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Corporate Default and Recovery Rates, 1920-2006

Summary

In this report - Moody's 20th annual default study - we update statistics on the default, loss, and rating transition experience of corporate bond and loan issuers for 2006 as well as the historical period since 1920. In summary:

- Thirty Moody's-rated corporate issuers defaulted on a total of \$7.8 billion of bonds and \$2.6 billion of loans in 2006. Including issuers whose ratings were withdrawn prior to January 1, 2006, 33 corporate issuers defaulted on \$7.8 billion of bonds and \$3.1 billion of loans.
- Twenty-six of the year's defaults, totaling \$9.1 billion, were by U.S.-based issuers. The proportion of non-U.S. defaults increased in 2006, as 5 European and 2 Latin-American based issuers defaulted on \$1.6 billion and \$167 million of debt, respectively.
- The troubled automobile parts sector experienced the highest volume of defaults in 2006 with a total of \$2.8 billion of bonds defaulting - more than a third of the total defaulted bond volume for all of 2006. Dana Corporation, together with Dana Credit Corporation, was the year's largest default at approximately \$1.9 billion.
- Moody's global speculative-grade default rate fell to 1.57% in 2006 from 1.80% in 2005, reaching its lowest level since 1981. The default rate for all Moody's-rated corporate issuers fell to 0.54% in 2006 from 0.65% in 2005, its lowest level since 1996.
- Measured as a percentage of dollar volume, Moody's global speculative-grade default rate fell sharply in 2006, to 1.05% from 3.85% in 2005. The volume-weighted default rate for all Moody's-rated issuers fell to 0.21% in 2006 from 0.77% in 2005.
- Moody's global speculative-grade default rate forecasting model predicts that the default rate will nearly double by the end of 2007, rising from 2006's 1.57% to 3.07%; however, the default rate is still expected to be well below its 4.90% long-term average.
- Average recovery rates for defaulted bonds of all priorities in the capital structure increased in 2006. The average recovery rate for senior unsecured bonds rose to 58.3% in 2006 from 55.5% in 2005, remaining substantially above its 38.4% historical average.
- Investors lost just 23 basis points due to defaults on corporate bonds in 2006, down from 29 bps in 2005 and its lowest annual level on record.

Average Cumulative Default Rates, 1920-2006

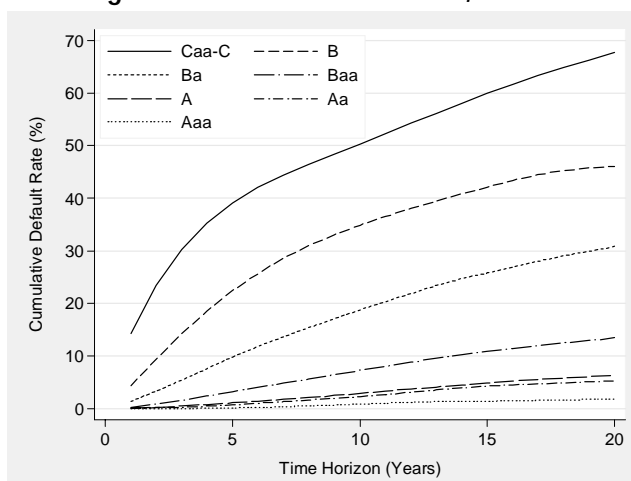


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Introduction

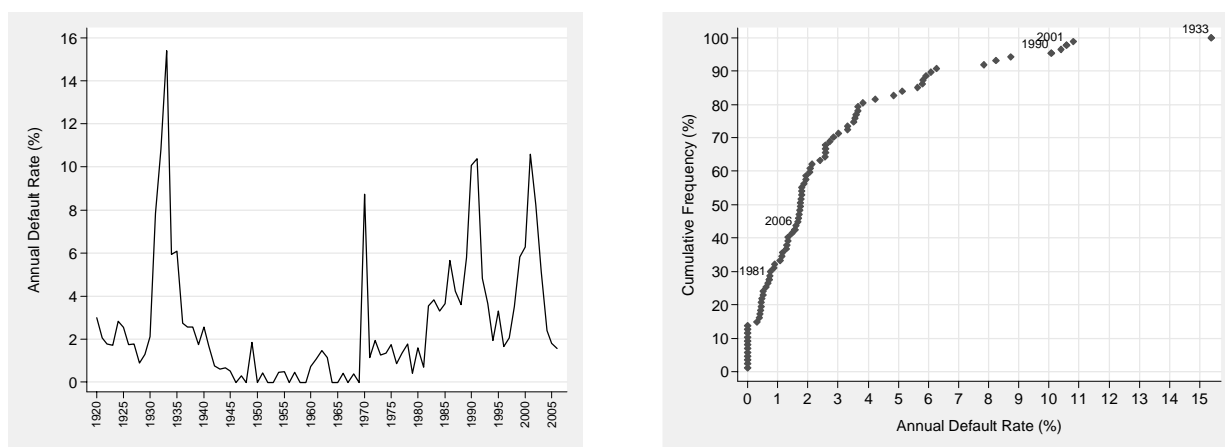
Since 1909 Moody's credit ratings have contributed to the efficient functioning of capital markets by providing independent opinions on the creditworthiness of many types of debt obligations and issuers. One of the primary purposes of Moody's default study is to serve as a report on the historical performance of Moody's ratings as predictors of default and loss severity. In addition to providing useful data for investors and regulators, Moody's default studies contribute to the transparency of the rating process and more importantly, directly address the meaning of Moody's long-term debt ratings scale.

In the following two sections we briefly summarize corporate default activity in 2006 and discuss Moody's forecast for speculative-grade corporate defaults in 2007. The majority of this report, however, is comprised of historical statistics on corporate defaults, ratings transitions, ratings performance metrics, and recovery rates. This year's default study contains a number of revisions to the historical data relative to previous year's reports, which are described in detail in a separate section at the end of the study. Most of the data revisions arise due to our inclusion this year of Moody's-rated corporate loan issuers to the universe of study, which previously consisted only of corporate bond issuers. Finally, this report includes several detailed sections describing the methodologies used to generate the statistics as well as a guide to their reading and interpretation.

Review of 2006 Defaults

The year 2006 was an unexpectedly strong year for the riskiest corporate debt issuers. Relatively low interest rates, tight corporate bond yield spreads, ample liquidity and robust debt issuance helped keep corporate defaults near historic lows in 2006. Moody's global speculative-grade corporate default rate fell from 1.80% in 2005 to 1.57% in 2006, marking the fifth consecutive annual decline and its lowest year-end level in over two decades. Since 1983, Moody's default rate for speculative-grade corporate issuers has averaged 4.90% per year and has run as high as 10.59% and as low as 1.57% annually. Default rates have only been lower prior to the modern era of high-yield finance, as shown in Exhibit 1. The default rate for all Moody's-rated corporate issuers fell to 0.54% in 2006 from 0.65% in 2005, its lowest level since 1996.

Exhibit 1 - Annual Speculative-Grade Default Rates, 1920-2006



Worldwide, a total of 30 Moody's-rated corporate bond issuers defaulted on \$7.8 billion of bonds and \$2.6 billion of loans in 2006 compared with 34 issuers defaulting on a total of \$41 billion of debt (bonds plus loans) in 2005 (see Exhibits 16 and 17). Including issuers whose ratings were withdrawn prior to January 1, 2006, 33 corporate issuers defaulted on \$7.8 billion of bonds and \$3.1 billion of loans. The troubled automobile parts sector experienced the highest volume of defaults in 2006. Rated bond issuers in the automobile parts sector defaulted on a total of \$2.8 billion of bonds - more than a third of the total defaulted bond volume for all of 2006. Dana Corporation, together with Dana Credit Corporation, was the year's largest default at approximately \$1.9 billion. Corporate defaults were concentrated in the U.S. in 2006, with 26 bond issuers defaulting on a total of \$9.1 billion of debt in 2006. Five companies defaulted on \$1.6 billion of bonds and loans in Europe, and two corporate issuers based in South America defaulted on a total of \$0.2 billion of debt (see Exhibit 18).

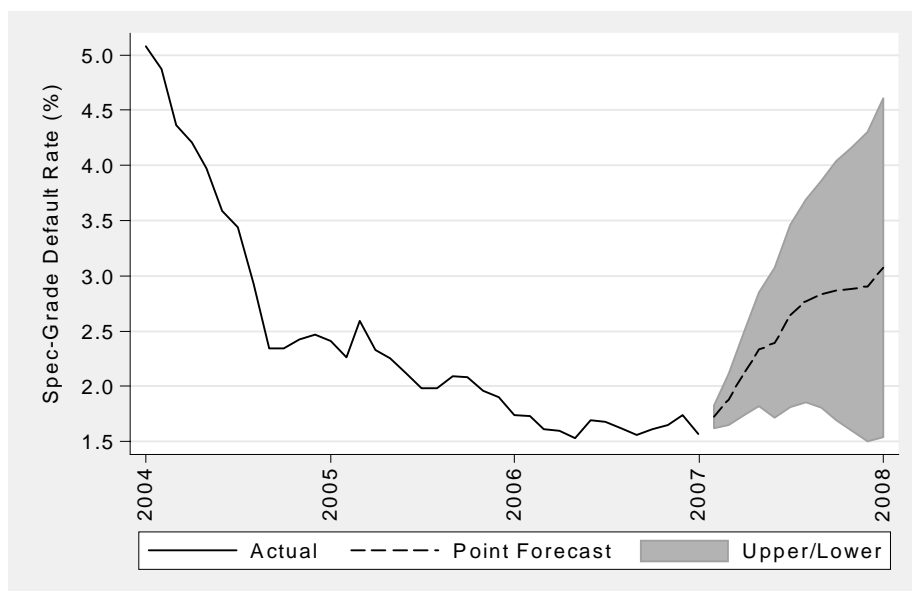
The sharp drop in total defaulted debt volume in 2006 resulted in a pronounced decline in the default rate measured on a dollar volume basis. Moody's dollar-volume based global speculative-grade corporate bond default rate fell sharply from in 2006, to 1.05% from 3.85% in 2005. Much of the drop, however, reflects the fact that several large defaults in the airlines and telecommunications sectors in 2005 passed out of the default rate calculation. The volume-weighted default rate for all Moody's-rated issuers fell to 0.21% in 2006 from 0.77% in 2005.

Default Rate Forecast for 2007

The credit quality pendulum appears set to swing the opposite direction in 2007. Moody's forecasting mode for its global speculative-grade corporate default rate predicts that the pace of defaults will nearly double from 2006's 1.57% to 3.07% by the end of 2007.¹ Exhibit 2 shows Moody's point forecast as well as the expected range low and high default rate outcomes. An average of five corporate issuers is expected to default per month over the course of 2007, compared to an average of 2.5 issuer defaults per month in 2006. Moody's default rate forecasting model is a non-linear regression model that uses Moody's credit ratings and certain macroeconomic variables to predict the default rate 12 months ahead.²

Higher expected default rates are primarily attributable to two factors: the timing and volume of new high yield debt issuance, and the weak initial credit quality of those new issuers. The years 2004 to 2006 have seen the highest proportion of first time issuers with below-B ratings on record. In 2004 alone, 25% of new issuers and about 17% of volume was initially rated below B. These risky cohorts of issuers will be entering a period in 2007 and 2008 when their life-cycle default risk has historically been highest. The well-documented aging effect posits that the risk of default for a corporate issuer peaks in the third and fourth years after issuance. Combined with weak initial credit quality and a market that is unlikely to provide the same abundance of liquidity, corporate defaults appear poised for a rebound.

Exhibit 2 - 2007 Speculative-Grade Default Rate Forecast

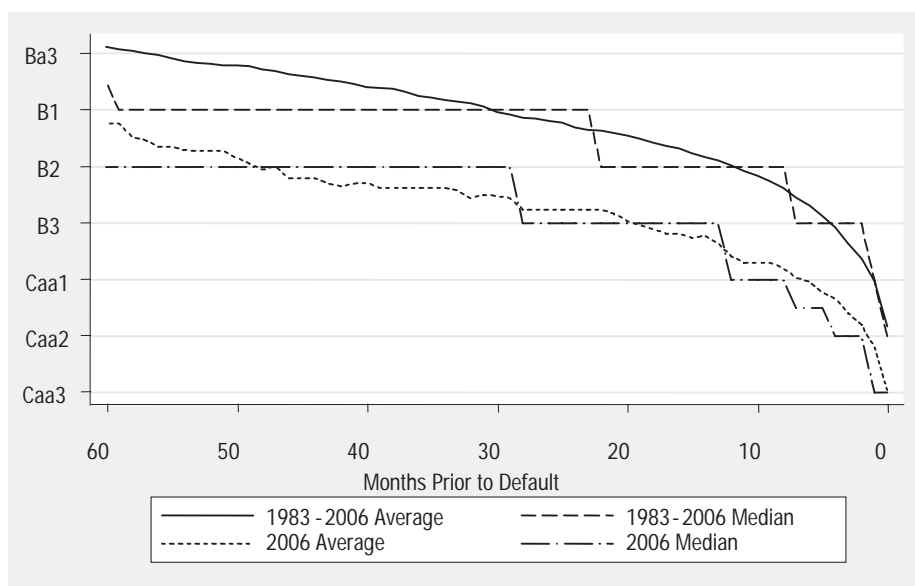


1. Note that Moody's default rate forecast has been revised from that reported in the January Monthly Default Report to reflect the addition of bank loan issuers to the universe of rated issuers. See the "Methodology Changes in this Year's Report" section on p.42 for more details.
 2. Some of the model's primary drivers include changes in the distribution of credit ratings, high-yield debt issuance, and macroeconomic factors. See Keenan, S., Sobe-hart, J., and D. T. Hamilton (1999) "Predicting Default Rates: A Forecasting Model for Moody's Issuer-Based Default Rates," Moody's Global Credit Research, August.

Rating Accuracy Metrics

Moody's ratings have historically proven to be effective predictors of default. One of the simplest measures of rating accuracy is default rates by rating category. Moody's credit ratings have been highly correlated with subsequent default rates over investment horizons as long as 20 years, as the chart on the cover of this report illustrates. A desirable performance objective of a rating system is to identify the weakest credits by assigning the lowest ratings to issuers that ultimately default. Exhibit 3 shows that the median and average ratings of the 1,280 corporate issuers that have defaulted since 1983 have been firmly in speculative grade as far as five years prior to default. Exhibit 3 plots the median and average credit ratings of defaulting issuers from 60 months prior to default up to the default date (time zero).

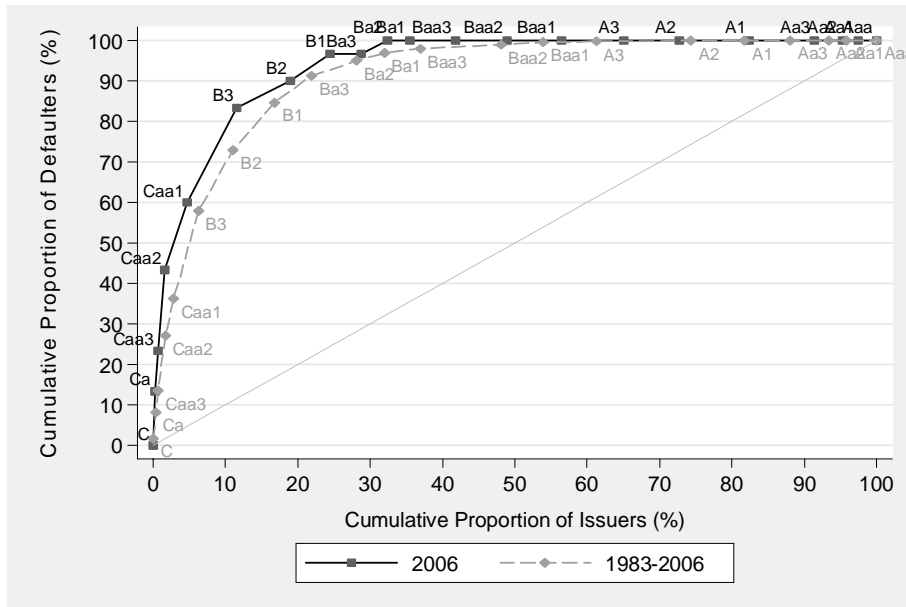
Exhibit 3 - Average and Median Ratings Prior to Default, 1983-2006*



* Moody's introduced alphanumerically modified Caa ratings in 1997. Caa letter ratings are mapped to Caa2 prior to 1997.

In addition to assigning low ratings to issuers that ultimately default, the effectiveness of a rating system also depends on its ability to assign high credit ratings to issuers that do not default. In other words, an efficient rating system is able to separate the low credit risks from the high credit risks. A metric designed to measure this aspect of ratings performance is the cumulative accuracy profile (CAP) plot. Exhibit 4 shows the CAP plots for the 2006 cohort of issuers as well as for the 1983-2006 time period. A rating system that possessed no predictive information about default risk would lie on the 45-degree line; the further the CAP curve bows toward the top left corner, the better it is at identifying defaults in the riskiest rating categories. Exhibit 4 shows that the CAP curve for 2006 lies above that of the 1983-2006 CAP curve over its entire range, indicating better performance relative to the historical average.

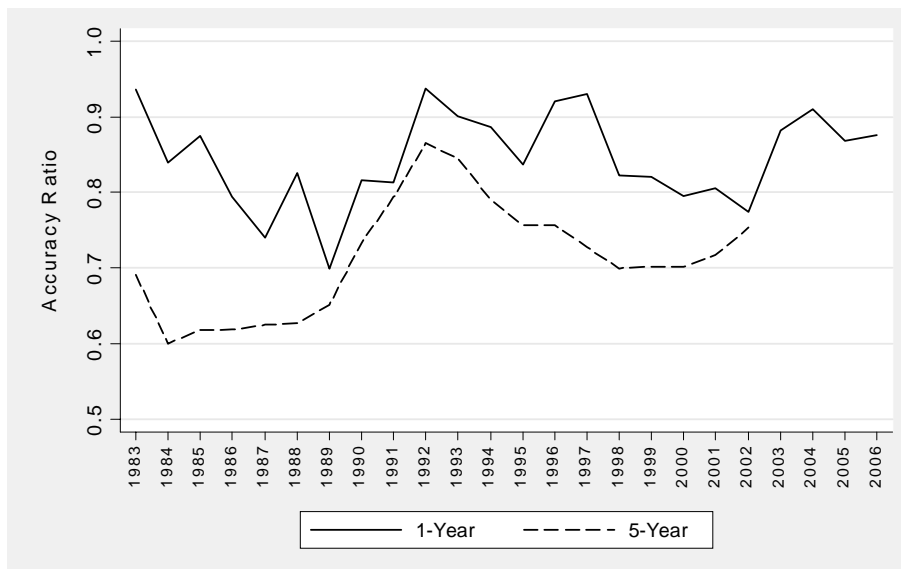
Exhibit 4 - 1-Year Cumulative Accuracy Plots, 2006 vs. 1983-2006 Pooled Average*



* Moody's introduced alphanumerically modified Caa ratings in 1997. Caa letter ratings are mapped to Caa2 prior to 1997.

A useful summary measure of ratings performance is the accuracy ratio (AR). Exhibit 5 shows one- and five-year horizon accuracy ratios for the 1983-2006 time period. The graph suggests that the one-year accuracy ratio is positively correlated with the credit cycle: when defaults are increasing, the accuracy ratio falls. At the five-year horizon this correlation is much less evident. In the short run, the stability objective of Moody's rating system dampens rating changes; at longer time horizons, the stability objective is less of a constraint, and accuracy increases.

Exhibit 5 - 1- and 5-Year Accuracy Ratios by Cohort Year, 1983-2006



* Moody's introduced alphanumerically modified Caa ratings in 1997. Caa letter ratings are mapped to Caa2 prior to 1997.

Recovery in Default and Credit Loss Rates

Bonds of all priorities in the capital structure enjoyed strong recovery rates in 2006. The average senior unsecured bond recovery rate increased to 58.3% in 2006 from 55.5% in 2005. On a value-weighted basis, the average senior unsecured bond recovery rate reached 71.2%, the highest recorded level since 1987. Junior claims enjoyed particularly high recovery rates, as one might expect given the strong economic conditions and high generally high asset values. Subordinated bonds experienced a 56.1% average recovery rate in 2006, far above their 31.6% historical average.

