Nomura Fixed Income Research

CMBS Credit Migrations 2005 Update

30 November 2005

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I. Introduction

The frequency with which commercial mortgage-backed securities (CMBS) encounter credit deterioration has increased significantly in recent years (see Chart 11 and Table 11). However the overall increase in adverse credit migrations does not appear to be biased along any particular dimension of the CMBS sector. Indeed, nearly all the characteristics that we associated with higher frequencies of adverse credit migrations in our 2002 study appear to retain those associations. In particular, in this updated study we found the following:

- CMBS from single-borrower lease-backed deals suffered the highest frequency of adverse credit migrations. CMBS from large loan deals and from single-borrower non-lease-backed deals also displayed significant frequencies of adverse credit migrations.
- CMBS from conduit deals exhibited a very low frequency of adverse credit migrations.
- CMBS from the 1993 through 1995 vintages displayed highest frequency of adverse credit migrations. More recently, the 1999-2001 vintages exhibited some credit deterioration. The 1993, 1997 and 1998 vintages experienced the highest frequency of favorable credit migrations.

[1] The authors gratefully acknowledge the contributions of Elizabeth Bartlett in compiling and analyzing the data for this report. It was a huge job and she handled it with great skill. The authors also gratefully acknowledge the valuable comments provided by the rating agencies on early drafts of this report. Any remaining errors or inaccuracies are solely the authors' responsibility.

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- CMBS rated double-A or single-A at issuance display the highest frequencies of favorable credit migrations, while those rated single-B or triple-C at issuance display the highest frequencies of adverse migrations.

- CMBS rated by multiple rating agencies had lower frequencies of adverse credit migrations than those rated by only one rating agency.

- CMBS rated by all three agencies had the lowest frequency of adverse credit migrations.

- Overall, CMBS rated by Fitch tended to have lower frequencies of adverse credit migrations (Chart 7a). For CMBS rated speculative-grade at issuance, those rated by Moody's tended to have lower frequencies of adverse credit migrations (Chart 8a)

II. Background on the Study

This study is an extension and expansion of a report that we published in December 2004, titled *CMBS Credit Migrations*.[2] In our original study, we looked at the frequency of both positive and negative credit migrations affecting U.S. CMBS securities issued from 1992 through mid-year 2002. In addition to our *CMBS Credit Migrations* study, we also published two similar studies on asset-backed securities (ABS) titled *ABS Credit Migrations*[3] in 2002 and an update to that study in 2004.[4] In our most recent *ABS Credit Migrations*, we looked at the frequency of adverse credit migrations affecting 6,499 U.S. ABS deals from 1990 through mid-year 2004.

Scope of this Study: In this study, we have expanded our CMBS universe to include securities issued through the first half of 2005 and have updated the status of all CMBS covered in our earlier study. As in our original study, we excluded all tranches from deals by the GSEs as well as all unrated securities. We also excluded all deals done by the Resolution Trust Corporation (RTC) from 1992 through 1995 because we believe that they would bias the results due to their unique characteristics. Overall, our updated CMBS universe consisted of 10,960 CMBS tranches representing approximately $652 billion of total issuance. In contrast, our original sample universe consisted of 5,860 tranches representing approximately $347 billion of aggregate issuance. Comparing the two sample universes in terms of both numbers of tranches and dollars highlights the tremendous growth that the CMBS market has experienced recently. The cumulative issuance of the CMBS market has nearly doubled over the last three years.

As in our earlier study, we examined credit migrations at the tranche or security level rather than at the deal level. The data for examining credit migrations at the tranche level is readily available for CMBS., though it is not for ABS.

Also, as in our earlier study, we examined both adverse and favorable CMBS credit migrations. However, we view the credit process as essentially one of avoiding unpleasant surprises. Therefore, our primary focus was on discerning signals associated with higher frequencies of adverse migrations. Ideally, an investor might be able to use such signals as a way to avoid problems or to identify situations in which to demand higher yields.

Sources: As in our original study, our main source for identifying new CMBS was the database maintained by *Commercial Mortgage Alert*. In order to detect and categorize rating changes, we relied on data provided by all three rating agencies as well as rating changes reported on Bloomberg[SM]. We used Intex as a primary source for identifying CMBS that had experienced interest

[2] *CMBS Credit Migrations*, Nomura Fixed Income Research (4 December 2002).

[3] *ABS Credit Migrations*, Nomura Fixed Income Research (9 January 2002, updated 5 March 2002).

[4] *ABS Credit Migrations 2004*, Nomura Fixed Income Research (7 December 2004).

shortfalls. Furthermore, we continued to look at CMBS at the tranche or security level instead of the deal level.

In our original study, we created different categories to measure the impact or severity of both negative and positive credit actions to CMBS. With slight modification, we retained that classification system for this study. In the prior study, we captured the effect of interest shortfalls only if they produced rating actions by the rating agencies. For this study, we separately tracked interest shortfalls using Intex. As described below, we treated some interest shortfalls that persisted for three months or longer as adverse credit migrations but we ignored ones that lasted for only one or two months.

Categories of Adverse Credit Migrations: For adverse credit migrations, we defined four categories: (1) defaults of investment grade securities (2) near defaults of investment grade securities (3) major downgrades and (4) minor downgrades. The major and minor downgrade categories apply to both investment grade and speculative grade securities.

1. **Default:** We classified a CMBS in the "default" category if it carried an investment grade rating at issuance (Baa3/BBB- or better from at least one rating agency) and if it satisfied any one of the following five tests:

   (i) it suffered an actual payment default other than a temporary interest shortfall,

   (ii) it experienced collateral deterioration that was so severe that an eventual payment default was inevitable,

   (iii) it was the subject of a forced or coerced exchange,

   (iv) it was downgraded to default status,[5] or

   (v) it experienced interest shortfalls for a period of three months or longer.[6]

2 **Near Default:** We classified a CMBS in the "near default" category if it was rated investment grade at issuance and was downgraded to triple-C or worse, provided that it did not otherwise qualify for "default" classification.

3. **Major Downgrade:** The "major downgrade" category included any CMBS that did not qualify for "default" or "near default" status and that satisfied any on of the following six tests:

   (i) it was downgraded from an initial rating of triple-A,

   (ii) it was downgraded from investment grade (Baa3/BBB or higher) to speculative grade (Ba1//BB+ or lower),

   (iii) it experienced cumulative downgrades of more than six notches,

   (iv) it was rated double-B or single-B at issuance and suffered an actual payment default other than a temporary interest shortfall,

   (v) it was rated double-B or single-B at issuance and experienced interest shortfalls for a period of three months or longer,[7] or

   (vi) it was rated double-B or single-B at issuance and downgraded to Caa/CCC or worse.

   As a result, the most severe classification that a security rated speculative-grade at issuance could receive was "major downgrade."

[5] We treated each of the following as a downgrade to default status: (i) a downgrade by Moody's to Ca or lower, (ii) a downgrade by Standard & Poor's to D or (iii) a downgrade by Fitch to DDD or lower.

[6] We classified 81 CMBS in the "default" category because of interest shortfalls of three months or longer.

[7] We classified 113 CMBS in the "major downgrade" category because interest shortfalls of three months or longer.

4. **Minor Downgrade:** The "minor downgrade" category included each CMBS that suffered a downgrade but that did not otherwise qualify for any of the proceeding categories. This category included each CMBS rated triple-C or lower at issuance and that subsequently experienced any type of uncured default or temporary interest shortfall that lasted for three months or longer. We chose this approach because the expectation of default is very high for any CMBS rated triple-C at issuance. Accordingly, we treat the default of a triple-C-rated CMBS as less significant than the default of one rated double-B or single-B.[8]

In cases where rating agencies took differing actions, or where other criteria for classification were present, we used the most severe classification applicable. Thus, for example, if one rating agency downgraded a CMBS from investment grade to speculative grade (*i.e.*, a "major downgrade") the security would count as a major downgrade for all other rating agencies that initially had rated the it, regardless of whether any of the others ever had downgraded it.

Our treatment of interest shortfalls had a significant impact on the results of the study. We felt that interest shortfalls that persist for extended periods can create serious problems for investors, even if the shortfalls ultimately are cured. A portfolio manager's investment guidelines might compel him to sell a CMBS that experiences a (temporary) interest shortfall. In such a case, the portfolio manager might suffer a loss on the sale because the trading price of the CMBS likely would be affected by the interest shortfall. However, we realize that CMBS professionals reasonably can hold differing views on the best way to treat interest shortfalls. Accordingly, in the following sections, we presented our results both with and without temporary interest shortfalls included as adverse credit migrations.

By creating different categories of adverse credit migrations, we were able to generate results that might be useful to investors with varying degrees of tolerance for such events. If a portfolio manager has a high tolerance for risk, he might be primarily concerned with defaults, whereas a portfolio manager with a lower tolerance for risk might care about minor downgrades and anything worse. The four categories cover nearly the whole range of adverse credit migrations. However, they do not capture watchlistings that do not result in downgrades or the impact of unfavorable press coverage.

Categories of Favorable Credit Migrations: We defined two categories to measure positive credit migrations experienced by CMBS: (i) CMBS that had upgrades of more than six notches and (ii) CMBS that experienced upgrades of six notches or less. In order to be eligible for an upgrade, a CMBS had to carry an initial rating that was below triple-A from at least one rating agency. There were 7,892 tranches that were eligible for an upgrade.

As in our prior study, we calculated the frequency of positive and negative credit migrations in terms of both numbers of tranches and on a dollar-weighted basis.

III. Results

A. Credit Migrations by Deal Type

Adverse Migrations: Chart 1a reports the frequency of adverse credit migrations for CMBS issued from different types of deals, using the four-category classification scheme described above. Each bar in the chart shows the "cumulative" frequency of credit migrations *equal to or worse* than the specified degree of severity for the specified deal type. In other words, each row includes all of the rows in front of it. For example, the front row of the chart depicts the frequency of "defaults" for each deal type. The second row of bars shows the combined frequency of "near defaults" and "defaults". The third row of the chart depicts the combined frequency of "major downgrades," "near defaults," and "defaults." Finally, the back row shows the combined frequency of "minor downgrades", "major downgrades," "near defaults" and "defaults" by deal type.

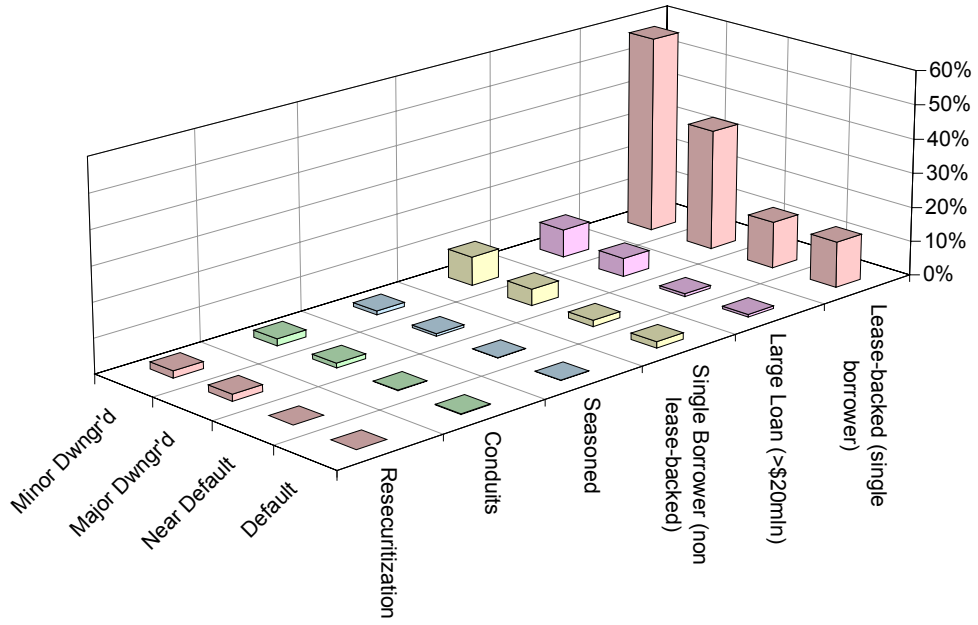
[8] There were 15 securities with initial ratings of triple-C that were downgraded to default status by at least one rating agency. Of those, 13 also experienced interest shortfalls of at least 3 months.

