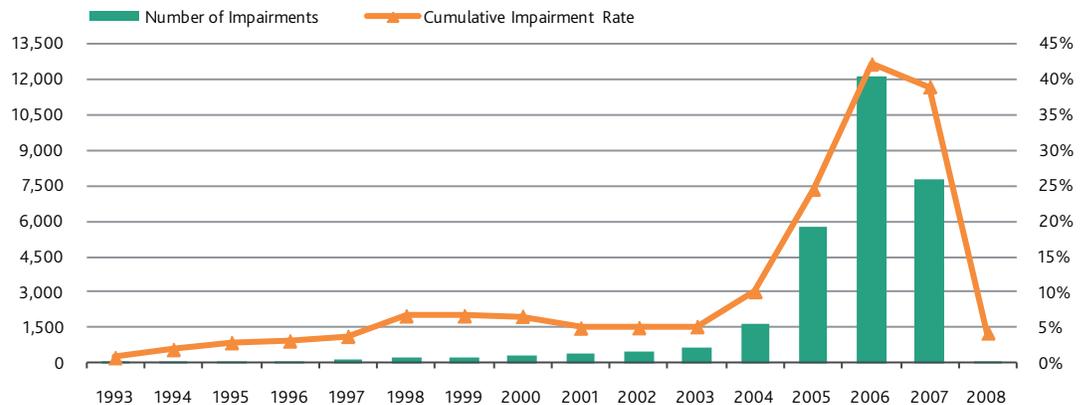
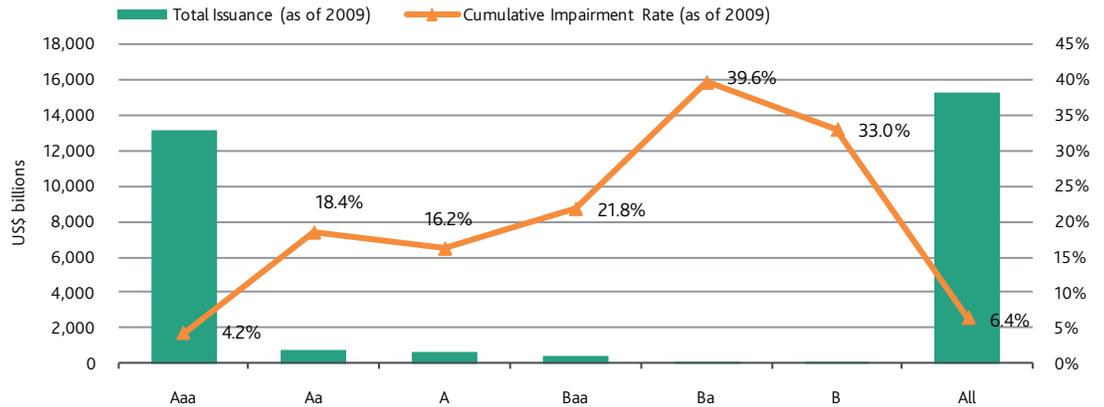


Exhibit 10 presents cumulative structured finance issuance by broad rating category and shows cumulative impairment rates by volume. The chart illustrates the dominance of Aaa ratings in terms of issuance volume (86%) and how small speculative-grade issuance is relative to investment-grade issuance, accounting for only 0.9% of structured volume. Unsurprisingly, cumulative impairment rates increased across all rating categories in 2009 relative to their status as of the end of 2008. While the impairment rate generally increases as the rating declines, especially between Aaa and other ratings, the relationship is not monotonic as Aa ratings have a higher cumulative impairment rate than single-A ratings and single-B ratings have a lower frequency of impairments than Ba ratings. Such non-monotonicities are driven by the different mix of sectors in the different rating categories. For example, the Aa category is over-weighted in U.S. RMBS/HEL, while for single-B ratings the sector is under-weighted.

EXHIBIT 10

Material Impairments by Original Rating and Volume, 1993-2009



Note: The Other Structured Finance category is excluded as historical issuance in this category is not well catalogued.

Sector Specific Analysis of Impairments

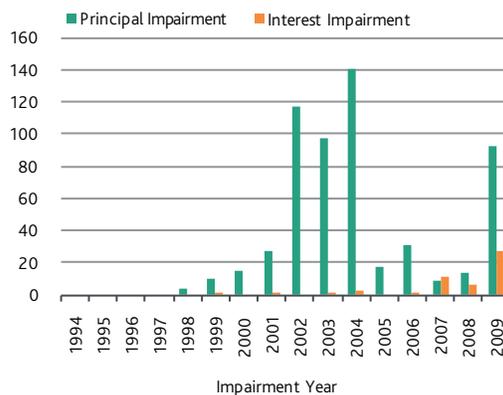
U.S. ABS ex HEL

The number of material impairments among U.S. ABS, excluding HEL, rose from 21 in 2008 to 120 in 2009, but was still lower than the high of 144 reached in 2004 (Exhibit 11A). Twenty-seven or 23% of the new impairments were interest impairments. Cumulative impairment rates are generally rank-ordered by original rating, with the exception of Aa (Exhibit 11B). The difference in the rate is especially large between Aaa and non-Aaa ratings and investment-grade and speculative-grade ratings. The 12-month impairment rate for Aaa and Aa ratings was zero, as has been the case for the last 4 years, but the rate for all other categories increased in 2009 (Exhibit 11C and 11D).

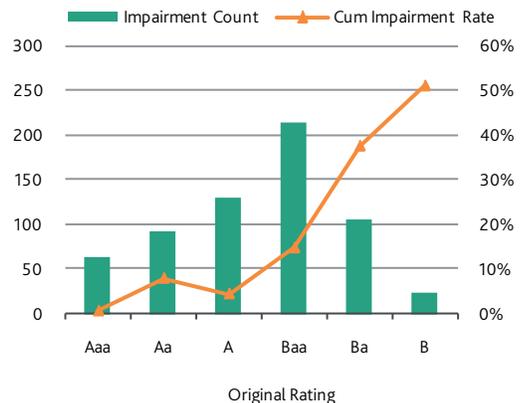
EXHIBIT 11

U.S. ABS ex HEL Material Impairment Trends

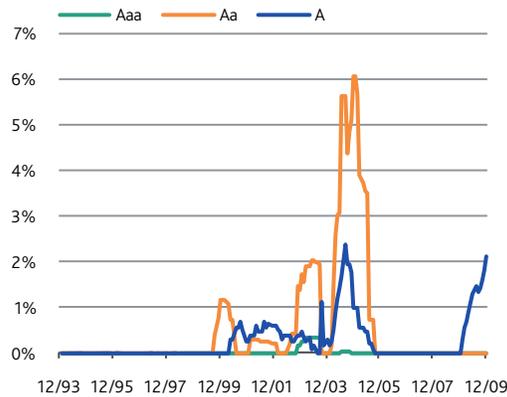
11A: Number of Impairments by Impairment Year and Type



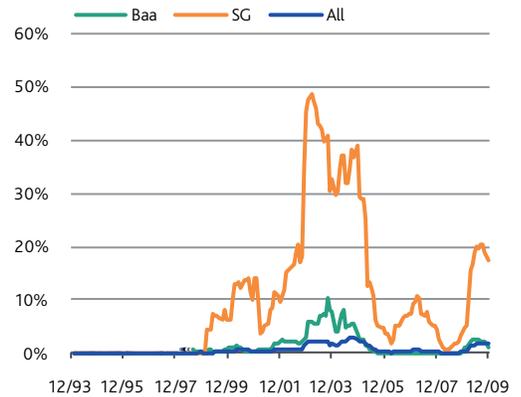
11B: Cumulative Impairment Count and Rate by Original Rating



11C: Trailing 12-month Impairment Rates (Aaa, Aa, A)



11D: Trailing 12-month Impairment Rates (Baa, SG, All)

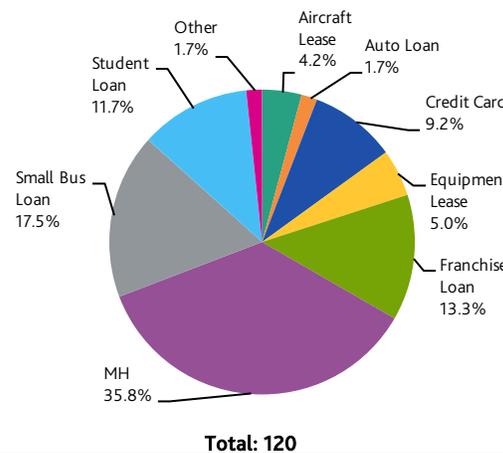


Manufactured housing was the largest contributor of U.S. ABS ex HEL impairments in 2009 (36%), which has also been true historically (Exhibit 12). Transactions backed by small business loans, student loans, and credit cards accounted for a larger share of impairments in 2009 than they have historically. Franchise loan ABS claimed the third largest share of new impairments at 13% and a similar percentage of all impairments in the study period.

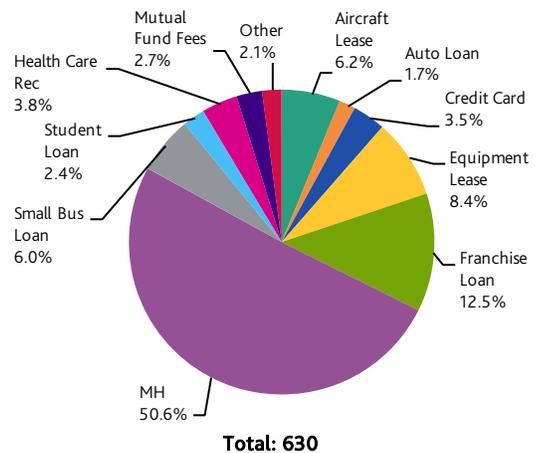
EXHIBIT 12

Distribution of U.S. ABS ex HEL Material Impairments by Asset Type

12A: In 2009



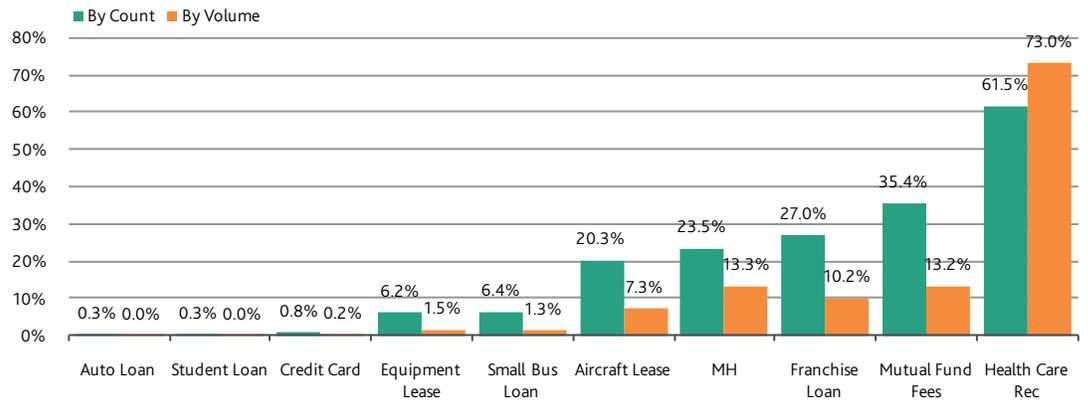
12B: From 1993-2009



Despite the increase in impairments experienced by student loan and credit card ABS in 2009, the cumulative impairment rate for these two asset types remains very low (Exhibit 13). Deals backed by auto loans have the lowest cumulative impairment rate of all the major asset types. Equipment lease and small business loan ABS have experienced moderate cumulative impairment rates, while transactions backed by aircraft leases, manufactured housing loans, and franchise loans all have lifetime impairment rates greater than 20%.

EXHIBIT 13

Cumulative Impairment Rates for U.S. ABS ex HEL by Asset Type, 1993-2009



Note: Agricultural and industrial equipment lease ABS are included in the Equipment Lease category.

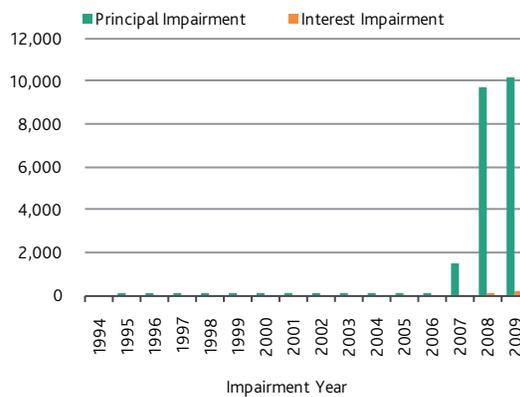
U.S. RMBS/HEL

There were 10,393 U.S. RMBS/HEL impairments in 2009, a 7% increase from the 9,745 impairments from the prior year, but still much smaller growth than the increases that occurred in 2007 and 2008 (Exhibit 14A). Cumulative impairment rates are still lower for Aaa ratings than for other rating categories (Exhibit 14B). In addition, lifetime impairment rates are rank-ordered by original rating except for single-B ratings, which have a relatively small sample. The 12-month impairment rate reached record highs in March 2009 for all investment-grade rating categories after increased downgrades to Ca/C in the first quarter of the year (Exhibits 14C and 14D). However, impairment rates declined rapidly for the rest of the year.

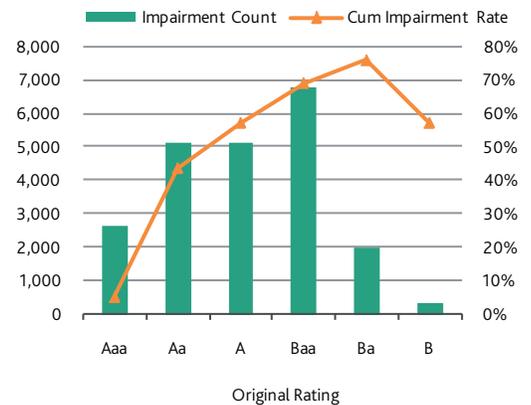
EXHIBIT 14

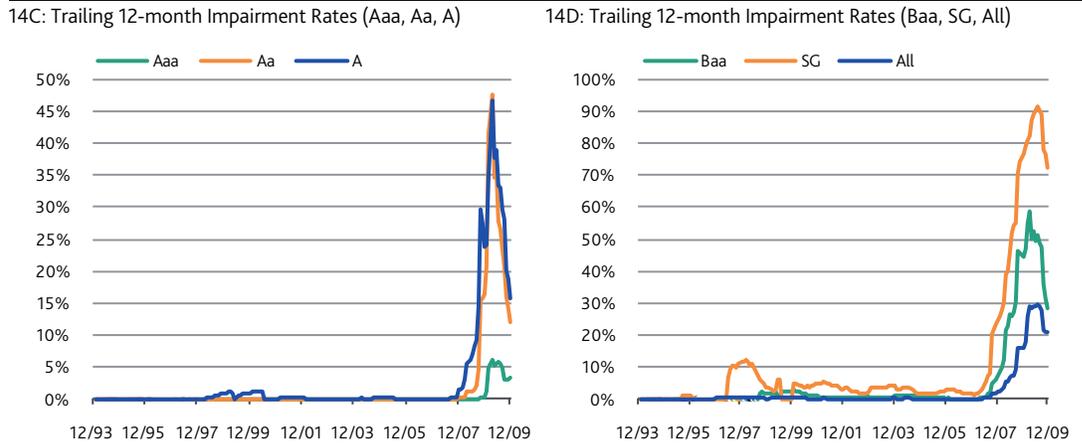
U.S. RMBS/HEL Material Impairment Trends

14A: Number of Impairments by Impairment Year and Type



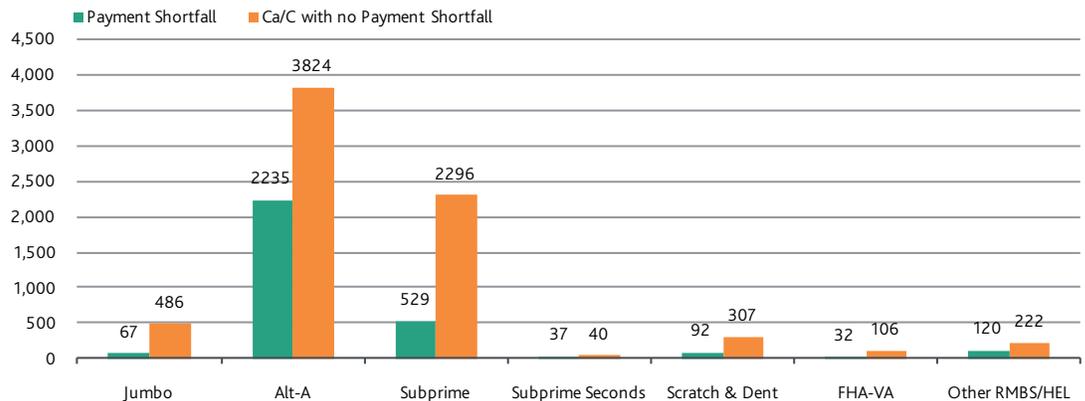
14B: Cumulative Impairment Count and Rate by Original Rating





Fifty-eight percent of new impairments in 2009 involved Alt-A tranches and 27% affected securities backed by subprime first-lien mortgages (Exhibit 15). Seventy-percent of the impaired securities have not experienced any payment shortfalls as of the end of 2009 and are considered impaired due to a downgrade to Ca/C.

EXHIBIT 15
U.S. RMBS/HEL Material Impairments by Loan Type in 2009

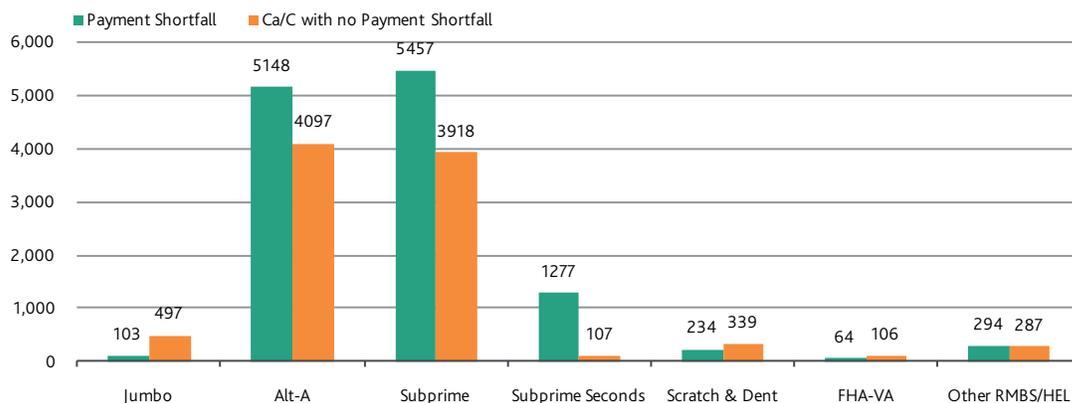


Note: Alt-A includes Option ARMS. Resecuritizations are classified as Other RMBS/HEL regardless of the underlying loan type.