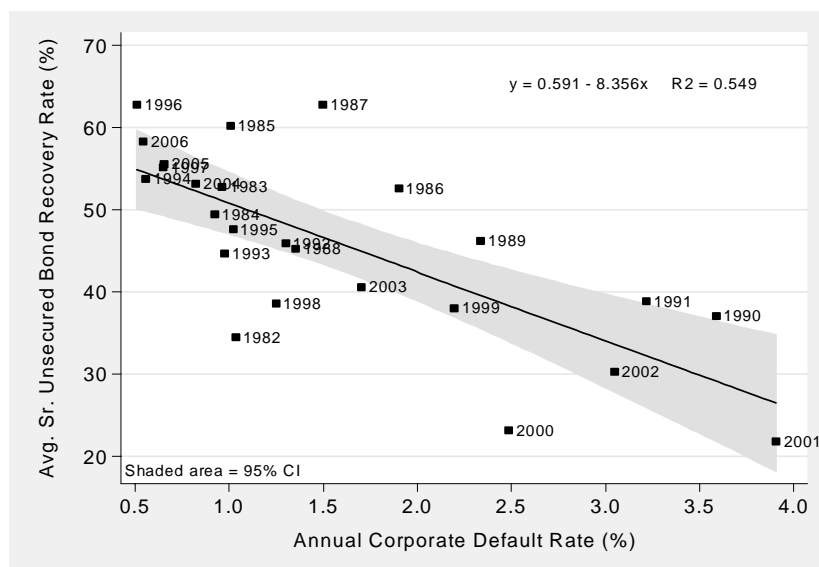
Exhibit 6 - Average Corporate Debt Recovery Rates, 1982-2006*

Issuer-Weighted				Value-Weighted			
Lien Position	2006	2005	1982-2006	Lien Position	2006	2005	1982-2006
Bank Loans				Bank Loans			
Sr. Secured	76.02	82.07	70.41	Sr. Secured	68.38	91.80	64.68
Sr. Unsecured	--	36.67	54.02	Sr. Unsecured	--	36.67	46.00
Bonds				Bonds			
Sr. Secured	74.63	69.21	54.44	Sr. Secured	75.32	78.43	58.70
Sr. Unsecured	58.29	55.51	38.39	Sr. Unsecured	71.15	48.21	37.04
Sr. Subordinated	43.61	30.95	32.85	Sr. Subordinated	39.77	33.62	29.25
Subordinated	56.11	51.25	31.61	Subordinated	61.05	11.90	29.54
Jr. Subordinated	--	--	24.47	Jr. Subordinated	--	--	17.38

* Based on 30-day post-default market prices.

Strong macroeconomic conditions and low default rates helped support the recovery values of defaulted debt at near-historic highs in 2006. As Exhibit 7 shows, there is a strong negative correlation between annual corporate default rates and annual average senior unsecured bond recovery rates. A linear regression of annual average senior unsecured bond recovery rates on annual corporate default rates shows an R-squared value of 0.55. Moody's forecast for higher default rates therefore suggests lower recovery values in the year ahead.

Exhibit 7 - Correlation between Default and Recovery Rates*, 1982-2006



Based on 30-Day post-default market prices.

Moody's credit ratings are opinions on relative expected credit losses upon default. Credit losses are therefore a function of both probability of default as well as the severity of default (LGD). Exhibit 8 presents historical average credit losses since 1982 by letter rating category, and shows that Moody's has consistently rank ordered issuers based on their expected credit loss rates over investment horizons ranging from 1-year to 5-years. In 2006, the average credit loss rate for Moody's rated corporate issuers fell to its lowest rate on record. Investors lost just 0.23% due to defaults on corporate bonds in 2006, down from 0.29% in 2005 (see Exhibit 30).

Exhibit 8 - Average Cumulative Credit Loss Rates by Letter Rating, 1982-2006*					
Rating	Year 1	Year 2	Year 3	Year 4	Year 5
Aaa	0.000	0.000	0.000	0.001	0.034
Aa	0.000	0.008	0.033	0.050	0.106
A	0.012	0.047	0.121	0.197	0.264
Baa	0.107	0.302	0.534	0.870	1.166
Ba	0.744	2.081	3.691	4.960	6.371
B	3.317	7.328	10.829	13.630	15.737
Caa-C	13.216	20.889	25.825	28.622	34.602
Investment Grade	0.038	0.109	0.215	0.342	0.474
Speculative Grade	3.139	6.285	9.005	10.995	12.748
All Rated	1.053	2.071	2.931	3.567	4.123

* Data in percent based on issuer-weighted average default rate and on issuer-weighted average senior unsecured bond recovery rates.

Data Tables and Charts

Exhibit 9 - Moody's-Rated 2006 Corporate Bond and Loan Defaults

Company	Country	Default Date	Bond Volume	Loan Volume ¹	In Jan. 1 Cohort ²
AMTROL Inc.	United States	12/18/2006	\$98	\$61	Yes
Atlantic Mutual Insurance Company	United States	8/15/2006	\$100	\$0	Yes
Autocam Corporation	United States	12/15/2006	\$140	\$0	Yes
Charter Communications Holdings, LLC	United States	9/14/2006	\$791	\$0	Yes
Charter Communications Inc.	United States	9/14/2006	\$450	\$0	Yes
CP Cimento e Participacoes S.A.	Brazil	5/10/2006	\$79	\$0	Yes
Curative Health Services, Inc.	United states	3/27/2006	\$4	\$40	No
Damovo III S.A.	United Kingdom	10/30/2006	\$455	\$0	Yes
Dana Corporation	United States	3/1/2006	\$1,582	\$400	Yes
Dana Credit Corporation	United States	4/10/2006	\$275	\$0	Yes
Delta Mills, Inc.	United States	9/1/2006	\$31	\$0	Yes
Dura Automotive Systems, Inc. ³	United States	10/16/2006	\$934	\$400	Yes
Dura Operating Corp. ³	United States	10/16/2006	\$934	\$400	Yes
GAL Finance S.A.	France	5/18/2006	\$127	\$127	Yes
GFSI, Inc.	United States	1/5/2006	\$135	\$0	Yes
Granite Broadcasting Corporation	United States	6/1/2006	\$405	\$0	Yes
Home Products International, Inc.	United States	11/15/2006	\$116	\$0	Yes
Integrated Electrical Services	United States	2/14/2006	\$223	\$80	Yes
J.L. French Automotive Castings, Inc.	United States	2/10/2006	\$28	\$465	No
Le-Nature's, Inc.	United States	11/1/2006	\$150	\$535	Yes
Luxfer Holdings plc	United Kingdom	11/1/2006	\$244	\$0	Yes
PCA International LLC	United States	5/15/2006	\$225	\$0	Yes
Performance Transportation Services, Inc.	United States	1/25/2006	\$0	\$175	Yes
Pliant Corporation	United States	1/3/2006	\$0	\$125	No
Portrait Corp of America, Inc.	United States	8/31/2006	\$30	\$0	Yes
Premier Entertainment Biloxi LLC	United States	9/19/2006	\$160	\$0	Yes
Radnor Holdings Corporation	United States	8/21/2006	\$135	\$85	Yes
SanCor Cooperativas Unidas Ltda.	Argentina	9/30/2006	\$88	\$0	Yes
Schefenacker AG	Germany	11/2/2006	\$0	\$262	Yes
Sea Containers Ltd.	United Kingdom	10/15/2006	\$386	\$0	Yes
SGI	United States	5/8/2006	\$238	\$100	Yes
Vesta Insurance Group	United States	7/15/2006	\$56	\$0	Yes
Werner Holding Co., Inc.	United States	5/15/2006	\$135	\$240	Yes

¹ Millions USD
² Only issuers included in the January 1 cohort are included in Moody's default rates.
³ The \$934 million bonds and \$400 million loans were issued by Dura Operating Corp. and guaranteed by Dura Automotive Systems.

Exhibit 10 - 2006 Defaulted Corporate Bond and Loan Recoveries

Company	County	Debt Type	Seniority	Interest	Maturity	Face ¹	Recovery ²
Atlantic Mutual Insurance Company	United States	Bond	Sub.	8.150	2/15/2028	\$100.0	\$60.33
Charter Communications Holdings, LLC	United States	Bond	Sr. Unsecured	8.625	4/1/2009	\$104.7	\$92.75
Charter Communications Holdings, LLC	United States	Bond	Sr. Unsecured	9.625	11/15/2009	\$55.2	\$92.00
Charter Communications Holdings, LLC	United States	Bond	Sr. Unsecured	10.000	4/1/2009	\$49.3	\$92.00
Charter Communications Holdings, LLC	United States	Bond	Sr. Unsecured	10.000	5/15/2011	\$65.3	\$79.25
Charter Communications Holdings, LLC	United States	Bond	Sr. Unsecured	10.250	1/15/2010	\$16.6	\$87.50
Charter Communications Holdings, LLC	United States	Bond	Sr. Unsecured	10.750	10/1/2009	\$60.1	\$94.25
Charter Communications Holdings, LLC	United States	Bond	Sr. Unsecured	11.125	1/15/2011	\$164.8	\$85.00
Charter Communications, Inc.	United States	Bond	Sr. Unsecured	5.875	12/15/2009	\$450.0	\$90.13
Damovo III S.A.	United Kingdom	Bond	Sr. Secured	10.250	4/30/2012	\$277.2	\$39.60
Dana Corporation	United States	Loan	Sr. Secured	L+100	3/4/2010	\$400.0	\$100.25
Dana Corporation	United States	Bond	Sr. Unsecured	5.850	1/15/2015	\$450.0	\$75.50
Dana Corporation	United States	Bond	Sr. Unsecured	6.500	3/15/2008	\$150.0	\$79.00
Dana Corporation	United States	Bond	Sr. Unsecured	6.500	3/1/2009	\$350.0	\$78.00
Dana Corporation	United States	Bond	Sr. Unsecured	7.000	3/1/2029	\$268.3	\$75.50
Dana Corporation	United States	Bond	Sr. Unsecured	7.000	3/15/2028	\$165.1	\$75.50
Dana Corporation	United States	Bond	Sr. Unsecured	9.000	8/15/2011	\$115.6	\$76.00
Dana Corporation	United States	Bond	Sr. Unsecured	9.000	8/15/2011	\$8.4	\$75.50
Dana Corporation	United States	Bond	Sr. Unsecured	10.125	3/15/2010	\$74.8	\$78.00
Dana Credit Corporation	United States	Bond	Sr. Unsecured	8.375	8/15/2007	\$275.0	\$99.00
Delta Mills, Inc.	United States	Bond	Sr. Unsecured	9.625	9/1/2007	\$30.9	\$37.00
Dura Operating Corp./Dura Automotive Systems, Inc.	United States	Loan	Sr. Secured	NA	5/3/2011	\$150.0	\$78.67
Dura Operating Corp./Dura Automotive Systems, Inc.	United States	Bond	Sr. Unsecured	8.625	4/15/2012	\$50.0	\$24.50
Dura Operating Corp./Dura Automotive Systems, Inc.	United States	Bond	Sr. Unsecured	8.625	4/15/2012	\$350.0	\$24.50
Dura Operating Corp./Dura Automotive Systems, Inc.	United States	Bond	Sr. Sub.	9.000	5/1/2009	\$409.1	\$5.00
GFSI, Inc.	United States	Bond	Sr. Sub.	9.625	3/1/2007	\$125.0	\$90.00
Global Automotive Logistics S.A.S.	France	Loan	Sr. Secured	NA	8/1/2007	\$50.8	\$87.28
Global Automotive Logistics S.A.S.	France	Loan	Sr. Secured	NA	8/1/2008	\$76.2	\$84.25
Global Automotive Logistics S.A.S.	France	Bond	Sr. Unsecured	11.500	11/30/2009	\$127.1	\$47.75
Granite Broadcasting Corporation	United States	Bond	Sr. Secured	9.750	12/1/2010	\$405.0	\$91.50
Home Products International, Inc.	United States	Bond	Sr. Sub.	9.625	5/15/2008	\$116.1	\$60.00
Integrated Electrical Services	United States	Bond	Sr. Unsecured	6.500	11/1/2014	\$50.0	\$87.73
Integrated Electrical Services	United States	Bond	Sr. Sub.	9.375	2/1/2009	\$110.0	\$118.00
Integrated Electrical Services	United States	Bond	Sr. Sub.	9.375	2/1/2009	\$62.9	\$118.00
J.L. French Automotive Castings	United States	Loan	Sr. Secured	L+450	8/23/2009	\$70.0	\$99.50
J.L. French Automotive Castings	United States	Loan	Sr. Secured	L+450	8/23/2011	\$225.0	\$99.14
J.L. French Automotive Castings	United States	Loan	Sr. Secured (2nd Lien)	L+700	8/23/2012	\$170.0	\$28.80
J.L. French Automotive Castings	United States	Bond	Sr. Sub.	11.500	6/1/2009	\$28.0	\$0.25
Le-Nature's, Inc.	United States	Loan	Sr. Secured	NA	9/1/2010	\$20.0	\$41.88
Le-Nature's, Inc.	United States	Loan	Sr. Secured	NA	3/1/2011	\$190.0	\$42.00
Le-Nature's, Inc.	United States	Loan	Sr. Secured	NA	3/1/2011	\$75.0	\$42.00
Le-Nature's, Inc.	United States	Bond	Sr. Sub.	9.000	6/15/2013	\$150.0	\$13.00
LG Philips Displays Holdings BV	Hong Kong	Loan	Sr. Secured	L+125	6/28/2006	\$1,350.0	\$47.25
Nellson Nutraceutical	United States	Loan	Sr. Secured	L+300	10/4/2009	\$285.0	\$88.44
Nellson Nutraceutical	United States	Loan	Sr. Secured (2nd Lien)	L+550	4/11/2010	\$75.0	\$29.00
Oneida Ltd	United States	Loan	Sr. Secured (PIK)	L+1300	2/9/2008	\$78.2	\$69.50
Oneida Ltd	United States	Loan	Sr. Secured	L+400	2/9/2007	\$30.0	\$99.75
Oneida Ltd	United States	Loan	Sr. Secured	NA	8/9/2007	\$125.0	\$99.75
Performance Transportation Services, Inc.	United States	Loan	Sr. Secured	L+425	12/6/2009	\$15.0	\$100.25
Performance Transportation Services, Inc.	United States	Loan	Sr. Secured	L+425	12/6/2011	\$80.0	\$100.25
Performance Transportation Services, Inc.	United States	Loan	Sr. Secured (2nd Lien)	L+700	6/6/2012	\$35.0	\$51.50
Premier Entertainment Biloxi LLC/Premier Finance Biloxi Corp.	United States	Bond	Sr. Secured	10.750	2/1/2012	\$160.0	\$101.75
Radnor Holdings Corporation	United States	Bond	Sr. Unsecured	11.000	3/15/2010	\$135.0	\$10.35
Riverstone Networks, Inc.	United States	Bond	Sub.	3.750	12/1/2006	\$66.0	\$98.00
Sea Containers, Ltd.	United Kingdom	Bond	Sr. Unsecured	7.875	2/15/2008	\$148.8	\$70.00
Sea Containers, Ltd.	United Kingdom	Bond	Sr. Unsecured	10.500	5/12/2012	\$103.0	\$71.50
Sea Containers, Ltd.	United Kingdom	Bond	Sr. Unsecured	10.750	10/15/2006	\$115.0	\$72.50
Sea Containers, Ltd.	United Kingdom	Bond	Sr. Unsecured	12.500	2/11/2009	\$19.2	\$62.50
SGI	United States	Bond	Sub.	6.125	2/1/2011	\$46.4	\$10.00
SGI	United States	Bond	Sr. Secured	6.500	6/1/2009	\$189.0	\$70.88
SGI	United States	Bond	Sr. Secured	11.750	6/1/2009	\$2.3	\$60.50
Vesta Insurance Group	United States	Bond	Sr. Unsecured	8.750	7/15/2025	\$55.9	\$10.00
Werner Holding Co., Inc.	United States	Loan	Sr. Secured	L+300	6/11/2008	\$50.0	\$98.83
Werner Holding Co., Inc.	United States	Loan	Sr. Secured	NA	12/11/2009	\$100.0	\$95.25
Werner Holding Co., Inc.	United States	Loan	Sr. Secured	NA	2009	\$90.0	\$100.25
Werner Holding Co., Inc.	United States	Bond	Sr. Sub.	10.000	11/15/2007	\$135.0	\$19.00

1. Millions USD

2. Based on 30-day post-default market prices.

Exhibit 11 - 2006 One-Year Letter Rating Migration Rates*

Cohort Rating	End-of-Period Rating									
	Aaa	Aa	A	Baa	Ba	B	Caa	Ca-C	Default	WR
Aaa	95.238	1.361	0.680	0.000	0.000	0.000	0.000	0.000	0.000	2.721
Aa	0.692	92.042	1.153	0.000	0.000	0.000	0.000	0.000	0.000	6.113
A	0.467	2.535	88.859	3.135	0.133	0.000	0.000	0.000	0.000	4.870
Baa	0.083	0.166	5.970	83.997	2.653	0.912	0.166	0.000	0.000	6.053
Ba	0.000	0.157	0.157	8.346	69.291	8.189	0.787	0.000	0.157	12.913
B	0.000	0.000	0.175	0.088	8.509	69.737	6.579	0.175	0.965	13.772
Caa	0.000	0.000	0.000	0.000	0.000	21.176	56.863	1.569	5.490	14.902
Ca-C	0.000	0.000	0.000	0.000	0.000	0.000	27.778	11.111	22.222	38.889

* Percent of issuers

Exhibit 12 - Average One-Year Letter Rating Migration Rates, 1920-2006*

Cohort Rating	End-of-Period Rating									
	Aaa	Aa	A	Baa	Ba	B	Caa	Ca-C	Default	WR
Aaa	87.685	7.377	0.852	0.160	0.022	0.001	0.000	0.000	0.000	3.902
Aa	1.083	85.963	6.455	0.678	0.173	0.037	0.001	0.004	0.060	5.546
A	0.077	2.763	85.778	5.233	0.685	0.110	0.019	0.008	0.072	5.256
Baa	0.042	0.292	4.572	81.769	5.059	0.778	0.152	0.017	0.286	7.033
Ba	0.007	0.085	0.506	5.750	74.711	6.745	0.551	0.050	1.307	10.288
B	0.004	0.056	0.176	0.635	6.242	72.454	4.782	0.513	4.085	11.054
Caa	0.000	0.030	0.037	0.230	0.914	7.904	64.361	3.619	12.467	10.438
Ca-C	0.000	0.000	0.109	0.000	0.445	3.013	7.251	56.742	19.678	12.763

* Percent of issuers, monthly cohort frequency

Exhibit 13 - Average One-Year Letter Rating Migration Rates, 1970-2006*

Cohort Rating	End-of-Period Rating									
	Aaa	Aa	A	Baa	Ba	B	Caa	Ca-C	Default	WR
Aaa	88.824	7.501	0.673	0.000	0.015	0.002	0.000	0.000	0.000	2.985
Aa	0.827	87.842	7.044	0.275	0.059	0.017	0.000	0.000	0.008	3.929
A	0.060	2.545	88.100	4.948	0.509	0.098	0.018	0.003	0.020	3.698
Baa	0.046	0.206	4.932	84.722	4.394	0.799	0.219	0.024	0.177	4.481
Ba	0.009	0.064	0.477	5.672	76.384	7.585	0.529	0.047	1.156	8.077
B	0.008	0.044	0.169	0.372	5.691	74.159	4.699	0.684	4.998	9.176
Caa	0.000	0.037	0.037	0.226	0.697	9.306	58.072	3.939	16.382	11.303
Ca-C	0.000	0.000	0.000	0.000	0.370	2.243	8.927	38.575	30.527	19.357

* Percent of issuers, monthly cohort frequency

Exhibit 14 - 2006 One-Year Alphanumeric Rating Migration Rates*

Cohort Rating	End-of-Period Rating																				WR			
	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca-C		Default		
Aaa	95.238	1.361	0.000	0.000	0.680	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.721	
Aa1	3.906	90.625	1.563	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.906
Aa2	0.455	5.909	85.909	1.364	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.364
Aa3	0.000	1.541	2.312	87.669	1.541	0.193	0.193	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.551
A1	0.179	0.000	0.716	3.936	89.088	2.326	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.757
A2	1.121	0.000	0.224	1.570	5.605	81.166	3.812	0.673	0.448	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.381
A3	0.202	0.607	0.000	0.202	0.810	8.097	75.506	5.870	2.429	0.202	0.405	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.668
Baa1	0.000	0.000	0.000	0.463	0.926	2.083	10.880	69.907	9.722	1.157	0.231	0.231	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.398
Baa2	0.000	0.000	0.000	0.000	0.243	0.485	1.699	11.165	71.117	7.282	0.000	0.485	1.214	0.000	0.000	0.000	0.485	0.000	0.000	0.000	0.000	0.000	0.000	5.825
Baa3	0.276	0.000	0.000	0.000	0.000	0.000	0.552	2.486	9.392	69.613	4.144	1.934	0.276	2.762	0.276	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.287
Ba1	0.000	0.000	0.000	0.000	0.000	0.556	0.000	0.000	2.222	15.556	57.778	7.778	1.667	0.000	0.556	0.000	1.667	0.000	0.000	0.000	0.000	0.000	0.000	12.222
Ba2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.422	3.791	2.844	11.848	53.555	11.374	0.948	1.896	0.474	0.474	0.000	0.000	0.000	0.000	0.474	0.000	10.900
Ba3	0.000	0.000	0.410	0.000	0.000	0.000	0.000	0.000	0.410	1.230	5.328	11.066	47.951	14.754	2.459	0.820	0.410	0.000	0.000	0.000	0.000	0.000	0.000	15.164
B1	0.000	0.000	0.000	0.000	0.000	0.314	0.000	0.000	0.000	0.000	2.830	5.031	15.094	46.855	14.465	2.201	1.887	0.000	0.314	0.000	0.000	0.629	0.000	10.377
B2	0.000	0.000	0.000	0.000	0.233	0.000	0.000	0.000	0.000	0.233	0.000	0.699	3.963	11.655	51.515	12.821	2.331	0.699	0.000	0.233	0.466	0.000	0.000	15.152
B3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.254	0.000	0.763	4.326	10.941	52.672	9.160	4.580	0.254	0.254	1.781	0.000	0.000	15.013
Caa1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.705	5.114	18.750	44.886	7.955	1.705	0.568	2.841	0.000	0.000	16.477
Caa2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.333	6.667	31.667	33.333	0.000	3.333	10.000	0.000	0.000	11.667
Caa3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.789	0.000	15.789	36.842	5.263	15.789	0.000	0.000	10.526
Ca-C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	11.111	16.667	11.111	22.222	0.000	0.000	38.889

