

Special Comment

Moody's Global Corporate Finance

February 2008

Corporate Default and Recovery Rates, 1920-2007

Summary

This report comprises Moody's twenty-first annual default study in which we update statistics on the default, loss, and rating transition experience of corporate bond and loan issuers for 2007, as well as for the historical period since 1920. Briefly, we find that:

- Eighteen Moody's-rated corporate issuers defaulted on a total of \$4.5 billion of bonds and \$2.0 billion of loans in 2007, down from thirty-two defaulters and \$10.4 billion in debt in 2006. Including Schefenacker AG, a 2006 loan defaulter whose bonds did not default until 2007, nineteen issuers defaulted on bond volume totaling \$4.7 billion.
- Fifteen of this year's defaulters were North American issuers (14 in the U.S and 1 in Canada) with bond and loan volume totaling \$5.9 billion. The remaining defaulters were domiciled in Western Europe, affecting a total of \$0.8 billion in debt.
- The retail industry was the most troubled sector in 2007 as measured by both default counts and volume, with 3 issuers defaulting on a total of \$1.4 billion in debt. Movie Gallery, Inc., with \$1.2 billion in defaulted debt, was the largest defaulter in 2007 and the only defaulter with more than \$1.0 billion in defaulted debt.
- Moody's global speculative-grade default rate ended 2007 at 0.91%, approximately 48% lower than 2006's year-end level of 1.74%. The speculative-grade default rate is now at its lowest level since 1981 when it came in at 0.70%. The default rate for all Moody's-rated corporate issuers fell to 0.31% in 2007 from 0.61% in 2006, also over a two-decade low going back to 1981.
- Measured on a dollar volume basis, Moody's global speculative-grade bond default rate ended 2007 at 0.60%, down over 40% from 1.05% in 2006. Among all Moody's-rated issuers, the volume-weighted default rate dropped to 0.12% in 2007 from 0.21% in 2006.
- Moody's global speculative-grade default rate forecasting model predicts that the default rate will jump sharply and reach 4.6% by the end of 2008. Still, at the end of 2008, the speculative-grade default rate is expected to be near its long-run historical average of approximately 4.5%.

Table of Contents:

Summary	1
Introduction	3
Default experience in 2007	3
Default Rate Forecast for 2008	4
Rating Accuracy Metrics	6
Recovery in Default and Credit Loss Rates	8
Data Tables and Charts	12
Guide to Data Tables and Charts	50
Default and Recovery Experience for Preferred Stock, 1983-2007	51
Methodology and Data Sources	54
Methodology Changes in this Year's Report	54
Moody's Definition of Default	54
Rating Migration Calculations	55
Default Rate Calculation	55
Recovery Rate Calculations	56
Credit Loss Rate Calculations	57
CAP Curve and Accuracy Ratio	57
Data Sources	58
Moody's Related Research	59

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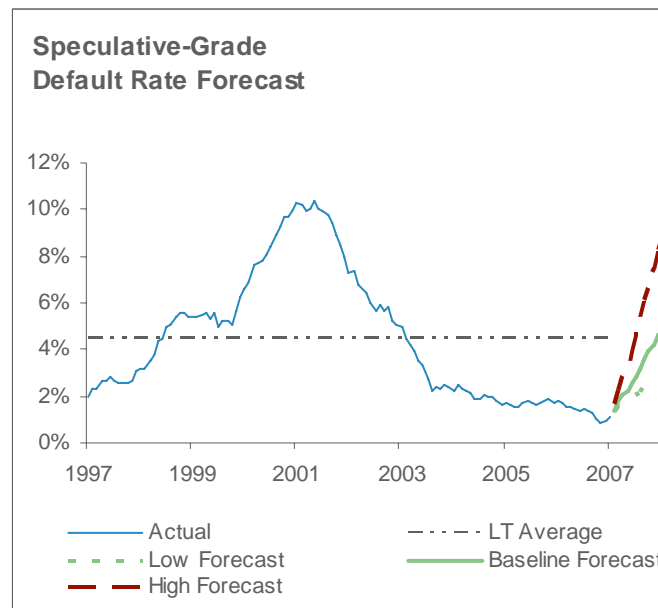
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Moody's Investors Service

Corporate Default and Recovery Rates, 1920-2007

- Measured by post-default trading prices, the average recovery rates for senior unsecured bonds edged lower from 55.0% in 2006 to 51.0% in 2007. Measured by discounted ultimate recoveries that creditors actually receive at the resolution of the default, however, senior unsecured bond holders recovered an average of 100% in 2007. Given the relatively few defaults in 2007, however, these average recovery rates are based on a small sample of issues.



Availability of Data Used in this Study

Moody's makes the 1970-2007 credit rating, default, and recovery rate data used in this study available through its Default Risk Service (DRS) database. The ultimate recovery data used in Exhibit 10 are available in Moody's Ultimate Recovery Database, along with detailed capital structure information. Further, a monthly update to many of the exhibits in this report, including a variety of default rate forecasts, is available by subscription. For more information, please visit www.moodys.com/RiskMgmtProducts.

For additional publicly available default, recovery, and ratings research throughout the year, please visit www.moodys.com/defaultanalysis or see "[Guide to Moody's Default Research](#)"

Corporate Default and Recovery Rates, 1920-2007

Introduction

Moody's credit ratings facilitate the efficient functioning of capital markets by providing independent opinions on the creditworthiness of debt obligations issued by corporate issuers around the world. One of the primary purposes of Moody's corporate default study is to communicate the historical performance of Moody's ratings as predictors of default and loss severity for corporate issuers. In addition to providing useful data for investors and regulators, Moody's default studies also contribute to the transparency of the rating process and directly address the meaning of Moody's long-term debt ratings scale.