Further analysis of U.S. RMBS/HEL impairments over the entire study period paints a somewhat different picture (Exhibit 16). Between 1993 and 2009, the subprime and Alt-A loan types experienced very similar numbers of impairments, accounting for 43% and 42% of all impairments, respectively. Subprime second lien securities contributed a larger proportion of impairments prior to 2009 than in 2009 and most jumbo impairments occurred in 2009. Moreover, 57% of all impaired tranches and 82% of tranches that were impaired prior to 2009 have experienced payment shortfalls by the end of 2009. Thus, based on historical experience, those tranches that were downgraded to Ca/C with no payment shortfalls at that time are likely to experience shortfalls in the future.

EXHIBIT 16

U.S. RMBS/HEL Material Impairments by Loan Type, 1993-2009



Note: Alt-A includes Option ARMS. Resecuritized are classified as Other RMBS/HEL regardless of the underlying loan type.

Impairment statistics for the major loan types (jumbo, Alt-A, subprime firsts, and subprime seconds) in the most poorly-performing vintages (2005 to 2007) are broken out by rating category in Exhibits 17 -20. Subprime seconds have experienced the worst performance to date of the four loan types from these vintages as 82% of securities by count and 51% by volume have become impaired. Within each individual broad rating category, aside from the very small single-B rating category, securities backed by Alt-A mortgages have a greater proportion of impairments than those backed by first-lien subprime mortgages. However, in aggregate, subprime firsts have fared worse because the percentage of Aaa ratings issued is much smaller for subprime than for Alt-A. Jumbo tranches have experienced the lowest number and percentage of impairments to date and there have been relatively few impairments among Aaa-rated securities.

EXHIBIT 17

Material Impairments for 2005-2007 Vintage U.S. RMBS/HEL Backed by Jumbo Mortgages (as of year-end 2009)

ORIGINAL RATING	BY NUMBER OF TRANCHES			BY DOLLAR VOLUME (US\$ MM)		
	IMPAIRED	RATED	% IMPAIRED	IMPAIRED	RATED	% IMPAIRED
Aaa	50	4,373	1.1%	661	230,858	0.3%
Aa	216	553	39.1%	1,887	3,746	50.4%
A	45	69	65.2%	255	396	64.4%
Baa	61	71	85.9%	208	230	90.5%
Ba	27	29	93.1%	64	67	95.4%
B	24	24	100.0%	35	35	100.0%
Total	423	5,119	8.3%	3,111	235,332	1.3%

EXHIBIT 18

Material Impairments for 2005-2007 Vintage U.S. RMBS/HEL Backed by Alt-A Mortgages (as of year-end 2009)

ORIGINAL RATING	BY NUMBER OF TRANCHES			BY DOLLAR VOLUME (US\$ MM)		
	IMPAIRED	RATED	% IMPAIRED	IMPAIRED	RATED	% IMPAIRED
Aaa	1,818	13,156	13.8%	95,987	965,159	9.9%
Aa	2,753	3,246	84.8%	32,282	38,774	83.3%
A	1,928	2,038	94.6%	12,793	13,843	92.4%
Baa	1,902	1,952	97.4%	9,448	9,787	96.5%
Ba	336	339	99.1%	1,696	1,699	99.8%
B	53	55	96.4%	184	196	94.0%
Total	8,790	20,786	42.3%	152,390	1,029,458	14.8%

Note: Alt-A includes Option ARM mortgages.

EXHIBIT 19

Material Impairments for 2005-2007 Vintage U.S. RMBS/HEL Backed by Subprime First Lien Mortgages (as of year-end 2009)

ORIGINAL RATING	BY NUMBER OF TRANCHES			BY DOLLAR VOLUME (US\$ MM)		
	IMPAIRED	RATED	% IMPAIRED	IMPAIRED	RATED	% IMPAIRED
Aaa	433	5,303	8.2%	36,618	840,240	4.4%
Aa	1,665	2,941	56.6%	49,846	95,666	52.1%
A	2,341	2,973	78.7%	37,798	49,778	75.9%
Baa	2,838	3,003	94.5%	33,549	35,132	95.5%
Ba	903	917	98.5%	9,098	9,156	99.4%
B	2	2	100.0%	19	19	100.0%
Total	8,182	15,139	54.0%	166,928	1,029,992	16.2%

EXHIBIT 20

Material Impairments for 2005-2007 Vintage U.S. RMBS/HEL Backed by Subprime Second Lien Mortgages (as of year-end 2009)

ORIGINAL RATING	BY NUMBER OF TRANCHES			BY DOLLAR VOLUME (US\$ MM)		
	IMPAIRED	RATED	% IMPAIRED	IMPAIRED	RATED	% IMPAIRED
Aaa	133	355	37.5%	18,342	47,076	39.0%
Aa	265	324	81.8%	5,027	6,338	79.3%
A	337	354	95.2%	3,514	3,802	92.4%
Baa	409	411	99.5%	3,056	3,079	99.3%
Ba	182	182	100.0%	1,318	1,318	100.0%
Total	1,326	1,626	81.5%	31,257	61,612	50.7%

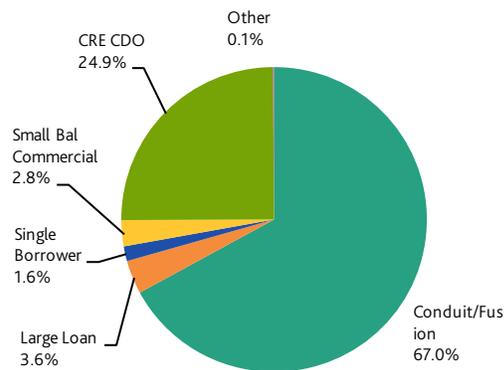
U.S. CMBS

U.S. CMBS⁶ was hit hard by the downturn in the U.S. commercial property market in 2009 and as a result, the number of impairments increased to 898 in 2009 compared to the 200 impairments the sector experienced prior to 2009. Conduit/fusion transactions accounted for approximately two-thirds of new impairments (Exhibit 21A), which is roughly in line with the share of total U.S. CMBS ratings for this deal type at the beginning of the year (72%). CRE CDOs were the second largest contributor at 25%, although they only accounted for 14% of outstanding ratings as of January 2009. Sixty-five percent of impairments occurred among securities originally rated speculative-grade and 85% among those rated Baa or below (Exhibit 21B).

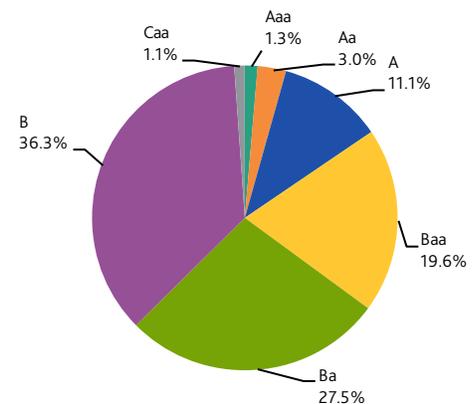
EXHIBIT 21

U.S. CMBS Material Impairments in 2009

21A: By Deal Type



21B: By Original Rating



Total: 898

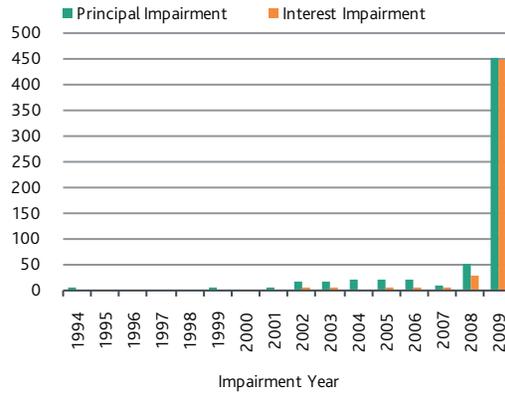
Unlike other sectors, half of the impairments in 2009 were interest impairments, which have a higher frequency of cures than principal impairments (Exhibit 22A). Therefore, there is more likely to be a downward revision of impairments for U.S. CMBS than for other sectors. Both the number and frequency of impairments are monotonic by original rating and Aaa-rated CMBS still have a very low incidence of impairment (Exhibit 22B). The 12-month impairment rate has increased for all rating categories in the past year (Exhibits 22C and 22D).

⁶ Note that CRE CDOs are included in the U.S. CMBS category.

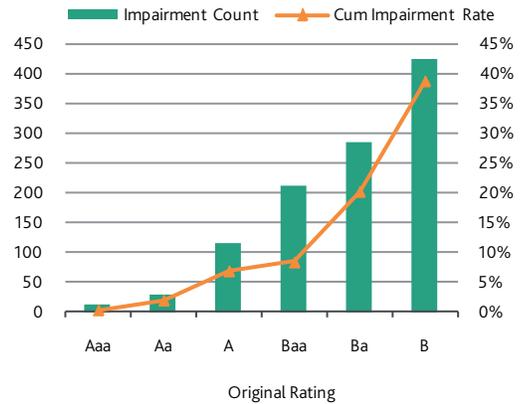
EXHIBIT 22

U.S. CMBS Material Impairment Trends

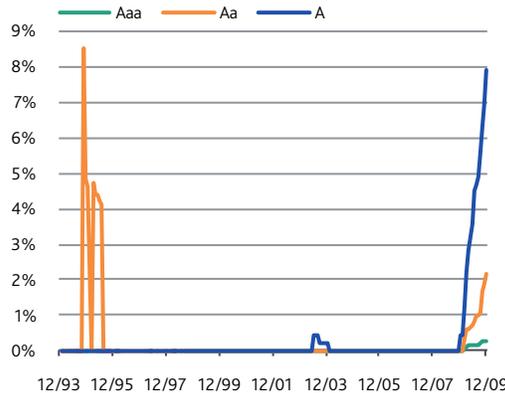
22A: Number of Impairments by Impairment Year and Type



22B: Cumulative Impairment Count and Rate by Original Rating



22C: Trailing 12-month Impairment Rates (Aaa, Aa, A)



22D: Trailing 12-month Impairment Rates (Baa, SG, All)

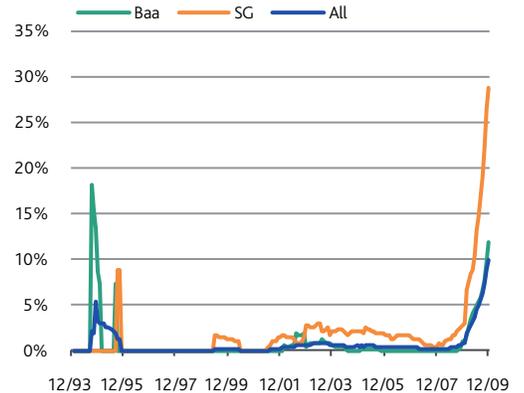
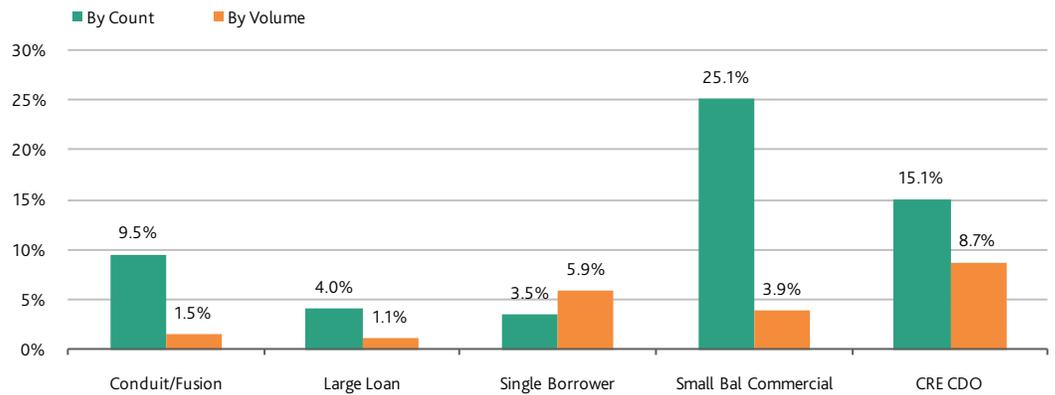


Exhibit 23 displays the percentage of U.S. CMBS tranches that were impaired as of the end of 2009 for some select deal types. Except for single-borrower transactions, cumulative impairment rates by volume are lower than the rates by tranche count due to the fact that most of the impaired securities are from subordinate tranches with lower ratings and smaller balances. Only 1.5% of conduit/fusion securities have become impaired (by volume), while the percentage is higher for CRE CDOs (8.7%).

EXHIBIT 23

Cumulative Impairment Rates for U.S. CMBS by Deal Type, 1993-2009



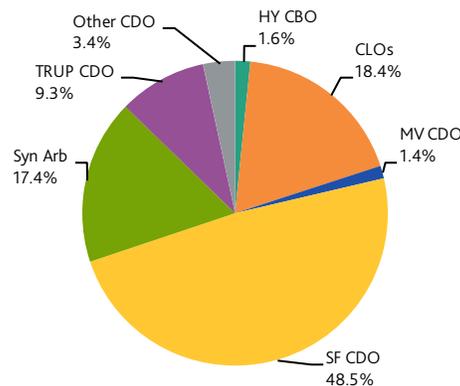
Global CDOs and CLOs

The number of new impairment among global CDOs decreased in 2009 relative to 2008, although the absolute number of impairment remained high. Global CLOs specifically experienced an increase in impairments. While SF CDOs were still the CDO deal type most likely to experience impairments in 2009, they accounted for 49% of new impairments versus 71% of historical impairments (Exhibits 24A and 24B). In contrast, CLOs and synthetic arbitrage CDOs accounted for 18% and 17% shares of 2009 impairments, respectively, versus 8% and 9%, respectively, for the entire study period.

EXHIBIT 24

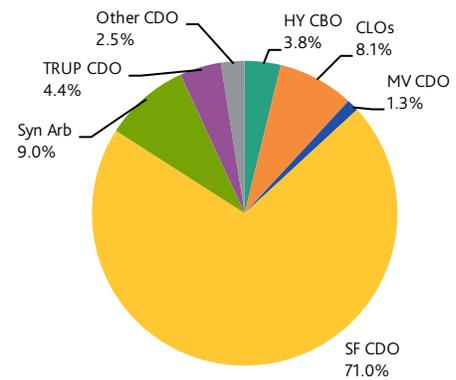
Distribution of Global CDO Material Impairments by Deal Type

24A: In 2009



Total: 2,517

24B: From 1993-2009



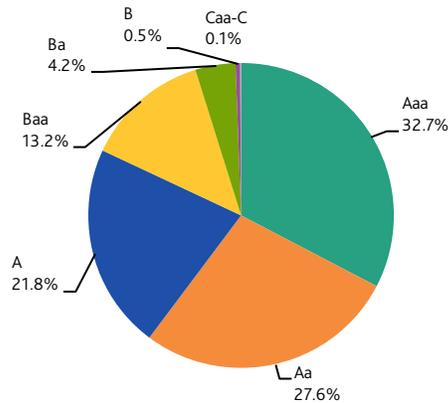
Total: 6,281

A significant difference between CLO impairments in 2009 versus other CDO impairments was the distribution of original ratings for the impaired securities. Roughly one-third of impaired CDOs ex CLOs were originally rated Aaa and 95% were originally rated investment-grade (Exhibit 25A). This is both a reflection of the distribution of original ratings issued and the fact that many speculative-grade rated securities became impaired prior to 2009. In contrast, 55% of CLO impairments in 2009 were originally rated below investment-grade and 86% were rated Baa or below (Exhibit 25B).

EXHIBIT 25

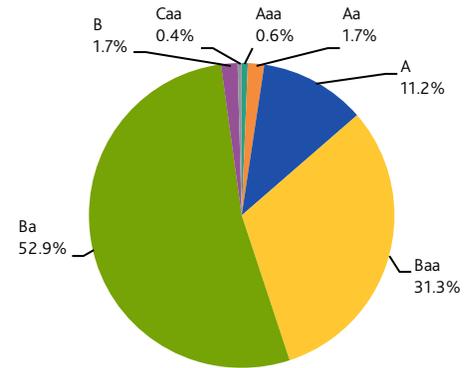
Distribution of Global CDO and CLO Material Impairments in 2009 by Original Rating

25A: Global CDOs ex CLOs in 2009



Total: 2,054

25B: Global CLOs in 2009



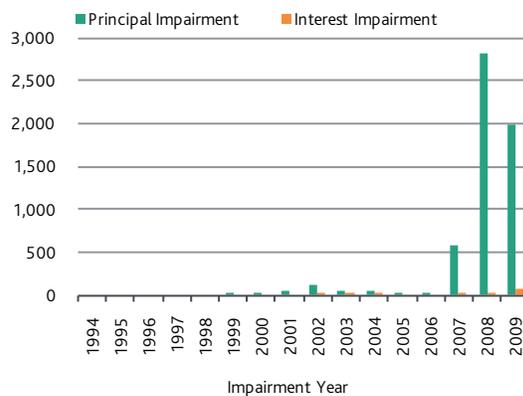
Total: 463

There was a 27% decline in impairments between 2008 and 2009 for global CDOs ex CLOs (Exhibit 26A). The sector has experienced high cumulative impairment rates across all ratings, which rise as the rating decreases for investment-grade ratings (Exhibit 26B). Speculative-grade ratings have lower lifetime impairment rates than Baa-rated securities, but their sample size is smaller and they do not represent the same proportion for all deal types, e.g. there is a smaller proportion of Ba and single-B ratings among SF CDOs than in the overall sample. The 12-month frequency of impairments for global CDO ex CLOs started on a downward trend in the latter half of 2009 (Exhibits 26C and 26D). The decline is greatest for the higher ratings, which has seen a large reduction in sample size because most SF CDO tranches have been downgraded.