CMBS from single-borrower lease-backed deals experienced the highest frequency of negative credit migrations. Approximately 58% of all CMBS tranches from single-borrower lease backed deals experienced some type of adverse credit migration. The percentage of cumulative adverse credit migrations experienced by single-borrower lease backed deals was disproportionately higher than that of the other deal types. The very weak performance of CMBS from single-borrower lease-backed deals arguably is because such deals are not actually "real" CMBS transactions but instead are corporate debt disguised as CMBS.

Putting aside single-borrower lease-backed deals, some types of CMBS have performed worse than others. Specifically, large loan CMBS and single-borrower non lease-backed CMBS have experienced a higher frequency of adverse credit migrations than other deal types. Chart 1b highlights this result. A possible explanation for the poor performance of large loan transactions is that these deals lacked the generally beneficial diversification present in other types of deals. Because there are typically fewer loans backing large loan deals, the impairment of any individual loan can cause greater damage to the deal as a whole and to the CMBS issued from the deal.

In contrast, conduit transactions, which account for over 75% of the CMBS universe, both in terms of the number of tranches and on a dollar-weighted basis, have experienced a very low frequency of adverse credit migrations. Specifically, on a dollar-weighted basis, only 0.15% of all CMBS experienced an investment grade default. Thus, on a historical basis, the performance of conduit transactions has been quite impressive.

Chart 1a: Cumulative CMBS Adverse Credit Migrations by Deal Type
(by initial $ amount; including interest shortfalls)



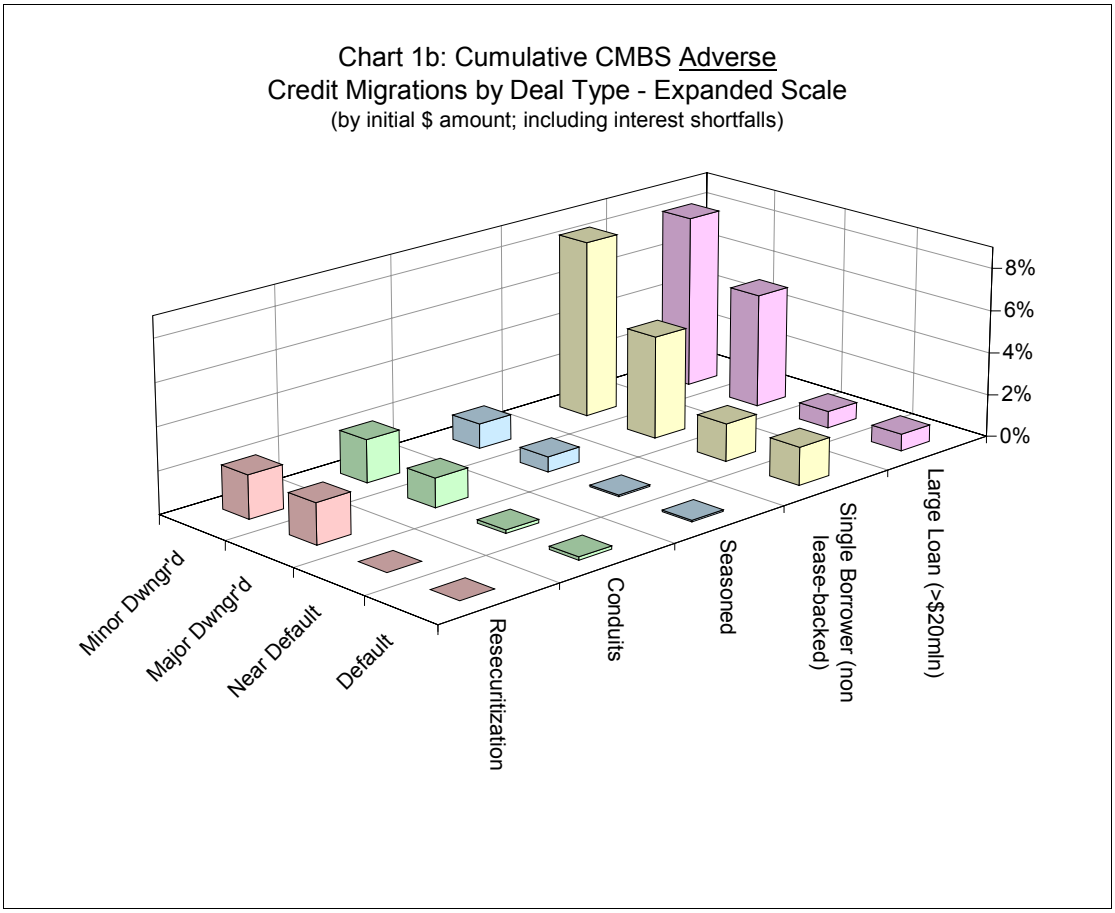


Table 1a below shows the data used to create Charts1a and 1b. In addition to the dollar amounts used to generate the charts, the table includes the corresponding data in terms of the number of tranches.

Table 1a: Cumulative CMBS Adverse Credit Migration by Deal Type
(including interest shortfalls)

TYPE	Defaults		Near Defaults (and worse)		Major Downgrades (and worse)		Minor Downgrades (and worse)		Total Population	
	$	#	$	#	$	#	$	#	$	#
Resecuritization	0	0	0	0	338	6	356	7	17,541	286
Conduit	758	57	824	67	6,937	493	10,220	713	506,322	8,232
Seasoned	29	5	29	5	271	27	443	37	37,815	864
Single Borrower (non-lease-backed)	1,133	33	1,133	33	3,072	72	5,316	124	63,643	1,225
Large Loan (>$20mln)	120	5	120	5	817	33	1,241	45	15,191	222
Lease-backed (single borrower)	1,544	23	1,562	25	4,063	51	6,657	71	11,546	131
Total	3,584	123	3,668	135	15,497	682	24,234	997	652,057	10,960

Note: Columns labeled "$" indicate the initial dollar amount (in millions) of CMBS in the category. Columns labeled "#" indicate the number of tranches in a category. Each category includes the values in all the other columns to its left.

Including temporary interest shortfalls in the definitions for our four category scheme of adverse credit migrations has a significant impact on the "default" and "major downgrade" categories.. Including interest shortfalls, 123 tranches representing $3.58 billion received "default" classification. In contrast, excluding interest shortfalls, only 42 tranches representing $2.0 billion would have received "default" classification. Chart 1c shows the results. While the overall frequency of adverse credit migrations declines, the overall relationships among the different types of deals remain the same as

in Chart 1b.[9] CMBS from large loan and single-borrower non-lease backed deals continue to exhibit worse performance than CMBS from other types of deals. However, removing interest shortfalls has a positive effect on the resecuritization category in terms of both major and minor downgrades.

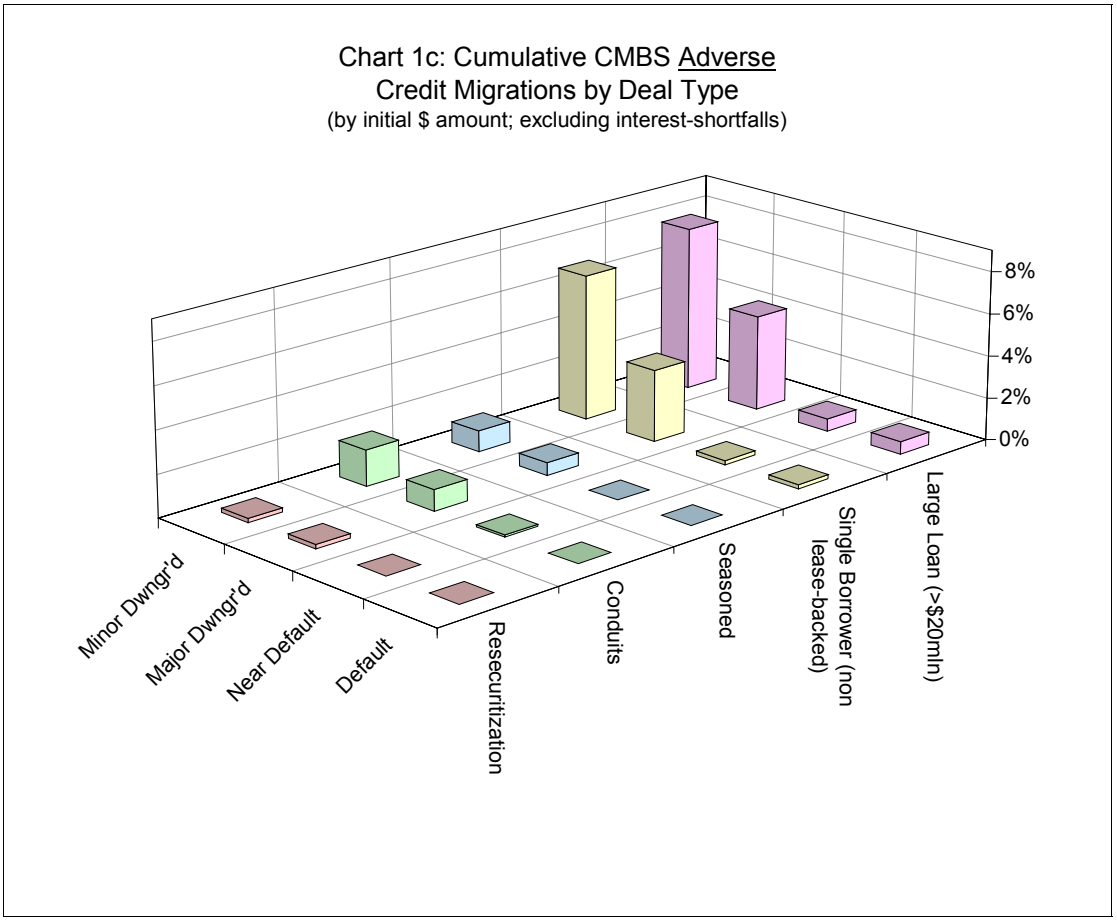


Table 1c displays the data used to generate Charts 1c and the corresponding data in terms of the number of tranches.

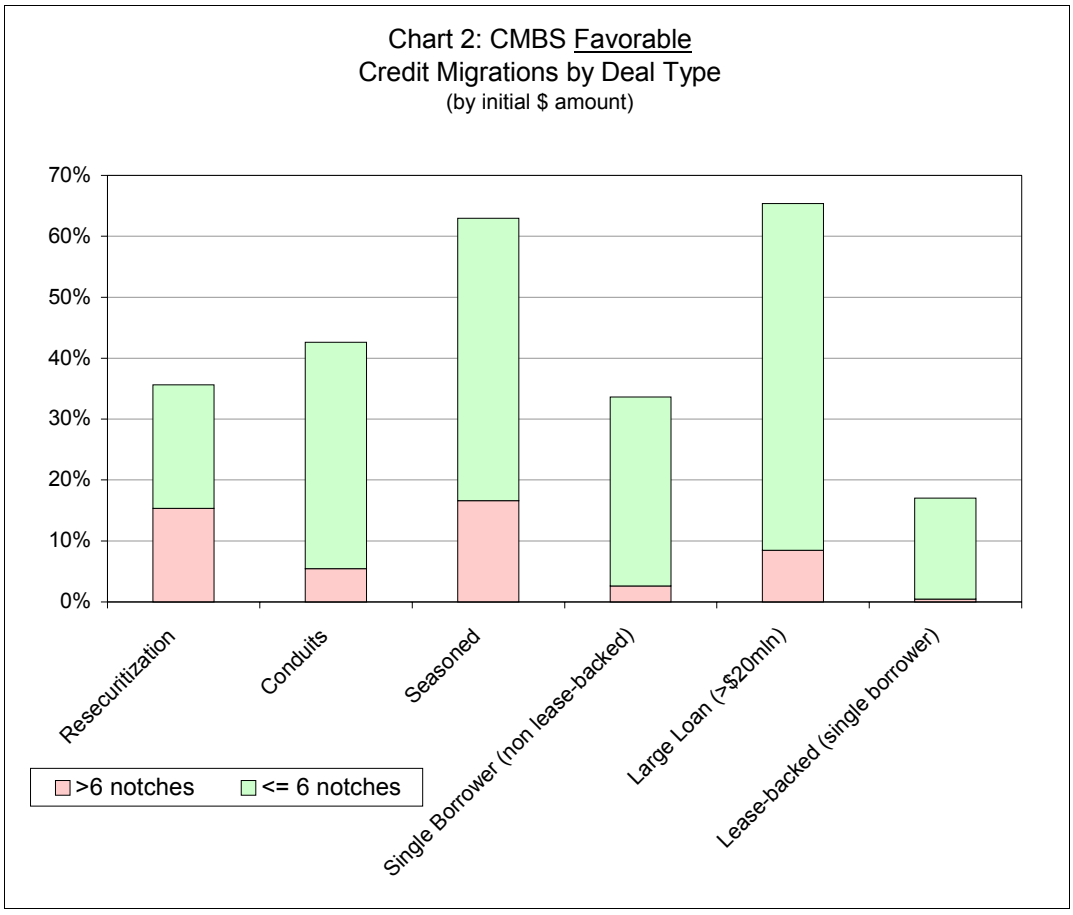
Table 1c: Cumulative CMBS Adverse Credit Migration by Deal Type
(excluding interest shortfalls)