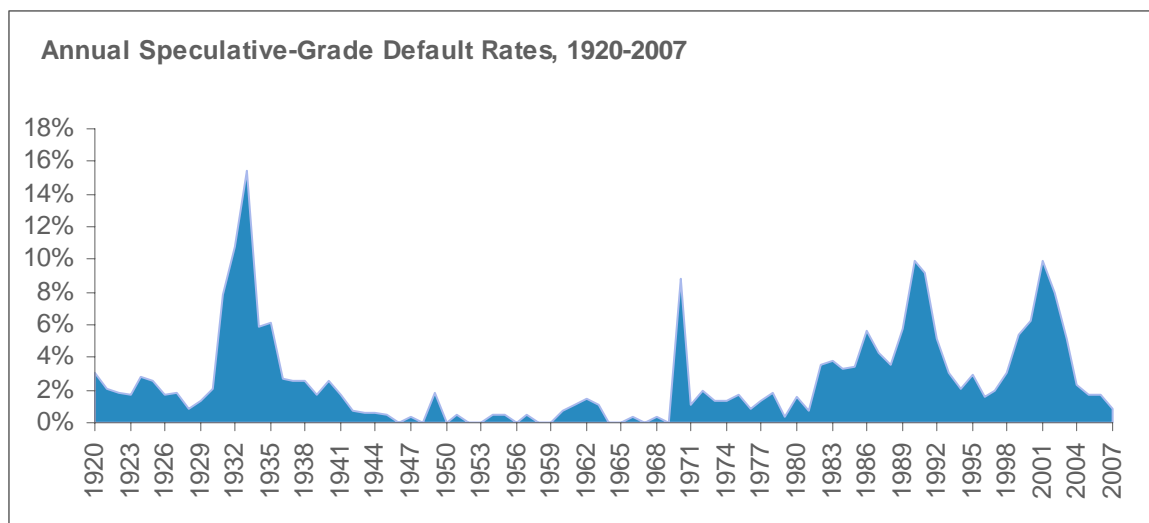
In the following two sections we briefly summarize corporate default activity in 2007 and discuss Moody's forecast for speculative-grade corporate defaults in 2008. The majority of this report, however, is comprised of historical statistics on corporate defaults, ratings transitions, ratings performance metrics, and recovery rates. This year's default study contains several revisions to the historical data relative to previous years' reports, which are described in detail in a separate section at the end of the study. The report also includes, in an appendix, a detailed discussion of historical defaults and recoveries for preferred stock. 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.

Default experience in 2007

Despite the recent turbulence in credit markets initiated by high defaults in the U.S. sub-prime mortgage sector, the corporate default environment remained surprisingly benign in 2007. Corporate defaults remained at historic lows as issuers continued to benefit from relatively strong global economic growth as well as easy credit conditions over the past couple of years which allowed many issuers to refinance their debt on favorable terms with relatively long maturities. Consequently, the vast majority of corporate issuers were able to make their debt service payments in 2007 and few faced the daunting prospect of accessing the credit markets in the latter parts of 2007 when credit market conditions had deteriorated precipitously.

Moody's global speculative-grade corporate default rate finished the year at 0.91% in 2007, down approximately 48% from last year's level of 1.74%, and the lowest year-end level since 1981. Since 1983, Moody's annual default rate for speculative-grade corporate issuers has averaged 4.48% per year, with the annual peak in 2001 at 9.98% and the trough in 2007 at 0.91%. The default rate for all Moody's-rated corporate issuers dropped from 0.61% in 2006 to 0.31% in 2007, marking the sixth consecutive annual decline, and its lowest level since 1981. The only time default rates have been lower than now is prior to the modern era of high-yield finance which began in the early 1980s (see Exhibit 1).

Exhibit 1



Corporate Default and Recovery Rates, 1920-2007

Worldwide, a total of 18 Moody's-rated corporate issuers defaulted on \$4.7 billion of bonds and \$2.0 billion of loans in 2007 compared with 32 issuers defaulting on \$7.8 billion of bonds and \$2.6 billion of loans in 2006 (see Exhibits 19 and 20). The highest default volume was observed in the retail sector (\$1.4 billion), which accounted for more than 21% of the entire year's default volume. Movie Gallery Inc, was the year's largest defaulter at approximately \$1.2 billion. The majority of the 2007 corporate defaults were by North American-domiciled issuers (14 in the U.S. and 1 in Canada), defaulting on \$3.9 billion of bonds and \$2.0 billion of loans. The remaining defaults were by Western European issuers, with approximately \$0.8 billion of defaulted bond volume (see Exhibit 21).

As a result of the drop in defaulted bond volume from 2006 to 2007, Moody's dollar-volume weighted corporate bond default rate experienced its second annual decline to 0.60% in 2007 from 1.05% in 2006 and 3.76% in 2005. The volume-weighted default rate for all Moody's-rated issuers fell to 0.12% in 2007 from 0.21% in 2006 and 0.75% in 2005.

Default Rate Forecast for 2008

Although default rates reached record lows in 2007, Moody's believes those lows likely mark the bottom of the current credit cycle with default rates expected to climb sharply in 2008. The primary factors expected to put upward pressure on default rates in 2008 are weaker global macroeconomic conditions, widening credit spreads and tougher corporate underwriting standards which together will hinder the ability of many speculative-grade issuers to make debt service payments and re-finance maturing debt.

While reliably and precisely forecasting default rates is a difficult endeavor given default rates' close but variable dependency on macroeconomic and credit market conditions, which themselves are difficult to reliably forecast, forecasting models are valuable tools that can effectively summarize how default rates are expected to evolve on the basis of historical relationships between default rates and macroeconomic/credit indicators.

Moody's formal forecasting model, known as the Credit Transition Model and introduced by Moody's in August 2007, is a flexible tool that provides default rate and ratings migration forecasts over multiple horizons for all or any sub-group of Moody's rated issuers.¹ The model's forecasts are based on the ratings mix of the issuers under consideration, as well as assumed paths for the U.S. unemployment rate and the high yield bond spread over the specified forecast horizons.

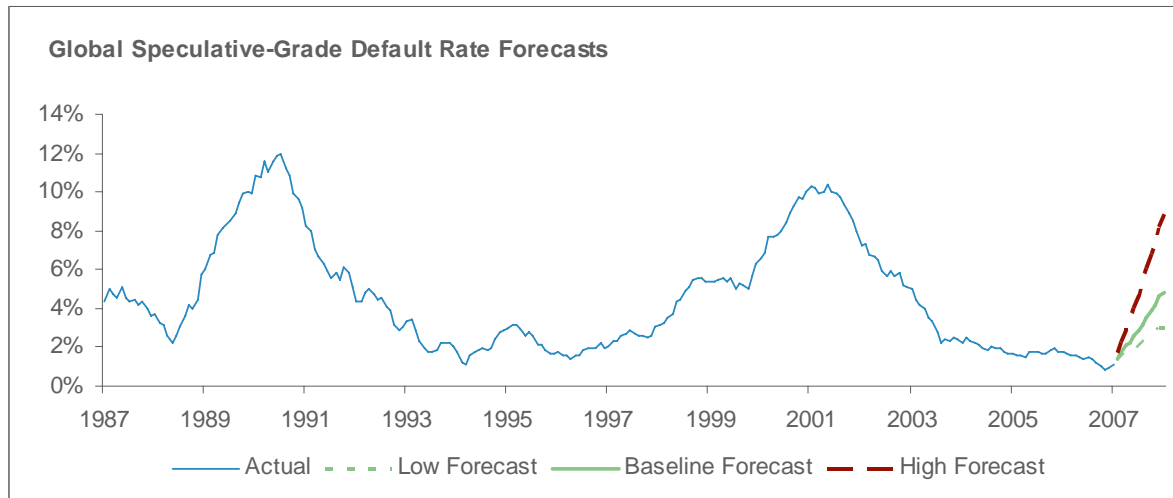
Currently, Moody's model's baseline forecast for the trailing-twelve month global speculative-grade default rate at the end of 2008 is 4.6%. Exhibit 2 shows the model's baseline forecasts through 2008, as well as the model's "low" and "high" forecast scenarios for 2008. Importantly, the assumed baseline macroeconomic scenario does not assume a U.S. recession.² If a significant U.S. recession were to materialize, the model indicates that the speculative-grade default rate would likely reach over 10% as it has done in previous recessions.