* Percent of issuers

Exhibit 15 - Average One-Year Alphanumeric Rating Migration Rates, 1983-2006¹

Cohort Rating	End-of-Period Rating																				WR		
	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca-C		Default	
Aa1	2.404	77.822	7.798	6.327	1.085	0.301	0.089	0.119	0.026	0.007	0.037	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.982
Aa2	0.618	3.403	79.154	7.837	2.784	1.220	0.385	0.097	0.094	0.000	0.017	0.000	0.028	0.019	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.335
Aa3	0.102	0.515	3.857	79.473	8.006	2.474	0.632	0.201	0.144	0.070	0.010	0.029	0.030	0.017	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.017	4.421
A1	0.059	0.092	0.459	5.643	78.438	7.063	2.661	0.556	0.355	0.093	0.198	0.128	0.053	0.050	0.031	0.000	0.000	0.000	0.000	0.000	0.000	0.002	4.118
A2	0.064	0.030	0.274	0.901	5.104	77.741	7.329	2.728	0.877	0.344	0.204	0.092	0.128	0.041	0.045	0.005	0.000	0.029	0.006	0.000	0.000	0.024	4.035
A3	0.065	0.096	0.107	0.211	1.862	7.325	74.078	6.366	3.235	1.130	0.474	0.224	0.206	0.111	0.045	0.027	0.002	0.005	0.007	0.012	0.034	0.034	4.379
Baa1	0.037	0.073	0.124	0.124	0.278	2.108	6.975	72.783	7.425	3.008	0.922	0.470	0.393	0.464	0.070	0.039	0.085	0.037	0.000	0.020	0.151	0.151	4.413
Baa2	0.047	0.092	0.050	0.127	0.222	0.699	3.300	6.104	73.292	6.666	1.698	0.664	0.714	0.550	0.278	0.151	0.163	0.015	0.019	0.013	0.160	0.160	4.976
Baa3	0.050	0.006	0.026	0.044	0.156	0.389	0.652	3.170	8.722	69.920	5.428	2.533	1.348	0.754	0.420	0.215	0.233	0.143	0.163	0.069	0.320	0.320	5.241
Ba1	0.029	0.002	0.026	0.055	0.224	0.207	0.526	0.712	3.097	9.309	63.924	5.141	4.194	1.352	1.114	0.738	0.083	0.198	0.069	0.045	0.716	0.716	8.240
Ba2	0.000	0.000	0.033	0.030	0.033	0.136	0.125	0.419	0.909	3.001	8.799	61.764	7.384	2.563	2.492	1.028	0.248	0.174	0.120	0.054	0.813	0.813	9.876
Ba3	0.000	0.021	0.030	0.005	0.025	0.165	0.170	0.225	0.245	0.609	2.839	6.086	64.043	7.055	4.637	2.173	0.460	0.337	0.076	0.060	1.843	1.843	8.894
B1	0.019	0.013	0.019	0.009	0.047	0.094	0.069	0.088	0.138	0.211	0.628	2.940	6.600	62.512	8.836	3.872	1.068	0.614	0.218	0.348	2.931	2.931	8.728
B2	0.000	0.000	0.011	0.023	0.048	0.013	0.109	0.137	0.086	0.156	0.406	0.677	2.122	7.793	59.982	8.350	2.967	1.728	0.423	0.643	4.580	4.580	9.746
B3	0.000	0.008	0.060	0.000	0.013	0.031	0.079	0.087	0.073	0.118	0.105	0.346	0.708	3.324	6.886	58.356	4.585	3.890	0.963	1.340	9.050	9.050	9.976
Caa1	0.000	0.078	0.000	0.000	0.000	0.062	0.000	0.000	0.000	0.008	0.047	0.109	0.163	1.119	2.735	8.835	50.750	6.084	4.041	3.365	11.485	11.120	11.120
Caa2 ²	0.000	0.000	0.000	0.000	0.000	0.019	0.000	0.019	0.096	0.470	0.221	0.259	0.681	1.065	1.640	4.336	7.252	46.287	3.041	4.240	19.110	11.262	11.262
Caa3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.233	0.000	0.203	0.988	0.756	2.733	3.634	6.105	41.163	5.901	24.680	13.605	13.605
Ca-C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.095	0.000	0.284	0.095	0.284	1.914	1.441	3.190	4.490	38.233	30.340	19.636	19.636

1. Percent of issuers, monthly cohort frequency

2. Moody's introduced alphanumerically modified Caa ratings in 1997. Caa letter ratings are mapped to Caa2 prior to 1997.

Exhibit 16 - Annual Moody's-Rated Global Corporate Issuer Default Counts, 1920-2006*

Cohort	Inv. Grade	Spec. Grade	All Rated	Cohort	Inv. Grade	Spec. Grade	All Rated
1920	8	25	33	1964	0	0	0
1921	7	24	31	1965	0	0	0
1922	10	23	33	1966	0	1	1
1923	5	22	27	1967	0	0	0
1924	3	37	40	1968	0	1	1
1925	7	34	41	1969	0	0	0
1926	4	18	22	1970	2	25	27
1927	1	15	16	1971	0	3	3
1928	0	8	8	1972	0	5	5
1929	3	12	15	1973	2	3	5
1930	2	21	23	1974	0	3	3
1931	6	79	85	1975	0	4	4
1932	9	108	117	1976	0	2	2
1933	9	188	197	1977	1	3	4
1934	5	60	65	1978	0	4	4
1935	9	51	60	1979	0	1	1
1936	3	19	22	1980	0	4	4
1937	4	17	21	1981	0	2	2
1938	9	17	26	1982	2	11	13
1939	2	13	15	1983	0	13	13
1940	2	16	18	1984	1	12	13
1941	0	10	10	1985	0	16	16
1942	0	4	4	1986	4	30	34
1943	0	3	3	1987	0	30	30
1944	0	3	3	1988	0	29	29
1945	0	2	2	1989	4	48	52
1946	0	0	0	1990	0	83	83
1947	0	1	1	1991	1	71	72
1948	0	0	0	1992	0	29	29
1949	0	5	5	1993	0	23	23
1950	0	0	0	1994	0	15	15
1951	0	1	1	1995	0	31	31
1952	0	0	0	1996	0	17	17
1953	0	0	0	1997	0	24	24
1954	0	1	1	1998	1	51	52
1955	0	1	1	1999	1	100	101
1956	0	0	0	2000	4	119	123
1957	0	1	1	2001	4	191	195
1958	0	0	0	2002	17	133	150
1959	0	0	0	2003	0	80	80
1960	0	2	2	2004	0	40	40
1961	0	3	3	2005	2	32	34
1962	0	4	4	2006	0	30	30
1963	0	3	3				

* Includes bond and loan issuers rated as of January 1 of each year.

Exhibit 17 - Annual Rated Global Corporate Bond and Loan Default Volumes, 1970-2006*

Cohort	Investment Grade			Speculative Grade			All Rated		
	Bond	Loan	Total	Bond	Loan	Total	Bond	Loan	Total
1970	\$154.0	\$0.0	\$154.0	\$823.5	\$0.0	\$823.5	\$977.5	\$0.0	\$977.5
1971	\$0.0	\$0.0	\$0.0	\$131.8	\$0.0	\$131.8	\$131.8	\$0.0	\$131.8
1972	\$0.0	\$0.0	\$0.0	\$268.2	\$0.0	\$268.2	\$268.2	\$0.0	\$268.2
1973	\$17.4	\$0.0	\$17.4	\$94.3	\$0.0	\$94.3	\$111.7	\$0.0	\$111.7
1974	\$0.0	\$0.0	\$0.0	\$69.4	\$0.0	\$69.4	\$69.4	\$0.0	\$69.4
1975	\$0.0	\$0.0	\$0.0	\$273.5	\$0.0	\$273.5	\$273.5	\$0.0	\$273.5
1976	\$0.0	\$0.0	\$0.0	\$37.3	\$0.0	\$37.3	\$37.3	\$0.0	\$37.3
1977	\$68.0	\$0.0	\$68.0	\$184.6	\$0.0	\$184.6	\$252.6	\$0.0	\$252.6
1978	\$0.0	\$0.0	\$0.0	\$111.9	\$0.0	\$111.9	\$111.9	\$0.0	\$111.9
1979	\$0.0	\$0.0	\$0.0	\$18.4	\$0.0	\$18.4	\$18.4	\$0.0	\$18.4
1980	\$0.0	\$0.0	\$0.0	\$302.2	\$0.0	\$302.2	\$302.2	\$0.0	\$302.2
1981	\$0.0	\$0.0	\$0.0	\$47.5	\$0.0	\$47.5	\$47.5	\$0.0	\$47.5
1982	\$243.1	\$0.0	\$243.1	\$515.1	\$0.0	\$515.1	\$758.2	\$0.0	\$758.2
1983	\$0.0	\$0.0	\$0.0	\$1,257.0	\$0.0	\$1,257.0	\$1,257.0	\$0.0	\$1,257.0
1984	\$183.3	\$0.0	\$183.3	\$398.8	\$0.0	\$398.8	\$582.1	\$0.0	\$582.1
1985	\$0.0	\$0.0	\$0.0	\$1,704.8	\$0.0	\$1,704.8	\$1,704.8	\$0.0	\$1,704.8
1986	\$178.2	\$0.0	\$178.2	\$3,759.3	\$0.0	\$3,759.3	\$3,937.4	\$0.0	\$3,937.4
1987	\$0.0	\$0.0	\$0.0	\$9,131.7	\$241.5	\$9,373.2	\$9,131.7	\$241.5	\$9,373.2
1988	\$0.0	\$0.0	\$0.0	\$5,642.0	\$361.0	\$6,003.0	\$5,642.0	\$361.0	\$6,003.0
1989	\$1,505.9	\$0.0	\$1,505.9	\$10,336.0	\$0.0	\$10,336.0	\$11,842.0	\$0.0	\$11,842.0
1990	\$0.0	\$0.0	\$0.0	\$20,490.5	\$1,602.8	\$22,093.3	\$20,490.5	\$1,602.8	\$22,093.3
1991	\$1,348.0	\$0.0	\$1,348.0	\$15,812.8	\$349.6	\$16,162.4	\$17,160.8	\$349.6	\$17,510.4
1992	\$0.0	\$0.0	\$0.0	\$6,340.2	\$698.1	\$7,038.3	\$6,340.2	\$698.1	\$7,038.3
1993	\$0.0	\$0.0	\$0.0	\$2,633.9	\$423.8	\$3,057.7	\$2,633.9	\$423.8	\$3,057.7
1994	\$0.0	\$0.0	\$0.0	\$2,657.1	\$299.4	\$2,956.5	\$2,657.1	\$299.4	\$2,956.5
1995	\$0.0	\$0.0	\$0.0	\$6,774.5	\$337.3	\$7,111.8	\$6,774.5	\$337.3	\$7,111.8
1996	\$0.0	\$0.0	\$0.0	\$4,100.5	\$1,435.0	\$5,535.5	\$4,100.5	\$1,435.0	\$5,535.5
1997	\$0.0	\$0.0	\$0.0	\$5,128.7	\$948.0	\$6,076.7	\$5,128.7	\$948.0	\$6,076.7
1998	\$399.0	\$0.0	\$399.0	\$10,499.7	\$1,811.1	\$12,310.8	\$10,898.7	\$1,811.1	\$12,709.8
1999	\$460.9	\$1,225.0	\$1,685.9	\$27,897.3	\$12,229.6	\$40,126.9	\$28,358.3	\$13,454.6	\$41,812.8
2000	\$4,115.5	\$3,950.0	\$8,065.5	\$26,481.1	\$22,269.3	\$48,750.4	\$30,596.5	\$26,219.3	\$56,815.8
2001	\$22,350.8	\$5,363.0	\$27,713.8	\$81,217.0	\$31,206.3	\$112,423.3	\$103,567.8	\$36,569.3	\$140,137.1
2002	\$55,680.0	\$13,121.9	\$68,801.9	\$110,323.6	\$32,904.1	\$143,227.8	\$166,003.7	\$46,026.0	\$212,029.7
2003	\$0.0	\$0.0	\$0.0	\$34,976.3	\$9,691.4	\$44,667.7	\$34,976.3	\$9,691.4	\$44,667.7
2004	\$0.0	\$0.0	\$0.0	\$14,790.4	\$3,826.8	\$18,617.2	\$14,790.4	\$3,826.8	\$18,617.2
2005	\$2,155.0	\$2,825.0	\$4,980.0	\$27,232.4	\$8,744.6	\$35,977.0	\$29,387.4	\$11,569.6	\$40,957.0
2006	\$0.0	\$0.0	\$0.0	\$7,788.5	\$2,629.6	\$10,418.1	\$7,788.5	\$2,629.6	\$10,418.1

* Millions USD; includes bond and loan issuers rated as of January 1 of each year.

Exhibit 18 - Annual Issuer Default Counts and Volume Totals by Geographical Region, 1982-2006*

Issuer Counts						Dollar Volumes					
Year	Africa & Middle East	Asia-Pacific	Europe	Latin America	North America	Year	Africa & Middle East	Asia-Pacific	Europe	Latin America	North America
1986	0	0	0	0	34	1986	\$0	\$0	\$0	\$0	\$3,937
1987	0	0	0	0	30	1987	\$0	\$0	\$0	\$0	\$9,373
1988	0	0	0	0	29	1988	\$0	\$0	\$0	\$0	\$6,003
1989	0	4	0	0	48	1989	\$0	\$1,144	\$0	\$0	\$10,698
1990	0	1	0	0	82	1990	\$0	\$200	\$0	\$0	\$21,893
1991	0	0	1	0	71	1991	\$0	\$0	\$999	\$0	\$16,512
1992	0	0	0	0	29	1992	\$0	\$0	\$0	\$0	\$7,038
1993	0	0	0	0	23	1993	\$0	\$0	\$0	\$0	\$3,058
1994	0	0	1	0	14	1994	\$0	\$0	\$774	\$0	\$2,182
1995	0	0	0	1	30	1995	\$0	\$0	\$0	\$10	\$7,101
1996	0	0	0	1	16	1996	\$0	\$0	\$0	\$207	\$5,328
1997	0	2	0	2	20	1997	\$0	\$614	\$0	\$310	\$5,153
1998	0	7	0	0	45	1998	\$0	\$1,929	\$0	\$0	\$10,781
1999	0	9	8	6	78	1999	\$0	\$3,810	\$3,587	\$1,718	\$32,698
2000	0	5	3	3	112	2000	\$0	\$1,006	\$713	\$388	\$54,709
2001	4	15	17	7	152	2001	\$2,758	\$7,832	\$10,635	\$2,275	\$116,637
2002	0	3	29	16	102	2002	\$0	\$1,112	\$48,920	\$10,962	\$151,036
2003	0	2	8	10	60	2003	\$0	\$374	\$3,773	\$3,238	\$37,282
2004	1	1	3	0	35	2004	\$183	\$1,000	\$1,873	\$366	\$15,196
2005	0	0	2	1	31	2005	\$0	\$0	\$377	\$100	\$40,480
2006	0	0	5	2	23	2006	\$0	\$0	\$1,601	\$167	\$8,650

* Includes bond and loan issuers rated as of January 1 of each year.

Exhibit 19 - Annual Average Defaulted Bond and Loan Recovery Rates, 1982-2006*

Lien Position							
Year	Secured Bank Loans	Sr. Secured Bonds	Sr. Unsecured Bonds	Sr. Subordinated Bonds	Subordinated Bonds	Jr. Sub. Bonds	All Bonds
1982	NA	72.50	34.44	48.09	32.30	NA	35.59
1983	NA	40.00	52.72	43.50	41.38	NA	44.81
1984	NA	NA	49.41	67.88	44.26	NA	46.25
1985	NA	83.63	60.16	30.88	42.70	48.50	44.19
1986	NA	59.22	52.60	50.16	43.73	NA	47.87
1987	NA	71.00	62.73	49.58	46.21	NA	52.94
1988	NA	55.26	45.24	33.35	33.77	36.50	38.48
1989	NA	46.54	46.15	34.57	26.36	16.85	32.33
1990	76.14	35.66	37.01	26.75	20.50	10.70	26.06
1991	70.63	49.45	38.85	43.44	25.32	7.79	35.06
1992	50.00	62.69	45.89	47.89	37.81	13.50	44.19
1993	47.25	NA	44.67	51.91	43.65	NA	46.03
1994	61.00	69.25	53.73	29.61	33.70	NA	44.13
1995	82.80	63.64	47.60	34.30	39.39	NA	44.54
1996	89.13	47.58	62.75	42.75	24.33	NA	41.53
1997	83.13	76.00	55.09	44.73	41.34	30.58	51.07
1998	59.33	53.74	38.59	42.74	13.33	62.00	38.67
1999	68.34	43.30	38.03	29.10	35.54	NA	35.89
2000	71.57	41.69	23.19	20.25	32.94	15.50	25.50
2001	66.99	41.70	21.83	20.91	15.94	47.00	23.81
2002	55.81	46.89	30.31	25.28	24.51	NA	31.22
2003	77.93	63.46	40.53	38.85	12.31	NA	41.55
2004	86.13	78.72	53.16	47.54	82.92	NA	59.85
2005	82.07	69.21	55.51	30.95	51.25	NA	55.76
2006	76.02	74.63	58.29	43.61	56.11	NA	57.97

* Issuer-weighted, based on 30-day post-default market prices.

Exhibit 20 - Average Sr. Unsecured Bond Recovery Rates by Year Prior to Default, 1982-2006*

	Years Prior to Default				
	1	2	3	4	5
Aaa	--	--	--	97.0	74.1
Aa	95.4	62.1	30.8	55.3	41.6
A	46.4	54.9	50.3	47.7	48.4
Baa	48.1	46.4	47.3	43.8	43.9
Ba	42.1	40.8	40.6	44.7	44.2
B	36.9	35.9	37.4	39.2	42.3
Caa-C	31.8	31.2	34.9	39.2	34.7
Investment Grade	48.9	49.8	47.9	46.6	45.5
Speculative Grade	35.8	35.6	37.5	40.5	42.3
All Rated	36.9	37.5	39.5	42.0	43.2

* Issuer-weighted, based on 30-day post-default market prices.

Exhibit 21 - Annual Issuer-Weighted Corporate Default Rates by Letter Rating, 1920-2006*