TYPE	Defaults		Near Defaults (and worse)		Major Downgrades (and worse)		Minor Downgrades (and worse)		Total Population	
	$	#	$	#	$	#	$	#	$	#
Resecuritization	0	0	0	0	40	2	40	2	17,541	286
Conduit	247	15	313	25	4,933	364	8,855	611	506,322	8,232
Seasoned	0	0	0	0	209	18	373	29	37,815	864
Single Borrower (non-lease-backed)	145	4	145	4	2,168	45	4,411	97	63,643	1,225
Large Loan (>$20mln)	87	4	87	4	686	28	1,182	42	15,191	222
Lease-backed (single borrower)	1,523	19	1,541	21	4,037	47	6,657	71	11,546	131
Total	2,003	42	2,087	54	12,073	504	21,519	852	652,057	10,960

Note: Columns labeled "$" indicate the initial dollar amount (in millions) of CMBS in the category. Columns labeled "#" indicate the number of tranches in a category. Each category includes the values in all the other columns to its left.

[9] We omit single-borrower lease-backed deals from Chart 1c because they remain "off the scale" regardless of whether or not interest shortfalls are included.

Favorable Migrations: In comparison to adverse credit migrations, there were substantially higher frequencies of favorable credit migrations for CMBS of all deal types. CMBS from large loan and seasoned transactions had the highest frequency of upgrades, while CMBS from single borrower lease-backed and non-lease backed deals experienced the fewest upgrades. These results are depicted in Chart 2 and Table 2.



When calculating the frequencies of positive credit migrations we excluded from the population (*i.e.*, the denominator for calculating frequencies) CMBS that could not be upgraded because all of their initial ratings were triple-A.

Table 2: CMBS Favorable Credit Migrations by Deal Type

TYPE	≤6 notches		>6 notches		Total Population	
	$	#	$	#	$	#
Resecuritization	1,336	26	1,010	18	6,583	236
Conduit	40,757	1,252	5,972	251	109,596	5,852
Seasoned	6,648	246	2,387	106	14,353	637
Single Borrower (non-lease-backed)	9,590	289	820	26	30,976	916
Large Loan (>$20mln)	2,747	69	408	11	4,827	142
Lease-backed (single borrower)	1,460	21	43	1	8,824	109
Total	62,539	1,903	10,640	413	175,158	7,892

Note: Columns labeled "$" indicate the initial dollar amount (in millions) of CMBS in the category. Columns labeled "#" indicate the number of tranches in a category.

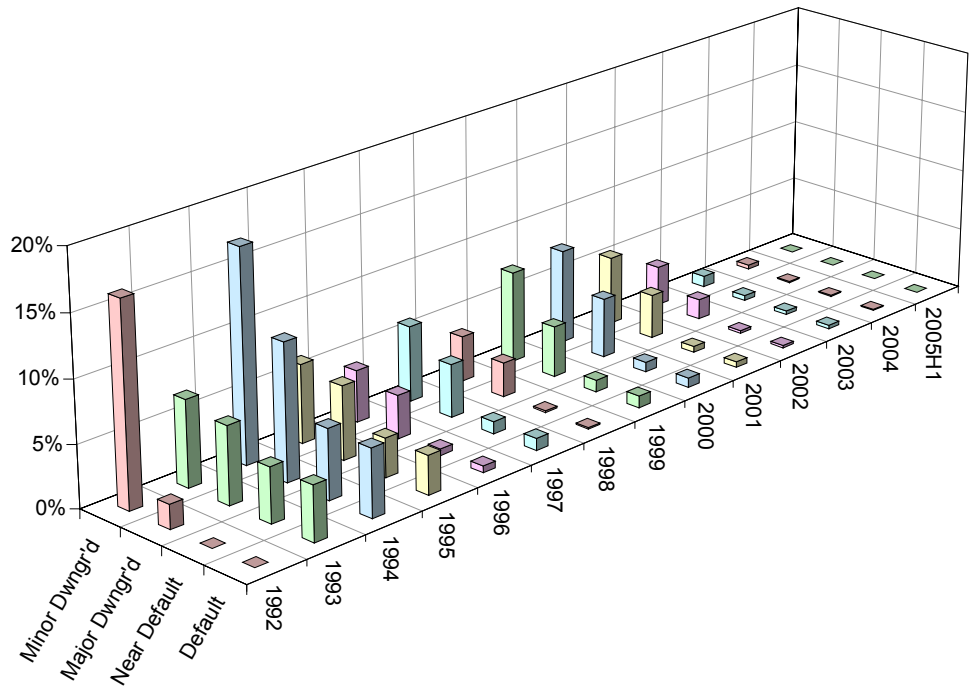
We attribute the high frequency of positive credit migrations to the natural de-leveraging that occurs in many CMBS over time. De-leveraging and amortization are the primary drivers of positive credit actions to CMBS. Somewhat surprisingly, a second source of favorable credit migrations is deals that contain defaulted mortgage loans. For example, in certain deals backed by seasoned loans, many of the original loans had negative credit qualities. When those loans defaulted and the lower

tranches of the deals were wiped out, the credit quality of the remaining tranches improved. Large loan deals exhibited a similar pattern of behavior. If one of the loans performed badly, the bottom tranches were wiped out and resulting lower tranches were downgraded, but the higher tranches received upgrades. This "barbell" effect serves partly to explain the high frequencies of both adverse and favorable credit migrations in tranches from both seasoned and large loan transactions.

B. Credit Migrations by Vintage

Adverse Migrations: CMBS from certain vintages experienced higher frequencies of adverse credit migrations than others. Specifically, tranches from the 1993, 1994, and 1995 vintages exhibited the highest frequencies of cumulative negative credit actions, while the 1992 vintage had a disproportionately high number of minor downgrades (and worse). The 1999, 2000, and 2001 vintages experienced some deterioration, though on a relative scale, the frequencies of adverse credit migrations were very low. For example, only 0.96% of the CMBS from the 1999 vintage (by initial dollar amount) was classified in the default category. Only 7.36% experienced any kind of adverse migration.. Chart 3 and Table 3 depict these results. Chart 3 uses the same four-category classification scheme as Chart 1a and should be read accordingly (each row includes the row(s) in front of it).

Chart 3: Cumulative CMBS Adverse Credit Migrations by Vintage
(by initial $ amount; including interest shortfalls)



A possible explanation for the deterioration in the 1999 and 2000 vintages involves lease rollovers. During the height of the NASDAQ/tech/internet boom, office properties in large metropolitan areas such as San Francisco, and research and development facilities in areas such as Silicon Valley, were in high demand. As a result, landlords of properties in these areas could demand and receive sufficiently high rents to cover the debt service on their loans. However, following the boom, market rents dropped significantly, and when the leases on these properties rolled over, owners could no longer charge the high rents that they received earlier. As a result, some property owners could not

meet the debt service on the loans, and CMBS backed by these loans were downgraded due to deterioration.

The 1992, 1993 and 1994 vintages characterize the intersection of the old and new CMBS markets. Many of the loans included in the earlier vintages were purchased from insurance companies during the savings and loan crisis and later securitized. Those loans were characterized by poor credit quality long before they were securitized. Therefore, it is not surprising that the CMBS backed by them suffered higher frequencies of negative credit actions.

Table 3: Cumulative CMBS Adverse Credit Migration by Vintage
(including interest shortfalls)

Vintage	Defaults		Near Defaults (and worse)		Major Downgrades (and worse)		Minor Downgrades (and worse)		Total Population	
	$	#	$	#	$	#	$	#	$	#
1992	0	0	0	0	43	1	360	1992	2,215	43
1993	350	6	350	6	493	14	546	1993	7,895	213
1994	567	10	585	12	1,139	29	1,772	1994	10,376	273
1995	390	9	390	9	734	30	785	1995	12,418	323
1996	124	5	124	5	808	31	970	1996	23,304	484
1997	373	14	373	14	1,629	77	2,320	1997	38,078	572
1998	80	4	108	6	2,012	85	2,650	1998	72,673	705
1999	552	7	552	7	2,351	72	4,218	1999	57,331	795
2000	375	13	389	16	2,359	136	3,725	2000	48,933	892
2001	325	27	348	31	2,538	128	3,933	2001	71,217	1,337
2002	114	14	117	15	953	59	1,870	2002	58,316	1,122
2003	250	12	250	12	355	18	738	2003	83,102	1,475
2004	83	2	83	2	83	2	347	2004	94,695	1,725
2005H1	0	0	0	0	0	0	0	2005	71,503	1,001
Total	3,584	123	3,668	135	15,497	682	24,234	Total	652,057	10,960

Note: Columns labeled "$" indicate the initial dollar amount (in millions) of CMBS in the category. Columns labeled "#" indicate the number of tranches in a category. Each category includes the values in all the other columns to its left.

Favorable Migrations: Favorable credit migrations were spread more evenly across the vintage spectrum than adverse one. However, CMBS from some vintages had higher frequencies of favorable migrations than others. For example, the 1996, 1997 and 1998 vintages had the highest frequency of positive credit migrations while the newer vintages (2000, 2001, 2002 and 2003) had the lowest frequencies. As noted above, a significant share of upgrades on CMBS are attributable to the natural de-leveraging that occurs as CMBS age. This partly explains why the older vintages experienced more upgrades than newer vintages. Chart 4 and Table 4 show these results.

