Rating Changes in the U.S. Asset-Backed Securities Market: First-Ever Transition Matrix Indicates Rating Stability…To Date

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SUMMARY

This report presents the first complete historical study of rating transitions in the U.S. asset-backed securities market. It is the latest in a series of reports that addresses the history of Moody's rating changes on asset-backed securities since the market's inception.[1]

Rating transitions refer to the frequency with which securities of a particular rating change over the course of time and are important tools for analyzing the historical rating volatilities of securities of different ratings. They can be used to answer questions such as "How frequently in the past have **Baa2**-rated securities been downgraded to below investment grade over a typical year?" or "Have lower-rated securities been more likely to be upgraded than higher-rated securities?"

Our analysis focuses on rating transitions over one-year periods and shows the following:

- On average, asset-backed security ratings overall have been quite stable since the market's inception in 1986 with, for most rating categories, over 90% of ratings staying the same over one-year periods.
- For those rating categories that have shown somewhat higher rating transitions, most of the changes were caused by rating changes to entities related to the transactions.
- Asset-backed security ratings have experienced lower transition rates than corporate ratings since 1986. However, over the long run, we expect asset-backed transitions to lead to credit losses roughly equal to those of corporate securities.
- Asset-backed rating transitions could increase in the future if the economic environment differs from the generally favorable conditions that have prevailed for most of the asset-backed market's existence, or if issuers become unwilling or unable to support troubled transactions, as some issuers have in the past.

1 See *Related Research* section.

CALCULATING THE U.S. ASSET-BACKED SECURITY TRANSITION MATRIX

Figure 1 shows the weighted average one-year rating transition matrix for asset-backed securities for the years 1986 through 2000.[2] This matrix was calculated in the following fashion.

For each year starting in 1986, a transition matrix was calculated for all asset-backed securities outstanding at the beginning of that year. That is, for each rating outstanding at the beginning of a particular year, we determined its status (i.e., its rating or whether it had been withdrawn) at the end of the year. In the cells of each annual matrix, we record the frequency with which securities that had the "row rating" at the beginning of the year had the "column rating" at the end of the year. As only beginning-of-year and end-of-year ratings are considered, any intermediate rating changes that occurred during a year are ignored. Weighted averages[3] of each year's annual transition percentages were calculated, resulting in the average one-year transition matrix presented in *Figure 1*.

The rating transitions can be used to analyze the historical average annual rating volatility of asset-backed securities of different ratings. For example, *Figure 1* shows that on average since 1986, of the securities rated **Aa1** at the beginning of a year:

- 3.2% were rated **Aaa** at the end of that year
- 75.9% were rated **Aa1** at the end of that year
- 4.1% were rated **Aa2**
- 5.5% were rated **Aa3**
- 11.3% had their rating withdrawn (WR)[4]

An alternative way to present the transition matrix is to remove from consideration those securities that have had their ratings withdrawn (i.e., have matured) and consider only those securities with ratings outstanding at both the beginning and end of the year. (See *Figure 2.*) In such a presentation, the entries in the matrix represent rating-change percentages of securities that have not matured and, therefore, remain exposed to credit risk at the end of the year.

RESULTS: RATING STABILITY OVER TIME

The main results that can be gleaned from the average rating transitions summarized in *Figure 2* are as follows.

Rating Stability: On average, asset-backed security ratings overall have been quite stable since 1986. Generally, over 90% of ratings remain the same over one-year periods (as shown by the diagonal elements in the matrix).

Higher Transitions Linked to Underlying Entities: For those rating categories that have shown more rating transitions, most of the changes were caused by rating changes to entities related to the transactions. Consider the following:

- On average, only 38.0% of securities rated **Ba1** at the beginning of a year were rated **Ba1** at the end of that year, while 49.1% were upgraded to **Baa3**. Closer inspection reveals that the transitions to **Baa3** were caused entirely by the upgrading in 1999 of 53 subordinated tranches backed by home equity and manufactured housing loans that were guaranteed by the originator, Green Tree, which was upgraded following its acquisition by Conseco.

2 Asset-backed securities for the purposes of this study are defined as US-dollar-denominated securities, excluding asset-backed commercial paper, backed by all assets except commercial mortgages and most first-lien residential mortgages. Collateralized debt obligations were included, as were deals backed by home equity loans (and starting in 1997, "B&C"-quality mortgages, regardless of lien status). Deals backed by student loans issued by municipalities were included starting in December 1996. Public, private and 144A issues have been included.