EXHIBIT 26

Global CDOs ex CLOs Material Impairment Trends

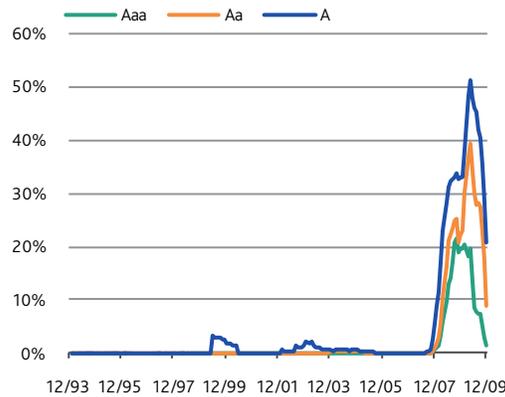
26A: Number of Impairments by Impairment Year and Type



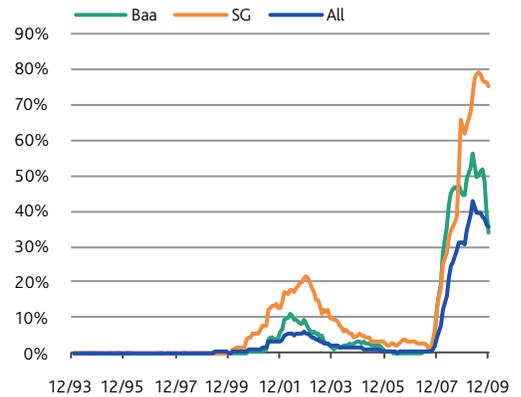
26B: Cumulative Impairment Count and Rate by Original Rating



26C: Trailing 12-month Impairment Rates (Aaa, Aa, A)



26D: Trailing 12-month Impairment Rates (Baa, SG, All)

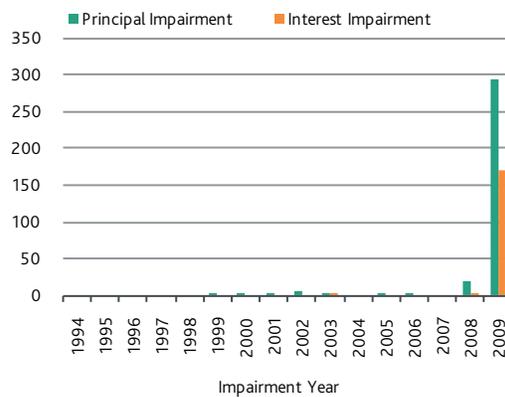


Thirty-seven percent of CLO impairments in 2009 were interest impairments and most of these were PIKing tranches (Exhibit 27A). Since a high cure rate has been observed for CLO tranches that PIK, some of these may eventually be removed from the list of impairments. Almost all of the principal impairments in 2009 have been downgraded to Ca or C, and for 56% of these, no payment shortfalls were outstanding as of the end of 2009. Moody's initiated a global cash flow CLO ratings surveillance sweep in March 2009, following a revision of its key assumptions in rating CLOs and a result, a large number of CLO tranches have experienced negative rating migrations.⁷ Cumulative impairment rates for global CLOs are well distinguished by original rating and securities rated Aaa and Aa have experienced very low numbers of impairments (Exhibit 27B). While 12-month impairment rates have increased for all rating categories, they are still low for Aaa and Aa ratings and are much lower than for other CDO deal types (Exhibits 27C and 27D).

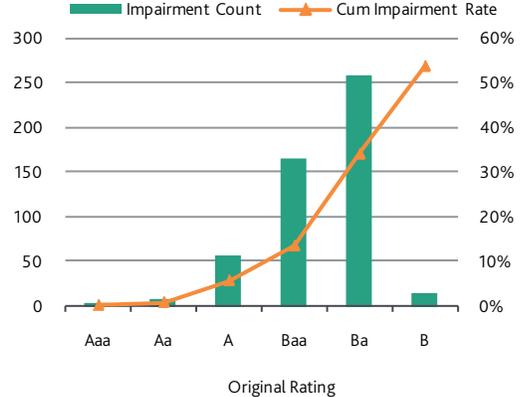
EXHIBIT 27

Global CLOs Material Impairment Trends

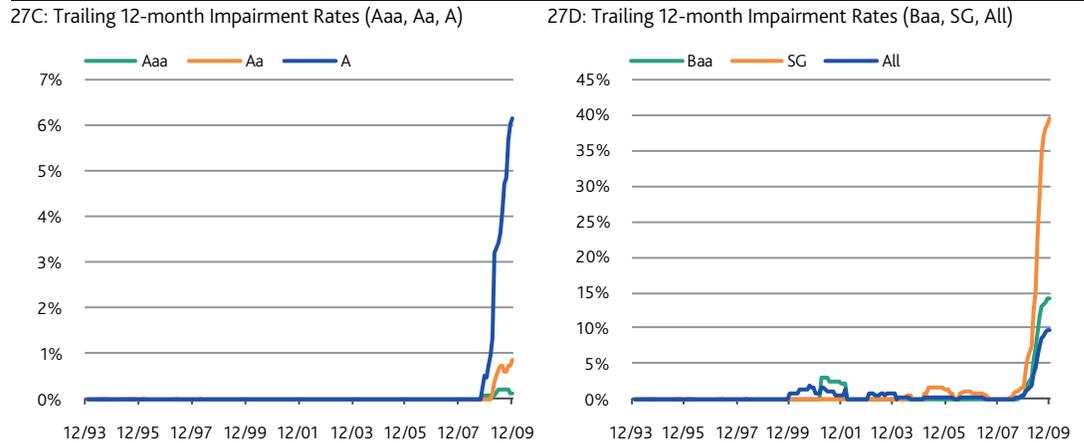
27A: Number of Impairments by Impairment Year and Type



27B: Cumulative Impairment Count and Rate by Original Rating



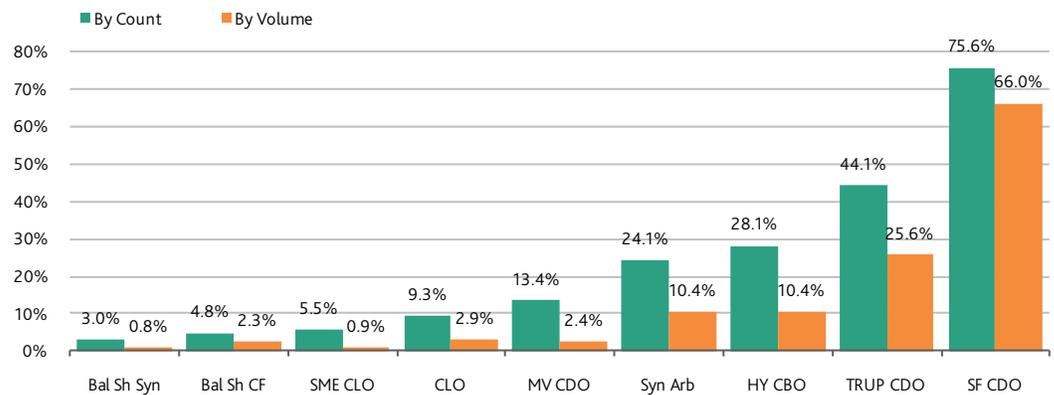
⁷ See "Annual Sector Review (2009): Global CLOs," Moody's Special Report, March 17, 2010.



SF CDOs have the highest lifetime impairment rate of the major CDO deal types, both by count and by volume (Exhibit 28). TRUP CDOs have also underperformed. CLOs have a 2.9% impairment rate by volume and SME CLOs an even lower frequency of 0.9%.

EXHIBIT 28

Cumulative Impairment Rates for Global CDOs by Deal Type, 1993-2009



EMEA and International Structured Finance ex CDOs & Other SF

Credit deterioration was not confined to the U.S. structured finance market as the number of impairments also rose in EMEA and other international regions. However, the number and percentage of impaired securities is still lower relative to the U.S.

Excluding CDOs and the Other SF category, there were 100 material impairments in 2009 for EMEA structured finance securities compared with 8 in 2008. Over 70% of the impaired tranches were RMBS, split between prime (32%) and non-conforming (39%) deals (Exhibit 29A). CMBS⁸ (11%) and ABS backed by small business loans (10%) were the next largest contributors. Spanish transactions accounted for 81% percent of the prime RMBS impairments, 50% of the impaired small business loan ABS, and all of the consumer loan ABS impairments. Eighty-seven percent of the impaired non-conforming RMBS tranches involved deals from the UK. While performance did

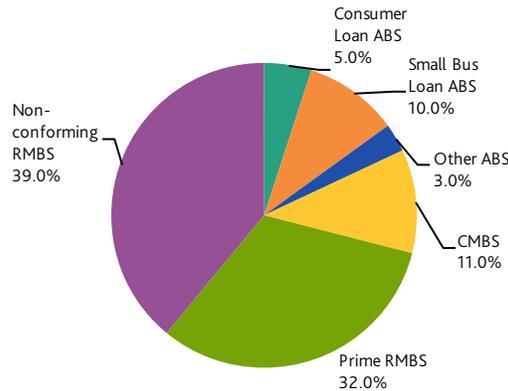
⁸ Note that CMBS includes CRE CDOs.

deteriorate in 2009 versus the past, note that the total number and lifetime rate of impairments is still low for securities originally assigned high ratings (Exhibit 29B). In addition, cumulative impairment rates are well differentiated by original rating, especially between investment-grade and speculative-grade ratings.

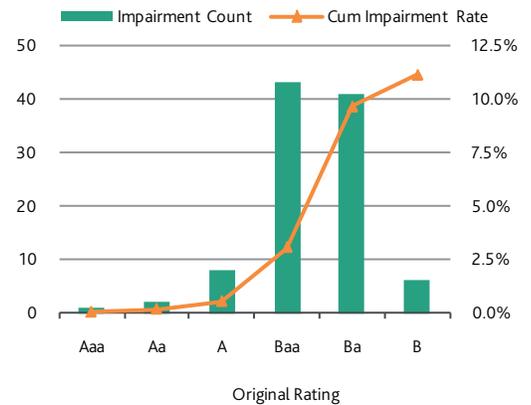
EXHIBIT 29

Distribution of EMEA Structured Finance ex CDO & Other SF Material Impairments

29A: By Asset Type in 2009



29B: By Original Rating from 1993-2009



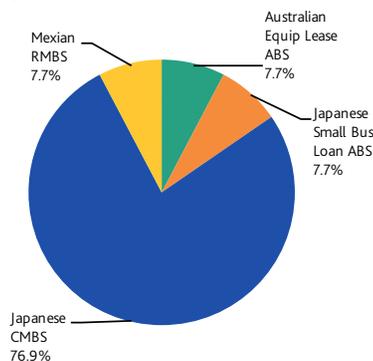
Total: 100

Prior to 2008, all impairments in the international structured finance excluding CDOs & Other SF category involved Latin American transactions. 2008 saw the first impairments from the Asia-Pacific region – tranches from an Australian equipment lease deal - and the first Japanese impairment occurred in 2009. In fact, 10 of the 13 impairments in 2009 involved Japanese CMBS (Exhibit 30A). In April 2009, Moody’s announced that it had updated its key surveillance assumptions for the monitoring of Japanese CMBS ratings.⁹ The update was prompted by the downturn in the Japanese CMBS market, which was challenged by declining property market fundamentals and curtailed real estate lending, and Moody’s view that this distressed environment could continue for a sustained period of time. The remaining three impairments affected an Australian equipment lease security, a Japanese tranche backed by small business loans, and a security from a Mexican RMBS transaction. Eight of the 13 tranches were originally rated speculative-grade (Exhibit 30B).

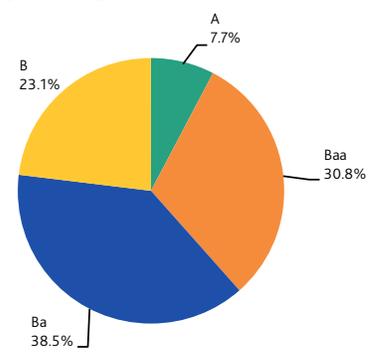
EXHIBIT 30

Distribution of International Structured Finance ex CDO & Other SF Material Impairments in 2009

30A: By Asset Type



30B: By Original Rating



Total: 13

⁹ See “[Methodology Update: Surveillance Assumptions for Japanese CMBS](#),” Moody’s Rating Methodology report, April 14, 2009.

Loss Given Default for Principal Impairments and Historical Average Loss Rates

This section provides an analysis of loss severity rates, also known as loss-given-default (LGD) rates, and combines information on LGD rates with data on material impairment rates to derive cumulative loss rates.

Moody's regularly updates the payment and loss records of impaired structured finance securities. For each tranche, we calculate the present value of losses (to date) using the coupon rate as the discount rate. For many tranches, the loss rate to date is effectively the final loss severity because their outstanding balance is zero (called "resolved" impairments in this report). Many impaired tranches, however, have positive balances outstanding at the end of the study period and potential sources of future cash distributions to investors; hence, their expected final loss severity rates need to be estimated.

Estimating the final LGD on impaired structured finance securities is particularly challenging because losses accrue gradually over time for most securitizations and market prices are rarely available for distressed structured securities. In previous research, we developed models to estimate final LGD for impaired tranches backed by U.S. residential mortgage pools, for ABS backed by manufactured housing loans, and for impaired cash-flow CDOs. In this section we update these projections and derive estimated aggregate LGD rates by sector and by rating.

Although the majority of impaired structured securities are currently principal impaired, some are only experiencing interest shortfalls. Since there is a higher probability of cure and a greater challenge in forecasting losses for interest impaired tranches than principal impaired securities, we calculate and provide loss severity rates only for principal impairments in this report.

LGD for All Resolved Principal Impairments

We first examine LGD for the 10,247 total impairments for which we have final resolved loss data. Recall that resolved impairments are defined as those impairments for which the principal balance is zero and the final losses known. Exhibit 31 contains both the mean and median LGD rates, stratified by broad rating category, as well as for the more general investment-grade and speculative-grade categories. Additionally, final LGD rates are computed by both original rating and rating at impairment, using the original balance and balance at the impairment date, respectively.

On average, the present value of losses at origination for all resolved principal impaired securities increased to 85% in 2009, up from the 81% LGD rate reported in last year's study. The LGD rate measured as the present value of losses as a percent of the impairment date balance remained high at 98% compared to 97% last year. Eighty-nine percent of the sample of resolved impairments are U.S. RMBS/HEL impairments that closed between 2005 and 2007 and the high losses experienced by the underlying mortgage pools have produced high loss severity rates for tranches from these vintages and for the sample in general. Many impaired tranches from these transactions have experienced a 100% write-down in principal, as evidenced by the median LGD rate of nearly 100% when loss severity is calculated relative to the impairment date. However, as we have noted in prior reports, the average LGD of the sample of resolved impairments is expected to be higher than that of unresolved impairments because the resolved sample contains a disproportionately large number of tranches that were quickly and completely written down.

EXHIBIT 31

Realized Final LGD Rates for All Resolved Structured Finance Principal Impairments by Rating, 1993-2009

BY ORIGINAL RATING (% ORIG BALANCE)					BY RATING AT IMPAIRMENT (% IMPAIRMENT BALANCE)				
RATING	COUNT	MEAN	MEDIAN	STD DEV	RATING	COUNT	MEAN	MEDIAN	STD DEV
Aaa	176	69.7%	75.4%	28.4%	Aaa	15	57.4%	76.4%	41.5%
Aa	1,460	93.2%	97.4%	11.6%	Aa	62	96.7%	99.8%	13.2%
A	2,669	90.9%	93.7%	11.8%	A	152	94.1%	99.8%	16.6%
Baa	4,231	82.2%	88.1%	19.8%	Baa	997	97.2%	99.7%	12.9%
Ba	1,490	79.2%	86.1%	20.3%	Ba	1,749	97.5%	99.7%	11.4%
B	212	66.5%	75.1%	26.2%	B	3,800	98.3%	99.9%	9.4%
Caa	9	68.9%	66.9%	9.5%	Caa	3,472	98.8%	99.8%	7.0%
Inv-Grade	8,536	86.5%	90.7%	17.5%	Inv-Grade	1,226	96.3%	99.7%	14.7%
Spec-Grade	1,711	77.6%	85.5%	21.5%	Spec-Grade	9,021	98.3%	99.8%	9.0%
All	10,247	85.0%	89.8%	18.6%	All	10,247	98.1%	99.8%	9.9%

Interestingly, the relationship between average LGD rates and original rating is not straightforward. While the mean LGD of Aaa-rated securities is smaller than that of most other ratings, for non-Aaa ratings, average LGD rates generally decline as the rating declines. Within a particular transaction, it is very unlikely that a higher-rated tranche would have a larger LGD than a lower-rated tranche, but each rating category in the exhibit contains a different mix of transactions, asset classes, and vintages. For example, 95% of the resolved impairments originally rated Aa are backed by U.S. RMBS/HEL from the 2005 to 2007 vintages and thus, the high LGD rate for this category is the result of the poor performance of these securities. Conversely, only 30% of impairments that originally carried a single-B rating are from the same sector and vintages and this category has a much lower average LGD rate of 67%.

Average LGD rates calculated using the impairment date as the reference date are generally much higher than those computed as of the closing date, owing mainly to discounting. Except for Aaa, mean loss severity at impairment is above 94% for all rating categories and the median LGD was close to 100%. The distribution of LGD is skewed as median loss severities exceed mean loss severities for all groupings.

There was greater variation of LGD by sector than by rating (Exhibit 32). For impaired securities originally rated investment-grade, CMBS experienced the lowest average severity rate and U.S. RMBS/HEL the highest. For U.S. ABS ex HEL and U.S. CMBS, LGD rates for securities originally rated investment-grade are lower than their speculative-grade counterparts, while the opposite is true for global CDOs and U.S. RMBS/HEL. The reason for this is explored later. Among U.S. RMBS/HEL, impaired tranches backed by HELOCs, Alt-A mortgages, and subprime second mortgages have experienced higher severity rates than other loan types. Within the CDO sector, resolved SF CDO impairments have much higher loss severity rates than resolved HY CBO impairments.