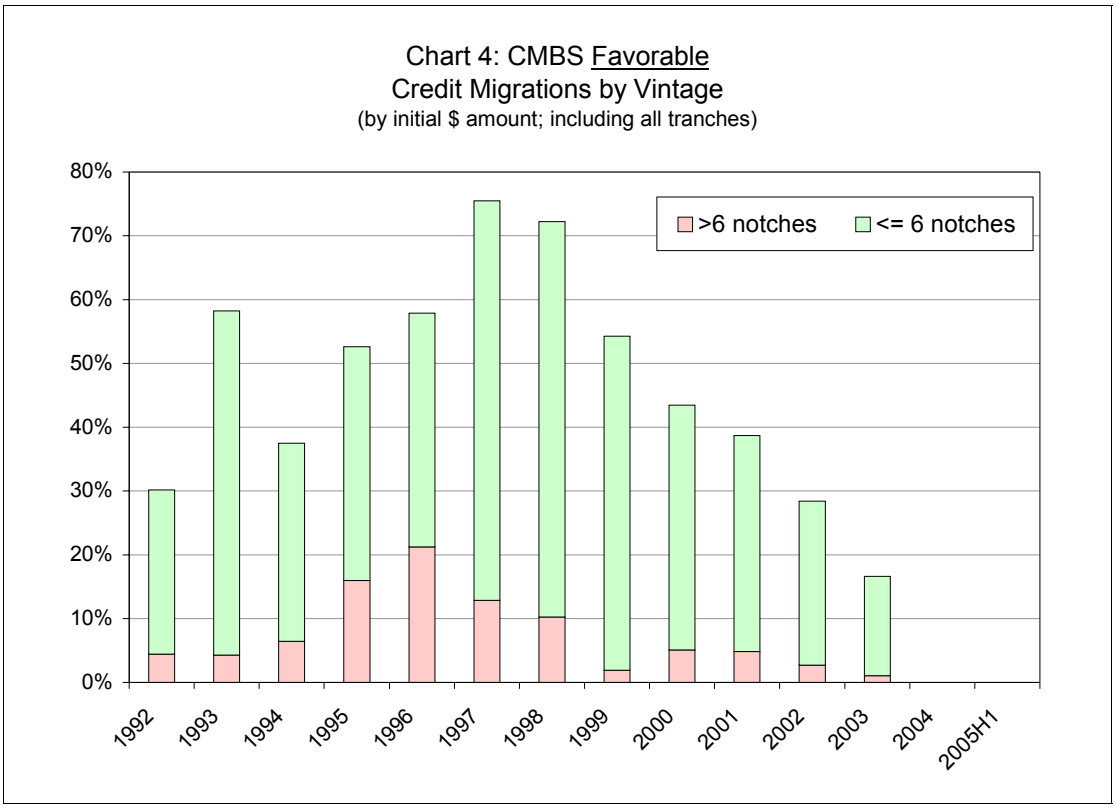


Table 4: CMBS Favorable Credit Migrations by Vintage

Vintage	≤6 notches		>6 notches		Total Population	
	$	#	$	#	$	#
1992	389	10	67	2	1,514	33
1993	2,891	72	228	13	5,359	168
1994	2,001	79	413	26	6,438	223
1995	2,222	93	968	51	6,065	232
1996	3,781	149	2,192	105	10,324	349
1997	8,612	205	1,767	62	13,748	403
1998	15,266	264	2,520	38	24,630	522
1999	9,919	285	358	15	18,936	599
2000	5,457	185	721	35	14,222	698
2001	6,518	261	923	31	19,218	984
2002	3,061	163	320	22	11,893	832
2003	2,420	137	160	13	15,519	1,071
2004	0	0	0	0	16,907	1,168
2005H1	0	0	0	0	10,385	610
Total	62,539	1,903	10,640	413	175,158	7,892

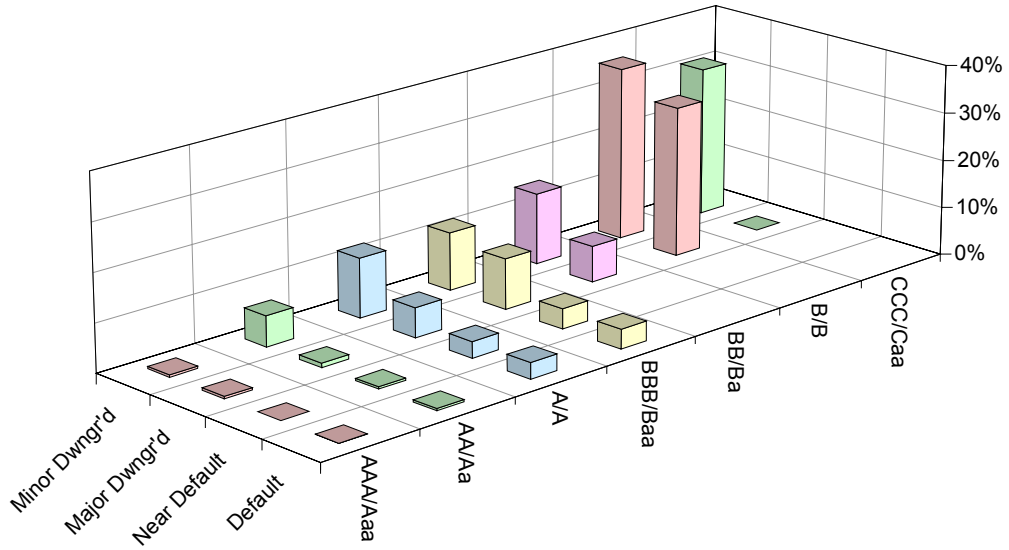
Note: Columns labeled "$" indicate the initial dollar amount (in millions) of CMBS in the category. Columns labeled "#" indicate the number of tranches in a category.

C. Credit Migrations by Initial Rating

We looked at the frequency of negative and positive credit migrations for CMBS by the ratings that they carried at issuance. For the purpose of this study, we defined "initial rating" as the highest rating that a CMBS received by any of the agencies who rated it. For example, if a CMBS was rated "Aaa" by Moody's, "AA" by S&P and was not rated by Fitch, the initial rating on this security would be triple-A. Furthermore, for purposes of simplification, we have ignored rating modifiers such as plus (+) or minus (-), used by Standard & Poor's and Fitch, and the numeric modifiers uses by Moody's. Thus, for example, the initial rating category of double-A would include all securities whose highest rating by any of the three agencies was either AA+, AA, AA-, Aa1, Aa2, or Aa3.

Adverse Migrations: We found that CMBS rated speculative grade at issuance had a higher frequency of negative credit migrations than those initially rated investment grade. This is not surprising because if a deal gets into trouble, the lowest rated tranches experience deterioration first. For bonds rated investment grade at issuance, those in the single-A and triple-B categories exhibited higher frequencies of negative credit migrations than those in the triple-A and double-A categories. One explanation is that as a deal experiences losses and the lowest tranches are wiped out, the next lowest tranches are then downgraded due to diminished credit support; the tranches with higher ratings can resist deterioration for longer.. Chart 5 and Table 5 depict negative credit migrations for CMBS according to initial rating.

Chart 5: Cumulative CMBS Adverse Credit Migrations by Initial Rating
(by initial $ amount; including interest shortfalls)



Securities rated double-B or single-B at issuance are ineligible for classication in the "default" or "near default" categories. Securities rated triple-C at issuance are eligible for classification only in the "minor downgrade" category.

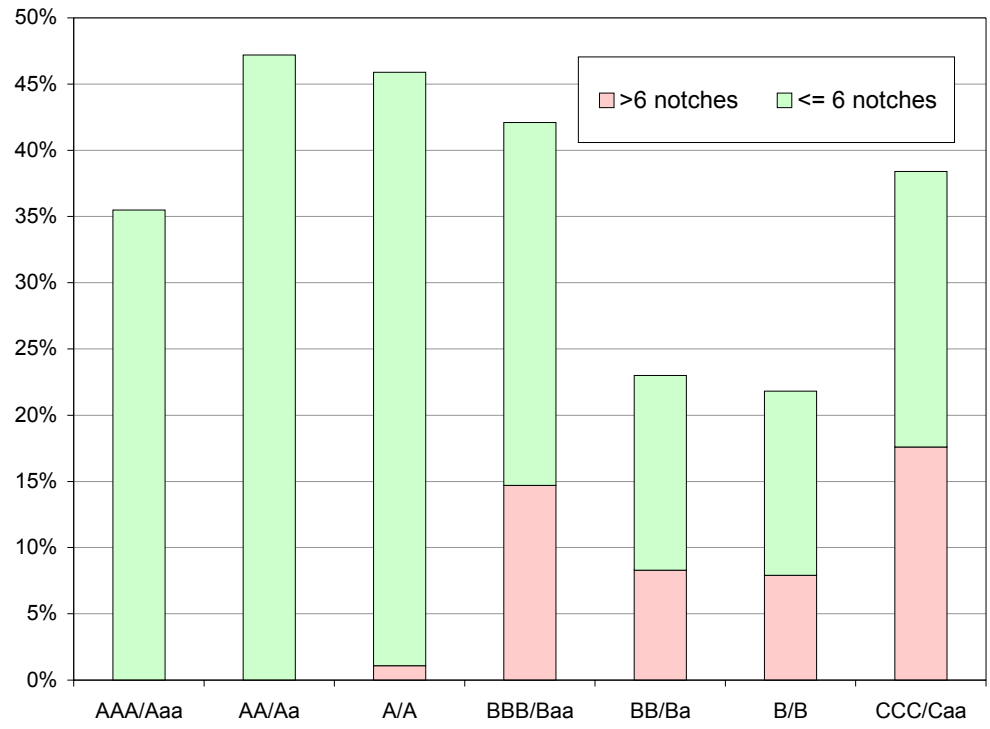
Table 5: Cumulative CMBS Adverse Credit Migration by Initial Rating
(including interest shortfalls)

Initial Rating	Defaults		Near Defaults (and worse)		Major Downgrades (and worse)		Minor Downgrades (and worse)		Total Population	
	$	#	$	#	$	#	$	#	$	#
AAA/Aaa	208	10	208	10	2,149	32	2,387	35	481,097	3,153
AA/Aa	216	6	216	6	443	10	3,150	50	49,618	1,322
A/A	1,368	30	1,398	33	2,554	61	5,112	114	41,324	1,486
BBB/Baa	1,784	76	1,839	85	4,652	203	5,340	240	44,370	2,335
BB/Ba					1,607	83	3,174	171	21,460	1,349
B/B					4,092	293	4,728	348	13,087	1,243
CCC/Caa							344	39	1,100	72
Total	3,584	123	3,668	135	15,497	682	24,234	997	652,057	10,960

Note: Columns labeled "$" indicate the initial dollar amount (in millions) of CMBS in the category. Columns labeled "#" indicate the number of tranches in a category. Each category includes the values in all the other columns to its left. Securities rated double-B or single-B at issuance are ineligible for classification in the "default" or "near default" categories. Securities rated triple-C at issuance are eligible for classification only in the "minor downgrade" category.

Favorable Migrations: Turning to favorable credit migrations, CMBS that initially carried higher ratings had a greater propensity to experience favorable credit migrations than those with lower initial ratings. For example, CMBS initially rated double-A, single-A, or triple-B had the highest frequency of upgrades. CMBS rated triple-C at issuance also had a relatively high frequency of upgrades. The results are detailed in Chart 6 and Table 6 below.

Chart 6: CMBS Favorable
Credit Migrations by Initial Rating
(by initial $ amount)



Note: The AAA/Aaa category in Chart 6 includes only CMBS tranches that were spilt rated at the time of their initial issuance.

Table 6: CMBS Favorable Credit Migrations by Initial Rating

Initial Rating	≤6 notches		>6 notches		Total Population	
	$	#	$	#	$	#
AAA/Aaa	1,489	31			4,199	85
AA/Aa	23,407	563			49,618	1,322
A/A	18,524	564	449	10	41,324	1,486
BBB/Baa	12,147	451	6,533	249	44,370	2,335
BB/Ba	4,924	194	2,424	99	21,460	1,349
B/B	1,820	93	1,039	49	13,087	1,243
CCC/Caa	229	7	194	6	1,100	72
Total	62,539	1,903	10,640	413	175,158	7,892

Note: Columns labeled "$" indicate the initial dollar amount (in millions) of CMBS in the category. Columns labeled "#" indicate the number of tranches in a category. The AAA/Aaa category includes only CMBS tranches that were spilt rated at the time of their initial issuance.

The high frequency of both adverse and favorable credit migrations for CMBS that initially carried triple-C ratings may reflect the inherent instability of that rating level. Securities at that level generally improve or default; they tend not to hover on the brink. A possible explanation for the higher frequency of favorable credit migrations for CMBS rated in the higher rating categories is that as de-leveraging with a deal has a stronger impact on tranches higher in the capital structure.

For purposes of Chart 6 and Table 6, the triple-A category includes only CMBS that were split-rated at issuance. That is, each one carried a triple-A rating from at least one agency and a lower rating from another agency. There were 85 triple-A-rated CMBS, representing $4.2 billion of aggregate initial issuance that were split rated.

D. Credit Migrations by Rating Agency

Adverse Migrations: As in our prior study, we examined the frequency of adverse credit migrations based on which rating agency or combination of rating agencies had initially rated the securities. Given three rating agencies, the four possible rating agency combinations for multiple-rated tranches are as follows:

- Moody's + Standard & Poor's only (M+S)
- Moody's +Standard & Poor's + Fitch (M+S
- Standard & Poor's + Fitch (S+F)
- Moody's + Fitch (M+F)

Chart 7a and Table 7 below detail the results of our findings and should be read in the same manner as Charts 1a, 3 and 5. Measuring the performance of a rating agency is difficult and we caution readers when interpreting the results of this portion of the study. Please refer to part IV, which describes problems and limitations associated with this task.