¹ See Moody's Special Comments "Introducing Moody's Credit Transition Model" and "A Cyclical Model of Multiple-Horizon Credit Rating Transitions and Default" for detailed discussions of this model.

² Under the baseline scenario, the U.S. unemployment rate is expected to remain in the 5.0% range through 2008, while the high yield spread is expected to remain close to 600 basis points. In the "low" and "high" scenarios, the unemployment rate moves from 4.6% to 5.9%, while the spread moves from 371 bps to 809 bps.

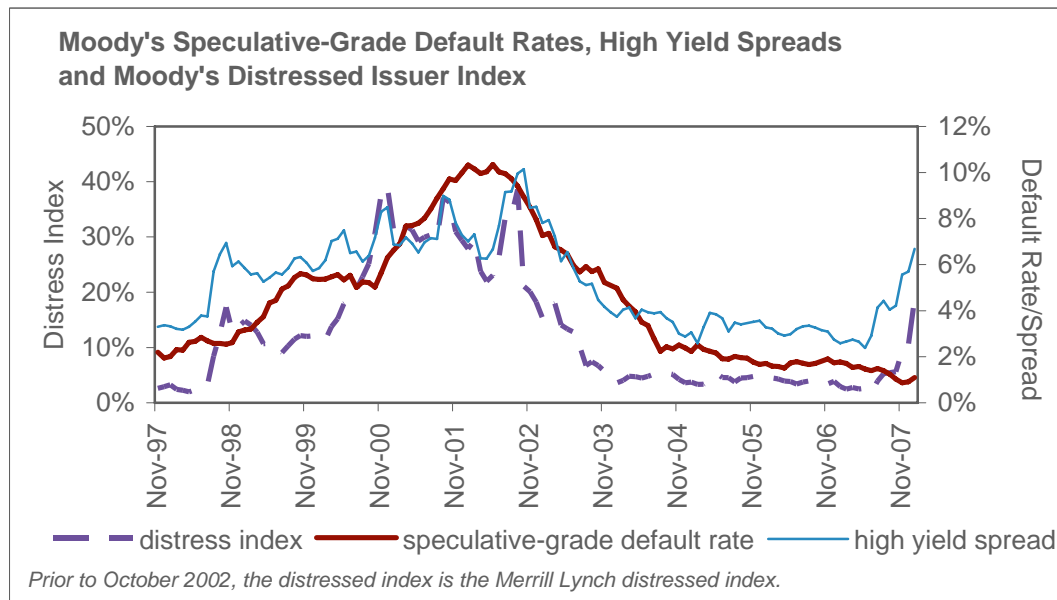
Corporate Default and Recovery Rates, 1920-2007

Exhibit 2



A primary driver underlying the model's forecasts for rising default rates in 2008 is the current high level of the high yield bond spread, which began increasing in the second half of 2007 and has now reached levels historically associated with an approximate 4-5% speculative-grade default rate. Coincident with this increase in the high yield spread, Moody's Distressed Issuer index, which shows the percentage of speculative-grade issuers with debts trading at spreads to Treasuries greater than 1000 basis points, has also climbed sharply and now stands at 18.9% of speculative-grade issuers. Exhibit 3 shows the historical correlation between speculative-grade default rates, high yield spreads, and Moody's Distressed Issuer index. The historical data suggest that the high-yield spread and Moody's distressed issuer index often precede subsequent changes in the level of the speculative-grade default rate.

Exhibit 3



Across geographical regions, the U.S. speculative default rate is expected to climb to 5.2% by year-end 2008 while the European default rate is expected to increase to a more modest 3.3%. Driving this differential is the currently weaker ratings mix of U.S. speculative-grade issuers relative to European issuers.

Exhibit 4 shows the baseline one-year speculative-grade default rate forecasts across industries in both the U.S. and Europe. In the U.S., the construction and building industry is expected to experience the highest

Corporate Default and Recovery Rates, 1920-2007

default rate at over 10.0%, while in Europe the hotel, gaming & leisure industry is expected to have the highest default rate at 5.5%.

Exhibit 4

One-Year Corporate Default Rate Forecasts by Industry

	U.S.	Europe		U.S.	Europe
Construction & Building	10.69%	0.79%	High Tech Industries	3.31%	0.98%
Containers, Packaging, & Glass	8.17%	4.64%	Environmental Industries	3.29%	0.03%
Consumer goods: non-durable	6.71%	1.54%	Telecommunications	3.23%	0.96%
Transportation: Consumer	6.60%	1.35%	Services: Consumer	2.91%	4.49%
Hotel, Gaming, & Leisure	6.11%	5.48%	Wholesale	2.84%	2.13%
Media: Advertising, Printing & Publishing	5.52%	0.97%	Chemicals, Plastics, & Rubber	2.37%	1.93%
Transportation: Cargo	5.50%	0.49%	Energy: Oil & Gas	1.84%	0.43%
Consumer goods: durable	5.06%	4.81%	Non-Bank Finance: Finance	1.55%	0.38%
Media: Broadcasting & Subscription	4.98%	3.54%	Energy: Electricity	1.34%	0.38%
Automotive	4.68%	1.39%	Media: Diversified & Production	1.17%	2.87%
Retail	4.33%	2.44%	Non-Bank Finance: Real Estate	0.97%	0.11%
Healthcare & Pharmaceuticals	4.19%	1.55%	Sovereign & Public Finance	0.24%	0.00%
Metals & Mining	4.10%	3.52%	Utilities: Oil & Gas	0.18%	0.04%
Services: Business	4.05%	2.73%	Utilities: Electric	0.15%	0.05%
Capital Equipment	4.03%	1.98%	Non-Bank Finance: Insurance	0.10%	0.09%
Aerospace & Defense	4.00%	1.06%	Utilities: Water	0.03%	0.06%
Forest Products & Paper	3.71%	2.26%	Banking	0.03%	0.20%
Beverage, Food, & Tobacco	3.59%	1.00%			