EXHIBIT 32

Realized Final LGD Rates for Resolved Principal Impairments by Asset Class, 1993-2009

ASSET CLASS	INVESTMENT-GRADE AT ORIGATION		SPECULATIVE-GRADE AT ORIGATION	
	COUNT	MEAN	COUNT	MEAN
U.S. ABS ex HEL	164	65.8%	67	71.3%
Franchise Loans	20	69.8%	15	80.3%
Health Care Receivables	24	77.0%	0	NA
Manufactured Housing	99	66.5%	35	75.0%
U.S. RMBS/HEL	8,160	87.3%	1,542	78.5%
Alt-A	3,708	89.3%	377	80.3%
Jumbo	29	71.9%	17	51.7%
HELOC	34	89.7%	17	79.1%
Scratch & Dent	105	81.6%	34	71.6%
Subprime Firsts	3,317	85.2%	861	78.1%
Subprime Seconds	915	88.6%	187	84.8%
U.S. CMBS	18	50.0%	75	72.7%
Global CDOs	194	74.4%	27	54.9%
HY CDOs	22	44.6%	11	58.1%
SF CDOs	160	81.5%	5	76.2%

LGD for U.S. RMBS/HEL Principal Impairments

Exhibit 33 aggregates LGD rates for a combined sample of principal impairments among U.S. RMBS/HEL that have either been resolved or for which estimated final LGD rates were computed with an LGD projection model. There are 12,469 impairments in this sample, of which 9,702 are resolved principal impairments.

EXHIBIT 33

Estimated LGD Rates for a Combined Sample of Resolved and Unresolved U.S. RMBS/HEL Principal Impairments by Rating, 1993-2009

BY ORIGINAL RATING (% ORIG BALANCE)					BY RATING AT IMPAIRMENT (% IMPAIRMENT BALANCE)				
RATING	COUNT	MEAN	MEDIAN	STD DEV	RATING	COUNT	MEAN	MEDIAN	STD DEV
Aaa	644	59.5%	61.9%	23.3%	Aaa	48	80.1%	89.6%	30.2%
Aa	2,071	89.8%	93.2%	12.4%	Aa	104	93.7%	99.0%	13.1%
A	3,189	87.9%	91.7%	16.3%	A	251	89.1%	98.5%	20.9%
Baa	4,821	77.7%	87.2%	25.0%	Baa	1,251	92.7%	99.6%	18.4%
Ba	1,571	76.3%	85.7%	23.4%	Ba	2,100	94.6%	99.6%	15.1%
B	173	58.6%	71.2%	29.5%	B	4,719	95.7%	99.8%	11.9%
Caa	0	NA	NA	NA	Caa	3,996	96.1%	99.8%	11.9%
Inv-Grade	10,725	82.0%	88.8%	22.0%	Inv-Grade	1,654	91.9%	99.5%	19.1%
Spec-Grade	1,744	74.5%	85.2%	24.7%	Spec-Grade	10,815	95.6%	99.7%	12.6%
All	12,469	80.9%	88.1%	22.5%	All	12,469	95.1%	99.7%	13.7%

LGD rates decline as ratings decline with the exception of Aaa. This phenomenon is caused by differing vintage concentrations among the rating buckets. Of the impaired securities that were originally rated Aa and single-A, 99% and 97%, respectively, are from the poorly performing 2005 to 2007 vintages and therefore, their mean LGD rates are high. The percentage decreases to 87% for Baa and Ba ratings, and 42% for single-B ratings, so the LGD rates seem to be correlated with the percentage of impaired tranches from these vintages.

Also note that with only one exception (LGD as of the impairment date for Aaa ratings), mean severity rates are lower in Exhibit 33 compared to Exhibit 31, the table of all resolved impairments. Since resolved U.S. RMBS/HEL impairments have the highest severity rates of all sectors, the difference is not attributable to the difference in sector, but instead is due to the fact that projected LGD for unresolved RMBS/HEL impairments are lower than final LGD for the resolved impairments.

LGD for Global CDO Principal Impairments

Exhibit 34 summarizes the results of a combined sample of 221 resolved principal impaired CDO tranches and 1,365 unresolved impairments whose final LGD rates were projected from a model developed for cash-flow CDOs.

EXHIBIT 34

Estimated LGD Rates for a Combined Sample of Resolved and Unresolved Global CDO Principal Impairments by Rating, 1993-2009

BY ORIGINAL RATING (% ORIG BALANCE)					BY RATING AT IMPAIRMENT (% IMPAIRMENT BALANCE)				
RATING	COUNT	MEAN	MEDIAN	STD DEV	RATING	COUNT	MEAN	MEDIAN	STD DEV
Aaa	206	77.9%	83.3%	19.4%	Aaa	21	69.2%	94.0%	39.7%
Aa	367	79.6%	82.6%	14.1%	Aa	39	98.0%	100.0%	6.6%
A	299	83.7%	85.3%	10.3%	A	205	98.8%	100.0%	7.5%
Baa	545	75.5%	78.3%	16.5%	Baa	371	98.2%	100.0%	8.0%
Ba	145	69.3%	74.2%	20.1%	Ba	276	97.3%	100.0%	10.1%
B	24	61.9%	68.3%	23.0%	B	304	96.2%	100.0%	13.4%
Caa	0	NA	NA	NA	Caa	370	96.1%	100.0%	14.8%
Inv-Grade	1,417	78.7%	82.0%	15.6%	Inv-Grade	636	97.4%	100.0%	11.6%
Spec-Grade	169	68.2%	73.5%	20.6%	Spec-Grade	950	96.5%	100.0%	13.1%
All	1,586	77.6%	81.5%	16.5%	All	1,586	96.8%	100.0%	12.5%

Similar to U.S. RMBS/HEL, CDO LGD rates exhibit a counter-intuitive relationship by original rating and are lower for securities rated Baa and below than for higher ratings. This can be explained by the deal types behind the rating categories. While 84% of the total sample of impairments in the exhibit are SF CDOs, the percentage varies by original rating. Almost all of the impaired tranches originally rated single-A or higher are SF CDOs, while this was the case for 82% of the tranches originally rated Baa, only 20% of the Ba-rated securities, and none of the securities originally rated single-B. Since SF CDOs have experienced higher severity rates than other CDO deal types, average LGD for the Aaa to single-A tranches also skew higher.

LGD for U.S. ABS ex HEL Principal Impairments

Among U.S. ABS ex HEL, there are 231 resolved principal impairments. Final LGD estimates for 103 unresolved impaired tranches backed by manufactured housing loans (MH) were calculated using a MH loss projection model. The LGD statistics in Exhibit 35 are derived from this combined sample, 71% of which were impaired manufactured housing ABS.

EXHIBIT 35

Estimated LGD Rates for a Combined Sample of Resolved and Unresolved U.S. ABS ex HEL Principal Impairments by Rating, 1993-2009

BY ORIGINAL RATING (% ORIG BALANCE)					BY RATING AT IMPAIRMENT (% IMPAIRMENT BALANCE)				
RATING	COUNT	MEAN	MEDIAN	STD DEV	RATING	COUNT	MEAN	MEDIAN	STD DEV
Aaa	15	57.2%	64.8%	19.8%	Aaa	0	NA	NA	NA
Aa	49	58.5%	60.1%	23.3%	Aa	7	72.6%	71.1%	19.5%
A	52	59.7%	65.3%	17.9%	A	26	73.9%	75.0%	16.3%
Baa	141	54.9%	55.9%	21.1%	Baa	65	86.8%	95.7%	21.2%
Ba	66	70.7%	78.9%	20.6%	Ba	87	88.2%	96.2%	18.8%
B	11	70.1%	80.6%	21.9%	B	69	81.1%	91.2%	23.4%
Caa	0	NA	NA	NA	Caa	80	86.2%	92.2%	17.7%
Inv-Grade	257	56.7%	60.4%	20.9%	Inv-Grade	98	82.4%	91.6%	20.7%
Spec-Grade	77	70.6%	78.9%	20.7%	Spec-Grade	236	85.5%	94.1%	20.0%
All	334	59.9%	65.0%	21.6%	All	334	84.5%	94.0%	20.2%

Computed as a percent of original balance, the average LGD rate of 60% for U.S. ABS ex HEL principal impairments is below the mean for U.S. RMBS/HEL and global CDOs. Average LGD as of the impairment date is higher at 85%, but still lower than that of U.S. RMBS/HEL and global CDOs. Impaired securities that were originally rated speculative-grade had a higher mean LGD (71%) than those originally rated investment-grade (57%), but within these two categories, mean LGD rates did not vary much by rating.

Historical Average Multi-Year Loss Rates

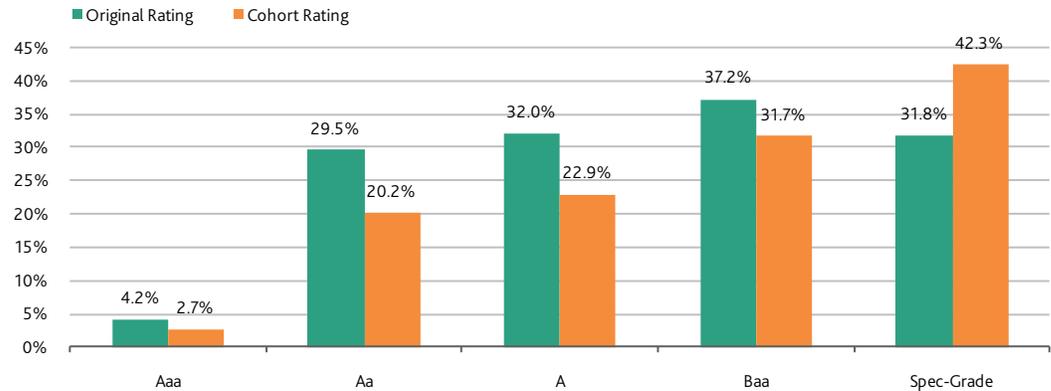
Multi-year cumulative loss rates are the weighted average of marginal loss rates, which we compute using marginal principal impairment and LGD rates.¹⁰ As in previous studies, we use sector specific LGD and impairment rates to calculate cumulative loss rates.

Exhibit 36 shows five-year cumulative loss rates by both original and cohort rating. Detailed multi-year cumulative loss rates by rating, horizon, and sector appear in Appendix IV.

¹⁰ See Appendix II for a more detailed discussion of how multi-year cumulative loss rates are calculated.

EXHIBIT 36

Structured Finance 5-Year Cumulative Loss Rates, 1993-2009



From Exhibit 36, we note the following:

- » Five-year cumulative loss rates have increased from those reported last year because of the continued growth in the number of material impairments.
- » By cohort rating, estimated cumulative loss rates increase monotonically as ratings fall. The largest jump occurs between Aaa and non-Aaa ratings.
- » By original rating, Aaa loss rates are also lower than all other ratings, but there is less differentiation between the other investment-grade rating categories, and speculative-grade ratings have a lower estimated five-year loss rate than securities originally rated Baa or single-A. However, note that securities that carry below investment-grade ratings at issuance are much more common in some sectors (e.g. U.S. CMBS) than in others (e.g. U.S. RMBS/HEL) and thus their performance reflects a different mix of asset types than other rating categories.
- » With the exception of speculative-grade ratings, five-year loss rates are higher by original rating than by cohort rating. Loss rates computed by cohort rating average the performance of monthly cohorts of outstanding ratings formed between 1993 and the beginning of 2009 and therefore seasoned securities contribute more to the calculation than do unseasoned securities. In contrast, each security contributes only once to the calculation of the marginal loss rate by original rating. Therefore, the loss rates by original rating are weighted more heavily toward the more recent vintages, in particular the 2005 to 2007 vintages, which had both high issuance and poor performance.

Appendix I: Description of Data Sample and Glossary

The data sample used in this report includes all publicly offered and privately placed tranches with a published Moody's long-term global debt rating among global asset-backed securities (ABS), commercial and residential mortgage-backed securities (CMBS and RMBS), collateralized debt obligations (CDOs), and other structured finance, including covered bonds, asset-backed commercial paper (ABCP), derivative product companies (DPCs), insurance-linked securities such as catastrophe bonds, and structured investment vehicles (SIVs). Provisional ratings, credit estimates or evaluations, short-term ratings, and national scale ratings are not included. The following types of securities are also excluded from the data sample: repackaged securities, structured notes, and other credit derivatives which are basically pass-throughs of the rating of another entity. In addition, the data sample only contains securities issued since 1993.

This data set is an expansion of the data set that was used in prior studies¹¹ and in particular:

- » Includes tranches wrapped by financial guarantors, government agencies, and government sponsored enterprises (GSEs);
- » Includes interest-only (IO) and residual tranches;
- » Includes some transactions outside of the four major sectors (ABS, CDO, CMBS, RMBS) of structured finance, such as covered bonds, ABCP, DPCs, catastrophe bonds and SIVs;
- » Does not collapse tranches with the same rating from the same deal, i.e. all pari-passu tranches are counted in the data sample. The exceptions to this are notes with the same rating issued out of the same program for ABCP, SIVs and covered bonds, in which case only the rating of the program and not each individual security is counted.

The data used to create this report are commercially available via Moody's Structured Finance Default Risk service. For more information, please email DefaultResearch@moody.com.

Glossary

Global Structured Finance

Global structured finance captures securities issued around the world in the four major sectors – ABS, RMBS, CMBS, and CDOs – and in the Other Structured Finance category, which includes covered bonds, asset-backed commercial paper (ABCP), derivative product companies (DPCs), insurance-linked securities such as catastrophe bonds, and structured investment vehicles (SIVs).

U.S./EMEA/Asia-Pacific/Latin America/International Structured Finance

Deals are classified by the location at which they are monitored. In general, U.S. structured finance securities are denominated in U.S. dollars and issued in the U.S. market or denominated in Canadian dollars and issued in Canada. EMEA (Europe, the Middle East, and Africa) structured finance securities are denominated in a currency from or issued out of a country in the EMEA region. Asia-Pacific structured finance securities are denominated in the currency of a country in the Asia-Pacific region or issued in an Asia-Pacific country (including Japan and Australia). Latin American structured finance securities are denominated in a Latin American currency or issued in Latin America. In this report, International Structured Finance refers to the combined region of Asia-Pacific and Latin America.

¹¹ The expanded data sample was first introduced in our 2007 rating transitions studies.

ABS ex HEL

ABS stands for asset-backed securities. This structured finance sector includes securities backed by both traditional asset types such as auto loans, credit card receivables, student loans, and manufactured housing loans, and non-traditional asset types such as mutual fund fees, tobacco settlement payments, and intellectual property. Home equity loans (HEL) are explicitly excluded from ABS ex HEL.

RMBS/HEL

RMBS stands for residential mortgage-backed securities and HEL stands for home equity loan. This combined sector includes securities backed by first-lien prime mortgages, Alt-A mortgages, subprime (B&C) mortgages, home improvement loans, high loan-to-value (high LTV) loans, home equity lines of credit (HELOCs), and closed-end second-lien loans. It also includes resecuritizations of RMBS/HEL and net interest margin (NIM) securitizations.

CMBS

CMBS stands for commercial mortgage-backed securities. Commercial real estate (CRE) CDOs, where 70% or more of the collateral is comprised of CRE loans, are classified as CMBS. If the collateral backing the transaction contains less than 70% CRE loans, then the deal is classified as a CDO.

CDO

CDOs stand for collateralized debt obligations. Derivative securities such as structured notes and repackaged securities are not considered to be part of this sector. Commercial real estate (CRE) CDOs are also excluded (see the definition of CMBS).

Other Structured Finance

Other structured finance consists of structured finance securities not categorized in the four major sectors (ABS, RMBS, CMBS, and CDOs) including covered bonds, asset-backed commercial paper (ABCP), derivative product companies (DPCs), insurance-linked securities such as catastrophe bonds, and structured investment vehicles (SIVs). However, notes carrying only short-term ratings such as commercial paper are excluded.

Material Impairment

A structured finance security is defined as being materially impaired if it has:

- » Sustained an interest shortfall¹² or principal write-down/loss¹³ that has not been cured;
- » Been downgraded to Ca or C, and hence is expected to suffer a significant level of payment losses in the future; or
- » Been subject to a distressed exchange.

The impairment status of a security may change as it goes from cured (i.e. all outstanding shortfalls and losses were repaid in full) to uncured (i.e. positive interest shortfalls or principal losses outstanding), or vice versa. If a security downgraded to Ca or C, but not in payment shortfall, is subsequently upgraded, then it is no longer materially impaired. Securities downgraded to Ca or C that are not upgraded are materially impaired even if their payment shortfalls have been cured. Finally, securities with very minor shortfalls or losses are excluded.

¹² Reductions in interest paid that arise due to prepayments of principal on the underlying loans or due to limitations imposed by "available funds caps" (AFC) are not considered to be interest shortfalls. On the other hand, "payment-in-kind" (PIK) events, in which the interest payment is deferred and capitalized into the balance, are treated as interest shortfalls, regardless of whether or not it is described as a default event in the bond's indenture.

¹³ Explicit principal write-downs are included whereas implicit principal write-downs or under-collateralizations are not.

Principal Impairment

A principal impairment is a materially impaired security that has experienced a principal write-down/loss and/or has been downgraded to Ca or C, regardless of its loss status. Note that the classification of a security as a principal impairment takes no notice of whether the security has experienced interest shortfalls.

Interest Impairment

An interest impairment is a materially impaired security that has experienced only interest shortfalls, no principal write-downs or losses, and was not downgraded to Ca or C.

Resolved and Unresolved Impairments

A materially impaired security is "resolved" in the sense that its principal balance has been reduced to zero, or "unresolved" in the sense that it has a positive principal balance outstanding as of the end of the study period. These were called matured and non-matured defaults in prior studies.

12-month Impairment Rate

The 12-month impairment rate is calculated as the number of securities that became impaired within a 12-month period after a cohort formation date divided by the number of securities outstanding at the cohort formation date, minus one half the number of the ratings withdrawn over the 12 months after the cohort was formed. Cohorts are formed at the beginning of each month.

Marginal Impairment Rate

For a cohort of securities outstanding (or issued if by original rating) at the beginning of year t , the N -th year marginal impairment rate is the number of securities newly impaired in year $(t+N)$ divided by the total number of securities that survived to that year, minus one half the number of the survived securities that were withdrawn during the year. Securities that are impaired or withdrawn before the year have not survived, and therefore do not appear in the denominator of this rate.

Cumulative/Lifetime Impairment Rate

The cumulative or lifetime impairment rate is computed as the total number of impaired securities divided by the total number of securities issued over a particular time period without regard to the time horizon of impairments.

Multi-Year Cumulative Impairment Rate

The multi-year cumulative impairment rate is calculated as one minus the multi-year cumulative survival rate, which is the product of the marginal survival rates in each year within the multi-year horizon. The marginal survival rate is one minus the marginal impairment rate.