Cohort	Aaa	Aa	A	Baa	Ba	B	Caa-C	Inv.Grade	Spec.Grade	All Rated	Cohort	Aaa	Aa	A	Baa	Ba	B	Caa-C	Inv.Grade	Spec.Grade	All Rated
1920	0.000	0.000	0.334	0.962	2.157	4.368		0.439	3.010	1.244	1964	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1921	0.000	0.185	0.340	0.639	0.447	2.693	12.270	0.380	2.066	1.031	1965	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1922	0.000	0.189	0.170	1.108	1.077	1.733	7.692	0.515	1.776	1.019	1966	0.000	0.000	0.000	0.000	0.000	2.222	0.000	0.000	0.415	0.119
1923	0.000	0.000	0.000	0.614	0.910	2.320	5.952	0.242	1.713	0.805	1967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1924	0.000	0.371	0.000	0.118	2.041	2.788	12.414	0.138	2.846	1.152	1968	0.000	0.000	0.000	0.000	0.000	0.000	5.405	0.000	0.385	0.107
1925	0.000	0.000	0.147	0.709	1.714	2.545	14.634	0.325	2.557	1.176	1969	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1926	0.000	0.463	0.177	0.142	1.395	2.050	5.195	0.225	1.756	0.784	1970	0.000	0.000	0.000	0.544	4.246	19.718	53.333	0.271	8.741	2.638
1927	0.000	0.000	0.222	0.000	1.269	1.869	13.043	0.073	1.781	0.725	1971	0.000	0.000	0.000	0.000	0.866	0.000	14.286	0.000	1.143	0.285
1928	0.000	0.000	0.000	0.000	0.183	1.252	11.111	0.000	0.897	0.373	1972	0.000	0.000	0.000	0.000	0.000	7.407	40.000	0.000	1.942	0.455
1929	0.000	0.300	0.000	0.433	0.752	0.877	9.434	0.239	1.294	0.687	1973	0.000	0.000	0.000	0.457	0.000	3.922	44.444	0.231	1.282	0.454
1930	0.000	0.000	0.000	0.419	0.922	2.902	7.813	0.158	2.131	1.021	1974	0.000	0.000	0.000	0.000	0.000	10.345	0.000	0.000	1.342	0.275
1931	0.000	0.000	0.281	1.035	2.959	9.220	32.468	0.488	7.845	3.801	1975	0.000	0.000	0.000	0.000	1.026	6.154	0.000	0.000	1.743	0.360
1932	0.000	0.670	0.871	0.892	5.973	13.785	23.392	0.775	10.811	5.417	1976	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.871	0.175
1933	0.000	0.000	0.265	1.800	11.111	15.916	25.668	0.801	15.391	8.403	1977	0.000	0.000	0.000	0.285	0.522	3.390	50.000	0.109	1.345	0.351
1934	0.000	0.599	0.347	0.811	2.632	4.309	16.040	0.573	5.929	3.449	1978	0.000	0.000	0.000	0.000	1.084	5.556	0.000	0.000	1.790	0.352
1935	0.000	0.000	1.333	1.887	4.826	4.173	13.072	1.241	6.090	3.840	1979	0.000	0.000	0.000	0.000	0.490	0.000	0.000	0.000	0.418	0.087
1936	0.000	0.784	0.505	0.341	1.225	2.358	7.930	0.460	2.736	1.634	1980	0.000	0.000	0.000	0.000	0.000	4.938	33.333	0.000	1.613	0.343
1937	0.000	0.000	0.539	1.093	0.649	2.697	9.040	0.653	2.591	1.656	1981	0.000	0.000	0.000	0.000	0.000	4.598	0.000	0.000	0.703	0.163
1938	0.000	0.833	1.700	1.972	0.976	1.468	12.739	1.554	2.582	2.101	1982	0.000	0.000	0.254	0.317	2.740	2.410	25.000	0.211	3.560	1.034
1939	0.000	0.000	0.000	0.946	0.588	1.875	5.714	0.397	1.739	1.199	1983	0.000	0.000	0.000	0.000	0.911	6.306	40.000	0.000	3.818	0.962
1940	0.000	0.000	0.000	1.316	0.410	1.097	11.823	0.559	2.585	1.843	1984	0.000	0.000	0.000	0.368	0.833	6.723	100.000	0.095	3.324	0.922
1941	0.000	0.000	0.000	0.000	0.932	0.766	5.063	0.000	1.684	1.072	1985	0.000	0.000	0.000	0.000	1.404	8.219	0.000	0.000	3.670	1.007
1942	0.000	0.000	0.000	0.000	0.000	0.818	1.980	0.000	0.743	0.460	1986	0.000	0.000	0.000	1.361	2.035	11.732	23.529	0.318	5.644	1.901
1943	0.000	0.000	0.000	0.000	0.000	1.345	0.000	0.000	0.609	0.367	1987	0.000	0.000	0.000	0.000	2.718	6.226	20.000	0.000	4.234	1.499
1944	0.000	0.000	0.000	0.000	0.000	0.512	2.532	0.000	0.670	0.394	1988	0.000	0.000	0.000	0.000	1.247	6.359	28.571	0.000	3.598	1.355
1945	0.000	0.000	0.000	0.000	0.000	0.000	3.226	0.000	0.517	0.289	1989	0.000	0.600	0.000	0.598	2.982	8.947	25.000	0.286	5.797	2.336
1946	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1990	0.000	0.000	0.000	0.000	3.344	16.201	58.824	0.000	10.079	3.587
1947	0.000	0.000	0.000	0.000	0.000	0.000	2.439	0.000	0.310	0.155	1991	0.000	0.000	0.000	0.271	5.352	14.563	36.842	0.064	10.395	3.216
1948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1992	0.000	0.000	0.000	0.000	0.299	9.110	26.667	0.000	4.841	1.300
1949	0.000	0.000	0.000	0.000	1.342	1.111	7.407	0.000	1.880	0.826	1993	0.000	0.000	0.000	0.000	0.548	6.224	28.571	0.000	3.668	0.977
1950	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1994	0.000	0.000	0.000	0.000	0.236	3.871	5.128	0.000	1.943	0.558
1951	0.000	0.000	0.000	0.000	0.000	0.000	4.651	0.000	0.450	0.179	1995	0.000	0.000	0.000	0.000	0.688	4.778	12.389	0.000	3.326	1.021
1952	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1996	0.000	0.000	0.000	0.000	0.000	1.442	14.184	0.000	1.673	0.511
1953	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1997	0.000	0.000	0.000	0.000	0.190	2.133	14.865	0.000	2.064	0.650
1954	0.000	0.000	0.000	0.000	0.000	0.000	7.143	0.000	0.473	0.164	1998	0.000	0.000	0.000	0.117	0.781	4.261	15.238	0.037	3.518	1.249
1955	0.000	0.000	0.000	0.000	0.000	1.504	0.000	0.000	0.505	0.163	1999	0.000	0.000	0.000	0.103	1.153	6.131	20.438	0.035	5.831	2.197
1956	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2000	0.000	0.000	0.000	0.379	0.870	5.687	20.149	0.131	6.271	2.487
1957	0.000	0.000	0.000	0.000	0.000	1.290	0.000	0.000	0.457	0.144	2001	0.000	0.000	0.155	0.188	1.527	9.426	34.263	0.126	10.594	3.907
1958	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2002	0.000	0.000	0.156	1.283	1.488	5.200	29.422	0.513	8.253	3.047
1959	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2003	0.000	0.000	0.000	0.000	0.905	2.460	21.284	0.000	5.133	1.704
1960	0.000	0.000	0.000	0.000	1.231	0.000	0.000	0.000	0.739	0.243	2004	0.000	0.000	0.000	0.000	0.356	0.817	12.836	0.000	2.408	0.821
1961	0.000	0.000	0.000	0.000	0.581	0.000	8.696	0.000	1.073	0.353	2005	0.000	0.000	0.000	0.170	0.000	0.977	7.904	0.059	1.797	0.654
1962	0.000	0.000	0.000	0.000	1.700	1.379	0.000	0.000	1.468	0.463	2006	0.000	0.000	0.000	0.000	0.168	1.036	7.186	0.000	1.574	0.543
1963	0.000	0.000	0.000	0.000	1.153	1.587	0.000	0.000	1.161	0.351											
											Mean	0.000	0.057	0.090	0.272	1.071	3.587	13.601	0.146	2.685	1.087
											Median	0.000	0.000	0.000	0.000	0.649	2.133	7.917	0.000	1.756	0.654
											StDev	NA	0.177	0.264	0.477	1.649	4.246	16.893	0.277	2.992	1.365
											Min	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
											Max	0.000	0.833	1.700	1.972	11.111	19.718	100.000	1.554	15.391	8.403

* Includes bond and loan issuers rated as of January 1 of each year.

Exhibit 22 - Annual Issuer-Weighted Corporate Default Rates by Alphanumeric Rating, 1983-2006¹

Cohort	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2 ²	Caa3	Ca-C	Inv.Grade	Spec.Grade	All Rated
1983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.614	0.000	10.000	17.910	--	50.000	--	0.000	0.000	3.818	0.962
1984	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.075	1.156	1.613	0.000	5.839	18.750	2.899	--	0.000	--	100.000	0.095	3.324	0.922
1985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.626	2.830	4.380	7.692	13.592	--	0.000	--	0.000	0.000	3.670	1.007
1986	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.878	0.870	1.198	3.436	7.609	16.667	15.789	--	28.571	--	0.000	0.318	5.644	1.901
1987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.731	0.952	2.963	4.930	4.301	10.219	--	22.222	--	0.000	0.000	4.234	1.499
1988	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.575	4.313	7.143	10.959	--	23.529	--	50.000	0.000	3.598	1.355
1989	0.000	0.000	0.000	1.342	0.000	0.000	0.000	0.000	0.820	1.053	0.794	1.818	4.711	5.755	9.790	18.045	--	27.273	--	0.000	0.286	5.797	2.336
1990	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.667	2.817	3.922	8.521	22.642	29.114	--	53.846	--	75.000	0.000	10.079	3.587
1991	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.730	0.000	0.000	1.064	0.000	10.141	5.818	13.072	28.421	--	34.483	--	44.444	0.064	10.395	3.216
1992	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.727	1.000	1.639	24.845	--	27.778	--	22.222	0.000	4.841	1.300
1993	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.820	0.000	0.741	4.149	5.128	11.290	--	24.242	--	44.444	0.000	3.668	0.977
1994	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.587	1.929	3.704	8.163	--	6.780	--	0.000	0.000	1.943	0.558
1995	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.780	3.947	7.273	3.941	--	7.692	--	22.857	0.000	3.326	1.021
1996	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.193	0.000	3.361	--	14.679	--	12.500	0.000	1.673	0.511
1997	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.474	0.000	1.521	7.435	--	12.371	--	19.608	0.000	2.064	0.650
1998	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.307	0.000	0.000	1.231	1.121	2.130	7.447	5.694	6.742	19.753	26.667	20.000	0.037	3.518	1.249
1999	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.345	0.485	0.543	1.974	3.352	6.960	10.298	14.085	26.263	13.115	52.632	0.035	5.831	2.197
2000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.288	0.000	0.977	0.950	0.613	0.995	3.631	3.846	11.765	11.388	31.250	20.339	38.889	0.131	6.271	2.487
2001	0.000	0.000	0.000	0.000	0.000	0.412	0.000	0.274	0.262	0.000	0.533	1.262	2.809	3.495	10.050	17.304	28.253	38.710	43.750	44.444	0.126	10.594	3.907
2002	0.000	0.000	0.000	0.000	0.000	0.000	0.426	1.238	0.942	1.762	1.657	1.290	1.489	1.812	6.240	8.333	15.319	32.479	32.500	48.921	0.513	8.253	3.047
2003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.548	0.694	1.327	0.709	2.322	5.291	9.569	21.875	31.111	33.898	0.000	5.133	1.704
2004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.649	0.422	0.000	0.582	2.288	8.907	8.475	18.519	31.250	0.000	2.408	0.821
2005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.237	0.294	0.000	0.000	0.000	0.000	0.833	2.102	3.762	8.696	23.529	22.222	0.059	1.797	0.654
2006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.501	0.000	0.663	0.504	1.926	3.096	10.619	16.667	27.586	0.000	1.574	0.543
Mean	0.000	0.000	0.000	0.056	0.000	0.017	0.018	0.105	0.107	0.433	0.636	0.700	1.985	3.132	7.004	11.291	11.236	22.149	25.133	29.622	0.069	4.727	1.601
Median	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.243	0.578	1.408	3.423	6.600	10.259	9.569	22.876	23.529	25.222	0.000	3.744	1.275
StDev	NA	NA	NA	NA	NA	NA	NA	0.292	0.256	1.060	0.940	0.770	2.196	2.489	5.982	8.048	7.623	14.147	9.516	25.542	0.129	2.730	1.017
Min	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.926	3.096	0.000	13.115	0.000	0.000	1.574	0.511
Max	0.000	0.000	0.000	1.342	0.000	0.412	0.426	1.238	0.942	4.878	3.731	2.817	10.141	8.521	22.642	29.114	28.253	53.846	43.750	100.000	0.513	10.594	3.907

1. Includes bond and loan issuers rated as of January 1 of each year.

2. Moody's introduced alphanumerically modified Caa ratings in 1997. Caa letter ratings are mapped to Caa2 prior to 1997.

Exhibit 23 - Average Cumulative Issuer-Weighted Global Default Rates, 1920-2006*

Rating	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Aaa	0.000	0.000	0.019	0.077	0.163	0.255	0.370	0.529	0.702	0.894
Aa	0.062	0.184	0.290	0.447	0.718	1.024	1.344	1.651	1.971	2.311
A	0.074	0.242	0.509	0.810	1.132	1.456	1.796	2.122	2.508	2.896
Baa	0.296	0.884	1.609	2.397	3.262	4.061	4.849	5.630	6.486	7.286
Ba	1.378	3.318	5.465	7.638	9.833	11.816	13.637	15.409	17.104	18.792
B	4.324	9.332	14.231	18.528	22.451	25.693	28.578	30.969	33.109	34.862
Caa-C	14.335	23.414	30.281	35.274	39.14	42.107	44.368	46.379	48.395	50.249
Investment-Grade	0.147	0.443	0.822	1.246	1.727	2.192	2.663	3.123	3.634	4.132
Speculative-Grade	3.741	7.539	11.149	14.337	17.269	19.741	21.921	23.877	25.703	27.393
All Rated	1.442	2.954	4.409	5.713	6.938	7.982	8.922	9.777	10.620	11.407

Rating	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	1.065	1.203	1.353	1.401	1.442	1.522	1.606	1.673	1.761	1.817
Aa	2.693	3.105	3.550	3.972	4.285	4.521	4.719	4.919	5.133	5.303
A	3.332	3.749	4.139	4.483	4.905	5.275	5.574	5.843	6.120	6.387
Baa	8.047	8.814	9.589	10.267	10.866	11.472	12.035	12.522	12.968	13.445
Ba	20.34	21.861	23.419	24.705	25.808	26.868	28.014	29.046	29.934	30.811
B	36.519	38.066	39.494	40.817	42.109	43.392	44.462	45.238	45.787	46.089
Caa-C	52.221	54.253	56.147	58.079	59.988	61.678	63.294	64.833	66.288	67.712
Investment-Grade	4.642	5.150	5.659	6.104	6.530	6.924	7.270	7.578	7.882	8.180
Speculative-Grade	28.978	30.521	32.043	33.371	34.577	35.737	36.892	37.899	38.754	39.542
All Rated	12.17	12.914	13.649	14.286	14.877	15.431	15.945	16.397	16.812	17.208

* Includes bond and loan issuers rated as of January 1 of each year.

Exhibit 24 - Average Cumulative Issuer-Weighted Global Default Rates, 1970-2006*

Rating	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Aaa	0.000	0.000	0.000	0.026	0.099	0.172	0.251	0.335	0.424	0.521
Aa	0.008	0.019	0.042	0.106	0.177	0.260	0.343	0.416	0.464	0.522
A	0.021	0.095	0.220	0.344	0.472	0.614	0.759	0.925	1.105	1.287
Baa	0.181	0.506	0.930	1.434	1.938	2.451	2.959	3.451	4.016	4.637
Ba	1.205	3.219	5.568	7.958	10.215	12.238	14.005	15.707	17.391	19.118
B	5.236	11.296	17.043	22.054	26.794	30.981	34.771	37.984	40.924	43.343
Caa-C	19.476	30.494	39.717	46.904	52.622	56.809	59.938	63.267	66.279	69.178
Investment-Grade	0.069	0.205	0.396	0.620	0.848	1.085	1.321	1.557	1.814	2.088
Speculative-Grade	4.565	9.068	13.303	16.981	20.289	23.101	25.504	27.609	29.564	31.368
All Rated	1.482	2.934	4.275	5.420	6.414	7.250	7.958	8.575	9.154	9.700

Rating	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	0.625	0.737	0.854	0.92	0.992	1.072	1.159	1.191	1.191	1.191
Aa	0.590	0.702	0.857	1.003	1.111	1.242	1.401	1.551	1.736	1.929
A	1.490	1.681	1.885	2.078	2.364	2.704	3.094	3.475	3.861	4.238
Baa	5.288	5.998	6.747	7.518	8.244	8.933	9.614	10.272	10.826	11.362
Ba	20.98	22.918	24.862	26.698	28.380	30.078	31.648	32.866	34.062	35.093
B	45.359	47.231	48.852	50.566	52.175	53.436	53.953	54.421	54.421	54.421
Caa-C	70.870	70.870	70.870	70.870	70.870	70.870	70.870	70.870	70.870	70.870
Investment-Grade	2.382	2.695	3.034	3.366	3.718	4.087	4.481	4.859	5.215	5.564
Speculative-Grade	33.128	34.873	36.561	38.182	39.667	41.104	42.334	43.299	44.182	44.950
All Rated	10.240	10.783	11.329	11.851	12.362	12.875	13.377	13.826	14.244	14.641

* Includes bond and loan issuers rated as of January 1 of each year.

Exhibit 25 - Average Cumulative Issuer-Weighted Global Default Rates by Letter Rating, 1983-2006*

Rating	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Aaa	0.000	0.000	0.000	0.035	0.078	0.129	0.185	0.190	0.190	0.190
Aa	0.009	0.021	0.048	0.115	0.183	0.229	0.263	0.290	0.314	0.366
A	0.020	0.103	0.245	0.376	0.506	0.640	0.762	0.892	1.011	1.094
Baa	0.208	0.569	1.004	1.526	2.055	2.574	3.071	3.506	3.916	4.365
Ba	1.269	3.500	6.202	8.887	11.256	13.367	15.256	16.952	18.440	19.832
B	5.262	11.441	17.310	22.407	27.257	31.594	35.497	38.799	41.588	43.797
Caa	17.141	28.130	37.617	45.340	50.889	54.999	57.759	60.652	64.788	71.268
Ca-C	33.643	44.631	53.222	58.890	66.743	69.954	74.351	78.455	78.455	78.455
Investment-Grade	0.073	0.218	0.412	0.635	0.858	1.070	1.267	1.442	1.601	1.758
Speculative-Grade	4.904	9.793	14.463	18.505	22.080	25.133	27.770	29.994	31.877	33.489
All Rated	1.681	3.339	4.881	6.179	7.277	8.180	8.928	9.531	10.022	10.435

Rating	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190
Aa	0.429	0.552	0.691	0.794	0.905	1.037	1.196	1.389	1.520	1.532
A	1.183	1.254	1.365	1.507	1.758	2.110	2.543	3.000	3.327	3.515
Baa	4.868	5.417	6.124	6.893	7.502	8.044	8.698	9.407	9.989	10.235
Ba	21.275	22.831	24.348	25.982	27.360	28.621	29.776	30.789	31.874	32.450
B	45.700	47.555	49.299	51.301	53.165	54.352	54.922	55.774	55.774	55.774
Caa	75.291	75.291	75.291	75.291	75.291	75.291	75.291	75.291	75.291	75.291
Ca-C	78.455	78.455	78.455	78.455	78.455	78.455	-	-	-	-
Investment-Grade	1.929	2.114	2.354	2.607	2.871	3.169	3.529	3.921	4.213	4.347
Speculative-Grade	34.989	36.490	37.920	39.473	40.812	41.913	42.807	43.670	44.382	44.763
All Rated	10.827	11.218	11.631	12.062	12.461	12.851	13.264	13.698	14.031	14.190

* Includes bond and loan issuers rated as of January 1 of each year.

Exhibit 26 - Average Cumulative Issuer-Weighted Global Default Rates by Alphanumeric Rating, 1983-2006¹

Rating	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Aaa	0.000	0.000	0.000	0.035	0.078	0.129	0.185	0.190	0.190	0.190
Aa1	0.000	0.000	0.000	0.099	0.149	0.168	0.168	0.168	0.168	0.168
Aa2	0.000	0.010	0.044	0.110	0.211	0.258	0.312	0.373	0.443	0.524
Aa3	0.018	0.036	0.070	0.123	0.177	0.233	0.268	0.285	0.289	0.343
A1	0.003	0.082	0.218	0.308	0.377	0.447	0.499	0.546	0.615	0.706
A2	0.024	0.076	0.206	0.389	0.557	0.716	0.895	1.082	1.243	1.339
A3	0.034	0.156	0.317	0.429	0.578	0.754	0.884	1.038	1.163	1.218
Baa1	0.154	0.425	0.749	1.040	1.308	1.545	1.844	2.040	2.195	2.338
Baa2	0.164	0.450	0.818	1.396	1.882	2.380	2.827	3.247	3.808	4.546
Baa3	0.329	0.893	1.545	2.280	3.195	4.101	4.920	5.688	6.231	6.703
Ba1	0.747	1.958	3.460	4.936	6.477	8.016	9.009	9.874	10.546	11.248
Ba2	0.856	2.403	4.287	6.212	7.977	9.187	10.467	11.636	12.762	13.716
Ba3	1.929	5.369	9.523	13.671	17.152	20.418	23.610	26.526	29.161	31.678
B1	3.064	8.135	13.408	18.029	22.986	27.485	31.951	35.770	38.872	41.441
B2	4.814	10.905	16.308	20.955	24.864	28.016	30.752	32.732	35.087	37.087
B3	9.525	17.753	25.434	32.257	38.266	43.953	48.097	51.764	54.309	55.904
Caa1	12.161	23.751	35.108	44.221	51.517	56.537	58.736	59.286	59.286	59.286
Caa2 ²	20.250	30.286	38.358	45.265	49.376	53.825	57.558	62.031	67.122	73.485
Caa3	26.482	38.212	45.071	50.421	55.373	55.549	55.549	55.549	55.549	55.549
Ca-C	33.643	44.631	53.222	58.890	66.743	69.954	74.351	78.455	78.455	78.455
Investment-Grade	0.073	0.218	0.412	0.635	0.858	1.070	1.267	1.442	1.601	1.758
Speculative-Grade	4.904	9.793	14.463	18.505	22.080	25.133	27.770	29.994	31.877	33.489
All Rated	1.681	3.339	4.881	6.179	7.277	8.180	8.928	9.531	10.022	10.435
Ratings	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190
Aa1	0.168	0.168	0.353	0.584	0.850	0.958	0.958	0.958	0.958	0.958
Aa2	0.618	0.726	0.778	0.778	0.778	0.911	1.142	1.414	1.740	1.773
Aa3	0.412	0.597	0.776	0.893	1.012	1.154	1.326	1.538	1.560	1.560
A1	0.853	0.999	1.186	1.448	1.753	2.108	2.267	2.267	2.267	2.267
A2	1.384	1.436	1.496	1.567	1.656	1.856	2.303	2.853	3.256	3.368
A3	1.298	1.304	1.394	1.495	1.919	2.497	3.228	4.074	4.666	5.176
Baa1	2.517	2.817	3.227	3.884	4.472	5.235	5.945	6.276	6.276	6.276
Baa2	5.467	6.454	7.277	8.059	8.976	9.681	10.477	11.719	12.971	13.160
Baa3	7.080	7.368	8.335	9.250	9.462	9.487	9.881	10.356	10.759	11.355
Ba1	12.235	13.512	14.337	15.027	15.908	17.043	18.634	20.326	22.215	22.919
Ba2	14.943	16.722	18.500	20.259	22.388	24.389	25.438	25.734	26.294	26.294
Ba3	33.862	35.639	37.871	40.694	42.246	43.224	43.878	44.323	44.323	45.112
B1	43.741	45.726	47.831	50.321	51.892	53.179	53.179	53.179	53.179	53.179
B2	38.503	39.799	41.343	44.299	48.267	50.429	52.822	55.360	55.360	55.360
B3	57.452	59.627	60.923	60.923	60.923	60.923	60.923	61.888	61.888	61.888
Caa1	-	-	-	-	-	-	-	-	-	-
Caa2 ²	77.198	77.198	77.198	77.198	77.198	77.198	77.198	77.198	77.198	77.198
Caa3	-	-	-	-	-	-	-	-	-	-
Ca-C	78.455	78.455	78.455	78.455	78.455	78.455	-	-	-	-
Investment-Grade	1.929	2.114	2.354	2.607	2.871	3.169	3.529	3.921	4.213	4.347
Speculative-Grade	34.989	36.490	37.920	39.473	40.812	41.913	42.807	43.670	44.382	44.763
All Rated	10.827	11.218	11.631	12.062	12.461	12.851	13.264	13.698	14.031	14.190

1. Includes bond and loan issuers rated as of January 1 of each year.

2. Moody's introduced alphanumerically modified Caa ratings in 1997. Caa letter ratings are mapped to Caa2 prior to 1997.