3 The weights used in calculating the average transitions for asset-backed securities are the number of outstanding ratings at the beginning of each year. Thus, the average transition percentages will reflect more heavily the experience from the most recent years, when there were many asset-backed ratings outstanding, than the experience of the asset-backed market's earlier years, when there were fewer ratings outstanding.

4 The primary reason asset-backed security ratings are withdrawn is because issues mature. As can be seen in Figure 1, the average percentage of asset-backed securities that have their ratings withdrawn in a year ranges from 0% to 11% and tends to decline as rating quality declines, especially to the Baa rating level and below. This could be explained by the fact that lower-rated asset-backed securities are more likely to be subordinated tranches, which are more likely to have longer maturities.

- Rating transitions at the **Baa1** and **Baa3** levels were also dominated by rating changes of Conseco/Green Tree, but not as drastically as at the **Ba1** level.
  - Of securities rated **Baa1** at the beginning of a year, on average 87.5% were rated **Baa1** at the end of the year. Most of the transitions were downgrades to **Ba1**, the result of the two downgrades of Green Tree during 1998 and the corresponding downgrades of the subordinated tranches that they guaranteed.
  - Of the **Baa3** ratings at the beginning of a year, 86.4% were **Baa3** at the end of the year. However, 2.5% had been downgraded to **Ba1**, 3.4% to **Ba2** and 4.9% to **Ba3** by year-end. The majority of these downgrades can be attributed to the two downgrades of Conseco in 2000.
- On average, 85.6% of asset-backed securities rated **Aa1** at the beginning of a year were rated **Aa1** at the end of the year. Downgrades to **Aa2** (4.6%) and **Aa3** (6.2%) were mainly the result of transactions downgraded in the late 1980's and early 1990's as the result of the downgrading of external credit enhancers (mostly banks that provided letters of credit as support for transactions). Upgrades to **Aaa** (3.6%) were due mostly to the upgrading of manufactured housing deals in 1996 due to the build-up of transaction credit enhancement.

To Date, More Stability Than Comparable Corporates: Additional perspective on the asset-backed transition experience can be obtained from comparing it to the rating transitions of corporate bond issuers rated by Moody's. *Figure 3* contains the average one-year transition matrix for Moody's-rated corporate bond issuers from1986 to 2000.[5] Comparing *Figures 1* and *3*, it can be seen that, on average, asset-backed security ratings have been more stable than corporate ratings since 1986. Due to the limited number of asset-backed issues with ratings below investment grade, comparisons in those rating categories are less reliable.

IMPLICATIONS: THE PAST ISN'T THE FUTURE

Moody's ratings address expected loss, encompassing both the likelihood of default as well as the severity of loss should a default occur. Historical rating changes, summarized in the transition matrices in *Figures 1* and *2*, indicate those instances to date where Moody's view about the expected loss of an asset-backed transaction has changed. Although Moody's does not use rating transition figures as targets or guidelines when monitoring transactions and reviewing them for possible rating changes, over the long run, we expect that transition rates will be roughly consistent with default rates — and hence loss rates — that are in line with those experienced for corporate bonds with similar ratings.

However, those long run transition rates are likely to be different from those experienced to date. First, the historical transition rates for some rating categories — particularly those below investment grade — should be viewed with caution because of the limited number of outstanding ratings on which they are based. Second, the future economic environment is very likely to be different than the unusually favorable conditions that have prevailed for most of the asset-backed market's existence. And finally, there have been numerous occasions in the past where issuers have supported transactions with assets that had not performed as expected, thereby avoiding a potential downgrade.[6] Had these issuers not supported their troubled deals, historical rating volatility in the asset-backed market could have been higher. Should issuers become either unwilling or unable to support their troubled transactions in the future, the level of future downgrade activity in the asset-backed market could increase above historical experience.

5 The focus of Moody's corporate rating transitions is the issuer while the asset-backed transition matrix is based on rated tranches. Thus, a corporation with many debt issues outstanding will count as one observation in the corporate transition analysis, while each rated tranche of an asset-backed transaction will count as a separate observation. For transactions with multiple **Aaa**-rated tranches, each tranche is counted as a separate rating observation, as it is not clear that the ratings on such tranches will always move together, especially since it is common for them to have different maturities.

6 For information about asset-backed securities that have been supported by their issuers, see "The Costs and Benefits of Supporting "Troubled" Asset-Backed Securities: Has the Balance Shifted?" *Moody's Structured Finance*, January 17, 1997.