Loss Severity or Loss-Given-Default (LGD)

The LGD rate of an impaired structured finance security is measured as the sum of the present value of net losses, including both interest shortfalls and principal losses, discounted by the security's coupon rate and expressed as a percentage of a given principal balance such as the principal balance at origination, at the impairment date, or at any given cohort date.

Multi-Year Cumulative Loss Rate

The multi-year cumulative loss rate is the product of the multi-year cumulative impairment rate and multi-year average LGD rate. The multi-year average LGD rate is estimated using the final loss severity rate of impaired securities, for which final LGD is known or can be estimated, after taking into account the uncertainty of impairment timing.

Appendix II: Calculating Multi-Year Material Impairment and LGD Rates

Cumulative Impairment Rates by Cohort Rating

The methodology for computing multi-year cumulative impairment rates for structured finance securities is the same as the one used in Moody's corporate default studies. The denominator of the marginal impairment rate in a given period (e.g. one year) is adjusted to reflect tranches whose ratings were withdrawn or impaired prior to that period. Such an adjustment implies that future impairments can only occur to tranches that have survived to that point in time and cannot occur to tranches that have already been impaired or withdrawn. Rating cohorts are formed each month to construct cumulative impairment rates.

The cumulative impairment rate for a time horizon T is calculated as: $D(T) = 1 - \prod_{t=1}^T (1 - d_t)$,

where d_t is the marginal impairment rate: $d_t = \frac{x_t}{n_t - w_t / 2}$,

and where x_t is the number of impairments in year t , w_t is the number of rating withdrawals in year t , and $n_t = n_{t-1} - x_{t-1} - w_{t-1}$.

The variable n_t is the number of tranches from the cohort that survived up to time t . When the horizon T is equal to 1, the cumulative impairment rate and the marginal impairment rate are equal. Note that in addition to removing the prior-year withdrawals from the denominator, one-half of the withdrawals in time t are also removed. This adjustment accounts for the fact that the withdrawn securities were likely not outstanding for the entire time period and assumes that the timing of withdrawals within a given period is uniformly distributed.

The following is an example that assumes that all securities carry the same rating in both 2004 and 2005.

An Example of Calculating Cumulative Impairment Rates

2004			2005		
AT THE BEGINNING OF 2004	AT THE END OF 2004		AT THE BEGINNING OF 2005	AT THE END OF 2005	
Number Issued	Impaired	Withdrawn	Number Outstanding	Impaired	Withdrawn
200	10	95	95	5	90

In the example, the average first-year marginal impairment rate is $(10+5)/(200+95-95/2-90/2)$, or 7.41%. The second-year marginal impairment rate is $5/(95-90/2)=10\%$.¹⁴ The average marginal survival rates are 92.6% and 90.0% in the first and second year, respectively. The average two-year cumulative survival rate is the product of the two survival rates: $92.6\% \times 90.0\% = 83.3\%$. Therefore, the average two-year cumulative impairment rate is one minus the survival rate: $100\% - 83.3\% = 16.7\%$.

Moody's believes that this method of calculating cumulative impairment rates provides the most relevant information to investors who want to look at the historical impairment experience when evaluating the risk of an investment with any particular expected maturity. There are, however, at least two other approaches found in the literature, which tend to produce lower impairment rates and/or fail to use all available information.

¹⁴ There are two first-year cohorts in this example – one formed at the beginning of 2004 and the other formed at the beginning of 2005. However, there is only one second-year cohort – the observations in 2005 of the two-year cohort that is formed at the beginning of 2004.

One similar approach calculates the marginal impairment rates without adjusting for withdrawals, hence, $n_t = n_{t-1} - x_{t-1}$. Applying this methodology to the above example reduces the second year marginal impairment rate to $5/(95+95-90/2) = 3.45\%$. The average two-year cumulative impairment rate then becomes $(1-7.41\%)*(1-3.45\%) = 10.6\%$. Not adjusting for withdrawals inflates the survival rate and thus, lowers the cumulative impairment rate.

Another approach calculates cumulative impairment rates by treating impairment as a separate “rating” category (note that Moody’s does not have a “D” or default rating category). For a given time horizon, ratings transition frequencies are calculated using only ratings observations at the beginning and the end of the time horizon. Newly issued ratings that have not spanned the entire time horizon are not included. For example, if additional securities are issued at the beginning of 2005, the impairment experience of those securities would not be included in a two-year impairment rate calculation. Therefore, this methodology is limited, for it does not fully utilize all available, relevant data.

Cumulative Impairment Rates by Original Rating

We calculate impairment rates by cohort and original rating using essentially the same method. We caution that the comparison and interpretation of the impairment rates by these two types of ratings are different depending on the sector and time period. The following example illustrates the contrast.

An Example Illustrating the Difference between Impairment Rates by Cohort Rating and Original Rating

2004			2005		
AT THE BEGINNING OF 2004	AT THE END OF 2004		AT THE BEGINNING OF 2005	AT THE END OF 2005	
Number Issued	Impaired	Withdrawn	Number Outstanding	Impaired	Withdrawn
100, rated Baa	0	0	95, remain Baa	0	95
			5, downgraded to single-B	5	0
100, rated single-B	0	0	100, remain single-B	5	95

In the example, 100 Baa-rated and 100 single-B rated securities are issued at the beginning of 2004. By the end of 2004, 95 of the 100 Baa-rated securities have unchanged ratings and five securities are downgraded to single-B. At the end of 2005, the 95 stable ratings are withdrawn and the 5 downgraded ratings become impaired. The single-B ratings issued in the beginning of 2004 experience no rating changes, impairments, or withdrawals in 2004. However, in 2005, five of them become impaired and the rest (95 securities) are withdrawn.

Based on cohort rating, the first-year marginal impairment rate in the Baa category is 0% since no impairments are observed on securities rated Baa in 2004 or 2005. The second-year marginal impairment rate for Baa is $5/(100-95/2)=9.5\%$. (This statistic is based solely on the performance in 2005 of the 100 Baa-rated securities issued in 2004). Hence, the two-year cumulative impairment rate in the Baa rating category is 9.5%.

By original rating, the two-year cumulative impairment rate for the Baa rating category is also $5/(100-95/2)=9.5\%$. The Baa sample and performance are the same by original rating or cohort rating. In the single-B category, however, there are significant differences.

For the single-B rating category, the average first-year marginal impairment rate by cohort rating is $(0+5+5)/(100+100+5-95/2)=6.35\%$. Note that there are three first-year cohorts for single-B, and both the numerator and denominator include the five single-B securities, which were initially rated Baa at

the beginning of 2004. The second-year marginal impairment rate by cohort rating is $5/(100-95/2)=9.5\%$. Therefore, the average two-year cumulative impairment rate is $1-(1-6.35\%)*(1-9.5\%)=15.25\%$.

However, by original rating, the first-year single-B marginal impairment rate is 0% because there are no impairments in 2004. The second-year marginal impairment rate is 9.5%, which is the same rate as that by cohort rating. Thus, the two-year cumulative impairment rate by original rating for single-B is 9.5%, which is substantially lower than the cumulative impairment rate of 15.25% by cohort rating.

The large difference between the single-B two-year impairment rates by original rating and cohort rating is due to the treatment of the five securities initially rated Baa at the beginning of 2004 but downgraded to single-B at the beginning of 2005. If the performance of these downgraded single-B's is worse than the original single-B's, then the cohort-rating based impairment rates will be higher than the original-rating based impairment rates. Conversely, if the performance of these downgraded single-B's is better, the cohort-rating based impairment rates will be lower instead.

Multi-Year Cumulative LGD Rates

In order to calculate the cumulative loss rate, we require both cumulative impairment rates and cumulative LGD rates. The multi-year cumulative LGD rate is a weighted average of the marginal loss severity rates, which is the average loss severity of tranches that became impaired in each year as a percentage of the cohort date balance. The weight for each year is the share of the cumulative impairment rate. The following is an example:

An Example of Calculating a Two-Year Cumulative LGD Rate

2004			2005		
AT THE BEGINNING OF 2004	AT THE END OF 2004		AT THE BEGINNING OF 2005	AT THE END OF 2005	
Number Issued	Impaired	Withdrawn	Number Outstanding	Impaired	Withdrawn
100	5 (LGD=30%)	0	95	6 (LGD=50%)	89

In this example, there are five impairments in the first year, and all have a loss severity rate of 30% as a share of their balance at the beginning of 2004. Six securities are impaired in the second year, and all have a loss severity rate of 50%, which is expressed as a share of the principal balance at the beginning of 2004 – the two-year cohort-date balance. Note that in order to compute the multi-year cumulative LGD rate, all marginal LGD rates need to be expressed as a share of the cohort date balance with appropriate discounting.

In the example, the one-year impairment rate is 5%, and the two-year cumulative impairment rate is $1-(1-5\%)*(1-6/(95-89/2))$, or 16.3%. The two-year cumulative LGD rate is $(5\%*30\%+11.3\%*50\%)/16.3\%=43.9\%$, which measures the average LGD rate over a two-year period, assuming no knowledge about the timing of impairments at the beginning of 2004.

Thus, the two-year cumulative loss rate is the product of the two-year cumulative impairment rate and the two-year cumulative LGD rate, i.e. $16.3\%*43.9\%=7.2\%$.

Appendix III: Multi-Year Cumulative Impairment Rates¹⁵

Exhibit 37: Multi-Year Cumulative Impairment Rates by Cohort Rating, 1993-2009

Global Structured Finance										
	1	2	3	4	5	6	7	8	9	10
Aaa	0.75%	2.13%	3.08%	3.45%	3.65%	3.82%	3.99%	4.15%	4.32%	4.46%
Aa	5.00%	14.32%	19.74%	21.54%	22.44%	23.26%	23.95%	24.58%	25.19%	26.00%
A	5.62%	15.21%	21.37%	24.39%	26.13%	27.65%	28.80%	29.73%	30.50%	31.34%
Baa	9.75%	21.35%	30.80%	37.39%	41.57%	44.61%	46.95%	48.89%	50.33%	51.71%
Ba	17.18%	27.45%	35.56%	41.02%	44.43%	47.31%	49.99%	52.51%	54.19%	55.83%
B	34.82%	40.86%	46.10%	50.79%	55.13%	59.02%	62.82%	66.46%	69.47%	72.82%
Caa	66.71%	73.35%	78.75%	84.04%	88.40%	91.12%	92.55%	93.88%	95.53%	97.18%
Investment-Grade	3.19%	8.30%	12.01%	14.06%	15.30%	16.29%	17.07%	17.73%	18.27%	18.82%
Speculative-Grade	27.69%	36.23%	43.14%	48.34%	52.16%	55.39%	58.37%	61.22%	63.45%	65.82%
All	5.26%	10.67%	14.70%	17.10%	18.65%	19.90%	20.95%	21.87%	22.60%	23.33%
U.S. ABS ex HEL										
	1	2	3	4	5	6	7	8	9	10
Aaa	0.02%	0.05%	0.15%	0.28%	0.39%	0.54%	0.95%	1.41%	1.79%	1.99%
Aa	0.71%	1.93%	3.26%	4.77%	6.27%	7.63%	8.98%	10.69%	12.47%	14.58%
A	0.42%	1.27%	2.30%	3.31%	4.42%	5.86%	6.74%	7.62%	8.40%	8.85%
Baa	1.61%	4.23%	7.49%	10.71%	15.88%	22.45%	28.98%	33.77%	36.45%	38.82%
Ba	8.68%	18.64%	26.82%	37.03%	45.53%	55.05%	61.21%	65.59%	70.77%	70.77%
B	13.22%	22.69%	31.18%	39.42%	50.51%	57.97%	59.56%	61.62%	64.62%	66.03%
Caa	30.07%	48.50%	63.05%	78.29%	90.52%	95.26%	NA	NA	NA	NA
Investment-Grade	0.31%	0.87%	1.59%	2.36%	3.36%	4.57%	5.81%	6.99%	7.93%	8.80%
Speculative-Grade	13.09%	24.30%	33.69%	44.38%	54.24%	62.20%	66.28%	69.39%	73.22%	73.63%
All	0.88%	1.92%	3.06%	4.29%	5.61%	6.94%	8.21%	9.41%	10.39%	11.24%
U.S. RMBS/HEL										
	1	2	3	4	5	6	7	8	9	10
Aaa	0.74%	2.18%	3.09%	3.24%	3.27%	3.29%	3.30%	3.32%	3.33%	3.37%
Aa	6.70%	19.76%	26.46%	27.73%	27.91%	28.09%	28.28%	28.39%	28.53%	28.81%
A	8.62%	25.34%	35.09%	38.98%	40.69%	42.42%	44.22%	45.47%	46.32%	47.50%
Baa	15.12%	33.38%	46.90%	55.50%	60.06%	62.84%	64.34%	65.23%	66.13%	66.88%
Ba	31.23%	47.25%	58.50%	64.53%	67.17%	68.93%	70.30%	71.47%	72.57%	73.97%
B	61.03%	66.80%	71.35%	74.94%	77.60%	79.35%	80.54%	81.42%	82.51%	83.82%
Caa	93.32%	95.02%	95.94%	96.69%	97.37%	98.15%	98.43%	98.82%	99.22%	99.22%
Investment-Grade	3.92%	10.75%	15.46%	17.67%	18.72%	19.44%	19.93%	20.24%	20.53%	20.86%
Speculative-Grade	49.16%	59.90%	67.60%	72.13%	74.51%	76.13%	77.29%	78.26%	79.26%	80.47%
All	6.81%	13.93%	18.92%	21.41%	22.66%	23.53%	24.15%	24.58%	24.99%	25.48%

¹⁵ The tables represent a ratings summary of instruments rated by the Structured Finance group and could include certain instruments that may not fall under the definition of a structured finance instrument. The data tables in the Appendices are available in an [Excel Data Supplement](#) on moodys.com.

Exhibit 37 (cont.): Multi-Year Cumulative Impairment Rates by Cohort Rating, 1993-2009

U.S. CMBS										
	1	2	3	4	5	6	7	8	9	10
Aaa	0.03%	0.08%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%
Aa	0.20%	0.40%	0.49%	0.52%	0.53%	0.53%	0.53%	0.53%	0.53%	0.53%
A	0.78%	1.70%	2.25%	2.39%	2.50%	2.64%	2.64%	2.86%	2.86%	2.86%
Baa	1.13%	2.60%	3.45%	3.84%	4.10%	4.21%	4.83%	5.31%	5.31%	5.31%
Ba	2.30%	4.99%	7.15%	8.93%	10.35%	12.23%	13.94%	15.61%	16.63%	18.00%
B	4.43%	9.72%	14.68%	19.68%	25.11%	31.44%	39.03%	47.04%	53.17%	60.05%
Caa	21.11%	35.53%	47.52%	58.48%	66.90%	72.60%	76.71%	80.72%	85.68%	91.76%
Investment-Grade	0.43%	0.99%	1.34%	1.47%	1.57%	1.62%	1.80%	1.98%	1.98%	1.98%
Speculative-Grade	4.17%	8.60%	12.55%	16.31%	19.97%	24.16%	28.84%	33.83%	37.83%	42.63%
All	1.28%	2.76%	4.03%	5.14%	6.22%	7.42%	8.84%	10.35%	11.51%	13.01%
Global CDOs ex CLOs										
	1	2	3	4	5	6	7	8	9	10
Aaa	5.17%	13.41%	19.48%	23.58%	26.46%	28.71%	29.91%	30.81%	32.41%	34.30%
Aa	9.00%	20.86%	30.78%	37.93%	43.02%	48.06%	51.79%	54.43%	56.14%	57.92%
A	13.92%	27.31%	37.83%	46.21%	52.85%	57.52%	60.02%	62.31%	66.42%	70.52%
Baa	16.36%	28.90%	39.71%	48.22%	54.42%	59.12%	63.66%	68.80%	72.15%	76.43%
Ba	21.84%	32.14%	40.75%	46.86%	51.68%	56.29%	64.09%	76.60%	80.85%	80.85%
B	36.79%	44.90%	51.60%	56.70%	61.29%	66.20%	70.93%	74.37%	74.37%	74.37%
Caa	54.83%	62.52%	69.03%	76.31%	83.89%	90.81%	93.58%	93.58%	93.58%	NA
Investment-Grade	9.90%	20.80%	29.64%	36.31%	41.27%	45.25%	48.20%	50.99%	53.43%	56.15%
Speculative-Grade	30.02%	39.31%	47.08%	53.09%	58.24%	63.22%	69.58%	78.20%	80.44%	80.44%
All	12.53%	23.23%	31.93%	38.52%	43.52%	47.63%	50.97%	54.23%	56.58%	59.07%
Global CLOs										
	1	2	3	4	5	6	7	8	9	10
Aaa	0.05%	0.13%	0.28%	0.53%	0.79%	0.79%	0.79%	0.79%	0.79%	0.79%
Aa	0.16%	0.43%	0.72%	1.04%	1.49%	1.86%	2.26%	2.26%	2.26%	2.26%
A	1.10%	2.51%	3.95%	5.30%	6.75%	7.15%	7.68%	8.86%	8.86%	8.86%
Baa	2.57%	5.83%	9.19%	13.35%	18.39%	22.76%	25.71%	31.88%	39.80%	48.74%
Ba	6.20%	13.90%	20.88%	26.71%	33.54%	40.91%	49.13%	56.16%	62.50%	66.13%
B	11.83%	23.49%	34.23%	44.69%	56.65%	60.95%	60.95%	NA	NA	NA
Caa	17.05%	29.65%	38.22%	48.16%	58.18%	58.18%	NA	NA	NA	NA
Investment-Grade	0.96%	2.24%	3.64%	5.37%	7.53%	9.34%	10.80%	14.17%	19.37%	26.57%
Speculative-Grade	6.72%	14.76%	22.00%	28.28%	35.54%	42.56%	50.44%	57.29%	63.47%	67.00%
All	1.86%	4.28%	6.78%	9.51%	12.97%	16.30%	19.78%	24.45%	30.16%	36.44%

Exhibit 37 (cont.): Multi-Year Cumulative Impairment Rates by Cohort Rating, 1993-2009**EMEA ABS, CMBS, & RMBS**