Chart 7a: Cumulative CMBS Adverse Credit Migrations by Rating Agency
(by initial $ amount; including interest shortfalls)

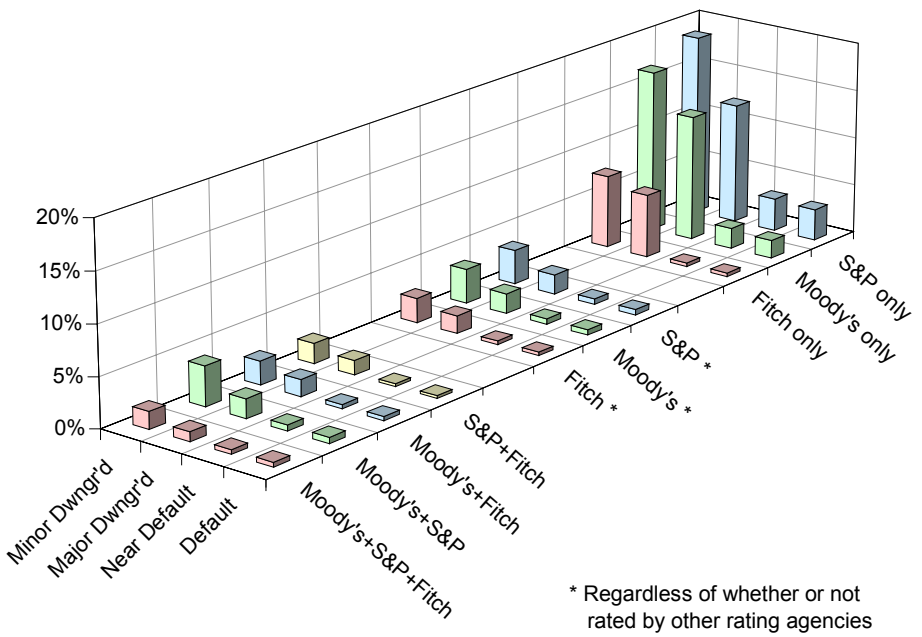


Table 7: Cumulative CMBS Adverse Credit Migration by Rating Agency
(including interest shortfalls)

Rating Agency	Defaults		Near Defaults (and worse)		Major Downgrades (and worse)		Minor Downgrades (and worse)		Total Population	
	$	#	$	#	$	#	$	#	$	#
Moody's+S&P+Fitch	427	12	427	12	907	37	1,613	63	94,128	962
Moody's+S&P	1,268	32	1,278	35	4,150	116	8,445	203	212,160	3,095
Moody's+Fitch	521	17	521	17	2,206	102	3,101	156	132,011	1,949
S&P+Fitch	409	24	426	26	2,160	101	3,024	149	150,234	2,684
Fitch*	1,472	66	1,489	68	7,288	371	10,058	523	407,593	6,612
Moody's*	2,483	73	2,525	79	9,111	352	15,548	551	452,673	6,540
S&P*	2,680	81	2,733	90	9,428	352	16,423	557	474,451	7,460
Fitch only	115	13	115	13	2,015	131	2,321	155	31,221	1,017
Moody's only	268	12	299	15	1,848	97	2,390	129	14,374	534
S&P only	577	13	602	17	2,211	98	3,341	142	17,929	719

*Regardless of whether rated by other rating agencies
Note: Columns labeled "$" indicate the initial dollar amount (in millions) of CMBS in the category. Columns labeled "#" indicate the number of tranches in a category. Each category includes the values in all the other columns to its left.

1. CMBS Rated by Multiple Rating Agencies Had Lower Frequencies of Adverse Credit Events than Those Rated by Only One Rating Agency

CMBS rated by multiple rating agencies displayed lower frequencies of adverse credit migrations than those rated by only one rating agency. This is evident from comparing the heights of the bars in the first grouping in Chart 7a with the height of the bars in the third grouping. The first grouping relates to CMBS that carried initial ratings from more than one rating agency.. The third grouping of bars relates to CMBS that carried initial ratings from only one rating agency. Comparing the heights of the bars in the first and last groups shows that the bars in the first grouping are shorter than those of the third grouping. The shorter heights reflect lower frequencies of adverse credit migrations for multiple-rated deals.

2. CMBS Rated by All Three Rating Agencies Had the Lowest Frequency of Adverse Credit Events

CMBS that carried initial ratings from all three rating agencies exhibited the lowest frequency of adverse credit migrations. This is evident in that the heights of the bars in the first category in Chart 7a are lower than every other category in the chart. The presence of a third rating agency thus increases the stability of a security's initial rating.

3. For CMBS Rated by Only Two Agencies, the S&P and Fitch Combination Had the Lowest Frequency of Adverse Credit Migrations

CMBS rated by S&P and Fitch, but not by Moody's, displayed nearly as low a frequency of adverse credit migrations as those rated by all three rating agencies. In fact, the frequency of "defaults" for CMBS rated by S&P and Fitch was even lower than the frequency of defaults for CMBS rated by all three rating agencies.. CMBS that carried ratings from Moody's and Fitch, but not from S&P, also display an impressively low frequency of "defaults."

CMBS rated by Moody's and S&P but not by Fitch had the highest cumulative frequency of adverse credit events. CMBS with ratings from each combination of ratings agencies that includes Fitch displayed lower frequencies of adverse credit migrations than CMBS that lacked a ratings from Fitch. Those results differ from the results of our *ABS Credit Migrations* study. There, we found that ABS rated by Fitch tended to experience higher frequencies of adverse credit migrations.

4. For CMBS Rated by Only One Rating Agency, Those Rated by Fitch Had the Lowest Frequency Of Adverse Credit Migrations

For CMBS rated by only one rating agency, those rated by Fitch had the lowest frequency of adverse credit migrations. In contrast, CMBS rated only by S&P had the highest frequency of cumulative adverse credit migrations.

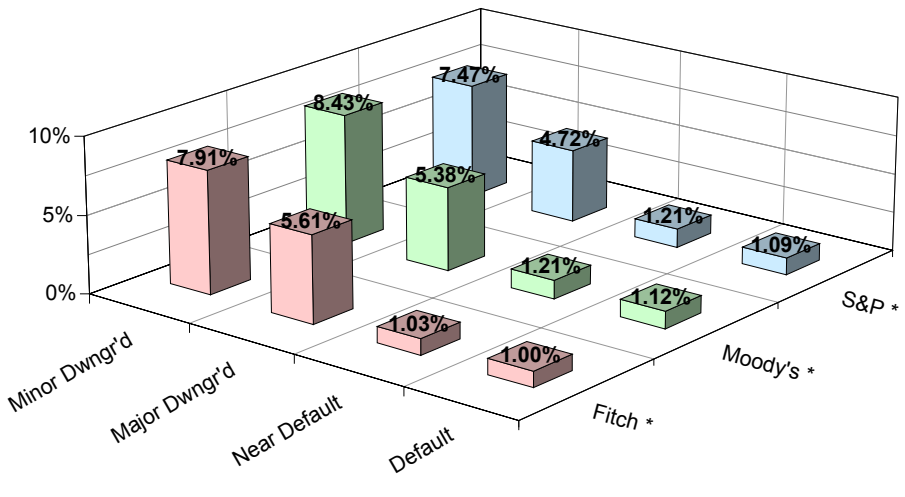
The middle grouping of bars on Chart 7a reflects the frequencies of adverse credit migrations for CMBS rated by each rating agency, regardless of whether or not it was rated by another agency as well. In this grouping, CMBS rated by Fitch again had the lowest cumulative frequency of adverse credit events.

These results too are opposite to those in found in our *ABS Credit Migrations*. There we found that, for single-rated ABS deals, those rated by S&P displayed the lowest frequency of defaults and near defaults, while those rated by Fitch exhibited the highest frequency of defaults and near defaults.

In general, our results with respect to the frequency of CMBS adverse credit migrations based on the rating agencies that rated the CMBS are consistent with the results of our original CMBS study: CMBS that carried ratings from more than one rating agency tended to display greater resistance to adverse credit events than those that carried ratings from only one agency. Additionally, CMBS rated by all three rating agencies tended to have the lowest cumulative frequency of adverse credit migrations.

Excluding Single-Borrower Lease-Backed CMBS: Excluding CMBS from single-borrower lease-backed deals changes the results somewhat. A large proportion of those deals carried rating from Moody's and S&P and, therefore, excluding those deals noticably reduces the frequencies of adverse credit migrations of CMBS rated by those agencies. With such single-borrower lease-backed deals excluded, CMBS rated by S&P have the lowest frequency of defaults, near defaults, and major downgrades.

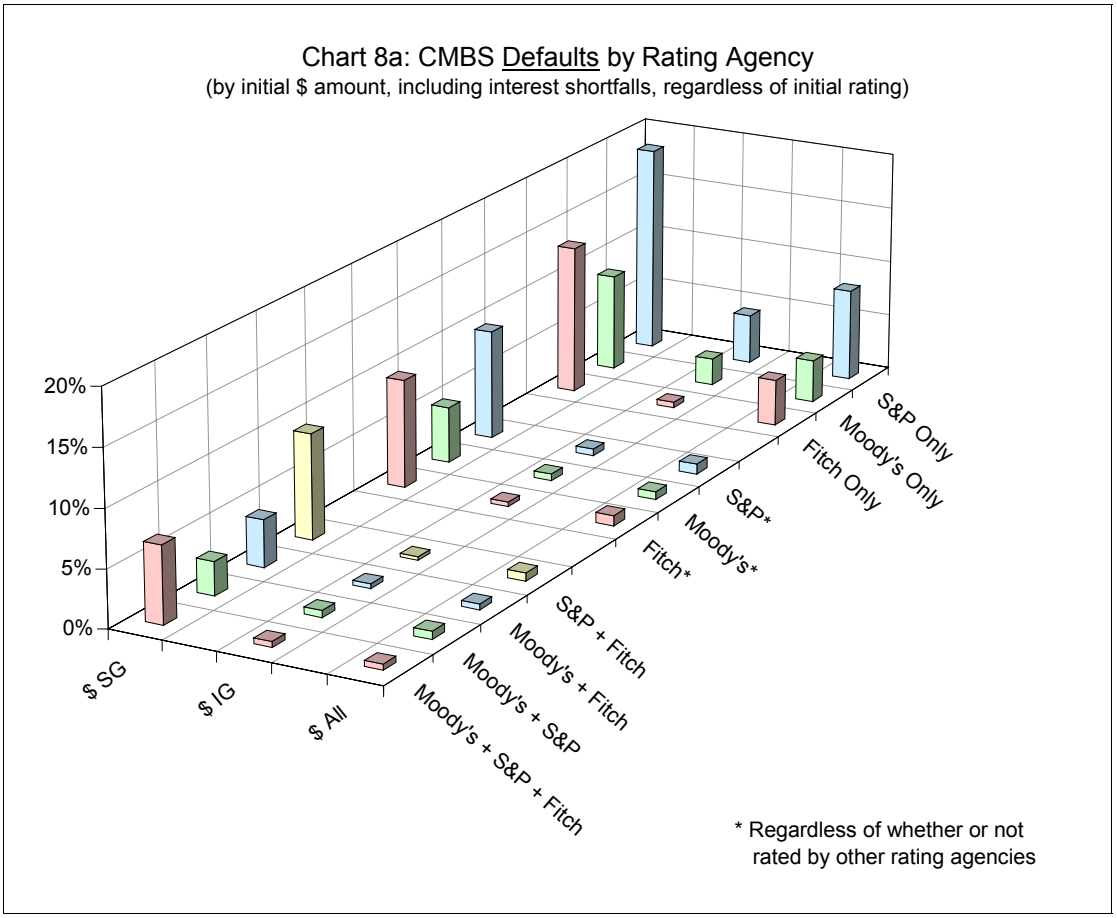
Chart 7b: Cumulative CMBS Adverse Credit Migrations by Rating Agency
(by number of tranches; including interest shortfalls)



* Regardless of whether or not rated by other rating agencies

Tranche-Weighted Results: Also, although we focus primarily on dollar-weighted results, the rating agencies usually gauge their own performance in terms of the number of tranches.[10] On a tranche-weighted basis, the differences in the frequencies of adverse credit migrations among CMBS rated by the different rating agencies become smaller. Chart 7b displays the results:

Including All Defaults: We also looked at the frequency of CMBS defaults regardless of each bond's rating at issuance. In this analysis, CMBS that carried initial ratings in the speculative-grade range *could* count as defaults. Charts 8a and 8b and Tables 8a and 8b detail these results.