RELATED RESEARCH

- “A Historical Review of Rating Changes in the Public Asset-Backed Securities Market, 1986-1995”, *Moody’s Structured Finance*, October 20, 1995
- “Rating Changes in the Asset-Backed Securities Market: An Update,” *Moody’s Structured Finance*, August 7, 1998
- “Rating Changes in the U.S. Asset-Backed Securities Market: August 1999 Update,” *Moody’s Structured Finance*, August 6, 1999
- “Rating Changes in the U.S. Asset-Backed Securities Market: 1999 Second Half Update,” *Moody’s Structured Finance*, July 14, 2000
- “Rating Changes in the U.S. Asset-Backed Securities Market: 2000 First Half Update,” *Moody’s Structured Finance*, October 6, 2000
- “The Costs and Benefits of Supporting “Troubled” Asset-Backed Securities: Has the Balance Shifted?” *Moody’s Structured Finance*, January 17, 1997

Figure 1

U.S. Asset-Backed Security Average One-Year Rating Transition Matrix: 1986 to 2000

Percent Moving From Beginning-of-Year Rating to End-of-Year Rating (%)

Beginning-of-Year Rating:	End-of-Year Rating:																					
	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca	C	WR
Aaa	**89.95**	0.12	0.12	0.01																		9.80
Aa1	3.19	**75.94**	4.06	5.51																		11.30
Aa2	2.25	0.13	**89.81**	0.81	0.56	0.06	0.06															6.32
Aa3	1.49	0.17	0.83	**87.06**	1.66	1.00	0.66															7.13
A1	1.03	0.29	0.59	0.59	**86.80**	0.44	0.44															9.82
A2	0.47	0.12	0.51	0.51	2.76	**87.75**	0.04	0.12	0.12		0.08	0.04					0.04					7.47
A3	1.05		0.63	0.21	0.42	0.63	**87.21**	0.42	0.21		1.68	0.42	0.21		0.42							6.50
Baa1	0.86	0.22			0.43	0.22	0.43	**86.02**	0.43	1.08	8.60											1.72
Baa2			0.30	0.30	0.40	0.10	0.20	0.20	**92.97**	0.20	0.80	0.70	0.50		0.40							2.91
Baa3					0.13	0.38	0.13	0.63	0.38	**84.18**	2.41	3.29	4.81	0.25	0.38			0.13	0.13	0.25		2.53
Ba1							0.92			48.62	**37.61**	0.92			0.92	5.50		3.67			0.92	0.92
Ba2				0.31		0.31		0.31		0.31	0.31	**90.34**	0.62	1.25	2.18	0.93	0.62	0.62	0.62			1.25
Ba3													**87.33**		2.00			0.67	1.33		0.67	8.00
B1														**82.14**		5.36	7.14	1.79	1.79		1.79	
B2															**92.31**			1.10	1.10	4.40		1.10
B3																**81.03**		10.34		5.17	1.72	1.72
Caa1																	**50.00**			16.67	16.67	16.67
Caa2																				50.00	50.00	
Caa3																			**100.00**			
Ca																				**66.67**		33.33
C																					**100.00**	

Figure 2

U.S. Asset-Backed Security Average One-Year Rating Transition Matrix: 1986 to 2000
Securities With Withdrawn Ratings Excluded

Percent Moving From Beginning-of-Year Rating to End-of-Year Rating (%)