	1	2	3	4	5	6	7	8	9	10
Aaa	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
Aa	0.02%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%
A	0.04%	0.10%	0.11%	0.11%	0.15%	0.31%	0.31%	0.31%	0.31%	0.31%
Baa	0.22%	0.61%	0.82%	0.93%	1.16%	1.48%	1.48%	1.48%	1.48%	1.48%
Ba	1.12%	2.78%	3.84%	4.92%	7.61%	9.89%	10.39%	10.39%	10.39%	10.39%
B	5.74%	9.27%	12.94%	25.46%	26.09%	26.09%	26.09%	26.09%	26.09%	NA
Caa	19.15%	40.12%	61.92%	67.93%	NA	NA	NA	NA	NA	NA
Investment-Grade	0.05%	0.13%	0.17%	0.19%	0.24%	0.32%	0.32%	0.32%	0.32%	0.32%
Speculative-Grade	2.58%	5.40%	7.74%	9.85%	12.29%	14.33%	14.77%	14.77%	14.77%	14.77%
All	0.19%	0.42%	0.57%	0.68%	0.83%	0.99%	1.01%	1.01%	1.01%	1.01%

Asia-Pacific ABS, CMBS, & RMBS

	1	2	3	4	5	6	7	8	9	10
Aaa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Aa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.01%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%
Baa	0.05%	0.26%	0.37%	0.37%	0.37%	0.37%	0.37%	0.37%	0.37%	0.37%
Ba	0.47%	1.06%	1.06%	1.06%	1.06%	1.06%	1.06%	1.06%	NA	NA
B	2.24%	3.50%	3.50%	3.50%	3.50%	NA	NA	NA	NA	NA
Caa	20.59%	20.59%	20.59%	NA						
Investment-Grade	0.01%	0.02%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%
Speculative-Grade	0.94%	1.65%	1.65%	1.65%	1.65%	1.65%	1.65%	1.65%	NA	NA
All	0.04%	0.08%	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%

Exhibit 38: Multi-Year Cumulative Impairment Rates by Original Rating, 1993-2009

Global Structured Finance										
	1	2	3	4	5	6	7	8	9	10
Aaa	0.35%	2.34%	4.66%	5.76%	6.15%	6.45%	6.68%	6.83%	7.09%	7.09%
Aa	1.10%	14.23%	27.47%	32.69%	33.87%	34.83%	35.83%	36.55%	36.83%	37.38%
A	2.25%	15.56%	27.78%	34.89%	37.05%	38.64%	40.06%	41.20%	41.97%	42.73%
Baa	4.79%	18.32%	30.43%	42.52%	48.43%	52.69%	55.44%	57.89%	59.38%	60.00%
Ba	6.17%	19.83%	32.38%	42.61%	47.71%	50.42%	52.59%	55.03%	57.36%	58.80%
B	1.53%	7.24%	16.97%	24.13%	30.63%	35.80%	40.35%	47.15%	50.37%	56.67%
Caa	1.14%	9.32%	18.76%	23.54%	35.31%	50.01%	56.46%	60.61%	70.45%	83.59%
Investment-Grade	1.33%	8.19%	15.25%	19.94%	21.87%	23.29%	24.39%	25.30%	25.91%	26.25%
Speculative-Grade	5.01%	16.75%	28.58%	38.00%	43.48%	46.94%	49.80%	53.46%	56.17%	59.41%
All	1.55%	8.71%	16.07%	21.09%	23.31%	24.94%	26.23%	27.43%	28.25%	28.87%
U.S. ABS ex HEL										
	1	2	3	4	5	6	7	8	9	10
Aaa	0.07%	0.10%	0.13%	0.29%	0.61%	0.68%	0.88%	1.52%	2.50%	2.50%
Aa	0.80%	1.76%	2.72%	4.31%	7.71%	9.83%	10.64%	11.31%	12.64%	13.81%
A	0.14%	0.71%	1.63%	2.79%	3.92%	5.24%	6.66%	7.19%	8.83%	9.72%
Baa	0.14%	1.86%	5.76%	8.97%	13.50%	19.66%	27.62%	37.85%	42.70%	43.34%
Ba	2.16%	12.44%	25.62%	34.48%	41.24%	50.09%	63.18%	66.13%	79.68%	79.68%
B	0.00%	13.48%	42.32%	42.32%	46.17%	58.13%	58.13%	58.13%	58.13%	72.09%
Caa	50.00%	50.00%	50.00%	NA						
Investment-Grade	0.14%	0.48%	1.09%	1.85%	2.98%	4.06%	5.34%	6.94%	8.55%	8.94%
Speculative-Grade	2.15%	12.84%	28.29%	35.70%	41.96%	51.37%	62.03%	64.26%	74.85%	77.81%
All	0.18%	0.73%	1.64%	2.53%	3.77%	5.01%	6.48%	8.10%	9.89%	10.35%
U.S. RMBS/HEL										
	1	2	3	4	5	6	7	8	9	10
Aaa	0.04%	1.79%	4.53%	5.40%	5.48%	5.51%	5.54%	5.54%	5.58%	5.58%
Aa	0.28%	18.90%	36.67%	42.17%	42.49%	42.57%	42.89%	43.01%	43.01%	43.16%
A	2.00%	24.52%	43.91%	53.46%	55.02%	56.09%	57.89%	59.71%	60.18%	60.86%
Baa	6.17%	27.94%	45.08%	60.59%	66.79%	70.95%	73.48%	74.34%	74.83%	75.43%
Ba	11.22%	34.79%	53.33%	67.65%	72.73%	75.04%	76.60%	77.10%	77.65%	77.95%
B	2.45%	8.66%	20.69%	32.00%	40.96%	49.34%	53.87%	56.17%	56.93%	56.93%
Caa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Investment-Grade	1.01%	10.07%	19.56%	25.30%	27.09%	28.20%	29.08%	29.51%	29.69%	29.95%
Speculative-Grade	9.63%	30.06%	47.44%	61.25%	67.02%	70.42%	72.51%	73.33%	73.90%	74.14%
All	1.33%	10.82%	20.68%	26.89%	28.99%	30.33%	31.38%	31.86%	32.10%	32.37%

Exhibit 38 (cont.): Multi-Year Cumulative Impairment Rates by Original Rating, 1993-2009

U.S. CMBS										
	1	2	3	4	5	6	7	8	9	10
Aaa	0.00%	0.03%	0.13%	0.23%	0.23%	0.23%	0.23%	0.23%	0.23%	0.23%
Aa	0.00%	0.50%	0.77%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%	1.04%
A	0.18%	1.00%	3.17%	3.96%	3.96%	4.52%	4.52%	6.17%	6.17%	6.17%
Baa	0.16%	1.28%	3.67%	5.34%	6.19%	6.33%	6.33%	7.78%	7.78%	7.78%
Ba	0.36%	3.84%	8.05%	10.28%	11.98%	12.37%	13.40%	14.97%	18.12%	20.00%
B	1.01%	5.99%	12.65%	16.76%	22.02%	23.92%	29.16%	39.68%	45.25%	55.85%
Caa	0.00%	11.59%	17.59%	23.93%	33.85%	50.39%	57.47%	61.95%	72.82%	86.41%
Investment-Grade	0.07%	0.59%	1.67%	2.32%	2.54%	2.69%	2.69%	3.47%	3.47%	3.47%
Speculative-Grade	0.63%	4.88%	10.21%	13.37%	16.90%	18.48%	21.71%	27.71%	32.53%	39.59%
All	0.19%	1.50%	3.56%	4.85%	6.00%	6.55%	7.46%	9.63%	10.86%	13.00%
Global CDOs ex CLOs										
	1	2	3	4	5	6	7	8	9	10
Aaa	5.36%	18.92%	26.67%	33.35%	36.83%	40.05%	42.43%	42.43%	42.79%	42.79%
Aa	6.58%	19.88%	32.70%	42.73%	47.43%	52.54%	58.53%	63.12%	64.11%	66.70%
A	9.77%	26.01%	38.65%	48.48%	56.86%	62.88%	66.40%	67.33%	69.90%	74.53%
Baa	13.46%	26.96%	38.38%	49.16%	56.69%	62.74%	66.17%	71.02%	75.48%	76.99%
Ba	11.45%	27.30%	38.83%	48.68%	54.76%	56.80%	59.06%	70.27%	76.87%	76.87%
B	4.55%	14.24%	33.53%	46.32%	50.39%	58.95%	58.95%	62.52%	62.52%	62.52%
Caa	0.00%	NA	NA	NA	NA	NA	NA	NA	NA	NA
Investment-Grade	8.00%	22.01%	32.58%	41.50%	47.19%	52.11%	55.79%	58.41%	60.55%	62.32%
Speculative-Grade	10.63%	25.80%	38.22%	48.41%	54.20%	57.32%	59.15%	68.85%	73.46%	73.46%
All	8.19%	22.29%	33.00%	42.02%	47.72%	52.50%	56.00%	59.28%	61.52%	63.22%
Global CLOs										
	1	2	3	4	5	6	7	8	9	10
Aaa	0.00%	0.00%	0.00%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%
Aa	0.00%	0.00%	0.34%	0.65%	1.20%	1.20%	3.02%	3.02%	3.02%	3.02%
A	0.10%	0.86%	2.18%	4.72%	6.37%	7.19%	7.19%	10.44%	10.44%	10.44%
Baa	0.33%	2.29%	4.88%	7.75%	12.28%	17.55%	20.99%	26.39%	31.30%	31.30%
Ba	0.53%	6.81%	15.40%	20.30%	27.07%	33.88%	35.75%	43.31%	49.13%	68.20%
B	3.92%	15.93%	43.95%	56.41%	56.41%	73.85%	NA	NA	NA	NA
Caa	0.00%	0.00%	0.00%	0.00%	100.00%	NA	NA	NA	NA	NA
Investment-Grade	0.11%	0.78%	1.83%	3.37%	5.19%	7.10%	8.70%	11.51%	13.95%	13.95%
Speculative-Grade	0.64%	7.10%	16.27%	21.48%	28.29%	35.41%	37.24%	44.62%	50.30%	68.94%
All	0.18%	1.69%	3.97%	6.13%	8.94%	12.08%	13.78%	18.00%	21.56%	27.23%

Exhibit 38 (cont.): Multi-Year Cumulative Impairment Rates by Original Rating, 1993-2009**EMEA ABS, CMBS, & RMBS**

	1	2	3	4	5	6	7	8	9	10
Aaa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Aa	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%
A	0.00%	0.15%	0.34%	0.34%	0.34%	0.60%	0.60%	0.60%	0.60%	0.60%
Baa	0.07%	0.73%	1.80%	1.96%	1.96%	2.37%	2.37%	2.37%	2.37%	2.37%
Ba	0.50%	1.61%	4.77%	5.95%	8.95%	10.59%	13.62%	13.62%	13.62%	13.62%
B	0.00%	0.00%	4.17%	11.27%	11.27%	11.27%	11.27%	11.27%	11.27%	NA
Caa	0.00%	10.26%	34.73%	34.73%	NA	NA	NA	NA	NA	NA
Investment-Grade	0.03%	0.17%	0.41%	0.44%	0.44%	0.58%	0.58%	0.58%	0.58%	0.58%
Speculative-Grade	0.75%	2.25%	6.08%	7.60%	10.39%	11.92%	14.81%	14.81%	14.81%	14.81%
All	0.07%	0.31%	0.75%	0.86%	0.98%	1.18%	1.31%	1.31%	1.31%	1.31%

Asia-Pacific ABS, CMBS, & RMBS

	1	2	3	4	5	6	7	8	9	10
Aaa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Aa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	0.23%	0.23%	0.23%	0.23%	0.23%	0.23%	0.23%	0.23%	0.23%
Baa	0.00%	0.31%	0.77%	0.77%	0.77%	0.77%	0.77%	0.77%	0.77%	0.77%
Ba	0.00%	1.58%	1.58%	1.58%	1.58%	1.58%	1.58%	1.58%	NA	NA
B	0.00%	3.33%	3.33%	3.33%	3.33%	NA	NA	NA	NA	NA
Caa	NA									
Investment-Grade	0.00%	0.06%	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%
Speculative-Grade	0.00%	1.92%	1.92%	1.92%	1.92%	1.92%	1.92%	1.92%	NA	NA
All	0.00%	0.13%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%

Appendix IV: Estimated Multi-Year Cumulative Loss Rates¹⁶

Exhibit 39: Estimated Multi-Year Cumulative Loss Rates by Cohort Rating, 1993-2009

Global Structured Finance										
	1	2	3	4	5	6	7	8	9	10
Aaa	0.57%	1.60%	2.28%	2.54%	2.70%	2.82%	2.90%	2.96%	3.03%	3.09%
Aa	4.68%	13.28%	18.10%	19.58%	20.20%	20.69%	21.08%	21.45%	21.81%	22.25%
A	5.24%	14.02%	19.35%	21.73%	22.94%	23.84%	24.47%	25.01%	25.47%	25.95%
Baa	8.84%	18.51%	25.45%	29.53%	31.67%	33.04%	34.11%	35.00%	35.65%	36.39%
Ba	15.42%	23.59%	29.41%	32.91%	35.07%	36.87%	38.54%	40.06%	41.10%	42.14%
B	31.71%	36.13%	39.69%	42.60%	45.18%	47.50%	49.73%	51.75%	53.24%	54.87%
Caa	61.14%	66.16%	69.96%	73.49%	76.27%	78.18%	79.37%	80.26%	81.16%	81.97%
Investment-Grade	2.87%	7.29%	10.25%	11.68%	12.42%	12.94%	13.33%	13.65%	13.92%	14.22%
Speculative-Grade	25.14%	31.78%	36.67%	39.98%	42.35%	44.35%	46.19%	47.86%	49.11%	50.43%
All	4.75%	9.37%	12.52%	14.16%	15.10%	15.80%	16.36%	16.84%	17.22%	17.62%
U.S. ABS ex HEL										
	1	2	3	4	5	6	7	8	9	10
Aaa	0.02%	0.03%	0.06%	0.10%	0.13%	0.16%	0.27%	0.38%	0.48%	0.53%
Aa	0.44%	1.13%	1.94%	2.76%	3.50%	4.06%	4.71%	5.59%	6.53%	7.60%
A	0.31%	0.93%	1.65%	2.29%	2.92%	3.64%	4.10%	4.55%	4.96%	5.21%
Baa	1.26%	3.12%	5.20%	7.05%	9.65%	12.65%	15.27%	16.76%	17.47%	18.27%
Ba	7.05%	14.34%	19.84%	25.72%	30.27%	35.46%	38.77%	41.09%	43.27%	43.27%
B	10.10%	16.73%	21.96%	26.34%	32.26%	36.15%	36.91%	37.81%	39.02%	39.55%
Caa	22.11%	33.99%	42.21%	49.74%	54.38%	56.11%	NA	NA	NA	NA
Investment-Grade	0.23%	0.61%	1.06%	1.49%	1.99%	2.53%	3.03%	3.46%	3.82%	4.20%
Speculative-Grade	10.12%	18.01%	23.94%	29.78%	34.71%	38.98%	41.14%	42.72%	44.32%	44.47%
All	0.67%	1.39%	2.10%	2.78%	3.45%	4.06%	4.58%	5.03%	5.40%	5.78%
U.S. RMBS/HEL										
	1	2	3	4	5	6	7	8	9	10
Aaa	0.51%	1.46%	2.01%	2.09%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
Aa	6.33%	18.52%	24.58%	25.68%	25.78%	25.80%	25.82%	25.83%	25.84%	25.86%
A	8.01%	23.39%	31.82%	34.76%	35.71%	36.49%	37.30%	37.90%	38.28%	38.84%
Baa	13.76%	29.02%	38.80%	43.83%	45.84%	46.77%	47.29%	47.54%	47.77%	48.00%
Ba	28.21%	40.90%	48.66%	52.20%	53.67%	54.57%	55.27%	55.89%	56.54%	57.40%
B	56.01%	59.94%	62.74%	64.71%	66.03%	66.90%	67.43%	67.79%	68.16%	68.60%
Caa	86.22%	87.25%	87.65%	87.92%	88.23%	88.60%	88.60%	88.60%	88.60%	88.60%
Investment-Grade	3.52%	9.41%	13.10%	14.54%	15.02%	15.28%	15.46%	15.58%	15.66%	15.78%
Speculative-Grade	44.96%	53.20%	58.38%	60.97%	62.24%	63.05%	63.62%	64.09%	64.60%	65.23%
All	6.17%	12.23%	16.08%	17.66%	18.26%	18.61%	18.87%	19.04%	19.20%	19.42%

¹⁶ The tables represent a ratings summary of instruments rated by the Structured Finance group and could include certain instruments that may not fall under the definition of a structured finance instrument.