The front row of the chart reflects the frequency of all CMBS defaults, regardless of whether or not they were rated investment grade or speculative grade at issuance.[11] The middle row shows the frequency of defaults for securities rated investment grade at issuance. The back row breaks out the frequency of defaults for securities rated speculative grade at issuance. Each bar shows the frequency of defaults on a dollar-weighted basis.

The results in Chart 8a are generally consistent with those of Chart 7a. CMBS that carry ratings from more than one agency tend to be more resistant to defaults than CMBS rated by only one agency, regardless of whether or not they were rated investment grade or speculative grade at issuance. However, the results in Chart 8a reveal that for bonds rated speculative grade at issuance, those rated by Moody's had a lower frequency of defaults than those rated by S&P or Fitch. Moreover,

[10] In counting tranches, a rating agency often counts as a single tranche all the tranches in a deal that carry the same rating. We do not use that approach in our tranche counts. We count every tranche separately.

[11] In Chart 7a, defaults of securities rated in the double-B and single-B categories are included in the major downgrade category, while defaults of securities rated in the triple-C category are included in the minor downgrade category. See the discussion of our four-category classification scheme for adverse credit migrations on pages 3-4.

speculative-grade CMBS rated by Moody's and S&P had lower frequencies of defaults than those by the other rating agency combinations.

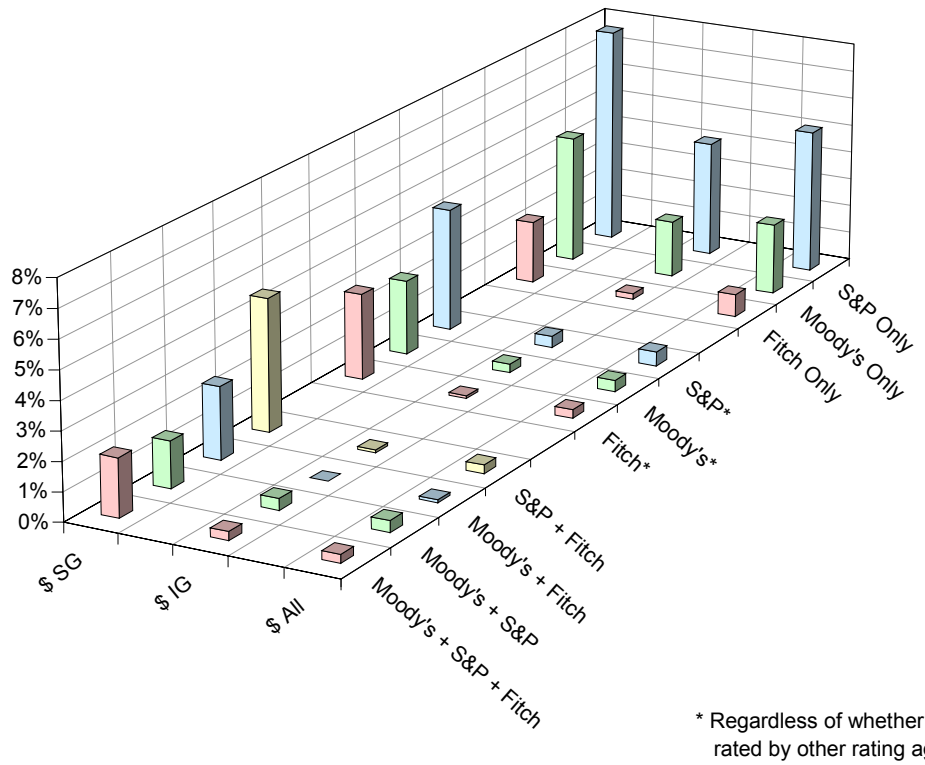
Table 8a: CMBS Defaults by Rating Agency
(including interest shortfalls, regardless of initial rating)

Rating Agency	Investment Grade Defaults		Speculative Grade Defaults		IG Population		SG Population	
	$	#	$	#	$	#	$	#
Moody's+S&P+Fitch	427	12	76	3	92,996	877	1,131	85
Moody's+S&P	1,268	32	163	14	206,644	2,450	5,516	645
Moody's+Fitch	521	17	202	17	127,111	1,559	4,899	390
S&P+Fitch	409	24	648	33	143,151	2,098	7,083	586
Fitch *	1,472	66	2,104	121	385,524	5,105	22,069	1,507
Moody's *	2,483	73	716	55	437,924	5,207	14,749	1,333
S&P *	2,680	81	1,787	96	455,860	5,845	18,591	1,615
Fitch only	115	13	1,178	68	22,265	571	8,955	446
Moody's only	268	12	276	21	11,172	321	3,202	213
S&P only	577	13	901	46	13,069	420	4,860	299

*Regardless of whether rated by other rating agencies
Note: Columns labeled "$" indicate the initial dollar amount (in millions) of CMBS in the category. Columns labeled "#" indicate the number of tranches in a category.

Excluding Interest Shortfalls: Excluding defaults due to interest shortfalls, however, changes the results for the speculative grade category. Chart 8b and Table 8b detail these results.

Chart 8b: CMBS Defaults by Rating Agency Excl. Interest Shortfalls
(by initial $ amount; excluding interest shortfalls, regardless of initial rating)



* Regardless of whether or not rated by other rating agencies

Comparing Chart 8a and Chart 8b shows that many of the speculative-grade CMBS that defaulted due to interest shortfalls of three months or longer were rated by Fitch. The results in Chart 8b reveal

that a significant share of the Fitch-rated CMBS classified in the "major downgrade" category in Chart 7a result from interest shortfalls on speculative-grade CMBS..

Table 8b: CMBS Defaults by Rating Agency Excluding Interest Shortfalls
(excluding interest shortfalls, regardless of initial rating)

Rating Agency	Investment Grade Defaults		Speculative Grade Defaults		IG Population		SG Population	
	$	#	$	#	$	#	$	#
Moody's+S&P+Fitch	294	5	23	1	92,996	877	1,131	85
Moody's+S&P	746	13	90	6	206,644	2,450	5,516	645
Moody's+Fitch	37	1	124	11	127,111	1,559	4,899	390
S&P+Fitch	125	6	322	16	143,151	2,098	7,083	586
Fitch *	502	15	670	41	385,524	5,105	22,069	1,507
Moody's *	1,296	25	379	30	437,924	5,207	14,749	1,333
S&P *	1,702	32	807	54	455,860	5,845	18,591	1,615
Fitch only	45	3	201	13	22,265	571	8,955	446
Moody's only	218	6	143	12	11,172	321	3,202	213
S&P only	536	8	372	31	13,069	420	4,860	299

*Regardless of whether rated by other rating agencies
Note: Columns labeled "$" indicate the initial dollar amount (in millions) of CMBS in the category. Columns labeled "#" indicate the number of tranches in a category.

Changes in market share among the rating agencies arguably shed additional light on the performance of CMBS rated by different combinations of rating agencies. Chart 9 and Table 9 show that before 1998, Moody's was the least active rating agency, followed by S&P. Fitch was the most active rating agency, in of both speculative-grade and investment-grade CMBS. After 1999, the market shares of the rating agencies tended to converge.

Chart 9: Rating Agency Market CMBS Shares
(by initial $ amount)

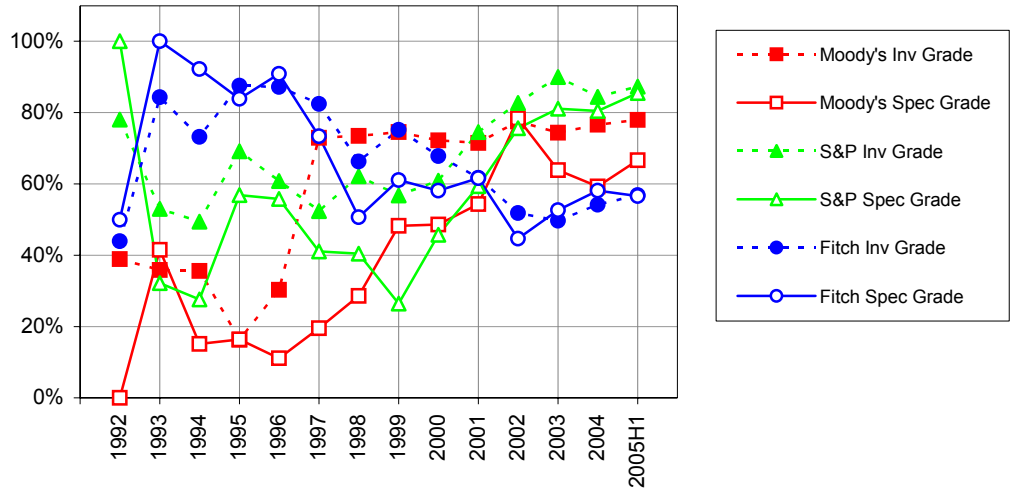


Table 9: Dollar Volume of CMBS Rating Activity by Rating Agency
(by initial dollar amount)

Year	Investment Grade CMBS				Speculative Grade CMBS			
	Moody's	S&P	Fitch	Total	Moody's	S&P	Fitch	Total
1992	828	1,662	936	2,128	0	87	43	87
1993	2,653	3,909	6,225	7,382	213	166	514	514
1994	3,460	4,798	7,109	9,707	101	185	616	669
1995	1,792	7,589	9,603	10,963	238	828	1,220	1,455
1996	6,327	12,696	18,203	20,870	270	1,359	2,213	2,434
1997	25,081	18,038	28,380	34,413	718	1,508	2,690	3,665
1998	47,603	40,295	42,947	64,751	2,269	3,209	4,013	7,922
1999	39,508	30,063	39,817	52,962	2,110	1,159	2,670	4,369
2000	33,267	28,057	31,256	46,096	1,379	1,299	1,649	2,837
2001	48,903	50,982	42,180	68,364	1,551	1,694	1,758	2,853
2002	43,391	46,313	29,050	56,024	1,797	1,732	1,024	2,291
2003	60,089	72,693	40,167	80,792	1,476	1,875	1,218	2,310
2004	70,414	77,628	49,816	91,960	1,622	2,203	1,589	2,736
2005H1	54,609	61,135	39,834	69,998	1,003	1,287	852	1,505

Favorable Migrations: We measured the frequency of positive credit migrations for CMBS according to different rating agency combinations. CMBS that were initially rated by Fitch experienced a higher frequency of favorable credit migrations than those which carried an initial rating from Moody's or S&P. Chart 10 and Table 10 show the results. The higher frequency of favorable credit migrations for Fitch-rated CMBS is an expected result because Fitch had the highest market share on the oldest vintages (Chart 9). CMBS from the older vintages are the ones the have displayed generally higher frequencies of positive credit migrations (Chart 4).