Exhibit 27 - 2007 Global Issuer-Weighted Speculative-Grade Default Rate Forecast

Month	Forecast	Lower	Upper
1/1/2007	1.721	1.620	1.823
2/1/2007	1.880	1.645	2.115
3/1/2007	2.118	1.736	2.499
4/1/2007	2.335	1.818	2.852
5/1/2007	2.395	1.716	3.073
6/1/2007	2.638	1.811	3.464
7/1/2007	2.773	1.852	3.694
8/1/2007	2.832	1.803	3.861
9/1/2007	2.865	1.690	4.040
10/1/2007	2.879	1.594	4.164
11/1/2007	2.904	1.503	4.305
12/1/2007	3.073	1.537	4.610

Exhibit 28 - Annual Volume-Weighted Corporate Default Rates by Letter Rating, 1994-2006*

Cohort	Aaa	Aa	A	Baa	Ba	B	Caa-C	Inv.Grade	Spec.Grade	All Rated
1994	0.000	0.000	0.000	0.000	0.141	1.925	2.797	0.000	1.196	0.244
1995	0.000	0.000	0.000	0.000	0.567	6.259	12.109	0.000	4.278	0.991
1996	0.000	0.000	0.000	0.000	0.000	1.624	22.529	0.000	2.309	0.659
1997	0.000	0.000	0.000	0.000	0.051	3.064	6.702	0.000	1.926	0.498
1998	0.000	0.000	0.000	0.000	0.747	3.023	14.806	0.000	3.025	0.898
1999	0.000	0.000	0.000	0.140	2.216	5.791	21.102	0.031	6.380	1.226
2000	0.000	0.000	0.000	0.624	1.039	5.664	25.971	0.137	6.126	1.407
2001	0.000	0.000	1.175	1.756	1.184	14.222	63.488	0.935	16.921	3.551
2002	0.000	0.000	2.768	3.688	5.372	16.833	90.735	2.317	23.059	5.494
2003	0.000	0.000	0.000	0.000	3.622	2.613	17.013	0.000	5.681	0.993
2004	0.000	0.000	0.000	0.000	0.000	0.258	11.698	0.000	2.360	0.412
2005	0.000	0.000	0.000	0.201	0.000	1.505	17.138	0.073	3.854	0.766
2006	0.000	0.000	0.000	0.000	0.033	1.105	3.885	0.000	1.050	0.212
Mean	0.000	0.000	0.303	0.493	1.152	4.914	23.844	0.269	6.013	1.335
Median	0.000	0.000	0.000	0.000	0.567	3.023	17.013	0.000	3.854	0.898
StDev	NA	NA	0.809	1.079	1.659	5.097	25.255	0.666	6.570	1.512
Min	0.000	0.000	0.000	0.000	0.000	0.258	2.797	0.000	1.050	0.212
Max	0.000	0.000	2.768	3.688	5.372	16.833	90.735	2.317	23.059	5.494

* Includes bond and loan issuers rated as of January 1 of each year.

Exhibit 29 - Average Volume-Weighted Corporate Default Rates by Letter Rating, 1994-2006*

Rating	Year 1	Year 2	Year 3	Year 4	Year 5
Aaa	0.000	0.000	0.000	0.000	0.000
Aa	0.000	0.000	0.000	0.000	0.000
A	0.301	0.670	0.989	1.211	1.493
Baa	0.591	1.400	2.098	3.000	3.804
Ba	1.748	3.923	6.284	8.625	10.544
B	5.428	12.873	19.246	24.177	27.533
Caa-C	24.355	37.184	46.105	51.464	53.541
Investment-Grade	0.000	0.410	0.754	1.101	1.440
Speculative-Grade	6.710	12.879	17.957	21.824	24.447
All Rated	1.277	2.775	4.009	5.016	5.797

* Includes bond and loan issuers rated as of January 1 of each year.

Exhibit 30 - Average Annual Credit Loss Rates by Letter Rating, 1982-2006*

Year	Aaa	Aa	A	Baa	Ba	B	Caa-C	Inv.Grade	Spec.Grade	All Rated
1982	0.000	0.000	0.166	0.208	1.796	1.580	16.389	0.138	2.334	0.678
1983	0.000	0.000	0.000	0.000	0.431	2.982	18.914	0.000	1.805	0.455
1984	0.000	0.000	0.000	0.186	0.422	3.401	50.594	0.048	1.682	0.467
1985	0.000	0.000	0.000	0.000	0.559	3.275	0.000	0.000	1.462	0.401
1986	0.000	0.000	0.000	0.645	0.965	5.561	11.154	0.151	2.676	0.901
1987	0.000	0.000	0.000	0.000	1.013	2.320	7.454	0.000	1.578	0.559
1988	0.000	0.000	0.000	0.000	0.683	3.482	15.646	0.000	1.970	0.742
1989	0.000	0.323	0.000	0.322	1.606	4.817	13.462	0.154	3.122	1.258
1990	0.000	0.000	0.000	0.000	2.107	10.205	37.052	0.000	6.348	2.259
1991	0.000	0.000	0.000	0.166	3.273	8.906	22.530	0.039	6.357	1.967
1992	0.000	0.000	0.000	0.000	0.162	4.929	14.429	0.000	2.620	0.704
1993	0.000	0.000	0.000	0.000	0.303	3.444	15.810	0.000	2.030	0.541
1994	0.000	0.000	0.000	0.000	0.109	1.791	2.373	0.000	0.899	0.258
1995	0.000	0.000	0.000	0.000	0.361	2.504	6.492	0.000	1.743	0.535
1996	0.000	0.000	0.000	0.000	0.000	0.537	5.284	0.000	0.623	0.190
1997	0.000	0.000	0.000	0.000	0.085	0.958	6.675	0.000	0.927	0.292
1998	0.000	0.000	0.000	0.072	0.479	2.617	9.358	0.023	2.161	0.767
1999	0.000	0.000	0.000	0.064	0.714	3.799	12.664	0.022	3.613	1.361
2000	0.000	0.000	0.000	0.291	0.668	4.368	15.476	0.101	4.817	1.910
2001	0.000	0.000	0.121	0.147	1.193	7.368	26.784	0.099	8.281	3.054
2002	0.000	0.000	0.109	0.894	1.037	3.624	20.505	0.358	5.752	2.124
2003	0.000	0.000	0.000	0.000	0.538	1.463	12.657	0.000	3.052	1.013
2004	0.000	0.000	0.000	0.000	0.167	0.383	6.013	0.000	1.128	0.385
2005	0.000	0.000	0.000	0.076	0.000	0.435	3.516	0.026	0.799	0.291
2006	0.000	0.000	0.000	0.000	0.070	0.432	2.997	0.000	0.657	0.227

* Data in percent based on issuer-weighted average default rate and on issuer-weighted average senior unsecured bond recovery rates.

Exhibit 31 - Average Cumulative Issuer-Weighted Default Rates by Broad Industry Group, 1970-2006*

Industry Group	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Banking	0.384	0.771	1.166	1.518	1.815	2.063	2.222	2.382	2.526	2.677
Consumer Products	2.042	4.109	6.079	7.671	8.996	10.147	11.018	11.745	12.457	13.023
Energy	1.434	2.794	3.992	5.051	6.029	6.932	7.655	8.198	8.694	9.039
Financial (Non-Bank)	0.506	0.965	1.425	1.864	2.256	2.613	2.946	3.274	3.581	3.893
Hotel, Gaming & Leisure	4.245	8.293	11.777	14.710	17.094	18.565	19.727	20.841	22.027	23.403
Industrial	2.187	4.444	6.585	8.514	10.255	11.791	13.139	14.339	15.423	16.411
Media	2.921	5.980	8.956	11.303	13.555	15.314	16.477	17.194	17.969	18.692
Miscellaneous	1.076	2.139	3.185	4.221	5.170	5.880	6.507	7.142	7.841	8.495
Retail	2.949	5.876	8.810	11.340	13.775	15.874	17.738	19.572	21.441	23.171
Technology	2.655	5.350	7.761	9.699	11.152	12.296	13.399	14.246	15.004	15.773
Transportation	2.270	4.149	5.747	7.004	8.116	9.085	9.933	10.762	11.565	12.404
Utilities	0.284	0.569	0.812	1.031	1.234	1.428	1.597	1.726	1.853	1.988

* Percent of all rated issuers in each industry group.

Exhibit 32 - Annual Default Rates by Broad Industry Groups, 1970-2006*

Year	Banking	Products	Energy	Financial (Non-Bank)	Hotels, Gaming & Leisure	Industrial	Media	Miscellaneous	Retail	Technology	Transportation	Utilities
1970	0.000	0.000	0.000	12.500	0.000	0.416	0.000	0.000	0.000	1.282	15.584	0.000
1971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.308	0.000
1972	0.000	0.000	0.000	0.000	0.000	0.366	0.000	0.000	0.000	0.000	3.065	0.000
1973	0.000	0.000	0.000	0.000	0.000	0.366	0.000	0.000	3.604	0.000	1.587	0.000
1974	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	3.810	0.000	0.000	0.000
1975	0.000	0.000	0.000	0.000	0.000	0.748	6.452	0.000	1.942	0.000	0.000	0.000
1976	0.000	0.000	0.000	0.000	0.000	0.733	0.000	0.000	0.000	0.000	0.000	0.000
1977	0.000	0.000	0.000	0.000	0.000	0.377	6.667	0.000	0.000	0.000	1.732	0.000
1978	0.000	0.000	1.408	0.000	0.000	0.389	0.000	0.000	2.020	1.220	0.000	0.000
1979	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.136	0.000	0.000
1980	0.000	0.000	0.000	1.389	0.000	0.771	0.000	0.000	0.000	1.143	0.000	0.000
1981	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.128	0.000	0.000	0.877	0.000
1982	0.000	0.000	1.058	0.000	0.000	1.509	6.250	0.000	4.706	2.804	1.852	0.000
1983	0.000	1.099	3.721	1.418	0.000	0.746	0.000	0.000	0.000	0.995	2.727	0.000
1984	0.000	1.047	4.525	0.000	0.000	0.368	0.000	0.000	0.000	2.817	2.817	0.000
1985	0.000	1.015	3.984	0.411	3.846	1.301	0.000	2.198	0.000	1.810	0.000	0.000
1986	0.000	0.881	10.213	0.713	3.306	3.514	2.703	0.000	0.000	0.810	2.521	0.000
1987	0.524	0.000	5.957	0.317	4.196	2.639	1.818	3.008	1.235	2.000	0.826	0.000
1988	2.160	0.725	0.909	0.591	3.974	1.705	1.613	1.550	3.371	1.609	0.000	0.636
1989	2.708	3.401	0.000	2.725	12.000	2.683	4.615	0.000	0.000	2.133	2.564	0.000
1990	3.466	5.980	1.695	0.253	19.118	4.884	6.452	1.681	7.407	3.804	5.063	0.311
1991	2.377	4.545	1.739	0.481	9.901	4.472	5.357	6.897	11.282	2.279	7.512	0.616
1992	0.661	3.265	0.913	0.228	8.889	1.236	3.670	0.000	6.936	1.156	0.000	0.603
1993	0.609	1.674	0.855	0.649	2.041	1.364	1.739	1.739	3.468	1.067	0.000	0.300
1994	0.000	0.000	0.000	0.206	3.306	0.181	1.361	0.000	4.040	1.408	1.653	0.297
1995	0.000	2.915	0.669	0.757	4.301	1.259	0.000	0.000	4.525	0.858	1.600	0.000
1996	0.000	1.096	0.608	0.000	3.000	0.589	1.887	1.408	0.905	0.768	0.000	0.274
1997	0.000	2.036	0.000	0.155	3.540	0.814	1.581	0.000	3.509	0.703	0.752	0.000
1998	0.135	0.881	0.877	0.539	3.906	2.410	2.685	0.000	7.143	1.132	1.316	0.000
1999	0.260	4.183	6.615	0.618	9.333	2.343	1.829	1.235	1.709	2.546	6.548	0.231
2000	0.127	5.802	0.771	0.716	4.308	5.167	2.116	4.520	4.938	2.976	4.058	0.000
2001	0.126	3.922	0.398	1.188	10.423	7.981	5.263	2.299	5.150	8.737	3.989	0.394
2002	0.500	3.521	2.214	0.342	1.498	3.302	9.214	1.190	1.794	10.173	5.357	2.612
2003	0.000	2.469	0.365	0.444	1.509	2.658	4.863	1.212	2.740	4.630	3.012	1.172
2004	0.000	2.357	0.354	0.220	2.308	1.353	1.201	1.242	1.942	1.453	1.223	0.192
2005	0.119	1.020	0.342	0.092	0.685	1.483	0.543	0.000	1.010	0.231	3.438	0.565
2006	0.000	1.712	0.000	0.238	0.635	0.951	1.535	0.000	0.000	1.105	1.695	0.000

* Percent of all rated issuers in each industry group.

Exhibit 33 - Cumulative Issuer-Weighted Default Rates by Annual Cohort, 1970-2006

Cohort Formed 1/1/1970																					
Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	39	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.703	2.703	2.703
Aa	78	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.439	1.439	1.439	2.921	2.921	2.921	2.921
A	255	0.000	0.000	0.000	0.410	0.410	0.828	0.828	0.828	0.828	0.828	1.281	1.281	1.281	1.281	1.281	1.281	1.777	1.777	2.854	2.854
Baa	370	0.544	0.544	0.544	1.124	1.420	1.420	1.732	2.378	3.049	3.049	3.412	3.412	4.597	5.009	5.433	6.317	7.722	8.741	9.861	10.464
Ba	240	4.246	5.558	5.558	6.033	7.011	8.030	8.567	9.140	10.364	10.364	10.364	11.916	14.409	15.305	15.305	17.334	21.684	24.151	24.151	25.653
B	36	19.718	19.718	22.586	22.586	22.586	22.586	22.586	22.586	22.586	22.586	22.586	22.586	30.955	30.955	30.955	30.955	30.955	30.955	30.955	30.955
Caa-C	15	53.333	60.000	80.000	88.000	88.000	88.000	88.000	100.000	-	-	-	-	-	-	-	-	-	-	-	-
Investment-Grade	742	0.271	0.271	0.271	0.696	0.840	0.987	1.136	1.440	1.752	1.752	2.082	2.082	2.604	2.961	3.142	3.515	4.475	5.081	5.938	6.162
Speculative-Grade	291	8.741	10.178	11.666	12.441	13.244	14.083	14.523	15.460	16.454	16.454	16.454	17.697	21.002	21.714	21.714	23.311	26.778	28.743	28.743	29.951
All Rated	1,033	2.638	3.035	3.440	3.958	4.275	4.600	4.822	5.280	5.753	5.753	6.008	6.272	7.362	7.785	7.930	8.526	9.919	10.742	11.445	11.814
Cohort Formed 1/1/1971																					
Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	39	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.778	2.778	2.778	2.778
Aa	75	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.786
A	283	0.000	0.000	0.363	0.363	0.733	0.733	0.733	0.733	0.733	1.130	1.130	1.541	1.955	1.955	1.955	2.386	2.386	3.318	3.318	3.318
Baa	396	0.000	0.000	0.533	0.805	0.805	1.096	1.700	2.330	2.330	2.670	2.670	3.793	4.183	4.585	5.422	6.748	7.704	8.747	9.303	10.477
Ba	233	0.866	1.315	1.784	2.749	4.257	4.788	5.354	6.564	6.564	6.564	8.077	10.507	11.380	11.380	13.338	18.623	21.052	21.052	22.527	22.527
B	25	0.000	4.167	4.167	4.167	4.167	4.167	4.167	4.167	4.167	4.167	4.167	4.167	17.857	17.857	17.857	17.857	17.857	17.857	17.857	17.857
Caa-C	7	14.286	57.143	74.286	74.286	74.286	74.286	100.000	-	-	-	-	-	-	-	-	-	-	-	-	-
Investment-Grade	793	0.000	0.000	0.392	0.525	0.661	0.800	1.083	1.374	1.374	1.681	1.681	2.332	2.665	2.835	3.183	3.900	4.464	5.260	5.469	6.117
Speculative-Grade	265	1.143	3.116	3.939	4.791	6.126	6.595	7.594	8.656	8.656	8.656	9.980	13.510	14.269	14.269	15.966	20.558	22.649	22.649	23.938	23.938
All Rated	1,058	0.285	0.770	1.266	1.570	1.986	2.200	2.641	3.097	3.097	3.342	3.597	4.782	5.190	5.330	5.904	7.245	8.035	8.709	9.064	9.617
Cohort Formed 1/1/1972																					
Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	40	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.703	2.703	2.703	2.703	2.703
Aa	78	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.695	1.695
A	305	0.000	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.335	0.713	1.094	1.094	1.094	1.490	1.490	2.350	2.350	2.822	3.308
Baa	429	0.000	0.490	0.739	0.995	1.262	1.816	2.395	2.395	3.029	3.029	3.726	4.088	4.461	5.234	6.454	7.337	8.302	9.330	10.958	13.234
Ba	228	0.000	0.464	1.419	2.912	3.437	3.994	5.175	5.175	5.175	6.629	9.741	10.569	11.450	14.232	19.218	21.478	21.478	22.820	24.236	31.664
B	27	7.407	7.407	7.407	7.407	7.407	7.407	7.407	7.407	7.407	7.407	18.981	18.981	18.981	18.981	18.981	18.981	18.981	18.981	18.981	18.981
Caa-C	8	40.000	57.143	57.143	57.143	57.143	78.571	78.571	78.571	78.571	78.571	78.571	78.571	-	-	-	-	-	-	-	-
Investment-Grade	852	0.000	0.364	0.487	0.612	0.740	1.003	1.272	1.272	1.558	1.558	2.012	2.322	2.479	2.802	3.467	3.992	4.733	5.122	6.133	7.175
Speculative-Grade	263	1.942	2.747	3.580	4.886	5.344	6.313	7.337	7.337	7.337	8.589	12.592	13.303	14.063	16.473	20.801	22.744	22.744	23.915	25.162	31.727
All Rated	1,115	0.455	0.921	1.206	1.595	1.795	2.208	2.634	2.634	2.864	3.103	4.210	4.590	4.850	5.519	6.768	7.503	8.130	8.626	9.660	11.440

Exhibit 33 - Cumulative Issuer-Weighted Default Rates by Annual Cohort, 1970-2006