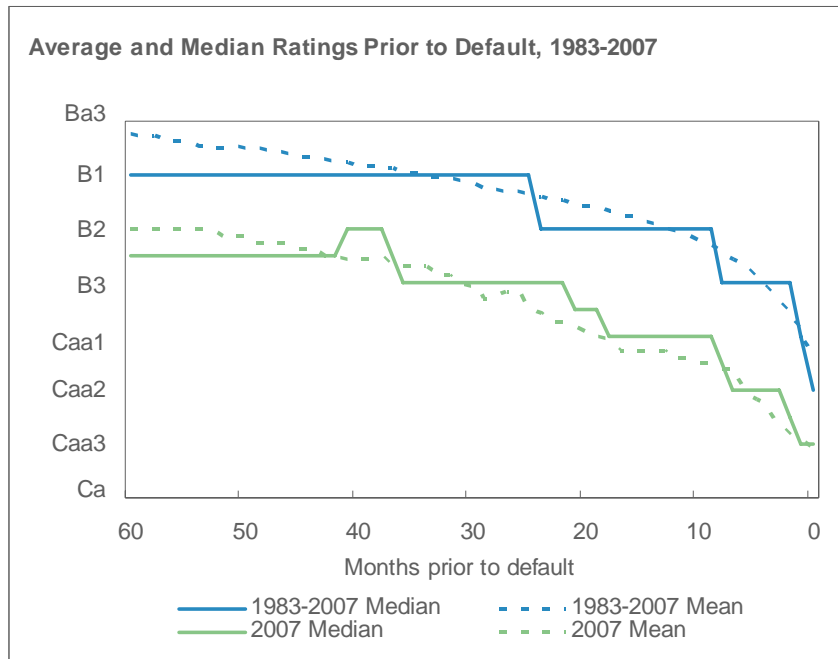
In terms of risks to the model's 2008 default rate forecasts, there are two factors unique to this credit cycle worth bearing in mind. One is the prevalence of issuers who have refinanced their debt in the past several years with longer-dated maturities, implying relatively small volumes of debt coming due in 2008. The second factor is the prevalence of bank loans issued in the past couple of years that had few or no maintenance covenants. Both of these recent corporate financing trends may allow some distressed issuers to temporarily avoid default to the extent they can make their debt interest payments without violating loan covenants—and do not need to access the credit markets because they have no debt coming due. The potential impact of these factors would be on the margin to make actual default rates in 2008 somewhat lower than being forecasted by the Credit Transition Model.

Rating Accuracy Metrics

Moody's ratings have historically proven to be effective predictors of default. This can be seen in Exhibit 5, which plots the average and median ratings of roughly 1,300 corporate issuers that have defaulted during the period 1983 to 2007. The chart shows that Moody's-rated issuers have, on average, been downgraded to the Ba3 level as early as five years prior to default. Among issuers that defaulted in 2007, the average rating is B2 five years prior to default which is lower than its comparable historical averages. In the year prior to default, 2007 defaulters' ratings were downgraded to Caa1 on average, compared to B2 for issuers that defaulted since 1983.

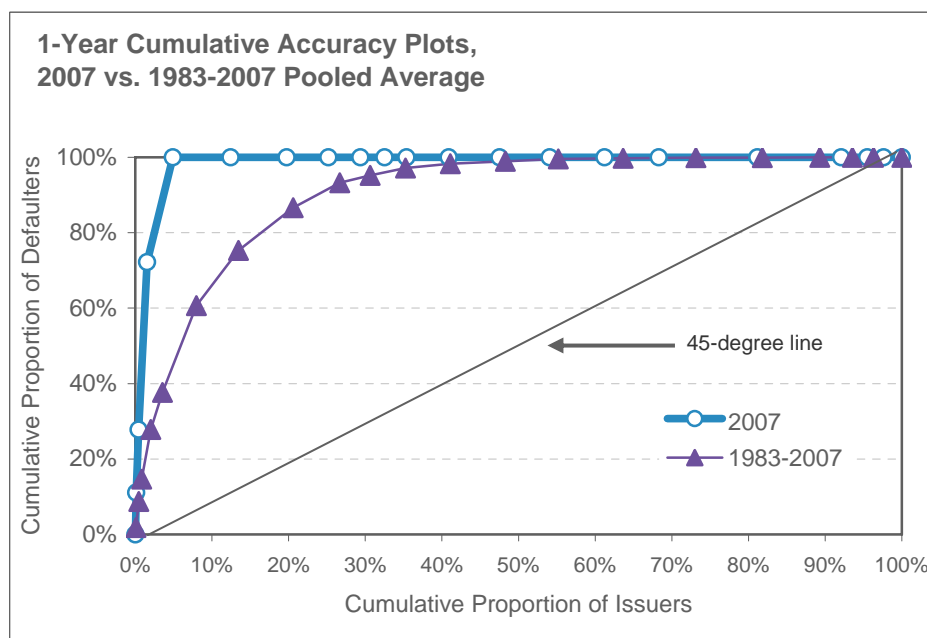
Corporate Default and Recovery Rates, 1920-2007

Exhibit 5



As a valuable tool to measure credit risk, ratings are expected to differentiate strong credits from weaker ones. In other words, an effective rating system should not only assign low ratings to issuers that ultimately default but also assign high ratings to those that are remote to default. A metric designed to measure this aspect of ratings performance is the cumulative accuracy profile (CAP) plot as shown in Exhibit 6. 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 northwest corner, the better it is at identifying defaults in the riskiest rating categories. Exhibit 6 shows that the CAP curve for 2007 lies above that of the 1983-2007 CAP curve over its entire range, indicating better performance relative to the historical average.

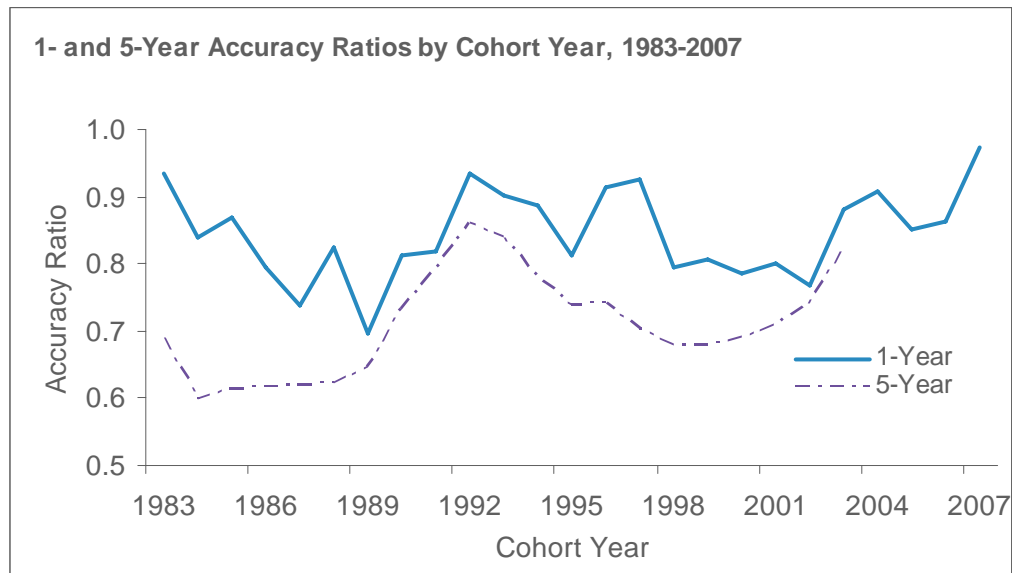
Exhibit 6



Corporate Default and Recovery Rates, 1920-2007

Another way to measure rating performance is the accuracy ratio, which is derived from the CAP curve. The accuracy ratio (AR) is the ratio of the area between the CAP curve and the 45° line, to the maximum possible area above the 45° line. AR values range from minus one to positive one and a higher AR indicates better rating accuracy. Exhibit 7 shows both one- and five-year horizon accuracy ratios for the period 1983-2007. 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 7