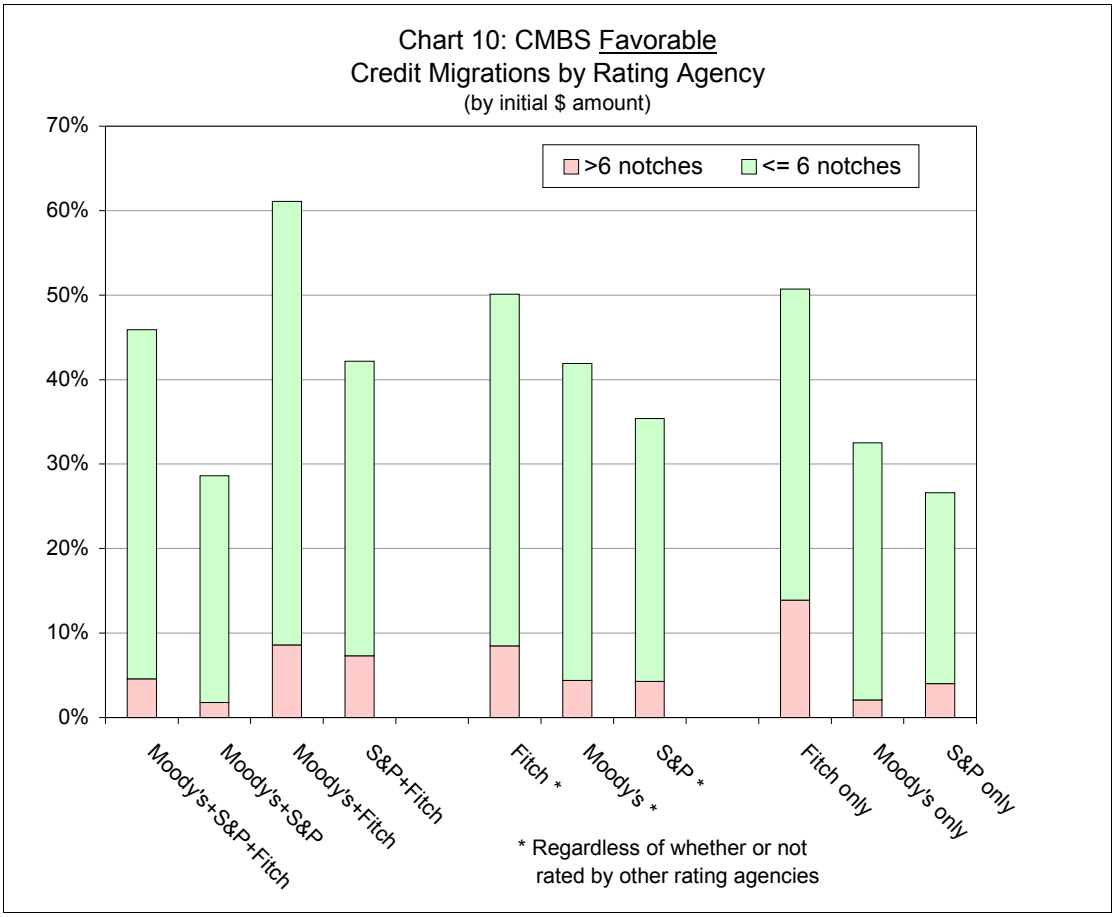


Table 10: CMBS Favorable Credit Migrations by Rating Agency						
Initial Rating	≤6 notches		>6 notches		Total Population	
	$	#	$	#	$	#
Moody's+S&P+Fitch	6,623	167	734	21	16,055	558
Moody's+S&P	12,244	375	830	36	45,675	2,097
Moody's+Fitch	17,224	445	2,829	86	32,791	1,357
S&P+Fitch	13,380	467	2,811	127	38,338	1,925
Fitch *	44,419	1,328	9,083	349	106,723	4,705
Moody's *	38,963	1,074	4,586	150	103,969	4,484
S&P *	35,251	1,122	4,907	205	113,381	5,198
Fitch only	7,192	249	2,710	115	19,539	865
Moody's only	2,872	87	194	7	9,448	472
S&P only	3,004	113	533	21	13,313	618
*Regardless of whether rated by other rating agencies Note: Columns labeled "$" indicate the initial dollar amount (in millions) of CMBS in the category. Columns labeled "#" indicate the number of tranches in a category.						

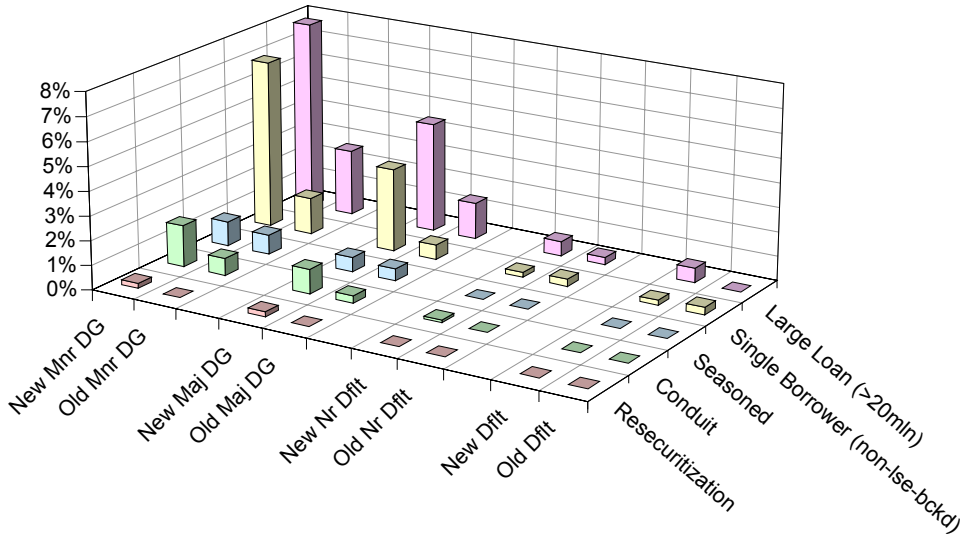
The results from this portion of the analysis support the conclusion that Fitch took a relatively conservative approach in its initial ratings of CMBS. CMBS rated by Fitch seemingly experienced the lowest frequency of downgrades and highest frequency of upgrades.

E. Comparison to Original Study

In order to compare the results of the two studies on a consistent basis, we excluded defaults due to interest shortfalls, as this element was not part of the original study. Even with that adjustment, CMBS as a whole display higher frequencies of adverse credit migrations over the extended period covered by this study (1/1/92 to 6/30/05) than they did during the period covered by the prior study (1/1/92 to 6/30/02).

In terms of deal type, CMBS from large loan and single-borrower non-lease backed deals experienced the greatest increase over the last three years in their frequencies of adverse credit migrations. However, most of the increase was concentrated in major and minor downgrades, rather than in defaults and near defaults. CMBS from seasoned deals and from conduit deals experienced a slight increase in their frequencies of adverse credit events Chart 11 and Table 11 display the comparison.

Chart 11: Old Study vs. New Study
Cumulative Event Frequencies by Asset Type
(1/01/92 to 6/30/02 vs. 1/01/92 to 6/30/05; by initial dollar amount; excluding interest shortfalls)



* Regardless of whether or not rated by other rating agencies

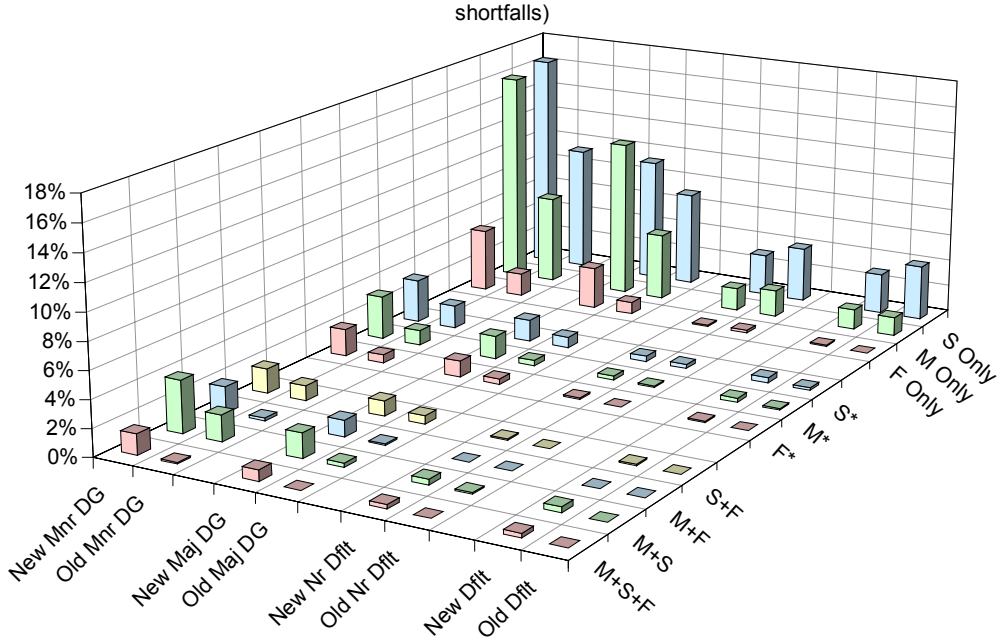
Table 11: Old Study vs. New Study Cumulative Event Frequencies by Asset Type
(1/01/92 to 6/30/02 vs. 1/01/92 to 6/30/05; by initial dollar amount; excluding interest shortfalls)

TYPE	Defaults		Near Defaults (and worse)		Major Downgrades (and worse)		Minor Downgrades (and worse)		Total Population	
	Old	New	Old	New	Old	New	Old	New	Old	New
Resecuritization	0	0	0	0	0	40	0	40	4,202	17,541
Conduit	0	247	0	313	828	4,933	1,662	8,855	245,341	506,322
Seasoned	0	0	0	0	161	209	265	373	32,826	37,815
Single Borrower (non-lease-backed)	145	145	145	145	253	2,168	648	4,411	44,620	63,643
Large Loan (>$20mln)	0	87	37	87	224	686	410	1,182	14,944	15,191
Lease-backed (single borrower)	519	1,523	651	1,541	1,086	4,037	1,926	6,657	4,816	11,546
Total	664	2,003	834	2,087	2,552	12,073	4,911	21,519	346,749	652,057

Note: Columns labeled "$" indicate the initial dollar amount (in millions) of CMBS in the category. Columns labeled "#" indicate the number of tranches in a category. Each category includes the values in all the other columns to its left.

As noted above, the results from this study are generally consonant with our findings in the original *CMBS Credit Migrations*. Comparing the two studies along the rating agency dimension highlights the similarity. Chart 12 and Table 12 show the comparison.

Chart 12: Old Study vs. New Study
Cumulative Event Frequencies by Vintage
(1/01/92 to 6/30/02 vs. 1/01/92 to 6/30/05; by initial dollar amount; excluding interest shortfalls)



* Regardless of whether or not rated by other rating agencies

For example, in the last grouping, CMBS rated by Fitch only (*i.e.*, F Only) had the lowest frequency of adverse credit migrations in both the old and new studies. Similarly, in the first grouping, CMBS rated by the Moody's and S&P, but not by Fitch (*i.e.*, M+S) exhibited the highest frequency of cumulative adverse credit events in both the original study and current study. Therefore, while the number of adverse credit migrations experienced by CMBS increased overall, the relationships among the different rating agency categories remained the same.

Table 12: Old Study vs. New Study
Cumulative Event Frequencies by Rating Agency
(1/01/92 to 6/30/02 vs. 1/01/92 to 6/30/05; by initial dollar amount; excluding interest shortfalls)

Rating Agency	Defaults		Near Defaults (and worse)		Major Downgrades (and worse)		Minor Downgrades (and worse)		Total Population	
	Old	New	Old	New	Old	New	Old	New	Old	New
Moody's+S&P+Fitch	0	294	0	294	0	721	48	1,449	40,127	94,128
Moody's+S&P	0	746	41	757	234	3,752	1,450	8,134	77,415	212,160
Moody's+Fitch	0	37	0	37	120	1,644	160	2,571	94,289	132,011
S&P+Fitch	0	125	18	143	530	1,627	882	2,679	83,018	150,234
		0								
Fitch*	0	502	63	520	894	4,970	1,570	8,158	246,075	407,593
Moody's*	145	1,296	253	1,337	880	7,807	2,358	14,440	222,419	452,673
S&P*	519	1,702	577	1,755	1,661	7,762	3,571	15,204	213,231	474,451
		0								
Fitch only	0	45	45	45	245	977	481	1,459	28,641	31,221
Moody's only	145	218	211	249	526	1,690	700	2,285	10,588	14,374
S&P only	519	536	519	561	898	1,662	1,191	2,942	12,671	17,929

*Regardless of whether rated by other rating agencies
Note: Columns labeled "$" indicate the initial dollar amount (in millions) of CMBS in the category. Columns labeled "#" indicate the number of tranches in a category. Each category includes the values in all the other columns to its left.

IV. Problems and Limitations[12]

There are a number of issues that can potentially affect the reliability and relevance of the results that we have reported above. Among the quantitative issues are:

- Hidden correlations
- Missing variables
- Non-stationary processes
- Sampling bias
- Small sample size
- Counting errors

This section explains additional sources of error.