Cohort Formed 1/1/1973																					
Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	40	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.703	2.703	2.703	2.703	2.703	2.703
Aa	81	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.613	1.613	1.613
A	310	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.366	0.737	0.737	0.737	1.125	1.125	1.967	1.967	2.426	2.900	3.404
Baa	443	0.457	0.689	1.168	1.416	1.931	2.470	2.470	3.059	3.059	3.711	4.388	5.085	6.169	7.309	8.129	9.026	9.983	12.017	14.163	14.163
Ba	206	0.000	1.010	2.066	2.622	3.211	4.452	4.452	5.956	9.941	10.783	10.783	12.632	17.624	21.033	21.033	22.360	23.759	32.472	34.043	
B	26	3.922	3.922	3.922	3.922	3.922	3.922	3.922	3.922	3.922	15.931	15.931	15.931	15.931	15.931	15.931	15.931	15.931	15.931	15.931	15.931
Caa-C	5	44.444	44.444	44.444	44.444	72.222	72.222	72.222	72.222	72.222	72.222	72.222	-	-	-	-	-	-	-	-	-
Investment-Grade	874	0.231	0.348	0.586	0.708	0.957	1.214	1.214	1.486	1.486	1.919	2.362	2.664	3.127	3.765	4.267	4.977	5.348	6.511	7.512	7.725
Speculative-Grade	237	1.282	2.167	3.095	3.583	4.611	5.692	5.692	6.998	11.820	12.552	12.552	14.186	18.610	21.606	21.606	22.793	24.059	31.983	33.400	
All Rated	1,111	0.454	0.732	1.111	1.306	1.707	2.121	2.121	2.344	2.575	3.767	4.258	4.511	5.158	6.370	7.226	7.833	8.312	9.480	11.378	11.746
Cohort Formed 1/1/1974																					
Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	44	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.439	2.439	2.439	2.439	2.439	2.439	2.439
Aa	88	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.274	1.274	1.274	1.274	1.274	1.274	1.274	1.274	2.816	2.816	2.816	2.816
A	307	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.366	0.737	0.737	0.737	1.123	1.123	1.954	1.954	2.405	2.869	3.369	3.369
Baa	434	0.000	0.477	0.723	1.236	1.771	1.771	2.357	2.357	3.006	3.680	4.374	5.456	5.836	6.660	7.560	8.518	10.043	12.184	12.184	12.184
Ba	196	0.000	1.090	1.668	2.281	3.575	3.575	3.575	4.356	8.461	9.329	9.329	11.208	18.271	21.700	21.700	23.062	25.911	34.714	36.306	38.126
B	30	10.345	10.345	10.345	10.345	10.345	10.345	10.345	14.943	24.663	24.663	24.663	24.663	24.663	24.663	24.663	24.663	24.663	24.663	24.663	24.663
Caa-C	2	0.000	0.000	0.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	-	-	-	-	-	-	-	-	-	-
Investment-Grade	873	0.000	0.235	0.355	0.600	0.852	0.852	1.120	1.120	1.689	2.126	2.423	2.880	3.194	3.688	4.386	4.751	5.700	6.680	6.889	6.889
Speculative-Grade	228	1.342	2.282	2.779	3.827	4.930	4.930	4.930	6.250	11.111	11.852	11.852	13.500	19.710	22.702	22.702	23.910	26.489	34.582	36.036	37.676
All Rated	1,101	0.275	0.651	0.844	1.242	1.652	1.652	1.872	2.101	3.399	3.885	4.135	4.775	5.972	6.817	7.416	7.888	9.039	10.907	11.269	11.466
Cohort Formed 1/1/1975																					
Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	51	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.041	2.041	2.041	2.041	2.041	2.041	2.041	2.041
Aa	103	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.047	1.047	1.047	1.047	1.047	1.047	2.254	2.254	3.507	3.507	3.507	3.507	3.507
A	319	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.357	0.357	0.357	0.730	0.730	1.535	1.535	1.973	2.880	3.370	3.898	3.898
Baa	417	0.000	0.000	0.262	0.810	0.810	1.410	1.410	2.396	3.078	3.776	4.861	5.241	6.062	6.510	7.466	9.478	11.583	11.583	11.583	11.583
Ba	200	1.026	2.107	3.249	3.850	3.850	3.850	4.573	8.405	9.212	9.212	10.975	17.605	20.815	21.997	23.265	24.588	31.382	32.842	34.460	34.460
B	33	6.154	6.154	6.154	9.566	9.566	9.566	13.586	22.016	22.016	22.016	22.016	22.016	22.016	22.016	22.016	31.764	43.137	43.137	43.137	43.137
Caa-C	2	0.000	0.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	-	-	-	-	-	-	-	-	-	-	-
Investment-Grade	890	0.000	0.000	0.118	0.362	0.362	0.619	0.619	1.164	1.582	1.865	2.300	2.599	3.068	3.730	4.076	5.152	6.261	6.458	6.672	6.672
Speculative-Grade	235	1.743	2.659	4.105	5.117	5.117	5.117	6.329	10.820	11.504	11.504	13.036	18.806	21.574	22.586	23.677	25.989	33.210	34.494	35.903	35.903
All Rated	1,125	0.360	0.545	0.925	1.317	1.317	1.527	1.744	2.979	3.441	3.678	4.285	5.419	6.218	6.925	7.369	8.603	10.512	10.851	11.219	11.219

Exhibit 33 - Cumulative Issuer-Weighted Default Rates by Annual Cohort, 1970-2006

Cohort Formed 1/1/1976																					
Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	66	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.667	1.667	1.667	1.667	1.667	1.667	1.667	1.667
Aa	109	0.000	0.000	0.000	0.000	0.000	0.000	0.985	0.985	0.985	0.985	0.985	0.985	2.137	2.137	3.330	3.330	3.330	3.330	3.330	3.330
A	368	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.615	0.615	0.615	1.274	1.274	2.353	2.353	2.742	3.957	3.957	4.434	4.434	5.453
Baa	376	0.000	0.281	0.575	0.575	0.897	0.897	2.300	3.027	3.773	4.935	5.341	6.213	6.213	7.233	9.384	11.067	11.654	11.654	11.654	11.654
Ba	205	1.000	2.053	3.157	3.157	3.772	4.433	7.244	7.983	7.983	9.597	15.624	18.534	19.613	20.761	21.962	29.453	30.797	32.269	32.269	32.269
B	28	0.000	0.000	3.922	3.922	3.922	8.608	18.489	18.489	18.489	18.489	18.489	18.489	18.489	18.489	31.029	46.356	46.356	46.356	46.356	46.356
Caa-C	2	0.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	-	-	-	-	-	-	-	-	-	-	-	-
Investment-Grade	919	0.000	0.112	0.227	0.227	0.348	0.348	0.988	1.512	1.779	2.191	2.617	3.065	3.693	4.021	5.041	6.093	6.280	6.484	6.484	6.930
Speculative-Grade	235	0.871	2.245	3.683	3.683	4.219	5.366	9.018	9.665	9.665	11.116	16.550	19.158	20.121	21.151	23.326	31.337	32.574	33.923	33.923	33.923
All Rated	1,154	0.175	0.535	0.906	0.906	1.104	1.309	2.471	3.015	3.239	3.814	5.012	5.773	6.445	6.867	8.037	10.002	10.324	10.676	10.676	11.060
Cohort Formed 1/1/1977																					
Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	67	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.667	1.667	1.667	1.667	1.667	1.667	1.667	1.667	1.667	1.667
Aa	116	0.000	0.000	0.000	0.000	0.000	0.922	0.922	0.922	0.922	0.922	0.922	2.004	2.004	3.118	3.118	3.118	3.118	3.118	3.118	3.118
A	387	0.000	0.000	0.000	0.000	0.000	0.000	0.581	0.581	0.581	1.206	1.206	2.912	2.912	3.652	4.808	4.808	5.260	5.260	6.232	6.232
Baa	361	0.285	0.585	0.585	0.585	0.585	2.005	2.740	3.496	4.673	5.084	5.965	5.965	6.996	8.628	10.325	10.919	10.919	10.919	10.919	10.919
Ba	197	0.522	1.618	1.618	2.229	2.886	5.660	6.392	6.392	7.985	13.921	16.775	17.822	18.925	20.075	27.286	28.585	30.013	30.013	30.013	30.013
B	30	3.390	6.968	6.968	11.197	15.751	25.963	25.963	25.963	25.963	25.963	25.963	25.963	25.963	39.424	56.731	56.731	56.731	56.731	56.731	56.731
Caa-C	2	50.000	50.000	50.000	50.000	50.000	50.000	50.000	-	-	-	-	-	-	-	-	-	-	-	-	-
Investment-Grade	931	0.109	0.221	0.221	0.221	0.221	0.842	1.351	1.611	2.012	2.427	2.862	3.778	4.096	5.088	6.110	6.292	6.490	6.490	6.928	6.928
Speculative-Grade	229	1.345	2.758	2.758	3.815	4.950	8.571	9.215	9.215	10.644	15.990	18.549	19.485	20.479	22.572	30.315	31.516	32.833	32.833	32.833	32.833
All Rated	1,160	0.351	0.712	0.712	0.905	1.105	2.237	2.768	2.986	3.548	4.717	5.458	6.373	6.783	7.919	9.828	10.142	10.485	10.485	10.862	10.862
Cohort Formed 1/1/1978																					
Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	72	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.515	1.515	1.515	3.054	3.054	3.054	3.054	3.054	3.054	3.054	3.054
Aa	129	0.000	0.000	0.000	0.000	0.830	0.830	0.830	0.830	0.830	0.830	1.774	1.774	1.774	1.774	1.774	1.774	1.774	1.774	1.774	1.774
A	378	0.000	0.000	0.000	0.000	0.000	0.589	0.589	0.589	1.222	1.222	2.626	2.626	3.774	4.572	4.572	5.040	5.040	6.045	6.045	6.045
Baa	344	0.000	0.000	0.000	0.000	1.386	1.746	2.488	3.259	3.663	4.956	5.421	6.414	7.986	10.171	10.745	10.745	10.745	10.745	10.745	10.745
Ba	189	1.084	1.084	1.084	1.741	4.529	5.998	5.998	9.184	15.070	16.947	17.985	19.086	21.382	28.583	29.882	32.744	32.744	32.744	32.744	32.744
B	37	5.556	5.556	11.852	15.178	22.397	22.397	26.832	26.832	32.460	38.600	38.600	38.600	47.371	60.528	60.528	60.528	60.528	60.528	60.528	60.528
Caa-C	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000
Investment-Grade	923	0.000	0.000	0.000	0.000	0.606	0.979	1.232	1.493	1.898	2.464	3.357	3.667	4.795	5.793	5.970	6.163	6.163	6.588	6.588	6.588
Speculative-Grade	229	1.790	1.790	2.797	3.877	7.320	8.540	9.188	11.879	18.327	20.717	21.593	22.527	25.488	32.886	34.043	36.580	36.580	36.580	36.580	36.580
All Rated	1,152	0.352	0.352	0.540	0.734	1.834	2.349	2.667	3.322	4.682	5.521	6.407	6.805	8.182	10.039	10.344	10.843	10.843	11.209	11.209	11.209

Exhibit 33 - Cumulative Issuer-Weighted Default Rates by Annual Cohort, 1970-2006

Cohort Formed 1/1/1979																					
Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	76	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.429	1.429	1.429	2.878	2.878	2.878	2.878	2.878	2.878	2.878	2.878	2.878
Aa	130	0.000	0.000	0.000	0.816	0.816	0.816	0.816	0.816	0.816	1.743	1.743	1.743	1.743	1.743	1.743	1.743	1.743	1.743	1.743	1.743
A	374	0.000	0.000	0.000	0.000	0.581	0.581	0.581	1.203	1.203	2.594	2.594	3.347	4.132	4.132	4.597	4.597	5.585	5.585	5.585	5.585
Baa	338	0.000	0.314	0.314	1.673	2.026	2.390	3.144	3.144	4.410	4.866	5.852	8.474	10.653	11.223	11.223	11.223	11.223	11.223	11.223	11.223
Ba	210	0.490	0.490	1.051	3.407	5.884	9.163	11.885	18.332	19.910	20.776	21.692	24.574	31.709	32.802	35.160	35.160	35.160	35.160	35.160	35.160
B	34	0.000	6.452	9.853	17.212	17.212	21.687	26.582	38.329	45.181	45.181	45.181	56.145	56.145	56.145	-	-	-	-	-	-
Caa-C	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000	50.000
Investment-Grade	918	0.000	0.113	0.113	0.708	1.073	1.197	1.452	1.716	2.270	3.147	3.452	4.719	5.700	5.874	6.065	6.065	6.482	6.482	6.482	6.482
Speculative-Grade	247	0.418	1.307	2.256	5.255	7.373	10.761	13.707	21.238	23.320	24.079	24.886	28.320	34.837	35.855	38.067	38.067	38.067	38.067	38.067	38.067
All Rated	1,165	0.087	0.358	0.544	1.601	2.293	3.005	3.739	5.263	6.069	6.923	7.306	8.902	10.696	10.992	11.475	11.475	11.828	11.828	11.828	11.828
Cohort Formed 1/1/1980																					
Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	89	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.242	1.242	1.242	2.508	2.508	2.508	2.508	2.508	2.508	2.508	2.508	2.508	2.508
Aa	127	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.917	1.843	1.843	1.843	1.843	1.843	1.843	1.843	1.843	1.843	1.843	1.843	1.843
A	383	0.000	0.000	0.273	0.830	0.830	0.830	1.723	2.036	3.036	3.036	3.759	4.513	4.513	4.956	4.956	5.904	5.904	5.904	5.904	6.428
Baa	337	0.000	0.000	0.997	1.343	1.698	2.807	2.807	3.634	4.520	5.931	8.433	10.508	11.593	11.593	11.593	11.593	11.593	11.593	11.593	11.593
Ba	209	0.000	0.531	3.855	5.014	8.691	11.883	17.960	20.178	21.000	23.694	26.520	34.628	36.863	39.268	39.268	39.268	39.268	40.664	40.664	40.664
B	41	4.938	7.543	15.822	21.730	28.119	31.625	44.057	48.719	48.719	48.719	60.115	68.092	68.092	68.092	68.092	68.092	68.092	68.092	68.092	68.092
Caa-C	6	33.333	33.333	33.333	33.333	33.333	33.333	55.556	55.556	55.556	55.556	55.556	55.556	55.556	55.556	55.556	55.556	55.556	55.556	55.556	55.556
Investment-Grade	936	0.000	0.000	0.458	0.809	0.929	1.297	1.678	2.344	3.184	3.623	4.835	5.773	6.106	6.288	6.288	6.691	6.691	6.691	6.691	6.915
Speculative-Grade	256	1.613	2.472	6.517	8.406	12.421	15.577	22.893	25.361	26.042	28.261	32.181	39.957	41.894	43.988	43.988	43.988	43.988	45.192	45.192	45.192
All Rated	1,192	0.343	0.520	1.705	2.362	3.230	4.126	5.779	6.761	7.571	8.298	9.937	11.902	12.464	12.924	12.924	13.261	13.261	13.440	13.440	13.629
Cohort Formed 1/1/1981																					
Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	93	0.000	0.000	0.000	0.000	0.000	0.000	1.227	1.227	1.227	2.493	2.493	2.493	2.493	2.493	2.493	2.493	2.493	2.493	2.493	2.493
Aa	132	0.000	0.000	0.000	0.000	0.000	0.000	0.844	2.546	2.546	2.546	2.546	2.546	2.546	2.546	2.546	2.546	2.546	2.546	2.546	3.881
A	391	0.000	0.264	0.264	0.264	1.147	1.458	2.120	2.120	2.841	3.597	3.597	4.044	4.044	5.001	5.001	5.001	5.001	5.001	5.529	6.062
Baa	337	0.000	0.634	1.970	2.663	3.738	3.738	4.139	4.993	6.347	8.730	10.202	11.216	11.216	11.216	11.216	11.216	11.216	11.216	11.216	11.988
Ba	244	0.000	3.587	5.002	7.994	11.633	18.302	20.768	21.460	24.481	28.541	36.682	38.741	40.969	40.969	40.969	40.969	42.295	43.669	43.669	43.669
B	45	4.598	11.843	16.954	25.122	28.059	41.443	41.443	41.443	41.443	51.203	57.302	57.302	57.302	57.302	57.302	57.302	57.302	57.302	57.302	57.302
Caa-C	6	0.000	0.000	0.000	0.000	0.000	20.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000
Investment-Grade	953	0.000	0.328	0.778	1.009	1.366	1.735	2.253	3.071	3.497	4.674	5.432	5.755	5.932	5.932	6.321	6.321	6.321	6.321	6.540	7.208
Speculative-Grade	295	0.703	4.771	6.718	10.433	13.886	21.778	24.343	24.912	27.394	32.122	39.749	41.495	43.398	43.398	43.398	43.398	44.518	45.674	45.674	45.674
All Rated	1,248	0.163	1.344	2.130	3.122	4.146	6.090	7.018	7.783	8.586	10.382	12.256	12.792	13.231	13.231	13.553	13.553	13.725	13.902	14.083	14.639

Exhibit 33 - Cumulative Issuer-Weighted Default Rates by Annual Cohort, 1970-2006

Cohort Formed 1/1/1982

Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	
Aaa	95	0.000	0.000	0.000	0.000	0.000	1.212	1.212	1.212	2.479	2.479	2.479	2.479	2.479	2.479	2.479	2.479	2.479	2.479	2.479	2.479	
Aa	145	0.000	0.000	0.000	0.000	0.000	0.758	2.302	2.302	2.302	2.302	2.302	2.302	2.302	3.425	3.425	3.425	3.425	3.425	4.663	4.663	
A	399	0.254	0.254	0.254	0.254	1.111	1.111	1.755	1.755	2.808	3.544	3.544	3.973	3.973	3.973	3.973	3.973	3.973	3.973	4.478	4.989	8.644
Baa	326	0.317	0.317	1.370	2.462	2.843	3.657	4.533	5.923	8.367	9.882	10.933	10.933	10.933	11.585	11.585	11.585	11.585	11.585	11.585	12.382	12.382
Ba	259	2.740	5.228	7.879	11.546	18.387	20.549	21.151	23.802	28.156	33.082	34.967	37.000	37.000	37.000	37.000	38.312	39.714	39.714	39.714	42.728	
B	42	2.410	9.917	15.139	17.921	30.310	30.310	30.310	30.310	35.671	60.177	60.177	60.177	60.177	60.177	60.177	60.177	60.177	60.177	60.177	60.177	
Caa-C	12	25.000	51.471	51.471	51.471	61.176	70.882	70.882	70.882	70.882	70.882	70.882	70.882	70.882	70.882	70.882	70.882	70.882	70.882	70.882	70.882	
Investment-Grade	965	0.211	0.211	0.547	0.893	1.372	1.879	2.680	3.097	4.401	5.150	5.469	5.643	5.643	6.028	6.028	6.028	6.028	6.242	6.897	8.460	
Speculative-Grade	313	3.560	7.664	10.572	13.975	21.667	23.898	24.396	26.603	30.867	37.780	39.366	41.086	41.086	41.086	41.086	42.177	43.333	43.333	43.333	45.852	
All Rated	1,278	1.034	2.026	2.966	4.025	6.151	7.035	7.768	8.541	10.394	12.215	12.737	13.164	13.164	13.477	13.477	13.645	13.818	13.995	14.538	16.203	

Cohort Formed 1/1/1983

Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	98	0.000	0.000	0.000	0.000	2.395	2.395	2.395	3.688	3.688	3.688	3.688	3.688	3.688	3.688	3.688	3.688	3.688	3.688	3.688	3.688
Aa	225	0.000	0.000	0.000	0.000	0.480	1.965	1.965	1.965	1.965	1.965	1.965	1.965	2.668	2.668	2.668	2.668	2.668	2.668	3.456	4.271
A	430	0.000	0.000	0.000	0.259	0.259	0.836	0.836	1.773	2.750	3.444	3.819	3.819	3.819	3.819	3.819	3.819	3.819	3.819	4.288	6.212
Baa	270	0.000	1.176	1.587	3.321	3.798	4.328	5.444	6.615	7.840	7.840	7.840	7.840	7.840	7.840	7.840	7.840	8.795	10.745	12.751	14.829
Ba	230	0.911	2.394	5.046	12.689	14.744	17.901	21.510	26.607	32.209	32.209	33.637	33.637	35.217	35.217	37.042	38.921	38.921	40.924	45.143	49.532
B	114	6.306	11.015	17.860	25.138	28.416	29.600	32.334	40.294	50.245	55.221	58.020	58.020	58.020	58.020	58.020	58.020	58.020	58.020	58.020	58.020
Caa-C	11	40.000	64.000	64.000	64.000	76.000	76.000	76.000	76.000	76.000	76.000	76.000	76.000	76.000	76.000	76.000	76.000	76.000	76.000	76.000	76.000
Investment-Grade	1,023	0.000	0.304	0.408	0.953	1.415	2.148	2.403	3.196	3.881	4.174	4.333	4.333	4.510	4.510	4.510	4.510	4.707	5.310	6.748	7.600
Speculative-Grade	355	3.818	6.971	10.987	18.298	21.172	23.484	26.661	32.697	39.600	41.211	43.006	43.006	44.006	44.006	45.172	46.404	46.404	47.711	50.463	53.335
All Rated	1,378	0.962	1.959	2.992	5.086	6.074	7.132	7.945	9.659	11.344	11.828	12.226	12.226	12.519	12.519	12.676	12.838	13.003	13.678	15.235	16.313

Cohort Formed 1/1/1984

Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	81	0.000	0.000	0.000	1.429	1.429	1.429	3.018	3.018	3.018	3.018	3.018	3.018	3.018	3.018	3.018	3.018	3.018	3.018	3.018	3.018
Aa	243	0.000	0.000	0.000	0.881	1.797	1.797	1.797	1.797	1.797	1.797	1.797	2.434	2.434	2.434	2.434	2.434	2.434	3.152	3.894	3.894
A	460	0.000	0.225	0.461	0.708	1.482	1.751	2.593	3.470	4.091	4.091	4.091	4.091	4.091	4.091	4.091	4.091	4.515	6.247	6.700	7.186
Baa	276	0.368	0.368	0.782	1.244	1.760	2.846	3.992	5.798	5.798	6.498	6.498	6.498	6.498	6.498	6.498	7.433	9.362	11.365	13.450	13.450
Ba	246	0.833	3.932	12.600	14.778	18.511	22.038	27.551	34.410	35.374	36.451	36.451	37.674	37.674	39.140	39.140	39.140	40.785	44.169	47.658	47.658
B	120	6.723	12.768	20.114	23.988	27.133	32.073	42.299	49.511	51.755	56.834	56.834	56.834	56.834	56.834	60.945	60.945	60.945	60.945	60.945	60.945
Caa-C	2	100.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Investment-Grade	1,060	0.095	0.194	0.399	0.943	1.637	1.998	2.753	3.536	3.815	3.968	3.968	4.137	4.137	4.137	4.137	4.327	4.907	6.292	7.115	7.332
Speculative-Grade	368	3.324	7.401	15.576	18.355	21.863	25.893	33.023	39.922	41.250	43.481	43.481	44.324	44.324	45.337	46.452	46.452	47.629	50.065	52.593	52.593
All Rated	1,428	0.922	2.024	4.188	5.264	6.596	7.727	9.723	11.610	12.062	12.558	12.558	12.833	12.833	12.983	13.136	13.294	13.935	15.415	16.440	16.620

Exhibit 33 - Cumulative Issuer-Weighted Default Rates by Annual Cohort, 1970-2006