Exhibit 39 (cont.): Estimated Multi-Year Cumulative Loss Rates by Cohort Rating, 1993-2009

U.S. CMBS										
	1	2	3	4	5	6	7	8	9	10
Aaa	0.02%	0.04%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
Aa	0.12%	0.26%	0.32%	0.34%	0.34%	0.34%	0.34%	0.34%	0.34%	0.34%
A	0.52%	1.11%	1.46%	1.54%	1.61%	1.70%	1.70%	1.84%	1.84%	1.84%
Baa	0.80%	1.84%	2.41%	2.65%	2.82%	2.87%	3.26%	3.53%	3.53%	3.53%
Ba	1.76%	3.81%	5.38%	6.62%	7.65%	8.96%	10.05%	11.03%	11.66%	12.53%
B	3.63%	7.93%	11.77%	15.41%	19.21%	23.38%	28.18%	32.98%	36.60%	40.64%
Caa	18.78%	31.32%	41.15%	49.63%	55.78%	59.82%	62.47%	64.81%	67.50%	70.51%
Investment-Grade	0.30%	0.68%	0.91%	0.99%	1.05%	1.09%	1.20%	1.30%	1.30%	1.30%
Speculative-Grade	3.46%	7.02%	10.03%	12.77%	15.36%	18.17%	21.14%	24.12%	26.47%	29.29%
All	1.03%	2.17%	3.11%	3.90%	4.66%	5.47%	6.36%	7.26%	7.94%	8.82%
Global CDOs ex CLOs										
	1	2	3	4	5	6	7	8	9	10
Aaa	4.67%	12.25%	17.76%	21.45%	24.01%	25.96%	26.97%	27.75%	29.09%	30.79%
Aa	8.31%	18.94%	27.46%	33.32%	37.16%	40.65%	43.15%	45.01%	46.48%	47.96%
A	13.26%	25.70%	35.30%	42.80%	48.65%	52.62%	54.83%	56.97%	60.68%	64.37%
Baa	15.04%	25.85%	34.72%	41.44%	46.11%	49.48%	52.52%	56.00%	58.42%	61.85%
Ba	19.96%	28.45%	35.10%	39.62%	43.28%	46.84%	52.25%	60.31%	63.46%	63.46%
B	34.26%	40.58%	45.60%	49.21%	52.46%	56.31%	60.03%	62.61%	62.61%	62.61%
Caa	51.27%	57.64%	62.86%	68.68%	74.53%	79.74%	82.51%	82.51%	82.51%	NA
Investment-Grade	9.16%	19.01%	26.75%	32.42%	36.47%	39.53%	41.68%	43.71%	45.64%	47.88%
Speculative-Grade	27.80%	35.37%	41.37%	45.85%	49.71%	53.56%	58.32%	64.09%	65.71%	65.71%
All	11.60%	21.16%	28.67%	34.19%	38.22%	41.39%	43.84%	46.16%	48.00%	50.06%
Global CLOs										
	1	2	3	4	5	6	7	8	9	10
Aaa	0.05%	0.13%	0.27%	0.51%	0.74%	0.74%	0.74%	0.74%	0.74%	0.74%
Aa	0.16%	0.42%	0.69%	0.98%	1.36%	1.66%	1.66%	1.66%	1.66%	1.66%
A	0.99%	2.23%	3.51%	4.75%	6.06%	6.06%	6.06%	6.06%	6.06%	6.06%
Baa	2.39%	5.29%	8.14%	11.30%	14.73%	17.21%	18.70%	22.45%	27.13%	33.34%
Ba	5.61%	12.23%	18.03%	22.85%	28.30%	34.02%	40.41%	45.61%	50.15%	52.93%
B	10.64%	19.78%	27.71%	36.13%	45.86%	49.22%	49.22%	NA	NA	NA
Caa	16.23%	27.52%	33.95%	41.18%	48.59%	48.59%	NA	NA	NA	NA
Investment-Grade	0.90%	2.04%	3.25%	4.63%	6.19%	7.25%	7.98%	10.03%	13.10%	18.10%
Speculative-Grade	6.14%	13.02%	18.99%	24.13%	29.92%	35.38%	41.50%	46.56%	50.99%	53.69%
All	1.71%	3.81%	5.90%	8.11%	10.79%	13.20%	15.67%	18.87%	22.63%	27.17%

Exhibit 39 (cont.): Estimated Multi-Year Cumulative Loss Rates by Cohort Rating, 1993-2009**EMEA ABS, CMBS, & RMBS**

	1	2	3	4	5	6	7	8	9	10
Aaa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Aa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.02%	0.07%	0.07%	0.07%	0.11%	0.25%	0.25%	0.25%	0.25%	0.25%
Baa	0.16%	0.44%	0.59%	0.66%	0.76%	0.79%	0.79%	0.79%	0.79%	0.79%
Ba	0.91%	2.20%	3.02%	3.84%	5.39%	7.16%	7.53%	7.53%	7.53%	7.53%
B	4.45%	6.98%	9.33%	14.37%	14.91%	14.91%	14.91%	14.91%	14.91%	NA
Caa	13.96%	28.94%	43.71%	48.99%	NA	NA	NA	NA	NA	NA
Investment-Grade	0.03%	0.09%	0.12%	0.13%	0.16%	0.20%	0.20%	0.20%	0.20%	0.20%
Speculative-Grade	2.04%	4.17%	5.88%	7.33%	8.74%	10.32%	10.66%	10.66%	10.66%	10.66%
All	0.15%	0.32%	0.43%	0.50%	0.59%	0.69%	0.70%	0.70%	0.70%	0.70%

Asia-Pacific ABS, CMBS, & RMBS

	1	2	3	4	5	6	7	8	9	10
Aaa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Aa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.01%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%
Baa	0.04%	0.16%	0.23%	0.23%	0.23%	0.23%	0.23%	0.23%	0.23%	0.23%
Ba	0.32%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	NA	NA
B	1.59%	2.50%	2.50%	2.50%	2.50%	NA	NA	NA	NA	NA
Caa	15.35%	15.35%	15.35%	NA						
Investment-Grade	0.00%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%
Speculative-Grade	0.67%	1.18%	1.18%	1.18%	1.18%	1.18%	1.18%	1.18%	NA	NA
All	0.03%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%

Exhibit 40: Estimated Multi-Year Cumulative Loss Rates by Original Rating, 1993-2009

Global Structured Finance										
	1	2	3	4	5	6	7	8	9	10
Aaa	0.29%	1.71%	3.23%	3.96%	4.22%	4.43%	4.59%	4.63%	4.71%	4.71%
Aa	0.94%	12.70%	24.35%	28.69%	29.54%	30.21%	30.76%	31.15%	31.29%	31.63%
A	2.00%	13.97%	24.66%	30.46%	32.02%	33.03%	33.74%	34.33%	34.68%	35.09%
Baa	4.18%	15.82%	25.72%	34.06%	37.25%	39.07%	40.13%	41.26%	41.75%	41.93%
Ba	5.30%	16.60%	26.18%	32.44%	35.39%	36.90%	38.10%	39.43%	40.60%	41.40%
B	1.27%	5.65%	12.71%	17.16%	20.82%	23.23%	25.63%	29.16%	30.80%	33.93%
Caa	0.89%	7.32%	15.31%	18.84%	27.76%	37.25%	41.42%	43.92%	49.14%	55.23%
Investment-Grade	1.16%	7.04%	12.83%	16.33%	17.51%	18.26%	18.78%	19.21%	19.43%	19.59%
Speculative-Grade	4.30%	13.92%	22.87%	28.66%	31.82%	33.63%	35.18%	37.14%	38.52%	40.19%
All	1.34%	7.45%	13.45%	17.11%	18.46%	19.31%	19.94%	20.53%	20.87%	21.17%
U.S. ABS ex HEL										
	1	2	3	4	5	6	7	8	9	10
Aaa	0.05%	0.07%	0.08%	0.13%	0.21%	0.23%	0.25%	0.37%	0.62%	0.62%
Aa	0.69%	1.23%	1.87%	2.58%	4.16%	5.14%	5.41%	5.67%	6.18%	6.18%
A	0.09%	0.36%	0.91%	1.61%	2.25%	2.88%	3.52%	3.74%	3.74%	4.06%
Baa	0.11%	1.32%	3.85%	5.76%	8.25%	11.30%	14.85%	18.69%	19.40%	19.42%
Ba	1.82%	9.06%	18.46%	23.62%	26.57%	30.80%	37.15%	38.66%	43.75%	43.75%
B	0.00%	9.22%	29.38%	29.38%	31.90%	38.45%	38.45%	38.45%	38.45%	43.43%
Caa	33.68%	33.68%	33.68%	NA						
Investment-Grade	0.11%	0.31%	0.69%	1.10%	1.64%	2.15%	2.70%	3.26%	3.65%	3.74%
Speculative-Grade	1.76%	9.24%	20.19%	24.51%	27.37%	32.04%	37.20%	38.36%	42.33%	43.39%
All	0.14%	0.49%	1.09%	1.58%	2.17%	2.76%	3.40%	3.97%	4.44%	4.56%
U.S. RMBS/HEL										
	1	2	3	4	5	6	7	8	9	10
Aaa	0.03%	1.12%	2.77%	3.27%	3.29%	3.29%	3.29%	3.29%	3.29%	3.29%
Aa	0.26%	17.19%	33.03%	37.72%	37.99%	37.99%	38.03%	38.03%	38.03%	38.04%
A	1.81%	22.32%	39.56%	47.41%	48.43%	48.91%	49.49%	50.38%	50.51%	50.74%
Baa	5.50%	24.58%	38.97%	49.62%	52.73%	54.13%	54.81%	55.15%	55.22%	55.27%
Ba	9.95%	30.20%	44.70%	53.16%	56.00%	57.14%	57.93%	58.11%	58.35%	58.49%
B	2.14%	7.07%	15.48%	22.15%	26.46%	30.32%	32.47%	33.49%	33.70%	33.70%
Caa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Investment-Grade	0.90%	8.76%	16.62%	20.88%	21.84%	22.22%	22.47%	22.66%	22.70%	22.74%
Speculative-Grade	8.53%	26.02%	39.42%	47.57%	50.66%	52.28%	53.31%	53.64%	53.88%	53.98%
All	1.18%	9.41%	17.53%	22.03%	23.16%	23.67%	24.04%	24.25%	24.31%	24.37%

Exhibit 40 (cont.): Estimated Multi-Year Cumulative Loss Rates by Original Rating, 1993-2009**U.S. CMBS**

	1	2	3	4	5	6	7	8	9	10
Aaa	0.00%	0.00%	0.06%	0.11%	0.11%	0.11%	0.11%	0.11%	0.11%	0.11%
Aa	0.00%	0.18%	0.38%	0.56%	0.56%	0.56%	0.56%	0.56%	0.56%	0.56%
A	0.11%	0.65%	1.97%	2.44%	2.44%	2.78%	2.78%	3.69%	3.69%	3.69%
Baa	0.13%	0.70%	2.30%	3.25%	3.78%	3.78%	3.78%	4.64%	4.64%	4.64%
Ba	0.30%	2.82%	5.96%	7.42%	8.46%	8.73%	9.27%	10.22%	11.50%	12.37%
B	0.88%	4.76%	9.96%	12.83%	16.36%	17.51%	20.63%	26.47%	29.43%	35.16%
Caa	0.00%	9.76%	14.68%	19.07%	26.13%	36.80%	41.38%	44.08%	49.84%	56.14%
Investment-Grade	0.05%	0.33%	1.03%	1.41%	1.55%	1.65%	1.65%	2.09%	2.09%	2.09%
Speculative-Grade	0.55%	3.78%	7.85%	10.01%	12.30%	13.29%	15.20%	18.56%	21.01%	24.73%
All	0.16%	1.08%	2.54%	3.38%	4.12%	4.47%	5.00%	6.23%	6.86%	7.98%

Global CDOs ex CLOs

	1	2	3	4	5	6	7	8	9	10
Aaa	4.52%	15.80%	22.19%	27.78%	30.66%	33.29%	35.16%	35.16%	35.40%	35.40%
Aa	5.55%	16.55%	26.85%	34.72%	38.24%	41.95%	45.59%	48.32%	49.11%	51.18%
A	8.73%	22.60%	33.20%	41.29%	48.27%	53.16%	55.83%	56.61%	58.80%	62.73%
Baa	11.28%	21.95%	30.50%	38.48%	43.71%	47.85%	49.86%	52.86%	55.21%	56.14%
Ba	8.96%	20.77%	28.90%	35.28%	38.92%	40.35%	41.92%	48.35%	51.98%	51.98%
B	3.00%	9.92%	22.80%	30.52%	32.87%	33.76%	33.76%	36.11%	36.11%	36.11%
Caa	0.00%	NA								
Investment-Grade	6.83%	18.44%	26.95%	34.08%	38.49%	42.22%	44.70%	46.36%	47.68%	49.03%
Speculative-Grade	8.25%	19.52%	28.19%	34.73%	38.17%	39.74%	41.02%	46.65%	49.23%	49.23%
All	6.93%	18.52%	27.05%	34.14%	38.49%	42.04%	44.41%	46.44%	47.79%	49.08%

Global CLOs

	1	2	3	4	5	6	7	8	9	10
Aaa	0.00%	0.00%	0.00%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
Aa	0.00%	0.00%	0.00%	0.25%	0.68%	0.68%	0.68%	0.68%	0.68%	0.68%
A	0.00%	0.64%	1.55%	3.66%	5.06%	5.06%	5.06%	5.06%	5.06%	5.06%
Baa	0.25%	1.86%	3.88%	6.06%	9.33%	13.08%	14.95%	17.25%	18.55%	18.55%
Ba	0.38%	5.29%	11.79%	15.37%	20.23%	24.79%	26.07%	31.55%	35.14%	48.97%
B	2.58%	11.28%	33.18%	41.57%	41.57%	53.06%	NA	NA	NA	NA
Caa	0.00%	0.00%	0.00%	0.00%	90.00%	NA	NA	NA	NA	NA
Investment-Grade	0.08%	0.63%	1.44%	2.65%	4.01%	5.47%	6.34%	7.53%	8.18%	8.18%
Speculative-Grade	0.45%	5.47%	12.43%	16.22%	21.17%	25.93%	27.18%	32.53%	36.04%	49.55%
All	0.13%	1.32%	3.06%	4.67%	6.74%	8.91%	9.96%	12.60%	14.44%	18.56%

Exhibit 40 (cont.): Estimated Multi-Year Cumulative Loss Rates by Original Rating, 1993-2009**EMEA ABS, CMBS, & RMBS**

	1	2	3	4	5	6	7	8	9	10
Aaa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Aa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	0.09%	0.22%	0.22%	0.22%	0.45%	0.45%	0.45%	0.45%	0.45%
Baa	0.06%	0.41%	1.18%	1.29%	1.29%	1.33%	1.33%	1.33%	1.33%	1.33%
Ba	0.37%	1.17%	3.48%	4.29%	5.93%	7.15%	9.42%	9.42%	9.42%	9.42%
B	0.00%	0.00%	2.68%	7.40%	7.40%	7.40%	7.40%	7.40%	7.40%	NA
Caa	0.00%	6.91%	27.83%	27.83%	NA	NA	NA	NA	NA	NA
Investment-Grade	0.02%	0.10%	0.27%	0.29%	0.29%	0.36%	0.36%	0.36%	0.36%	0.36%
Speculative-Grade	0.64%	1.71%	4.59%	5.65%	7.17%	8.32%	10.48%	10.48%	10.48%	10.48%
All	0.06%	0.21%	0.53%	0.61%	0.68%	0.79%	0.89%	0.89%	0.89%	0.89%

Asia-Pacific ABS, CMBS, & RMBS

	1	2	3	4	5	6	7	8	9	10
Aaa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Aa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	0.12%	0.12%	0.12%	0.12%	0.12%	0.12%	0.12%	0.12%	0.12%
Baa	0.00%	0.19%	0.44%	0.44%	0.44%	0.44%	0.44%	0.44%	0.44%	0.44%
Ba	0.00%	1.08%	1.08%	1.08%	1.08%	1.08%	1.08%	1.08%	NA	NA
B	0.00%	2.32%	2.32%	2.32%	2.32%	NA	NA	NA	NA	NA
Caa	NA									
Investment-Grade	0.00%	0.03%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%
Speculative-Grade	0.00%	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%	NA	NA
All	0.00%	0.09%	0.11%	0.11%	0.11%	0.11%	0.11%	0.11%	0.11%	0.11%

Appendix V: Transition Matrices with a Material Impairment Column¹⁷

Exhibit 41: One-Year Rating Transition Matrices by Cohort Rating, 1993-2009

Global Structured Finance									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	79.01%	1.82%	1.42%	1.29%	1.03%	1.25%	1.64%	0.70%	11.83%
Aa	4.05%	72.37%	3.77%	2.59%	1.99%	2.82%	1.87%	4.86%	5.69%
A	0.84%	2.73%	71.69%	4.90%	2.86%	2.98%	2.54%	5.45%	6.01%
Baa	0.24%	0.38%	2.00%	70.66%	4.49%	4.21%	3.22%	9.49%	5.32%
Ba	0.09%	0.06%	0.29%	2.05%	66.21%	4.46%	5.24%	16.77%	4.82%
B	0.04%	0.02%	0.05%	0.19%	1.13%	55.34%	5.67%	34.24%	3.33%
Caa-C	0.04%	0.00%	0.00%	0.08%	0.14%	0.72%	32.89%	62.94%	3.20%
U.S. ABS ex HEL									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	81.22%	1.60%	1.31%	0.64%	0.20%	0.12%	0.04%	0.02%	14.85%
Aa	2.26%	76.83%	5.31%	2.70%	0.82%	1.00%	0.37%	0.67%	10.04%
A	0.74%	2.50%	78.99%	4.31%	1.07%	0.82%	0.60%	0.39%	10.58%
Baa	0.32%	0.40%	1.31%	80.74%	4.57%	1.79%	0.68%	1.54%	8.64%
Ba	0.07%	0.07%	0.29%	5.04%	69.01%	6.32%	3.64%	8.37%	7.19%
B	0.00%	0.00%	0.00%	0.00%	0.05%	72.54%	11.59%	13.03%	2.79%
Caa-C	0.00%	0.00%	0.00%	0.07%	0.21%	0.30%	66.38%	28.91%	4.12%
U.S. RMBS/HEL									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	77.65%	1.74%	1.55%	1.64%	1.35%	1.76%	2.38%	0.70%	11.23%
Aa	3.56%	70.90%	3.11%	2.75%	2.63%	4.15%	2.51%	6.58%	3.83%
A	0.41%	1.99%	67.15%	5.54%	3.41%	5.51%	4.48%	8.49%	3.03%
Baa	0.10%	0.22%	1.43%	65.02%	4.71%	5.47%	5.06%	14.89%	3.10%
Ba	0.02%	0.06%	0.32%	1.90%	54.30%	4.23%	5.58%	30.79%	2.79%
B	0.00%	0.01%	0.05%	0.15%	1.29%	33.87%	2.28%	60.45%	1.90%
Caa-C	0.00%	0.00%	0.00%	0.00%	0.04%	0.00%	6.53%	93.04%	0.39%
U.S. CMBS									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	89.05%	0.93%	0.76%	0.22%	0.19%	0.05%	0.00%	0.03%	8.77%
Aa	14.73%	71.27%	4.13%	2.32%	0.79%	0.64%	0.19%	0.19%	5.74%
A	3.31%	8.67%	74.24%	4.46%	2.63%	0.82%	0.66%	0.77%	4.44%
Baa	0.72%	1.06%	5.65%	77.22%	4.23%	3.02%	1.24%	1.10%	5.75%
Ba	0.20%	0.02%	0.39%	2.52%	83.92%	3.50%	4.53%	2.27%	2.64%
B	0.10%	0.01%	0.02%	0.12%	0.83%	84.75%	8.27%	4.39%	1.51%
Caa-C	0.10%	0.00%	0.00%	0.00%	0.22%	0.93%	75.10%	20.74%	2.90%

¹⁷ The tables represent a ratings summary of instruments rated by the Structured Finance group and could include certain instruments that may not fall under the definition of a structured finance instrument.