A. Data Quality

Our main data sources included the CMBS database published by *Commercial Mortgage Alert*, credit migration data provided by each rating agency, Bloomberg, and Intex. While we consider each of these sources to be reliable, we recognize that they are not perfect.[13] In addition, our process of aggregating and collating the data was partly a manual task and it inevitably introduced some additional errors. Upon the completion of that process, we performed quality control checks on two samples drawn from the composite database. We found most errors in the recorded ratings on securities no impact on the securities' classification our four-category scheme for adverse credit migrations. Ultimately, we found an error rate of only about one percent in classifying CMBS within the four-category scheme.

[12] Parts of this section are taken directly from our *CMBS Credit Migrations* report.

[13] For example, rounding errors in calculations by trustees can produce an apparent interest shortfall of just a few dollars. We did not differentiate interest shortfalls based on their reported amounts.

B. Scaling of Defaults

Defaults of higher-rated securities are arguably a more serious problem than defaults of lower-rated securities. The present study captures the notion of scaling to a limited degree. We classified defaults of investment grade securities in the "default" category, defaults of securities initially rated double-B or single-B in the "major downgrade" category, and defaults of securities initially rated triple-C in the "minor downgrade" category.

However, we did not differentiate between defaults of securities that carried different initial ratings within the investment-grade range. More pointedly, the present study does not differentiate between a deal from which a triple-A-rated security defaulted and one from which a triple-B-rated security defaulted.

Moreover, we did not differentiate among defaults that produced varying levels of ultimate losses to investors. A default that resulted in slight (or even zero) severity of loss counted equally with one that produced a high severity.

C. Differentiating Real Estate Risk from Corporate Risk

In theory, securitization separates asset risk from company risk. Sometimes, in practice, it does not. In the CMBS context, there are deals that rely primarily on the income producing capacity of the underlying properties and other deals that rely primarily on the corporate credit strength of a single borrower or lessee. Indeed, in the results reported above, CMBS from single-borrower lease-backed deals had the worst frequencies of negative credit migrations. However, CMBS investors are already sensitive to this distinction and make pricing adjustments where appropriate.

D. Equivalence of Rating Scales

The study's classification of credit migrations (*i.e.*, default, near default, major downgrade, minor downgrade, ≤6 notches up, or >6 notches up) was based primarily on rating agency ratings. For purposes of the study we have *assumed* congruence of the rating scales of all the rating agencies. That is, "Aaa" on Moody's scale reflects the same degree of credit risk as "AAA" on Standard & Poor's scale and "AAA" on the Fitch scale, and so on.

With respect to corporate ratings, there is academic support for the presumption of congruence between Moody's and Standard & Poor's rating scales. [14] However the same authorities conclude that congruence does not extend to the rating scales of other rating agencies. Those authorities assessed the congruence of rating scales by considering cases of securities with split ratings. Where there were numerous cases of split ratings and one rating agency's ratings were higher than another's most of the time, the researchers concluded that the rating scales of the two agencies were not congruent. In the structured finance area, there are fewer instances of split ratings and there have not been academic studies on the question of congruence.

In 2003, National Economic Research Associates (NERA) investigated the congruence of structured finance ratings among the rating agencies[15] NERA could not reject the hypothesis that ratings from different rating agencies perform differently. However, NERA could not reject the converse either. We found the NERA study to be disappointingly inconclusive.[16]

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[14] Cantor, R. and Packer, F., *The Credit Rating Industry*, 19 FRBNY Q. REV. 1, 4 (Summer-Fall 1994); Beattie, V. and Searle, S., *Bond Ratings and Inter-Rater Agreement*, J. OF INT'L. SECS. MARKETS 167, 170 (Summer 1992).

[15] Carron, A.S., et al., *Credit Ratings for Structured Products – A Review of Analytical Methodologies, Credit Assessment Accuracy, and Issuer Selectivity among Credit Rating Agencies*, National Economic Research Associates (6 Nov 2003).

[16] *NERA Study of Structured Finance Ratings – Market Implications*, Nomura Fixed Income Research (6 Nov 2003).

If the assumption of rating scale congruence were materially wrong, it arguably would introduce a distortion of indeterminate magnitude to the study results. Although the magnitude of the potential distortion is impossible to gauge, its direction is reasonably clear: bonds rated by a rating agency with softer (*i.e.*, easier) standards would show *higher* frequencies of major downgrades and defaults.

E. Instability of Rating Practices over Time

Predictive relevance of the study's findings implicitly relies on the presumption that rating agency practices and standards remain stable over time. There is conflicting evidence on this score. The rating agencies have stated that the risk content of traditional corporate bond ratings is the touchstone against which structured finance ratings are calibrated; with the goal of achieving the same credit risk in a triple-A-rated structured finance security as in a triple-A-rated corporate security. However, a number of market participants have argued strongly that the rating agencies were too conservative in their early structured finance rating efforts. Those market participants point to the strong performance of structured finance securities during the market's formative phase as evidence that the rating agencies were too conservative. The rating agencies have not been deaf to the strength of those arguments. Accordingly, there is some basis for concluding that rating agency standards for rating structured financings could have drifted over time in response to a perceived excess of caution during the early stages of the market. To the extent that a trend of easier rating standards continues, it suggests that the future would bring higher frequencies of adverse credit events of all types.

F. Monitoring of Ratings

Rating changes can occur only when a rating agency monitors the credit quality of a rated security. Differences in the frequency of changes can be strongly influenced by the degree of diligence that a rating agency exercises in doing so. Differences in migration frequencies for CMBS rated by a just one agency may be largely attributable to differences in monitoring practices. Accordingly, inferences based mainly on those frequency differences may be less reliable.

G. Biased Sample Period

The study covers the period from 1 January 1992 through 30 June 2005 and includes only CMBS issued during that period. Except for the 2001 recession, the entire sample period was a time of economic expansion. This has the effect of biasing the sample and making it difficult to extrapolate what the frequency of adverse credit events would be during harder times. While it is certainly worth hoping that the future will bring us ten fat years for each lean one, it is probably too optimistic to really expect it.

The young age of the CMBS market means that it is currently impossible to study credit migrations over multiple economic cycles (or, arguably, even one full cycle). Years from now such a study may be possible. However, until then, all studies like this one will unavoidably labor under the handicap of a biased sample period.

H. Fraud

Certain market participants have alleged fraud as a key underlying cause of certain CMBS defaults. One way of analyzing frequencies of adverse credit events across rating agencies would be to exclude deals where adverse credit events are attributable to fraud. We have not done so in our study. From an investor's standpoint, a default attributable to fraud hurts no less than one attributable to anything else. Moreover, in certain cases, it remains open to debate whether fraud was the primary cause of default, a contributing factor, or not a factor at all. Lastly, all participants in the CMBS market, including investment bankers, lawyers, accountants, issuers, trustees, investors, and

the rating agencies, have an interest in promoting the use of safeguards and structures that inhibit fraud.[17]

V. Conclusion

It should not be particularly surprising that the results of this updated study are generally consistent with those of our original study. The 10 of the 13 years covered by this study were included in the earlier one. However, in that light, it arguably should be surprising that the overall rate of CMBS adverse credit migrations has increased to such a large degree in only three years (see Chart 11).

Studies of this type are difficult because merging data from different the different sources requires extensive manual intervention. The labor associated with updating a study increases proportionately with the number of CMBS tranches ever issued. In the interest of enhancing market transparency and facilitating future studies (by us or by others), we encourage all data suppliers to include Bloomberg[SM] tickers among their security identifiers.

[17] *Red Flags for Non-Investment Grade Seller/Servicers*, Fitch Research (2 Apr 1997) (Fitch doc. no. 12672); *Red Flags for Private Placement Issuers*, Fitch Research (17 Jul 1995) (Fitch doc. no. 5446); *Rating Guidelines for Health Care Receivables, Fitch Research* (20 Apr 1998).

Appendix

Investment Grade CMBS Defaults (Excluding Interest Shortfalls)					
Security	Bloomberg Ticker	Initial Rating			Original/ New
		Moody's	S&P	Fitch	
Asset Securitization Corp.	ASC 1995-D1B1		BBB		New
Asset Securitization Corp.	ASC 1996-D2A4		BBB	BBB	New
Asset Securitization Corp.	ASC 1997-D5A5		BBB	BBB+	New
Asset Securitization Corp.	ASC 1997-D5A6		BBB-	BBB-	New
Asset Securitization Corp.	ASC 1997-MD7A4	Baa2		BBB	New
Asset Securitization Corp.	ASC 1997-MD7A5			BBB-	New
Asset Securitization Corp.	ASC 1997-MD7A6			BBB-	New
CNC Pass-Through Trust	CNC 1994-1D			BBB	New
Commercial Mtge Pass Through Certs	COMM 2001-FL4MCH	Baa3	BBB-		New
Commercial Mtge Pass Through Certs	COMM 2001-FL5AKHH		BBB+	BBB+	New
Commercial Mtge Pass Through Certs	COMM 2001-FL5ALHH		BBB	BBB	New
Commercial Mtge Pass Through Certs	COMM 2001-FL5AMHH		BBB-	BBB-	New
Commercial Mtge Pass Through Certs	COMM 2001-J2AH	Ba1	BBB-		New
CS First Boston Mtge Securities Corp.	CSFB 2001-TFLAKCR	Baa3	BBB-	BBB-	New
DLJ Mortgage Acceptance Corp.	DLJMA 1993-MF2A1	Aa2			Original
DLJ Mortgage Acceptance Corp.	DLJMA 1993-MF2A2	Aa2			Original
DLJ Mortgage Acceptance Corp.	DLJMA 1993-MF2A3	Aa2			Original
DLJ Mortgage Acceptance Corp.	DLJMA 1993-MF2B	Baa2			Original
DR Structured Finance Corp.	DRSLT 1993-K1A1		A		Original
DR Structured Finance Corp.	DRSLT 1993-K1A2		A		Original
DR Structured Finance Corp.	DRSLT 1994-K1A1		A		Original
DR Structured Finance Corp.	DRSLT 1994-K1A2		A		Original
DR Structured Finance Corp.	DRSLT 1994-K1A3		A		Original
DR Structured Finance Corp.	DRSLT 1994-K2A1		BBB+		Original
DR Structured Finance Corp.	DRSLT 1994-K2A2		BBB		Original
Lehman Brothers ABS Corp.	LABS 1994-C5A1	Baa3	BBB		New
Lehman Brothers ABS Corp.	LABS 1994-C5A2	Baa3			New
Morgan Stanley Dean Witter Capital I	MSDWC 2000-XLFD	A3	A-		New
Morgan Stanley Dean Witter Capital I	MSDWC 2000-XLFE	Baa2	BBB		New
Morgan Stanley Dean Witter Capital I	MSDWC 2000-XLFF1	Baa3	BBB-		New
Salomon Brothers Mortgage Securities VII	SBM7 2001-CDCAEGF	Baa1	BBB+		New
Salomon Brothers Mortgage Securities VII	SBM7 2001-CDCAFGF	Baa3	BBB-		New
Salomon Brothers Mortgage Securities VII	SBM7 2001-CDCAGGF	Baa3			New
Kmart Funding Corp. Secured Lease Bonds	[1994, series F, due 2010]	A3	BBB+	A-	New
Kmart Funding Corp. Secured Lease Bonds	[1994, series G, due 2018]	A3	BBB+	A-	New
Kmart Corp Pass Through Trust	[series 1995-K1/K2, class K1]	Baa1	BBB	BBB	New
Kmart Corp Pass Through Trust	[series 1995-K1/K2, class K2]	Baa1	BBB	BBB	New
Kmart Corp Pass Through Trust	[series 1995-K3/K4, class K3]	Baa1	BBB		New
Kmart Corp Pass Through Trust	[series 1995-K3/K4, class K4]	Baa1	BBB		New
Winn-Dixie Pass-Through Trust	WINN 1999-1A1	A3	BBB-		New
Winn-Dixie Pass-Through Trust	WINN 1999-1A2	A3	BBB-		New
Winn-Dixie Pass-Through Trust	WINN 1999-1A3	A3	BBB-		New

— E N D —

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