Recovery in Default and Credit Loss Rates

Recovery rates on defaulted debts are usually measured in either of two ways – by post-default trading prices or ultimate recoveries realized at the resolutions of the defaults. In prior years, Moody's annual default studies reported only trading price data as such data is readily available without waiting for the resolution to lengthy bankruptcy proceedings. The use of trading prices also eliminates the detailed work necessary for determining post-default cash flows and/or the value of instruments associated with defaulted debt and their ultimate recoveries. In this study, however, for the first time we present statistics on ultimate recoveries using data from Moody's Ultimate Recovery Database (URD) which was introduced in 2006 and includes robust detailed recovery information on nominal and discounted recoveries for over 3500 loans and bonds from over 700 U.S. corporate defaulters.³

Measured by post-default trading prices, bonds of all priorities in the capital structure enjoyed strong recovery rates in 2007 compared to historical averages since 1982 (see Exhibit 8). For example, in 2007 senior unsecured bonds recovered an average of 51.0% on an issuer-weighted basis, well above their historical average of 36.7%. Measured on a value-weighted basis, the average senior unsecured bond recovery rate reached 56.3% in 2007, also much higher than its long-term average of 34.9%. Although 2007's average senior unsecured bond recovery rate was lower than for senior subordinated bonds that defaulted in the same year, it should be noted that the 2007 average is influenced by one defaulter that had an extremely low recovery rate of 0.3% on its senior unsecured bonds. Excluding this issuer, the issuer-weighted average recovery rate for senior unsecured bond issuers would have been 56.7%, slightly higher than the average recovery rates of 54.5% for senior subordinated bonds, and close to the 55.0% recovery rates for senior unsecured bonds that defaulted in 2006. Exhibit 8 also shows that senior secured and senior subordinated bond issuers also enjoyed higher recovery rates in 2007 compared to 2006 and the historical averages.

³ See Moody's Special Comment "Moody's Ultimate Recovery Database."

Corporate Default and Recovery Rates, 1920-2007

In Exhibit 8, we also report for the first time trading-price recovery data for preferred stock defaults that were part of broader debt default events. The data indicate that for the period 1983-2007 the average recovery rate for trust-preferred defaults was 11.7% on an issuer-weighted basis and 13.0% on a volume-weighted basis. Over the same period, the average recovery rate for non-trust preferred defaults was 23.2% on an issuer-weighted basis and 19.9% on a volume-weighted basis. There were no preferred defaults in 2007. In 2006, there were 2 trust preferred and 2 non-trust preferred default events with the average recoveries for each coming in below their historical averages. In the appendix, we discuss recovery rates on preferred stock default events in more detail, including default events not accompanied by broader bond defaults.

Exhibit 8

Average Corporate Debt Recovery Rates measured by post-default trading prices, 1982-2007¹

Issuer-Weighted				Value-Weighted			
Lien Position	2007	2006	1982-2007	Lien Position	2007	2006	1982-2007
Bank Loans				Bank Loans			
Sr. Secured	67.74%	76.02%	70.47%	Sr. Secured	74.21%	68.38%	65.52%
Sr. Unsecured	--	--	54.02%	Sr. Unsecured	--	--	46.00%
Bonds				Bonds			
Sr. Secured	80.54%	74.63%	51.89%	Sr. Secured	81.68%	75.32%	54.21%
Sr. Unsecured ²	51.02%	55.02%	36.69%	Sr. Unsecured	56.34%	69.99%	34.85%
Sr. Subordinated ³	54.47%	41.41%	32.42%	Sr. Subordinated	67.68%	38.26%	29.80%
Subordinated	--	56.11%	31.19%	Subordinated	--	61.05%	27.58%
Jr. Subordinated	--	--	23.95%	Jr. Subordinated	--	--	16.79%
Pref. Stock⁴				Pref. Stock**			
Trust Pref.	--	7.12%	11.66%	Trust Pref.	--	7.12%	12.97%
Non-trust Pref.	--	6.75%	23.22%	Non-trust Pref.	--	11.63%	19.92%

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

2. 10 issuers had trading prices on their senior unsecured bonds in 2007. One of them had an extremely low recovery rate of 0.32. Excluding this observation, the average issuer- and volume-weighted senior unsecured bond recovery rate would have been 56.65 and 56.95, respectively

3. 7 issuers had trading prices on their senior subordinated bonds in 2007. One of them had an extremely high recovery rate of 103. Excluding this observation, the average issuer- and volume-weighted senior subordinated bond recovery rate would have been 46.39 and 48.54, respectively

4. Only includes defaults on preferred stock that are associated or followed by a broader debt default. Average recovery rates for preferred stock covers the period of 1983-2007.

Measured by ultimate recoveries, nineteen firms emerged from default in 2007. Average "firm-wide" recovery rates for these nineteen firms was 70.9%, which is slightly below 2006's 75.1% level, but well above the long-term average of 54.7% since 1987. ⁴ Of the nineteen emergences in 2007, 17 are from defaults that occurred during the past 3 years, including 5 from 2007. Exhibit 9 below presents recovery rate statistics as measured using ultimate recovery data for the period 1987-2007.

⁴ The firm-wide recovery rate is the weighted-average recovery rate across all of the issuer's debts where the weights are determined by the size of the debts. Or in other words, it is the enterprise value of the issuer divided by the firm's total debts at the time of resolution.

Corporate Default and Recovery Rates, 1920-2007

Exhibit 9

Average Corporate Ultimate Debt Recovery Rates, 1987-2007¹

Lien Position	Default Year			Emergence Year		
	2007	2006	1987-2007	2007	2006	1987-2007
Loans	90.82%	94.42%	82.04%	96.60%	83.64%	82.04%
Bonds						
Sr. Secured	62.37% ²	91.98%	65.77%	85.48%	75.04%	65.77%
Sr. Unsecured	100.00%	53.75%	38.95%	59.98%	51.99%	38.95%
Sr. Subordinated	69.75%	52.79%	29.11%	62.88%	40.02%	29.11%
Subordinated	0.00% ³	40.12%	26.51%	0.00%	23.56%	26.51%
Jr. Subordinated	--	100.00% ⁴	16.25%	50.00%	0.00%	16.25%

1. Measured by issuer-weighted ultimate recoveries from Moody's URD

2. The 2007 senior secured bond recovery rate is based on two observations, one of which was very low (36.5%) and based on a debt with the lowest priority of claim in that firm.

3. 2007's subordinated bond recovery is based on only one observation.