Exhibit 41 (cont.): One-Year Rating Transition Matrices by Cohort Rating, 1993-2009

Global CDOs ex CLOs									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	71.48%	4.50%	2.66%	1.92%	2.15%	1.66%	1.87%	4.94%	8.81%
Aa	1.85%	64.53%	5.73%	3.16%	2.62%	2.50%	3.19%	8.65%	7.78%
A	0.57%	1.79%	62.22%	5.21%	3.10%	2.28%	3.13%	13.34%	8.35%
Baa	0.21%	0.47%	1.32%	63.69%	4.76%	3.18%	2.92%	15.73%	7.71%
Ba	0.15%	0.06%	0.29%	1.56%	57.97%	4.98%	5.40%	20.89%	8.69%
B	0.01%	0.08%	0.17%	0.41%	1.95%	44.76%	9.26%	35.32%	8.04%
Caa-C	0.02%	0.00%	0.00%	0.29%	0.33%	1.24%	41.23%	48.70%	8.19%
Global CLOs									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	88.20%	5.11%	1.64%	0.09%	0.10%	0.02%	0.04%	0.05%	4.75%
Aa	0.96%	85.63%	5.56%	3.69%	0.72%	0.10%	0.04%	0.16%	3.15%
A	0.45%	0.62%	74.47%	8.62%	10.31%	0.68%	0.18%	1.08%	3.59%
Baa	0.09%	0.15%	0.38%	76.91%	5.57%	8.43%	2.18%	2.52%	3.77%
Ba	0.04%	0.07%	0.08%	0.26%	74.47%	5.52%	8.90%	6.06%	4.60%
B	0.00%	0.00%	0.00%	2.97%	0.80%	66.65%	10.71%	11.39%	7.49%
Caa-C	0.00%	0.00%	0.00%	0.85%	0.00%	8.47%	71.05%	16.81%	2.82%
EMEA ABS, CMBS, & RMBS									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	84.00%	1.47%	0.28%	0.42%	0.09%	0.06%	0.00%	0.00%	13.67%
Aa	1.49%	85.33%	1.67%	0.84%	0.12%	0.07%	0.16%	0.02%	10.30%
A	0.23%	2.28%	86.13%	1.54%	0.54%	0.20%	0.16%	0.03%	8.88%
Baa	0.05%	0.04%	1.77%	85.10%	2.41%	0.78%	0.36%	0.21%	9.28%
Ba	0.17%	0.00%	0.15%	1.94%	82.28%	4.24%	2.47%	1.08%	7.68%
B	0.64%	0.00%	0.00%	0.00%	0.64%	74.03%	6.33%	5.36%	12.98%
Caa-C	0.56%	0.00%	0.00%	0.00%	0.00%	0.56%	87.82%	9.38%	1.68%
Asia-Pacific ABS, CMBS, & RMBS									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	75.86%	0.60%	0.05%	0.03%	0.01%	0.00%	0.00%	0.00%	23.46%
Aa	5.53%	75.71%	5.01%	0.07%	0.06%	0.00%	0.00%	0.00%	13.61%
A	3.94%	4.06%	75.06%	2.07%	0.49%	0.13%	0.04%	0.01%	14.21%
Baa	1.54%	1.11%	3.78%	75.04%	3.78%	1.49%	0.38%	0.05%	12.84%
Ba	0.29%	0.46%	0.42%	1.89%	73.86%	8.98%	1.58%	0.44%	12.09%
B	0.00%	0.00%	0.26%	2.17%	1.22%	67.48%	13.30%	2.09%	13.48%
Caa-C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.79%	11.11%	38.10%

Exhibit 42: Three-Year Rating Transition Matrices by Cohort Rating, 1993-2009

Global Structured Finance									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	73.23%	2.55%	1.91%	1.84%	1.37%	1.50%	1.59%	0.89%	15.11%
Aa	13.95%	56.25%	5.09%	3.51%	2.25%	1.78%	1.39%	6.02%	9.77%
A	3.87%	7.42%	56.83%	6.53%	3.87%	2.08%	1.84%	6.88%	10.68%
Baa	1.45%	1.75%	6.15%	55.55%	6.73%	4.88%	3.00%	11.47%	9.01%
Ba	0.49%	0.50%	1.81%	6.60%	59.78%	6.12%	5.56%	10.71%	8.42%
B	0.17%	0.08%	0.31%	1.12%	4.55%	68.49%	11.17%	8.62%	5.49%
Caa-C	0.29%	0.00%	0.13%	0.91%	1.54%	3.94%	63.47%	17.86%	11.87%
U.S. ABS ex HEL									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	72.88%	2.58%	2.57%	1.25%	0.55%	0.60%	0.25%	0.09%	19.23%
Aa	3.10%	65.15%	5.52%	6.51%	2.49%	2.44%	1.47%	1.27%	12.05%
A	1.53%	3.87%	65.52%	5.27%	3.02%	1.32%	1.34%	0.95%	17.18%
Baa	0.83%	0.89%	2.06%	66.49%	7.61%	3.14%	1.73%	3.16%	14.08%
Ba	0.19%	0.61%	0.42%	8.21%	52.66%	9.99%	7.89%	9.53%	10.51%
B	0.00%	0.00%	0.00%	0.00%	0.00%	62.51%	23.41%	10.80%	3.28%
Caa-C	0.00%	0.00%	0.00%	0.20%	1.11%	0.61%	64.44%	27.16%	6.47%
U.S. RMBS/HEL									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	72.85%	2.34%	1.86%	2.24%	1.77%	2.03%	2.22%	0.86%	13.83%
Aa	14.73%	55.96%	4.60%	3.23%	2.50%	1.97%	1.40%	8.03%	7.57%
A	2.41%	6.96%	53.52%	8.45%	4.66%	3.29%	2.49%	12.70%	5.51%
Baa	0.48%	1.13%	4.98%	50.94%	7.60%	5.98%	3.64%	19.74%	5.50%
Ba	0.26%	0.29%	2.97%	7.87%	53.56%	4.28%	3.81%	20.66%	6.31%
B	0.14%	0.17%	0.53%	1.76%	9.57%	65.15%	2.07%	13.21%	7.41%
Caa-C	0.00%	0.00%	0.00%	0.00%	5.56%	0.00%	66.31%	17.31%	10.82%
U.S. CMBS									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	87.74%	0.98%	0.31%	0.15%	0.08%	0.02%	0.01%	0.05%	10.65%
Aa	42.35%	43.56%	3.60%	1.11%	0.52%	0.28%	0.11%	0.09%	8.38%
A	18.47%	19.90%	47.95%	4.16%	1.79%	0.38%	0.36%	0.55%	6.44%
Baa	6.10%	5.83%	15.86%	58.24%	3.89%	2.04%	0.90%	0.84%	6.29%
Ba	0.98%	0.72%	1.95%	7.67%	74.33%	6.32%	3.28%	2.24%	2.51%
B	0.13%	0.02%	0.21%	0.57%	2.24%	75.74%	13.46%	5.44%	2.20%
Caa-C	0.00%	0.00%	0.00%	0.00%	0.17%	2.89%	76.73%	18.44%	1.77%

Exhibit 42 (cont.): Three-Year Rating Transition Matrices by Cohort Rating, 1993-2009

Global CDOs ex CLOs									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	58.17%	7.04%	4.34%	2.95%	2.83%	2.14%	2.59%	6.54%	13.41%
Aa	4.67%	43.88%	9.04%	6.09%	4.23%	3.29%	3.81%	11.69%	13.30%
A	1.73%	5.15%	44.81%	7.08%	4.54%	3.10%	4.65%	13.34%	15.59%
Baa	0.83%	1.34%	3.02%	45.57%	8.07%	6.29%	5.70%	14.06%	15.13%
Ba	0.41%	0.67%	0.96%	4.67%	44.32%	8.05%	11.27%	11.53%	18.13%
B	0.43%	0.23%	0.41%	2.90%	6.11%	45.35%	17.06%	11.17%	16.35%
Caa-C	0.07%	0.00%	0.41%	1.60%	2.85%	5.50%	53.18%	13.01%	23.38%
Global CLOs									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	78.87%	7.77%	2.51%	0.11%	0.11%	0.02%	0.10%	0.14%	10.37%
Aa	3.18%	73.02%	8.69%	5.19%	0.73%	0.10%	0.03%	0.28%	8.78%
A	1.76%	1.51%	59.03%	11.94%	13.89%	1.29%	0.24%	1.41%	8.93%
Baa	0.53%	0.65%	1.11%	60.83%	9.56%	11.29%	3.72%	3.41%	8.89%
Ba	0.17%	0.48%	0.20%	0.77%	61.61%	7.63%	11.08%	7.68%	10.39%
B	0.00%	0.00%	0.00%	3.55%	4.55%	48.01%	20.88%	13.35%	9.66%
Caa-C	0.00%	0.00%	0.00%	9.70%	0.00%	23.72%	45.28%	11.59%	9.70%
EMEA ABS, CMBS, & RMBS									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	78.08%	1.38%	0.37%	0.73%	0.09%	0.01%	0.01%	0.00%	19.34%
Aa	4.32%	76.77%	1.43%	0.56%	0.14%	0.03%	0.01%	0.00%	16.74%
A	0.80%	8.61%	73.71%	1.33%	0.76%	0.16%	0.09%	0.01%	14.52%
Baa	0.17%	0.17%	6.82%	73.03%	2.59%	0.75%	0.61%	0.19%	15.66%
Ba	0.62%	0.00%	0.62%	7.65%	67.76%	4.45%	2.61%	1.01%	15.28%
B	1.99%	0.00%	0.00%	0.00%	1.50%	57.97%	7.64%	3.49%	27.41%
Caa-C	6.88%	0.00%	0.00%	0.00%	0.00%	0.00%	66.93%	20.90%	5.29%
Asia-Pacific ABS, CMBS, & RMBS									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	67.40%	0.53%	0.07%	0.10%	0.01%	0.00%	0.00%	0.00%	31.89%
Aa	7.19%	59.97%	6.46%	0.02%	0.54%	0.00%	0.00%	0.00%	25.83%
A	9.17%	5.10%	55.09%	1.74%	0.36%	0.23%	0.00%	0.00%	28.30%
Baa	3.58%	1.81%	7.98%	57.35%	2.49%	0.88%	0.54%	0.10%	25.26%
Ba	0.59%	1.25%	2.70%	1.85%	60.32%	3.82%	3.96%	0.00%	25.51%
B	0.00%	0.00%	3.32%	5.17%	0.00%	56.46%	11.44%	0.00%	23.62%
Caa-C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%

Exhibit 43: Five-Year Rating Transition Matrices by Cohort Rating, 1993-2009

Global Structured Finance									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	73.43%	2.80%	2.04%	1.14%	0.51%	0.58%	0.29%	0.19%	19.01%
Aa	26.51%	43.45%	4.88%	3.73%	1.53%	1.71%	1.21%	1.05%	15.93%
A	8.77%	10.66%	47.49%	7.14%	4.18%	1.97%	1.71%	2.12%	15.96%
Baa	4.05%	4.06%	10.40%	46.45%	7.29%	4.68%	3.45%	6.22%	13.39%
Ba	1.01%	1.06%	3.84%	11.36%	52.12%	7.10%	5.74%	5.42%	12.36%
B	0.26%	0.07%	0.44%	2.54%	5.76%	59.83%	15.45%	8.50%	7.17%
Caa-C	0.04%	0.00%	0.00%	1.62%	2.87%	3.14%	56.89%	24.97%	10.46%
U.S. ABS ex HEL									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	68.58%	3.25%	4.10%	2.10%	1.14%	1.48%	0.59%	0.10%	18.66%
Aa	3.45%	55.49%	6.31%	8.17%	2.71%	6.07%	3.54%	1.47%	12.78%
A	1.32%	4.09%	57.56%	7.02%	5.16%	2.02%	1.92%	1.03%	19.88%
Baa	0.35%	0.90%	2.09%	58.39%	10.74%	5.35%	3.17%	5.40%	13.62%
Ba	0.12%	0.90%	0.00%	17.51%	29.74%	11.84%	13.56%	12.56%	13.77%
B	0.00%	0.00%	0.00%	0.00%	0.00%	48.26%	29.86%	17.96%	3.92%
Caa-C	0.00%	0.00%	0.00%	1.21%	0.91%	0.00%	36.97%	54.55%	6.36%
U.S. RMBS/HEL									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	76.18%	2.36%	1.51%	0.86%	0.21%	0.29%	0.08%	0.02%	18.48%
Aa	31.46%	45.06%	4.41%	2.63%	0.75%	0.61%	0.16%	0.24%	14.69%
A	7.01%	11.49%	48.89%	10.42%	4.65%	2.69%	1.64%	2.66%	10.56%
Baa	1.52%	2.98%	9.08%	49.62%	7.99%	5.33%	3.49%	9.73%	10.26%
Ba	0.65%	0.51%	6.72%	12.85%	53.58%	4.23%	3.12%	7.03%	11.30%
B	0.74%	0.23%	0.58%	4.67%	11.27%	57.85%	3.14%	9.98%	11.54%
Caa-C	0.00%	0.00%	0.00%	0.00%	13.56%	0.00%	54.92%	19.32%	12.20%
U.S. CMBS									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	85.80%	0.72%	0.06%	0.00%	0.00%	0.00%	0.00%	0.00%	13.42%
Aa	63.95%	22.88%	1.99%	0.59%	0.11%	0.00%	0.00%	0.01%	10.47%
A	37.94%	24.36%	26.01%	3.28%	0.85%	0.11%	0.01%	0.11%	7.32%
Baa	15.42%	11.52%	23.63%	39.38%	2.64%	0.84%	0.27%	0.26%	6.05%
Ba	1.80%	2.11%	3.85%	12.96%	63.77%	8.88%	2.52%	1.54%	2.56%
B	0.02%	0.00%	0.41%	1.42%	3.18%	65.18%	20.95%	6.69%	2.15%
Caa-C	0.00%	0.00%	0.00%	0.00%	0.00%	5.37%	73.27%	20.17%	1.20%

Exhibit 43 (cont.): Five-Year Rating Transition Matrices by Cohort Rating, 1993-2009

Global CDOs ex CLOs									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	48.37%	8.97%	5.01%	3.74%	3.45%	2.25%	2.69%	3.36%	22.15%
Aa	5.35%	25.37%	9.78%	9.23%	7.04%	4.80%	6.19%	7.18%	25.06%
A	2.24%	7.32%	28.77%	6.98%	5.54%	3.99%	6.43%	10.60%	28.13%
Baa	0.94%	1.66%	2.69%	28.78%	9.78%	8.87%	10.20%	10.37%	26.72%
Ba	0.75%	0.34%	1.00%	6.02%	29.26%	8.33%	14.78%	7.63%	31.90%
B	0.28%	0.00%	0.42%	4.30%	7.44%	37.66%	17.84%	9.38%	22.69%
Caa-C	0.13%	0.00%	0.00%	0.00%	2.37%	3.29%	43.68%	24.08%	26.45%
Global CLOs									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	67.27%	7.28%	2.89%	0.00%	0.00%	0.01%	0.01%	0.23%	22.30%
Aa	10.18%	57.48%	7.42%	4.83%	0.67%	0.00%	0.00%	0.41%	19.01%
A	6.01%	3.92%	45.96%	11.04%	13.22%	2.44%	0.12%	1.41%	15.88%
Baa	1.02%	2.33%	3.35%	41.34%	14.08%	10.69%	6.42%	5.37%	15.40%
Ba	0.51%	0.69%	0.06%	1.86%	47.14%	9.65%	13.99%	8.49%	17.61%
B	0.00%	0.00%	0.00%	0.00%	0.40%	50.79%	5.95%	19.05%	23.81%
Caa-C	0.00%	0.00%	0.00%	32.77%	12.61%	0.00%	35.29%	19.33%	0.00%
EMEA ABS, CMBS, & RMBS									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	70.73%	1.65%	0.27%	0.40%	0.05%	0.00%	0.01%	0.00%	26.89%
Aa	5.96%	65.36%	0.86%	0.01%	0.17%	0.07%	0.00%	0.00%	27.57%
A	1.53%	13.79%	59.85%	1.26%	0.92%	0.18%	0.08%	0.03%	22.36%
Baa	0.93%	0.60%	11.78%	56.56%	2.67%	0.37%	0.51%	0.20%	26.37%
Ba	0.56%	0.00%	0.75%	13.71%	51.10%	1.97%	1.31%	2.43%	28.17%
B	0.00%	0.00%	0.00%	0.00%	0.00%	61.49%	0.00%	0.68%	37.84%
Caa-C	NA	NA							
Asia-Pacific ABS, CMBS, & RMBS									
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Impairment	WR
Aaa	57.51%	0.26%	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	42.19%
Aa	8.89%	38.60%	9.10%	0.00%	0.00%	0.00%	0.00%	0.00%	43.42%
A	9.15%	3.25%	44.84%	0.16%	1.32%	0.00%	0.00%	0.00%	41.27%
Baa	1.89%	3.20%	11.81%	44.42%	0.91%	0.00%	0.00%	0.00%	37.77%
Ba	0.83%	0.00%	9.12%	0.00%	34.81%	0.00%	0.00%	0.00%	55.25%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
Caa-C	NA	NA							

Moody's Related Research

Special Comments:

- » [Default & Loss Rates of Structured Finance Securities: 1993-2008, August 2009 \(119617\)](#)
- » [The Performance of Moody's Structured Finance Ratings: June 2010 Quarterly Update, September 2010 \(127200\)](#)
- » [Measuring Loss-Given-Default for Structured Finance Securities: An Update, December 2006 \(101284\)](#)
- » [Measuring Loss Severity Rates of Defaulted Residential Mortgage Backed Securities: A Methodology, April 2004 \(86769\)](#)
- » [Payment Defaults and Material Impairments of U.S. Structured Finance Securities: 1993-2002, December 2003 \(80247\)](#)
- » [Structured Finance Rating Transitions: 1983-2009, March 2010 \(123474\)](#)
- » [EMEA Structured Finance Rating Transitions: 1988-2009, April 2010 \(SF204225\)](#)
- » [Japanese Structured Finance Rating Transitions: 1994-2009, March 2010 \(123989\)](#)
- » [Asia-Pacific \(ex Japan\) Structured Finance Rating Transitions: 1990-2009, March 2010 \(SF198707\)](#)
- » [Structured Finance Short-Term Rating Transitions and Defaults: 1983-2009, August 2010 \(SF212518\)](#)
- » [Guide to Moody's Default Research: September 2010 Update, September 2010 \(127425\)](#)

To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

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Author
Julia Tung

Production Associate
Amanda Ealla

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