Cohort Formed 1/1/1985																					
Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	82	0.000	0.000	0.000	0.000	0.000	1.600	1.600	1.600	1.600	1.600	1.600	1.600	1.600	1.600	1.600	1.600	1.600	1.600	1.600	1.600
Aa	303	0.000	0.000	0.000	0.771	0.771	0.771	0.771	0.771	0.771	0.771	1.363	1.363	1.363	1.363	1.363	1.363	2.025	2.710	2.710	2.710
A	522	0.000	0.209	1.329	2.281	2.530	3.582	4.406	4.695	4.695	4.695	4.695	4.695	4.695	4.695	4.695	5.098	6.328	6.758	7.214	7.214
Baa	272	0.000	1.224	1.224	1.744	2.842	3.417	5.222	5.869	6.580	6.580	6.580	6.580	6.580	6.580	8.611	10.712	12.903	15.195	15.195	15.195
Ba	294	1.404	6.702	9.294	12.773	18.329	23.940	30.761	32.267	33.103	33.103	35.042	35.042	36.162	36.162	36.162	37.506	41.767	44.678	44.678	44.678
B	148	8.219	17.651	23.837	27.260	31.508	43.362	50.125	52.392	57.682	57.682	57.682	57.682	61.914	61.914	61.914	61.914	61.914	61.914	61.914	61.914
Caa-C	5	0.000	0.000	0.000	33.333	33.333	33.333	33.333	33.333	33.333	33.333	100.000	-	-	-	-	-	-	-	-	-
Investment-Grade	1,179	0.000	0.366	0.861	1.607	1.944	2.648	3.382	3.644	3.788	3.788	3.951	3.951	3.951	3.951	4.318	4.879	6.026	6.822	7.032	7.032
Speculative-Grade	447	3.670	10.322	14.179	17.931	22.981	30.475	37.119	38.759	40.596	40.596	42.718	42.718	43.536	44.440	44.440	45.450	48.659	50.867	50.867	50.867
All Rated	1,626	1.007	3.076	4.458	5.966	7.412	9.591	11.508	12.027	12.485	12.485	13.004	13.004	13.143	13.288	13.586	14.197	15.604	16.581	16.752	16.752
Cohort Formed 1/1/1986																					
Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	110	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	298	0.000	0.000	0.774	0.774	1.205	1.205	1.205	1.205	1.205	1.788	1.788	1.788	1.788	1.788	1.788	2.456	3.141	3.141	3.141	3.141
A	580	0.000	0.188	0.783	1.198	1.854	2.307	2.307	2.307	2.307	2.307	2.307	2.307	2.307	2.307	2.982	4.022	4.756	5.146	5.146	5.555
Baa	305	1.361	1.361	3.072	3.966	5.364	6.835	7.894	8.488	8.488	8.488	8.488	8.488	8.488	10.199	11.083	11.995	13.868	13.868	13.868	13.868
Ba	359	2.035	5.934	8.526	13.550	20.146	28.105	29.932	32.680	33.424	34.217	34.217	36.110	36.110	36.110	38.454	44.671	45.973	45.973	45.973	47.414
B	185	11.732	17.696	21.694	25.731	35.503	45.058	49.513	52.995	52.995	55.405	55.405	55.405	58.591	62.355	62.355	62.355	62.355	62.355	62.355	62.355
Caa-C	10	23.529	23.529	40.523	40.523	40.523	40.523	40.523	40.523	40.523	100.000	-	-	-	-	-	-	-	-	-	-
Investment-Grade	1,293	0.318	0.403	1.224	1.606	2.307	2.829	3.053	3.176	3.176	3.314	3.314	3.314	3.314	3.632	4.117	4.944	5.804	5.984	5.984	6.177
Speculative-Grade	554	5.644	10.212	13.502	18.119	25.605	33.871	36.399	39.279	39.809	41.537	41.537	42.897	43.663	44.492	46.226	50.822	51.787	51.787	51.787	52.846
All Rated	1,847	1.901	3.291	4.799	6.279	8.612	10.850	11.545	12.218	12.321	12.758	12.758	12.997	13.121	13.506	14.162	15.507	16.346	16.493	16.493	16.805
Cohort Formed 1/1/1987																					
Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	134	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	316	0.000	0.000	0.000	0.384	0.384	0.384	0.384	0.384	0.918	0.918	0.918	0.918	0.918	0.918	1.545	2.189	2.189	2.189	2.189	2.189
A	554	0.000	0.000	0.402	1.243	1.677	1.677	1.677	1.677	1.677	1.677	1.677	1.677	1.677	2.000	2.662	3.357	4.092	4.092	4.477	4.477
Baa	335	0.000	1.060	1.433	3.004	4.652	5.967	6.934	6.934	6.934	6.934	7.582	7.582	8.977	9.700	11.929	12.692	12.692	12.692	12.692	12.692
Ba	464	2.718	4.484	9.281	16.321	24.045	27.478	30.980	32.102	33.336	34.031	35.620	36.521	36.521	38.619	41.937	45.492	45.492	45.492	46.890	46.890
B	265	6.226	13.488	20.350	31.894	43.128	46.575	48.630	48.630	49.999	49.999	49.999	51.960	54.144	58.618	60.982	66.364	66.364	66.364	66.364	66.364
Caa-C	10	20.000	30.667	30.667	30.667	30.667	30.667	30.667	30.667	30.667	65.333	65.333	65.333	65.333	65.333	65.333	65.333	65.333	65.333	65.333	65.333
Investment-Grade	1,339	0.000	0.247	0.505	1.314	1.875	2.174	2.392	2.392	2.515	2.515	2.649	2.649	2.933	3.224	4.117	4.733	5.055	5.055	5.227	5.227
Speculative-Grade	739	4.234	8.143	13.614	22.131	30.915	34.285	37.249	37.997	39.655	40.120	41.170	42.371	43.033	45.812	48.741	52.715	52.715	52.715	53.670	53.670
All Rated	2,078	1.499	3.007	4.970	8.133	10.989	12.073	12.955	13.130	13.591	13.688	13.996	14.211	14.544	15.228	16.398	17.493	17.748	17.748	18.022	18.022

Exhibit 33 - Cumulative Issuer-Weighted Default Rates by Annual Cohort, 1970-2006

Cohort Formed 1/1/1988																				
Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19
Aaa	141	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	343	0.000	0.317	0.649	0.649	0.649	0.649	0.649	1.111	1.111	1.111	1.111	1.111	1.647	2.195	2.757	2.757	2.757	2.757	2.757
A	554	0.000	0.383	0.981	1.393	1.393	1.393	1.393	1.393	1.393	1.393	1.393	1.393	2.030	2.364	3.067	3.067	3.067	3.438	3.438
Baa	328	0.000	0.334	1.039	2.502	3.665	4.520	4.520	4.520	4.520	5.081	5.081	5.690	6.318	8.903	10.242	10.242	10.242	10.242	10.242
Ba	507	1.247	6.530	12.897	20.710	23.773	26.999	27.923	28.942	30.074	31.363	32.090	32.893	34.625	39.295	43.410	43.410	43.410	44.682	44.682
B	329	6.359	13.427	26.056	37.282	41.443	46.535	47.397	50.432	50.432	51.703	57.647	59.342	62.956	64.958	69.480	69.480	69.480	69.480	69.480
Caa-C	11	28.571	28.571	28.571	28.571	28.571	28.571	28.571	64.286	64.286	64.286	64.286	64.286	64.286	64.286	64.286	64.286	64.286	64.286	64.286
Investment-Grade	1,366	0.000	0.314	0.805	1.316	1.587	1.785	1.785	1.898	1.898	2.020	2.020	2.149	2.414	3.367	3.931	4.226	4.226	4.384	4.384
Speculative-Grade	847	3.598	9.511	18.188	27.159	30.572	34.400	35.287	37.273	38.015	39.268	41.640	42.696	44.966	48.655	52.736	52.736	52.736	53.595	53.595
All Rated	2,213	1.355	3.701	7.016	10.227	11.418	12.608	12.837	13.408	13.580	13.943	14.417	14.713	15.323	16.688	17.783	18.014	18.014	18.262	18.262
Cohort Formed 1/1/1989																				
Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 18
Aaa	160	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	341	0.600	0.600	0.600	0.600	0.600	0.600	1.035	1.035	1.035	1.035	1.035	1.538	2.055	2.582	2.582	2.582	2.582	2.582	2.582
A	583	0.000	0.182	0.558	0.558	0.558	0.558	0.558	0.558	0.558	0.558	0.558	0.558	1.429	1.732	2.054	2.054	2.395	2.395	2.395
Baa	345	0.598	1.228	1.882	2.920	2.920	2.920	2.920	2.920	3.397	3.397	3.917	4.454	7.207	8.931	9.542	9.542	9.542	9.542	9.542
Ba	488	2.982	10.247	18.143	20.856	24.050	24.465	25.392	26.941	28.695	30.684	31.426	33.818	38.115	43.828	43.828	43.828	43.828	43.828	43.828
B	365	8.947	23.132	33.588	38.661	44.341	46.402	50.402	50.402	52.558	56.512	57.986	61.157	62.883	66.690	66.690	66.690	69.252	69.252	69.252
Caa-C	12	25.000	43.750	57.813	57.813	57.813	57.813	57.813	57.813	57.813	57.813	57.813	57.813	57.813	57.813	57.813	57.813	57.813	57.813	57.813
Investment-Grade	1,429	0.286	0.510	0.819	1.066	1.066	1.066	1.169	1.169	1.279	1.279	1.396	1.635	2.741	3.378	3.645	3.645	3.790	3.790	3.790
Speculative-Grade	865	5.797	16.054	25.012	28.605	32.684	33.701	35.710	36.676	38.517	41.070	42.021	44.575	47.884	52.760	52.760	52.760	53.516	53.516	53.516
All Rated	2,294	2.336	6.125	9.308	10.595	11.784	12.060	12.648	12.881	13.370	13.883	14.149	14.790	16.209	17.492	17.700	17.700	17.925	17.925	17.925
Cohort Formed 1/1/1990																				
Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 17	Year 17
Aaa	182	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	386	0.000	0.000	0.000	0.000	0.000	0.359	0.359	0.359	0.359	0.359	0.359	0.800	1.252	1.252	1.252	1.252	1.252	1.252	1.252
A	609	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.264	0.535	0.818	1.116	1.116	1.433	1.433	1.433	1.433
Baa	341	0.000	0.626	0.626	0.626	0.626	0.626	0.626	0.626	0.626	1.136	1.661	4.895	7.126	7.717	7.717	7.717	7.717	7.717	7.717
Ba	474	3.344	11.836	14.392	17.384	18.156	19.438	20.367	22.409	24.120	24.745	27.432	32.487	36.458	36.458	36.458	36.458	36.458	36.458	36.458
B	383	16.201	27.591	34.542	39.667	41.359	44.071	44.881	46.850	50.601	53.641	57.013	58.923	65.409	65.409	65.409	68.704	68.704	68.704	68.704
Caa-C	18	58.824	67.059	67.059	67.059	67.059	100.000	-	-	-	-	-	-	-	-	-	-	-	-	-
Investment-Grade	1,518	0.000	0.140	0.140	0.140	0.140	0.232	0.232	0.232	0.232	0.338	0.556	1.454	2.150	2.393	2.393	2.525	2.525	2.525	2.525
Speculative-Grade	875	10.079	19.770	24.094	27.885	29.003	31.038	31.891	33.819	36.044	37.290	39.987	43.890	48.206	48.206	48.206	48.892	48.892	48.892	48.892
All Rated	2,393	3.587	6.919	8.279	9.401	9.711	10.306	10.517	10.960	11.427	11.752	12.423	13.811	15.077	15.268	15.268	15.475	15.475	15.475	15.475

Exhibit 33 - Cumulative Issuer-Weighted Default Rates by Annual Cohort, 1970-2006

Cohort Formed 1/1/1991

Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Aaa	170	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	436	0.000	0.000	0.000	0.000	0.305	0.305	0.305	0.305	0.305	0.305	0.689	1.086	1.086	1.086	1.086	1.086
A	605	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.257	0.520	0.791	1.076	1.076	1.379	1.379
Baa	374	0.271	0.271	0.271	0.271	0.271	0.271	0.271	0.271	0.690	1.119	3.756	5.581	6.064	6.064	6.064	6.611
Ba	375	5.352	6.629	8.474	8.901	9.855	10.888	12.585	14.507	15.937	19.037	24.045	27.705	27.705	28.768	28.768	28.768
B	329	14.563	23.676	30.967	33.167	37.079	37.856	40.660	44.116	46.842	49.924	51.712	59.932	59.932	59.932	63.416	63.416
Caa-C	20	36.842	36.842	36.842	36.842	47.368	47.368	47.368	47.368	47.368	47.368	73.684	73.684	73.684	73.684	73.684	73.684
Investment-Grade	1,585	0.064	0.064	0.064	0.064	0.148	0.148	0.148	0.148	0.246	0.445	1.263	1.898	2.120	2.120	2.241	2.366
Speculative-Grade	724	10.395	15.111	19.262	20.425	22.816	23.707	25.715	28.048	29.819	32.723	36.961	41.653	41.653	42.364	43.138	43.138
All Rated	2,309	3.216	4.572	5.701	5.997	6.629	6.830	7.253	7.699	8.086	8.727	10.055	11.266	11.448	11.544	11.745	11.848

Cohort Formed 1/1/1992

Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15
Aaa	159	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	449	0.000	0.000	0.000	0.274	0.274	0.274	0.274	0.274	0.274	0.618	0.618	0.618	0.618	0.618	0.618
A	699	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.219	0.445	0.918	1.165	1.165	1.165	1.165
Baa	385	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.390	0.789	3.249	4.539	4.998	4.998	5.498	6.009
Ba	359	0.299	0.997	0.997	1.887	2.373	3.445	5.239	7.248	9.430	14.055	18.187	18.187	19.167	20.238	20.238
B	258	9.110	18.175	21.584	26.399	28.812	31.641	35.088	36.426	42.481	44.224	52.192	52.192	52.192	52.192	52.192
Caa-C	24	26.667	32.099	32.099	40.087	40.087	52.070	52.070	52.070	52.070	76.035	76.035	76.035	76.035	76.035	76.035
Investment-Grade	1,692	0.000	0.000	0.000	0.075	0.075	0.075	0.075	0.161	0.339	1.077	1.559	1.761	1.761	1.871	1.985
Speculative-Grade	641	4.841	9.118	10.485	13.079	14.240	16.201	18.445	20.144	23.404	27.422	32.333	32.333	32.997	33.721	33.721
All Rated	2,333	1.300	2.388	2.712	3.347	3.591	3.979	4.388	4.743	5.405	6.632	7.760	7.930	8.019	8.206	8.303

Cohort Formed 1/1/1993

Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14
Aaa	134	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	463	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
A	742	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.190	0.585	0.999	1.216	1.216	1.216	1.216
Baa	458	0.000	0.000	0.255	0.255	0.255	0.543	1.143	1.757	3.327	4.312	4.659	4.659	5.040	5.432
Ba	390	0.548	0.548	2.595	3.339	4.594	6.014	7.585	9.312	12.964	16.891	16.891	16.891	17.730	18.624
B	254	6.224	10.497	15.988	17.883	20.869	23.567	28.697	35.488	39.397	43.778	45.408	47.228	47.228	49.297
Caa-C	23	28.571	28.571	42.177	50.437	50.437	50.437	50.437	50.437	75.219	75.219	75.219	75.219	75.219	75.219
Investment-Grade	1,797	0.000	0.000	0.065	0.065	0.065	0.138	0.288	0.520	1.081	1.500	1.675	1.675	1.771	1.871
Speculative-Grade	667	3.668	5.303	8.968	10.327	12.141	13.940	16.630	19.957	23.949	27.849	28.329	28.852	29.412	30.603
All Rated	2,464	0.977	1.392	2.323	2.633	3.019	3.427	4.037	4.797	5.919	6.890	7.110	7.187	7.348	7.599

Exhibit 33 - Cumulative Issuer-Weighted Default Rates by Annual Cohort, 1970-2006

Cohort Formed 1/1/1994

Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13
Aaa	127	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	422	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
A	881	0.000	0.000	0.000	0.000	0.000	0.000	0.149	0.458	0.779	0.948	0.948	0.948	0.948
Baa	530	0.000	0.201	0.201	0.419	0.647	1.833	2.322	3.839	4.632	4.916	4.916	5.234	5.567
Ba	441	0.236	1.777	2.056	2.990	4.758	7.541	10.177	12.504	16.014	16.579	16.579	17.260	18.751
B	331	3.871	9.302	12.534	14.430	18.590	23.633	30.030	35.344	40.169	43.375	46.951	46.951	48.404
Caa-C	41	5.128	13.753	24.314	24.314	24.314	30.895	30.895	56.024	56.024	56.024	56.024	56.024	56.024
Investment-Grade	1,960	0.000	0.054	0.054	0.113	0.175	0.491	0.687	1.227	1.579	1.727	1.727	1.809	1.895
Speculative-Grade	813	1.943	5.369	7.258	8.515	11.050	14.716	18.512	22.330	26.157	27.591	28.788	29.224	30.653
All Rated	2,773	0.558	1.541	2.039	2.394	3.010	4.010	4.896	6.038	7.008	7.372	7.566	7.702	7.986

Cohort Formed 1/1/1995

Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
Aaa	125	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	487	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
A	978	0.000	0.000	0.000	0.000	0.000	0.126	0.388	0.794	0.937	0.937	0.937	0.937
Baa	550	0.000	0.000	0.000	0.421	1.517	1.971	3.619	4.111	4.111	4.111	4.410	4.729
Ba	454	0.688	0.937	2.047	3.614	6.769	9.466	11.918	14.561	16.059	16.059	16.663	17.991
B	455	4.778	7.284	10.132	13.821	18.179	23.960	32.596	39.799	43.813	45.784	46.537	47.386
Caa-C	62	12.389	21.042	21.042	26.785	33.928	38.647	64.480	73.360	73.360	86.680	86.680	86.680
Investment-Grade	2,140	0.000	0.000	0.000	0.107	0.383	0.554	1.086	1.394	1.459	1.459	1.532	1.608
Speculative-Grade	971	3.326	5.097	6.958	9.712	13.584	17.709	23.624	28.412	30.982	32.142	32.783	33.847
All Rated	3,111	1.021	1.543	2.061	2.851	3.980	5.034	6.731	7.980	8.544	8.764	8.938	9.183

Cohort Formed 1/1/1996

Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Aaa	131	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	511	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
A	1,079	0.000	0.000	0.000	0.000	0.110	0.338	0.575	0.700	0.700	0.700	0.700
Baa	635	0.000	0.000	0.172	0.707	1.263	2.802	3.402	3.614	3.841	4.084	4.606
Ba	476	0.000	0.719	2.344	5.961	8.243	11.699	13.958	15.683	15.683	16.737	17.910
B	513	1.442	4.453	9.277	13.071	19.165	26.937	34.765	38.924	41.978	42.694	43.562
Caa-C	75	14.184	20.541	27.848	41.376	47.389	67.624	72.605	72.605	86.302	86.302	86.302
Investment-Grade	2,356	0.000	0.000	0.047	0.191	0.391	0.908	1.177	1.291	1.351	1.414	1.547
Speculative-Grade	1,064	1.673	3.866	7.377	11.699	15.869	21.922	26.694	29.372	30.905	31.761	32.741
All Rated	3,420	0.511	1.149	2.135	3.325	4.462	6.243	7.493	8.119	8.454	8.658	8.928

Exhibit 33 - Cumulative Issuer-Weighted Default Rates by Annual Cohort, 1970-2006

Cohort Formed 1/1/1997

Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Aaa	129	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	562	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
A	1,148	0.000	0.000	0.000	0.099	0.303	0.517	0.858	0.858	0.858	0.858
Baa	733	0.000	0.143	0.735	1.353	2.641	3.311	3.490	3.681	4.093	4.541
Ba	559	0.190	1.475	5.540	8.654	11.695	14.416	16.142	16.142	17.004	17.958
B	588	2.133	7.504	12.077	17.973	28.000	34.978	38.826	41.986	42.506	44.402
Caa-C	77	14.865	27.715	40.287	50.902	73.076	77.218	77.218	77.218	77.218	77.218
Investment-Grade	2,572	0.000	0.041	0.210	0.429	0.884	1.169	1.370	1.423	1.535	1.654
Speculative-Grade	1,224	2.064	6.035	10.783	15.553	22.673	27.381	29.975	31.373	32.044	33.321
All Rated	3,796	0.650	1.859	3.295	4.710	6.866	8.219	8.949	9.279	9.499	9.828

Cohort Formed 1/1/1998

Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Aaa	115	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	605	0.000	0.000	0.000	0.000	0.000	0.000	0.218	0.218	0.218
A	1,168	0.000	0.000	0.093	0.285	0.486	0.806	0.806	0.806	0.806
Baa	872	0.117	0.599	1.097	2.263	3.483	3.627	3.938	4.274	4.639
Ba	672	0.781	3.190	6.541	10.888	13.700	15.684	16.246	17.177	17.870
B	740	4.261	11.650	19.020	30.050	37.261	42.300	46.431	47.090	49.532
Caa-C	113	15.238	31.644	41.322	62.905	67.743	71.776	74.341	74.341	74.341
Investment-Grade	2,760	0.037	0.189	0.385	0.833	1.302	1.482	1.626	1.727	1.834
Speculative-Grade	1,525	3.518	9.324	15.054	23.752	28.773	32.303	34.644	35.387	36.767
All Rated	4,285	1.249	3.279	5.248	8.284	10.116	11.234	11.957	12.216	12.613

Cohort Formed 1/1/1999

Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Aaa	106	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	646	0.000	0.000	0.000	0.000	0.000	0.197	0.197	0.197
A	1,189	0.000	0.000	0.181	0.370	0.666	0.666	0.666	0.666
Baa	981	0.103	0.636	1.521	2.801	3.176	3.446	3.733	4.194
Ba	721	1.153	3.630	7.251	9.934	11.762	12.683	13.958	14.808
B	847	6.131	15.366	26.566	35.477	40.311	43.994	45.041	47.318
Caa-C	212	20.438	31.466	52.956	59.323	65.721	70.292	70.292	70.292
Investment-Grade	2,922	0.035	0.214	0.585	1.089	1.334	1.465	1.556	1.701
Speculative-Grade	1,780	5.831	12.542	21.822	27.798	31.430	33.920	34.952	36.289
All Rated	4,702	2.197	4.748	8.283	10.644	11.964	12.797	13.149	13.596