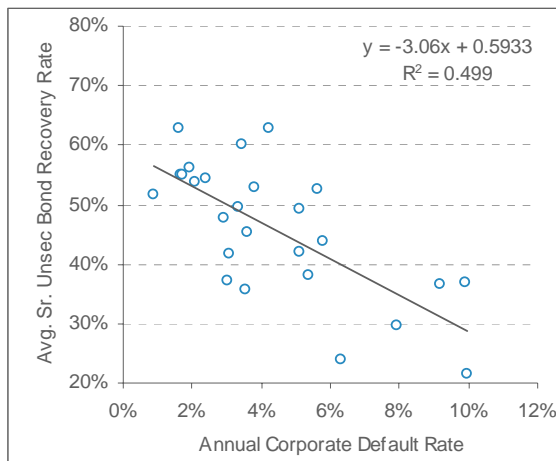
4. The 2006 junior subordinated bond recovery rate reflects full recovery to all creditors for one firm.

Of the five 2007 defaulters that also emerged in 2007, Exhibit 9 shows that debt holders of all priorities, except senior secured and subordinated bonds, experienced solid recovery rates compared to their 1987-2007 historical averages. In particular, senior unsecured bond holders received full recovery, compared to 53.8% in 2006 and a historical average of 39.0%. Exhibit 9 also shows that for the total 19 emergences in 2007, debt holders received higher recoveries compared to their historical averages with the exception of recovery rates on subordinated bonds. Given the relatively few defaults and resolutions in 2007, however, it should be noted that the average recovery rates by priority class for the 2007 emergences are based on small samples of issues.

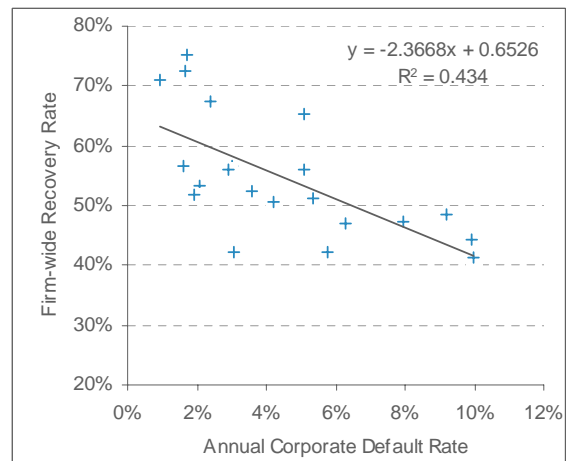
As found in Moody's and other academic research, annual corporate default rates are negatively correlated with annual average recovery rates as measured by post-default trading prices. Moody's has also found a similar negative relationship for ultimate recoveries.⁵ As shown in panel A in Exhibit 7, a linear regression of annual average senior unsecured bond recovery rates on annual corporate speculative-grade default rates yields an R-square value of 0.50. In panel B using firm-wide ultimate recoveries, a similar negative correlation is also observed with an R-square of 0.43.

Exhibit 10 – Correlation between Default and Recovery Rates, 1982-2007

Panel A



Panel B



⁵ See also Moody's Special Comment "Adjusting Moody's LGD Assessments to Meet Basel II Downturn Requirements."

Corporate Default and Recovery Rates, 1920-2007

Moody's credit ratings are opinions on relative expected credit losses upon default, which are functions of both probability of default and severity of default (LGD). Exhibit 11 presents the average credit losses for one through five year horizons from 1982 to 2007 by letter rating category. The table shows that Moody's has consistently rank ordered issuers on the basis of their expected credit loss rates. In 2007, the average credit loss rate for Moody's rated corporate issuers fell to 0.15%, down from 0.27% in 2006, and its lowest annual level on record (see Exhibit 33).

Exhibit 11

Average Cumulative Credit Loss Rates by Letter Rating, 1982-2007¹

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	0.107
A	0.012	0.046	0.119	0.195	0.263
Baa	0.103	0.289	0.514	0.844	1.099
Ba	0.677	1.928	3.519	4.856	6.305
B	2.908	6.460	9.424	11.664	13.274
Caa-C	11.145	17.666	22.753	26.050	32.346
Investment Grade	0.037	0.106	0.211	0.338	0.462
Speculative Grade	2.775	5.605	8.092	9.885	11.468
All Rated	0.971	1.923	2.749	3.365	3.887

¹ Data are in percent based on issuer-weighted average default rate and on issuer-weighted average senior unsecured bond recovery rates.

Corporate Default and Recovery Rates, 1920-2007

Data Tables and Charts

Exhibit 12

Moody's-Rated 2007 Corporate Bond and Loan Defaults

Company	Country	Default Date	Bond Volume ¹	Loan Volume ¹	In Jan. 1 Cohort ²
American Color Graphics, Inc.	United States	11/14/07	\$280.00	\$0.00	Yes
Bally's Health & Tennis Corporation	United States	04/16/07	\$535.00	\$0.00	Yes
Fedders North America, Inc.	United States	08/22/07	\$155.00	\$165.00	Yes
Focus (Finance) Plc ³	United Kingdom	07/03/07	\$201.65	\$0.00	Yes
Focus DIY (Investments) Limited ³	United Kingdom	07/03/07	\$201.65	\$0.00	Yes
InSight Health Services Corp.	United States	05/29/07	\$494.50	\$30.00	Yes
Lake at Las Vegas Joint Venture ⁴	United States	12/31/07	\$0.00	\$540.00	Yes
LLV-1, LLC ⁴	United States	12/31/07	\$0.00	\$540.00	Yes
Movie Gallery, Inc.	United States	09/15/07	\$321.77	\$900.00	Yes
North Atlantic Holding Company, Inc.	United States	05/09/07	\$27.90	\$0.00	Yes
North Atlantic Trading Company, Inc.	United States	05/09/07	\$114.00	\$0.00	Yes
Pope & Talbot, Inc.	Canada	10/29/07	\$135.00	\$325.00	Yes
Port Townsend Paper Corporation	United States	01/29/07	\$125.00	\$23.00	Yes
Remy International, Inc	United States	07/15/07	\$585.00	\$0.00	Yes
Visiocorp plc (aka Schefenacker AG) ⁵	Germany	02/12/07	\$259.25	\$0.00	No
SunCom Wireless, Inc.	United States	01/31/07	\$737.35	\$0.00	Yes
Teksid Aluminum Luxembourg Sarl SCA	Italy	01/15/07	\$310.43	\$0.00	Yes
Wornick Company (The)	United States	07/16/07	\$125.00	\$0.00	Yes
Ziff-Davis Media Inc.	United States	09/15/07	\$307.61	\$0.00	Yes