Beginning-of-Year Rating:	End-of-Year Rating:																				
	Aaa	**Aa1**	**Aa2**	**Aa3**	**A1**	**A2**	**A3**	**Baa1**	**Baa2**	**Baa3**	**Ba1**	**Ba2**	**Ba3**	**B1**	**B2**	**B3**	**Caa1**	**Caa2**	**Caa3**	**Ca**	**C**
Aaa	**99.73**	0.14	0.13	0.01																	
Aa1	3.59	**85.62**	4.58	6.21																	
Aa2	2.40	0.13	**95.86**	0.87	0.60	0.07	0.07														
Aa3	1.61	0.18	0.89	**93.75**	1.79	1.07	0.71														
A1	1.14	0.33	0.65	0.65	**96.26**	0.49	0.49														
A2	0.50	0.13	0.55	0.55	2.98	**94.83**	0.04	0.13	0.13		0.08	0.04					0.04				
A3	1.12		0.67	0.22	0.45	0.67	**93.27**	0.45	0.22		1.79	0.45	0.22		0.45						
Baa1	0.88	0.22			0.44	0.22	0.44	**87.53**	0.44	1.09	8.75										
Baa2			0.31	0.31	0.41	0.10	0.21	0.21	**95.76**	0.21	0.83	0.72	0.52		0.41						
Baa3					0.13	0.39	0.13	0.65	0.39	**86.36**	2.47	3.38	4.94	0.26	0.39			0.13	0.13	0.26	
Ba1							0.93			49.07	**37.96**	0.93			0.93	5.56		3.70			0.93
Ba2				0.32		0.32		0.32		0.32	0.32	**91.48**	0.63	1.26	2.21	0.95	0.63	0.63	0.63		
Ba3													**94.93**		2.17			0.72	1.45		0.72
B1														**82.14**		5.36	7.14	1.79	1.79		1.79
B2															**93.33**			1.11	1.11	4.44	
B3																**82.46**		10.53		5.26	1.75
Caa1																	**60.00**			20.00	20.00
Caa2																				50.00	50.00
Caa3																			**100.00**		
Ca																				**100.00**	
C																					**100.00**

Figure 3

All-Corporate Average One-Year Rating Transition Matrix: 1986 to 2000

Percent Moving From Beginning-of-Year Rating to End-of-Year Rating (%)

Beginning-of-Year Rating:	End-of-Year Rating:																		
	Aaa	**Aa1**	**Aa2**	**Aa3**	**A1**	**A2**	**A3**	**Baa1**	**Baa2**	**Baa3**	**Ba1**	**Ba2**	**Ba3**	**B1**	**B2**	**B3**	**Caa-C**	**Default**	**WR**
Aaa	**86.88**	6.37	2.52	0.23	0.24	0.05	0.05				0.04								3.62
Aa1	2.90	**77.83**	7.37	6.73	1.44	0.36	0.06												3.31
Aa2	1.05	1.99	**78.09**	8.90	3.77	1.03	0.31	0.11	0.09				0.06	0.06					4.52
Aa3	0.18	0.23	2.49	**78.12**	9.76	3.30	0.79	0.21	0.14	0.10		0.05	0.11					0.09	4.43
A1	0.05	0.09	0.52	4.63	**78.33**	7.75	2.87	0.70	0.27	0.04	0.13	0.31	0.07	0.07	0.02				4.16
A2	0.03	0.03	0.18	0.75	4.98	**77.65**	7.43	2.95	0.68	0.41	0.25	0.09	0.14	0.03	0.09		0.03		4.27
A3	0.05	0.09	0.06	0.30	0.93	8.12	**72.32**	6.64	3.85	1.32	0.59	0.23	0.19	0.35	0.06	0.04			4.87
Baa1	0.09	0.02	0.15	0.21	0.15	1.98	7.70	**71.63**	7.38	3.22	1.01	0.45	0.32	0.64	0.11		0.02	0.07	4.86
Baa2		0.11	0.15	0.22	0.10	0.74	3.00	6.65	**72.05**	7.44	1.71	0.42	0.65	0.49	0.34	0.31	0.02	0.07	5.55
Baa3	0.04			0.06	0.21	0.52	0.60	2.73	9.68	**67.05**	6.37	2.60	2.23	0.93	0.11	0.18	0.18	0.46	6.05
Ba1	0.05			0.03	0.20	0.14	0.51	0.80	2.65	8.51	**65.51**	5.08	3.82	1.09	1.18	0.91	0.34	0.72	8.45
Ba2				0.04	0.04	0.23	0.21	0.44	0.77	2.01	8.71	**63.35**	6.67	1.71	3.69	0.91	0.60	0.51	10.11
Ba3		0.03			0.05	0.20	0.14	0.22	0.20	0.59	2.80	5.45	**64.69**	5.61	5.34	2.35	0.79	2.36	9.19
B1	0.02		0.03		0.07	0.13	0.09	0.07	0.33	0.37	0.32	2.18	5.85	**66.28**	5.74	4.07	1.49	3.71	9.24
B2			0.08	0.02	0.14		0.07	0.16	0.11	0.20	0.34	1.13	2.76	5.83	**62.22**	7.28	3.66	6.89	9.13
B3			0.08		0.03	0.05	0.07	0.14	0.15	0.28	0.22	0.44	0.91	4.53	3.77	**59.74**	7.07	12.47	10.04
Caa-C									0.61	0.61	0.80		1.08	1.65	1.53	3.53	**56.95**	22.45	10.79

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