Exhibit 33 - Cumulative Issuer-Weighted Default Rates by Annual Cohort, 1970-2006

Cohort Formed 1/1/2000

Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Aaa	124	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	645	0.000	0.000	0.000	0.000	0.000	0.000	0.000
A	1,256	0.000	0.168	0.342	0.617	0.713	0.814	0.814
Baa	1,076	0.379	0.871	2.218	2.776	3.014	3.395	3.802
Ba	595	0.870	2.734	4.567	6.159	6.159	6.997	7.614
B	1,085	5.687	16.515	25.513	30.344	33.782	35.769	38.218
Caa-C	275	20.149	43.490	54.942	62.022	67.619	68.663	70.121
Investment-Grade	3,101	0.131	0.369	0.901	1.202	1.321	1.489	1.622
Speculative-Grade	1,955	6.271	16.102	23.164	27.164	29.639	31.078	32.656
All Rated	5,056	2.487	6.325	9.215	10.779	11.654	12.198	12.723

Cohort Formed 1/1/2001

Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Aaa	121	0.000	0.000	0.000	0.000	0.000	0.000
Aa	714	0.000	0.000	0.000	0.000	0.000	0.000
A	1,312	0.155	0.397	0.650	0.650	0.650	0.650
Baa	1,081	0.188	1.766	2.189	2.416	2.898	3.286
Ba	540	1.527	3.396	5.010	5.010	5.866	6.499
B	1,055	9.426	19.567	25.157	28.683	30.812	33.435
Caa-C	266	34.263	46.259	57.007	62.886	64.814	66.142
Investment-Grade	3,228	0.126	0.751	0.995	1.069	1.225	1.348
Speculative-Grade	1,861	10.594	18.483	23.417	26.033	27.659	29.353
All Rated	5,089	3.907	7.055	8.841	9.697	10.270	10.801

Cohort Formed 1/1/2002

Ratings	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5
Aaa	136	0.000	0.000	0.000	0.000	0.000
Aa	744	0.000	0.000	0.000	0.000	0.000
A	1,311	0.156	0.320	0.320	0.320	0.320
Baa	1,201	1.283	1.647	1.744	1.950	2.060
Ba	564	1.488	3.326	3.998	4.980	6.072
B	831	5.200	10.498	13.148	15.516	17.910
Caa-C	302	29.422	42.928	52.152	54.430	58.573
Investment-Grade	3,392	0.513	0.705	0.739	0.810	0.848
Speculative-Grade	1,697	8.253	13.660	16.482	18.257	20.232
All Rated	5,089	3.047	4.866	5.720	6.259	6.788

Exhibit 33 - Cumulative Issuer-Weighted Default Rates by Annual Cohort, 1970-2006

Cohort Formed 1/1/2003

Ratings	Issuers	Year 1	Year 2	Year 3	Year 4
Aaa	136	0.000	0.000	0.000	0.000
Aa	694	0.000	0.000	0.000	0.000
A	1,298	0.000	0.000	0.000	0.000
Baa	1,175	0.000	0.000	0.196	0.300
Ba	578	0.905	1.104	1.761	2.249
B	817	2.460	4.084	6.333	8.565
Caa-C	304	21.284	34.832	37.180	42.543
Investment-Grade	3,303	0.000	0.000	0.069	0.106
Speculative-Grade	1,699	5.133	8.066	9.712	11.620
All Rated	5,002	1.704	2.626	3.162	3.716

Cohort Formed 1/1/2004

Ratings	Issuers	Year 1	Year 2	Year 3
Aaa	150	0.000	0.000	0.000
Aa	663	0.000	0.000	0.000
A	1,273	0.000	0.000	0.000
Baa	1,205	0.000	0.180	0.180
Ba	591	0.356	0.552	1.210
B	907	0.817	2.145	3.992
Caa-C	263	12.836	20.015	25.196
Investment-Grade	3,291	0.000	0.066	0.066
Speculative-Grade	1,761	2.408	4.121	5.940
All Rated	5,052	0.821	1.421	1.975

Cohort Formed 1/1/2005

Ratings	Issuers	Year 1	Year 2
Aaa	153	0.000	0.000
Aa	777	0.000	0.000
A	1,373	0.000	0.000
Baa	1,206	0.170	0.170
Ba	598	0.000	0.593
B	979	0.977	2.736
Caa-C	314	7.904	12.406
Investment-Grade	3,509	0.059	0.059
Speculative-Grade	1,891	1.797	3.608
All Rated	5,400	0.654	1.240

Exhibit 33 - Cumulative Issuer-Weighted Default Rates by Annual Cohort, 1970-2006

Cohort Formed 1/1/2006		
Ratings	Issuers	Year 1
Aaa	147	0.000
Aa	867	0.000
A	1,499	0.000
Baa	1,206	0.000
Ba	635	0.168
B	1,140	1.036
Caa-C	273	7.186
Investment-Grade	3,719	0.000
Speculative-Grade	2,048	1.574
All Rated	5,767	0.543

Guide to Data Tables and Charts

In this section we briefly describe the interpretation of some of the Exhibits contained in this report whose meanings may not be self evident. Methodological details are discussed in separate sections below.

Exhibit 2 presents Moody's speculative-grade default rate forecast for 2007. The model-generated point forecasts for each month are shown, as well as forecasted lower and upper bounds. The lower and upper bounds were generated by stressing the number of expected monthly default counts in the numerator of the default rate by 50%, holding the forecasted denominators constant.

Exhibit 3 was derived by mapping Moody's ratings to a linear scale, then taking the average and median values of the numerically mapped ratings.

Exhibit 6 shows average senior unsecured recovery rates by letter rating and year prior to default. Each cell in the table indicates the average recovery rate on senior unsecured bonds with a specific rating within T years of default. For example, the 37.4% three-year B recovery rate reported in Exhibit 6 indicates that the average recovery rate on B rated issues that default at some time within a three-year period, not mean recovery rate for issuers rated B exactly three years before default.³ Together with issuer-weighted average cumulative default rates, these multi-period recovery estimates are used to calculate cumulative expected credit loss rates, as presented in Exhibit 8.

Exhibits 23 through 26 (and the cover chart) show issuer-weighted historical average default rates by rating category over various investment horizons. These data were generated by averaging the multi-year default rates of cohorts formed at monthly intervals. In addition to their being statements of historical fact, these data are also useful proxies for expected default rates. For example, over a five-year period a portfolio of B-rated issuers defaulted at a 27.26% average rate between 1983 and 2006 (see Exhibit 25). For an investor with a five-year exposure to a B-rated debt obligation or counterparty, this estimate also happens to be the best estimate of the expected risk of default for a B-rated exposure based on the available historical data, particularly over long investment horizons.

Exhibit 29 shows average cumulative volume-weighted default rates by rating category. Whereas issuer-based default rates weight each issuer equally, these data weight each issuer by the total volume of defaulted debt; large defaults receive relatively more weight. Average default rates based on debt volume affected are less suitable estimates of expected default probabilities. One reason is that issuer default volumes vary considerably over time. On average, a leveraged corporate issuer defaults on approximately \$300 million of bonds. However, that total has been as high as \$30 billion (WorldCom). Issuer-based default rates receive particular emphasis in the rating process because the expected likelihood of default of a debt issuer holding a given rating is expected to be the same regardless of differences in the nominal sizes of the exposures.

Exhibit 33 shows the cumulative issuer-weighted historical default rates of cohorts formed at annual intervals between the years 1970 and 2006 (January 1 of each year). These data are a subset of the data used to calculate the issuer-weighted averages shown in Exhibits 18 through 20 (which, again, are based on cohorts formed at monthly time intervals). The default rates in Exhibit 31 may be useful for scenario analysis. For example, if one believed that future default rates for a given pool of issuers will behave as they did in, say, 1997, then one can use the January 1, 1997 cohort cumulative default rates as proxies for expected default rates.

3. The details of the calculation may be found in Varma, P. (2003) "Recovery Rates on Defaulted Bonds and Preferred Stocks", Moody's Global Credit Research, December.

Methodology and Data Sources

METHODOLOGY CHANGES IN THIS YEAR'S REPORT

The historical data contained in Moody's 2007 global default study includes a number of revisions relative to previous years' publications. Moody's occasionally discovers historical defaults, leading to minor revisions of the historical data. However, this year's report includes two methodological changes that result in more substantial revisions to certain historical data. As always, the data contained in the most recently published Moody's default study supersedes the data published in previous reports.

Change in Universe of Study

As an assessment of the performance of Moody's long-term corporate ratings, it is important that Moody's default study include ratings for all debt classes and issuers that share the same intended meaning (and for which data is available). This year's report includes changes to the universe of study whose net effect is to increase the total number of issuers (and observed defaults) in the universe of study. For the first time, this year's report includes corporate bank loan issuers in addition to bond issuers. The rated loan market has grown considerably since 1995 and has become an important source of capital for highly leveraged issuers. In 2002, only 17% of new speculative-grade rated issuers came to market with bank loans only (no bonds); that proportion increased to 52% in 2006. Secondly, we completely omit data for some sub-sovereigns and GSEs that were included in prior years' reports. This change is consistent with the report's purpose as an all-corporate study.

Change in Senior Rating Histories

The inclusion of loan issuers to the universe of study requires a restatement of estimated senior rating histories for some issuers. The credit ratings used in Moody's annual default studies do not refer to the ratings of specific debt obligations. Rather, they are notional, issuer-level ratings derived from each issuer's outstanding rated bonds and loans. Because issuers do not always have similar classes of debt outstanding, it is necessary to put their ratings on an equal footing before one can calculate and compare default rates. Estimated senior ratings are derived by a statistical algorithm: first, the rating on each company's senior unsecured bonds is used; if an issuer does not have any rated senior unsecured bonds, the estimated senior rating is derived by statistically implying such a rating on the basis of rated subordinated or secured bonds or, in the case of loans, the issuer's corporate family rating.⁴ The resulting ratings are called estimated senior unsecured ratings or, more concisely, estimated senior ratings.⁵

MOODY'S DEFINITION OF DEFAULT

Moody's definition of default includes three types of credit events:

1. A missed or delayed disbursement of interest and/or principal;
2. Bankruptcy, administration, legal receivership, or other legal blocks (perhaps by regulators) to the timely payment of interest and/or principal; or
3. A distressed exchange occurs where: (i) the issuer offers debt holders a new security or package of securities that amount to a diminished financial obligation (such as preferred or common stock, or debt with a lower coupon or par amount, lower seniority, or longer maturity); or (ii) the exchange had the apparent purpose of helping the borrower avoid default.

The definition of a default is intended to capture events that change the relationship between debt holders and the debt issuer from the relationship which was originally contracted, and which subjects the bondholder to an economic loss. Technical defaults (covenant violations, etc.) are not included in Moody's definition of default. Secondary and tertiary defaults are reported only after the initial default event is believed to have been cured. This is to ensure that multiple defaults related to a single episode of credit distress are not over-counted.

4. In September 2006 Moody's introduced probability of default ratings (PDRs), which are well suited for this purpose. Moody's intends to incorporate PDRs into the senior ratings algorithm in the near future.

5. See Hamilton, D. T. (2004) "Moody's Senior Ratings Algorithm and Estimated Senior Ratings", *Moody's Global Credit Research*, July.

RATING MIGRATION CALCULATIONS

A rating migration matrix completely summarizes changes in credit ratings over a given time horizon. The cells of the matrix are discrete-time estimates of rating migration probabilities. They show rate of rating change measured at two points in time; e.g. the start and end of one year. When calculating credit rating migration rates, Moody's treats rating changes, rating withdrawals, and defaults as mutually exclusive states. For example, an issuer that is downgraded on the day of default is counted only as a default, not a downgrade or a downgrade and default. Similarly, an issuer whose rating is withdrawn on the day of default is counted as a default, not a withdrawal.

The probability that an issuer's rating i held on cohort date y will transition to rating j (which includes default and withdrawal) over a time horizon T is calculated as:

$$p_{ij}^y(T) = \frac{n_{ij}^y(T)}{n_i^y(0)}$$

The weighted average rating migration rate for all cohorts y in the historical data set Y is calculated as:

$$\bar{p}_{ij}(T) = \frac{\sum_{y \in Y} n_{ij}^y(T)}{\sum_{y \in Y} n_i^y(0)}$$

DEFAULT RATE CALCULATION

Moody's method for calculating cumulative default rates is a discrete-time approximation of the nonparametric continuous-time hazard rate approach.⁶ Cumulative default rates are calculated from marginal default rates, which represent the probability that an issuer that has survived in the sample through a particular date will default over the next time interval (typically, one year) following that date.

The marginal default rate for issuers holding rating i on cohort date y is the ratio of the number of defaulting issuers in period t divided by the number of issuers exposed to the risk of default in period t :

$$d_i^y(t) = \frac{x_i^y(t)}{n_i^y(t) - x_i^y(t-1) - \frac{1}{2}[w_i^y(t) + w_i^y(t-1)]}$$

The denominator of the marginal default rate adjusts for defaults that occur prior to time interval t , as well as rating withdrawals, $w(t)$, that occur in periods prior to interval t and a small adjustment for withdrawals that occur in time interval t . Cumulative default rates for investment horizons of length T , $D(T)$, are built up from the marginal default rates:

$$D_i^y(T) = 1 - \prod_{t=1}^T [1 - d_i^y(t)]$$

Or, expanding the above equation (and dropping indices for brevity):

$$D(T) = d(1) + d(2)[1 - d(1)] + d(3)[(1 - d(1))(1 - d(2))] + \dots + d(T)\left(\prod_{t=1}^{T-1} [1 - d(t)]\right)$$

In the first time period, a fraction of the credit exposures in the cohort either defaults or survives. The credit exposures that survive period one may then go on to default or survive in period two; those that survive period two may go on to default or survive in period three, etc. Because the time periods are non-overlapping and the probability of default in each period is assumed to be independent, the T -period cumulative default rate is defined as one minus the product of the T marginal survival rates.

6. See Hamilton, D. and R. Cantor (2006) "Measuring Corporate Default Rates," Moody's Global Credit Research, November.

The calculation of the average cumulative default rate for rating class i , $\bar{D}_i(T)$, is derived from the weighted average marginal default rates, $\bar{d}_i(t)$, calculated from all the available cohort marginal default rates in the historical data set Y :

$$\bar{D}_i(T) = 1 - \prod_{t=1}^T [1 - \bar{d}_i(t)]$$

where

$$\bar{d}_i(t) = \frac{\sum_{y \in Y} x_i^y(t)}{\sum_{y \in Y} n_i^y(t)}$$

The default rates calculated in multi-year rating migration matrices are not comparable to those calculated using Moody's discrete-time hazard rate method described above. Rating migration matrices account for rating withdrawals separately (in the column labeled WR) while the hazard rate method incrementally adjusts the denominator of the marginal default rate to remove rating withdrawals. Occasionally, withdrawal-adjusted rating migration matrices are calculated as follows:

$$p_{ij}^y(T)^* = \frac{p_{ij}^y(T)}{(1 - p_{iw}^y(T))}$$

Using this method, all issuers whose ratings are withdrawn are removed. In effect, data for issuers whose ratings are withdrawn is completely discarded. This method generally yields higher default rate estimates than the hazard rate method. Hence, Moody's hazard rate-derived default rate estimates lay between unadjusted migration matrix-derived default rates and withdrawal-adjusted migration matrix-derived default rates.

RECOVERY RATE CALCULATIONS

Moody's estimates defaulted debt recovery rates using market bid prices observed roughly 30 days after the date of default. Recovery rates are measured as the ratio of price to par value. Using post-default prices to measure recovery (or its complement, loss severity) parallels common practice in the credit default swaps market. Moreover, recovery rates measured in this way are most relevant for cash bond investors who liquidate their holdings shortly after default as often required by their portfolio governance rules or their own investment objectives. For investors holding defaulted securities until ultimate resolution, prices observed shortly after default are generally accepted as the market's estimate of discounted expected ultimate recovery rates.

The alternative approach of directly measuring ultimate realized recoveries presents a number of estimation challenges, including the appropriate discount rate to apply to cash-flows and valuing the assets used to pay creditor claims, which may include illiquid new securities (e.g., equity and derivative instruments) as well as physical assets. The table below defines the various ways Moody's calculates recovery rates.⁷ For the purposes of measuring expected credit loss rates, we rely on issuer-weighted mean recovery rates.

Statistic	Definition
Issuer-Weighted Mean Recovery Rate	Issuer-weighted mean recovery rates are derived by estimating mean recovery rates for each issuer, then averaging them across issuers. They are useful for predicting recovery rates for portfolios that are well diversified across issuers.
Value-Weighted Mean Recovery Rate	Value-weighted recovery rates represent the average of recovery rates on all defaulted issuers, weighted by the face value of those issues. These estimates are useful for predicting recovery rates on the market portfolio.
Issuer-Weighted Median Recovery Rate	Issuer-weighted median recovery rates are estimated as median of issuer-weighted recovery rates and are used for predicting the most likely recovery rate for a randomly selected issuer.
Issue-Weighted Mean Recovery Rate	Issue-weighted recovery rates are estimated using recovery rates for each issue and taking the average of all issues. While this measure is widely reported, it is useful only for predicting the average recovery rate on a portfolio of default bonds diversified across issues but without reference to issuer or issue size.

7. This table is derived from Varma, P. (2003) "Recovery Rates on Defaulted Bonds and Preferred Stocks", Moody's Global Credit Research, December.

CREDIT LOSS RATE CALCULATIONS

Moody's credit ratings are opinions of relative expected credit losses. Credit losses are therefore a function of both probability of default (PD) as well as the severity of default (LGD). The expected credit loss rate for rating category i is calculated as the product of the T -horizon average issuer-weighted default rate and the T -horizon average issuer-weighted senior unsecured loss severity rate (where $r(T)$ is the average senior unsecured recovery rate at horizon T):

$$l_i(T) = \bar{D}_i(T) \times (1 - \bar{r}_i(T))$$

CAP CURVE AND ACCURACY RATIO

In addition to assigning low ratings to issuers that ultimately default, the effectiveness of a rating system depends on its ability to assign high credit ratings to issuers that do not default. In other words, an efficient rating system is able to separate the low credit risks from the high credit risks. A metric designed to measure this aspect of ratings performance is the cumulative accuracy profile (CAP) plot.⁸ The CAP plot graphs the cumulative proportion of defaults from a portfolio (the y-axis) against the proportion of issuers exposed to the risk of default (the x-axis), sorted by riskiness. A rating system that randomly identified defaults from non-defaults would plot a line directly on the 45-degree line. The more powerful the discriminatory power of the rating system, the further the CAP curve bows toward the top left corner.

CAP curves are powerful tools for visualizing rating performance, but can be unwieldy from making comparisons over many time periods. A summary measure of rating accuracy that can be derived from the CAP curve is the accuracy ratio (AR). The accuracy ratio is the ratio of the area between the CAP curve and the 45-degree line to the total area above the 45-degree line. A rating system that perfectly differentiates defaults from non-defaults would score an AR of 100%, while a rating system that had zero predictive ability would score 50%.⁹

DATA SOURCES

Moody's bases the results of this study on its proprietary database of ratings and defaults for corporate bond and loan issuers. Municipal and sub-sovereign debt issuers, structured finance securities, private placements, and issuers with only short-term debt ratings are excluded unless otherwise noted. In total, Moody's data covers the credit experiences of over 18,000 corporate issuers that sold long-term public debt at some time between 1920 and 2006. As of January 1, 2006 over 5,700 corporate issuers held a Moody's long-term bond, loan, or corporate family rating.

Moody's database of corporate defaults covers over 3,600 long-term bond defaults by issuers both rated and non-rated by Moody's. Additional data sources, such as Lehman Brothers index data, supplemented Moody's proprietary data in the construction of the aggregate dollar volume-weighted default rates. Defaulted bond pricing data was derived from Bloomberg, Reuters, and TRACE. The majority of these market quotes represent an actual bid on the debt instrument, although no trade may have occurred at that price. Over the 1982-2005 period, the dataset consists includes post-default prices for nearly 2,500 defaulted instruments issued by over 1,200 defaulting corporations. Moody's makes the 1970-2006 credit rating, default, and recovery rate data used in this study available through its Default Risk Service (DRS) database.

8. For a more detailed discussion of rating accuracy metrics see Cantor, R. and C. Mann (2003) "Measuring the Performance of Corporate Bond Ratings," *Moody's Global Credit Research*, April.

9. The accuracy ratio possesses the same information about discriminatory power as the area under the receiver-operator characteristics curve (AROC) and the Gini coefficient. Each measure quantifies rank rather than scale.

Related Research

Special Comments:

[Recovery Rates on Defaulted Corporate Bonds and Preferred Stocks, 1982-2003, December 2003 \(80272\)](#)

[Measuring Corporate Default Rates, November 2006 \(100779\)](#)

[Predicting Default Rates: A Forecasting Model For Moody's Issuer-Based Default Rates, August 1999 \(47729\)](#)

[Measuring The Performance Of Corporate Bond Ratings, April 2003 \(77916\)](#)

[Refunding Risk and Needs for U.S. Speculative Grade Corporate Issuers, 2007 - 2009, February 2007 \(102048\)](#)

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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