1. millions USD

2. Only issuers included in the January 1 cohort are included in Moody's default rates.

3. The \$201.65 million in bonds were issued by Focus (Finance) Plc and guaranteed by Focus DIY (Investments) Limited.

4. Lake at Las Vegas Joint Venture and LLV-1, LLC were co-borrowers for the \$540.0 million in loans.

5. Visiocorp plc's initial default event occurred on 11/2/2006 with a loan default.

Corporate Default and Recovery Rates, 1920-2007

Exhibit 13

2007 Defaulted Corporate Bond and Loan Recoveries

Company	Country	Debt Type	Seniority	Interest	Maturity	Face ¹	Recovery ²
American Color Graphics, Inc.	United States	Bond	Sr. Secured (2nd priority)	10	6/15/2010	\$280.00	\$54.00
Bally's Health & Tennis Corporation	United States	Bond	Sr. Unsecured	10.5	7/15/2011	\$235.00	\$95.38
Bally's Health & Tennis Corporation	United States	Bond	Sr. Sub.	9.875	10/15/2007	\$75.00	\$83.63
Bally's Health & Tennis Corporation	United States	Bond	Sr. Sub.	9.875	10/15/2007	\$225.00	\$83.63
Citation Corporation	United States	Loan	Sr. Secured	L + 600	5/23/2009	\$180.00	\$54.75
Citation Corporation	United States	Loan	Sr. Secured	L + 250	5/23/2009	\$105.00	\$54.63
Evans & Tate Ltd	Australia	Bond	Sr. Unsecured	8.25	10/29/2007	\$16.00	\$0.32
Fedders North America, Inc.	United States	Bond	Sr. Unsecured	9.875	3/14/2014	\$155.00	\$15.50
Focus (Finance) Plc	United Kingdom	Bond	Sr. Sub.	9.375	3/3/2015	\$201.70	\$35.19
InSight Health Services Corp.	United States	Bond	Sr. Secured	L + 5.25	11/1/2011	\$300.00	\$96.50
InSight Health Services Corp.	United States	Bond	Sr. Sub.	9.875	11/1/2011	\$225.00	\$32.00
Movie Gallery, Inc.	United States	Loan	Sr. Secured (1st lien)	NA	3/8/2012	\$25.00	\$83.00
Movie Gallery, Inc.	United States	Loan	Sr. Secured (1st lien)	NA	3/8/2012	\$600.00	\$82.25
Movie Gallery, Inc.	United States	Loan	Sr. Secured (2nd lien)	NA	9/8/2012	\$175.00	\$77.13
Movie Gallery, Inc.	United States	Bond	Sr. Unsecured	11	5/12/2012	\$325.00	\$26.50
North Atlantic Holding Company, Inc.	United States	Bond	Sr. Unsecured	12.25	3/1/2014	\$97.00	\$75.00
North Atlantic Trading Company, Inc.	United States	Bond	Sr. Unsecured	9.25	3/1/2012	\$200.00	\$85.25
Nutritional Sourcing Corporation	Puerto Rico	Bond	Sr. Secured	10.125	8/1/2009	\$90.00	\$64.00
Pac-West Telecomm, Inc.	United States	Bond	Sr. Unsecured	13.5	2/1/2009	\$26.20	\$23.75
Pope & Talbot, Inc.	Canada	Bond	Sr. Unsecured	8.375	6/1/2013	\$75.00	\$25.25
Pope & Talbot, Inc.	Canada	Bond	Sr. Unsecured	8.375	6/1/2013	\$60.00	\$25.25
Remy International, Inc.	United States	Bond	Sr. Secured (2nd priority)	FLT	4/15/2009	\$125.00	\$100.00
Remy International, Inc.	United States	Bond	Sr. Unsecured	8.625	12/15/2007	\$145.00	\$97.50
Remy International, Inc.	United States	Bond	Sr. Sub.	11	5/1/2009	\$165.00	\$66.50
Remy International, Inc.	United States	Bond	Sr. Sub.	9.375	4/15/2012	\$150.00	\$66.50
Schefenacker AG	Germany	Bond	Sr. Sub.	9.5	2/11/2014	\$259.30	\$7.00
Smoby SA	France	Loan	NA	E + 85	9/25/2012	\$69.11	\$30.00
SunCom Wireless, Inc.	United States	Bond	Sr. Sub.	9.375	2/1/2011	\$350.00	\$103.00
SunCom Wireless, Inc.	United States	Bond	Sr. Sub.	8.75	11/15/2011	\$400.00	\$103.00
Teksid Aluminum Luxembourg Sarl SCA	Italy	Bond	Sr. Unsecured	11.375	7/15/2011	\$310.40	\$65.75
Wornick Company (The)	United States	Bond	Sr. Secured	10.875	7/15/2011	\$125.00	\$74.50
Ziff-Davis Media Inc.	United States	Bond	Sr. Secured	FLT	5/1/2012	\$205.00	\$94.25
Ziff-Davis Media Inc.	United States	Bond	Sr. Sub.	FLT	8/12/2009	\$90.30	\$54.00

1. millions USD

2. Based on 30-day post default market prices

Corporate Default and Recovery Rates, 1920-2007

Rating migrations in Exhibits 14 – 18 are measured by percent of issuers. In addition to changes in issuers' credit quality, ratings migrations in these tables also include rating changes that stem from Moody's revision in its rating methodologies including LGD and JDA. For reference purposes, we also provide rating migration rates that exclude rating changes resulting from methodological revisions in Exhibits 39-43.

Exhibit 14**2007 One-Year Letter Rating Migration Rates**

Cohort Rating	End-of-Period Rating									
	Aaa	Aa	A	Baa	Ba	B	Caa	Ca-C	Default	WR
Aaa	89.583	5.556	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.861
Aa	4.309	85.972	4.108	0.100	0.000	0.100	0.000	0.000	0.000	5.411
A	0.000	9.677	83.384	2.556	0.061	0.000	0.122	0.000	0.000	4.200
Baa	0.000	0.177	6.985	83.201	3.448	0.265	0.000	0.000	0.000	5.924
Ba	0.000	0.000	0.162	7.131	72.123	6.321	0.648	0.000	0.000	13.614
B	0.081	0.000	0.000	0.163	5.447	69.756	7.561	0.325	0.000	16.667
Caa	0.000	0.000	0.000	0.000	0.000	13.793	63.793	1.724	5.517	15.172
Ca-C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	42.857	28.571	28.571

Exhibit 15**Average One-Year Letter Rating Migration Rates, 1920-2007¹**

Cohort Rating	End-of-Period Rating									
	Aaa	Aa	A	Baa	Ba	B	Caa	Ca-C	Default	WR
Aaa	87.292	7.474	0.841	0.167	0.024	0.001	0.000	0.000	0.000	4.200
Aa	1.261	85.204	6.465	0.687	0.175	0.037	0.002	0.004	0.063	6.103
A	0.081	2.934	85.086	5.298	0.693	0.108	0.019	0.008	0.076	5.696
Baa	0.042	0.293	4.618	81.140	5.107	0.776	0.150	0.016	0.293	7.565
Ba	0.007	0.082	0.476	5.917	73.643	6.977	0.557	0.051	1.324	10.967
B	0.007	0.054	0.173	0.630	6.292	71.459	5.011	0.502	3.917	11.955
Caa	0.000	0.028	0.037	0.216	0.906	8.920	62.797	3.549	12.000	11.548
Ca-C	0.000	0.000	0.116	0.000	0.474	3.240	7.698	55.323	19.872	13.277

¹ Monthly cohort frequency

Exhibit 16**Average One-Year Letter Rating Migration Rates, 1970-2007¹**

Cohort Rating	End-of-Period Rating									
	Aaa	Aa	A	Baa	Ba	B	Caa	Ca-C	Default	WR
Aaa	88.647	7.447	0.637	0.000	0.015	0.002	0.000	0.000	0.000	3.251
Aa	1.075	87.190	6.881	0.254	0.055	0.017	0.000	0.000	0.008	4.520
A	0.064	2.724	87.559	4.927	0.493	0.090	0.019	0.003	0.020	4.101
Baa	0.045	0.193	4.887	84.345	4.309	0.774	0.210	0.022	0.169	5.046
Ba	0.008	0.055	0.383	5.703	75.649	7.736	0.526	0.047	1.097	8.795
B	0.012	0.041	0.157	0.351	5.566	73.440	4.954	0.635	4.484	10.361
Caa	0.000	0.032	0.032	0.192	0.661	10.727	57.242	3.622	14.670	12.822
Ca-C	0.000	0.000	0.000	0.000	0.395	2.589	9.436	38.271	29.778	19.530

¹ Monthly cohort frequency

Corporate Default and Recovery Rates, 1920-2007

Exhibit 17

2007 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	89.583	4.861	0.694	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	4.861	
Aa1	6.977	74.419	0.000	10.078	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	8.527
Aa2	12.621	40.291	39.320	1.942	3.884	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	1.942
Aa3	1.207	9.050	12.217	66.365	3.620	0.905	0.452	0.151	0.000	0.000	0.000	0.000	0.000	0.000	0.151	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.882
A1	0.000	0.256	8.462	6.282	78.205	1.923	0.513	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	4.359
A2	0.000	0.234	0.935	7.009	13.084	66.355	6.542	1.402	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.467	0.000	0.000	0.000	0.000	0.000	0.000	3.972
A3	0.000	0.000	0.000	1.609	6.437	16.092	63.218	6.207	1.609	0.460	0.230	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.138
Baa1	0.000	0.000	0.000	0.000	0.505	3.283	12.374	69.950	2.525	2.273	1.263	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.828
Baa2	0.000	0.000	0.000	0.000	0.000	1.746	1.247	8.978	75.561	5.736	1.746	0.000	0.499	0.249	0.249	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.990
Baa3	0.000	0.299	0.000	0.299	0.000	0.000	0.898	2.096	11.976	70.659	5.689	1.497	0.299	0.000	0.000	0.299	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.988
Ba1	0.000	0.000	0.000	0.000	0.000	0.578	0.000	0.578	2.890	13.295	57.803	5.202	5.780	0.578	0.578	0.578	1.156	0.578	0.578	0.000	0.000	0.000	0.000	9.827
Ba2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.806	10.471	54.450	9.424	2.618	1.047	1.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.136
Ba3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.791	4.348	12.648	55.731	5.929	4.743	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.810
B1	0.303	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.606	0.606	3.333	10.606	57.576	9.091	1.818	0.606	0.000	0.000	0.000	0.000	0.000	0.000	15.455
B2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.226	0.677	2.709	9.481	55.982	9.255	3.837	0.451	1.580	0.226	0.000	0.000	0.000	15.576
B3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.219	0.438	1.532	6.346	57.987	10.066	3.501	0.656	0.656	0.000	0.000	0.000	18.600
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	0.980	2.451	14.706	52.451	8.824	2.941	0.490	2.451	14.706	14.706	
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	1.493	2.985	13.433	46.269	1.493	4.478	11.940	17.910	17.910	
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	0.000	5.263	0.000	63.158	5.263	15.789	10.526	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	0.000	0.000	42.857	28.571	28.571	28.571	

Corporate Default and Recovery Rates, 1920-2007

Exhibit 18

Average One-Year Alphanumeric Rating Migration Rates, 1983-2007¹

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	CaC		Default
Aaa	87.779	5.360	2.018	0.404	0.330	0.126	0.014	0.000	0.000	0.000	0.019	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.947
Aa1	2.771	77.272	7.503	6.288	1.088	0.275	0.149	0.104	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	4.476
Aa2	1.165	4.839	76.513	7.966	2.927	1.172	0.352	0.076	0.086	0.000	0.000	0.000	0.029	0.019	0.010	0.000	0.000	0.000	0.000	0.000	0.000	4.847
Aa3	0.231	1.270	4.151	78.184	7.455	2.402	0.615	0.182	0.136	0.065	0.011	0.029	0.029	0.016	0.005	0.000	0.000	0.000	0.000	0.000	0.016	5.203
A1	0.066	0.108	1.064	5.371	78.446	6.762	2.481	0.532	0.336	0.082	0.187	0.122	0.042	0.048	0.012	0.000	0.000	0.000	0.000	0.000	0.002	4.340
A2	0.088	0.033	0.242	1.117	5.338	76.719	7.365	2.699	0.847	0.342	0.204	0.093	0.129	0.044	0.038	0.005	0.005	0.029	0.006	0.000	0.024	4.634
A3	0.043	0.087	0.128	0.251	1.974	7.603	73.127	6.461	3.247	1.057	0.462	0.194	0.200	0.106	0.046	0.026	0.002	0.005	0.007	0.012	0.032	4.929
Baa1	0.031	0.052	0.099	0.115	0.295	2.146	7.128	72.559	7.254	2.964	0.888	0.435	0.342	0.448	0.065	0.037	0.069	0.035	0.000	0.019	0.141	4.879
Baa2	0.045	0.084	0.048	0.101	0.199	0.743	3.071	6.505	72.610	6.555	1.703	0.648	0.718	0.493	0.277	0.141	0.145	0.026	0.018	0.013	0.141	5.715
Baa3	0.057	0.010	0.026	0.044	0.145	0.293	0.624	3.099	8.834	69.479	5.323	2.501	1.200	0.779	0.364	0.226	0.223	0.139	0.157	0.059	0.308	6.109
Ba1	0.026	0.002	0.024	0.051	0.181	0.143	0.371	0.691	2.927	9.679	63.698	4.916	4.046	1.287	1.088	0.735	0.073	0.219	0.064	0.029	0.662	9.088
Ba2	0.000	0.000	0.031	0.000	0.031	0.100	0.074	0.333	0.856	2.986	9.224	61.137	7.722	2.758	2.389	1.002	0.218	0.167	0.123	0.056	0.756	10.037
Ba3	0.000	0.020	0.010	0.023	0.025	0.136	0.141	0.171	0.225	0.643	2.790	6.370	62.393	7.548	4.572	2.179	0.478	0.319	0.077	0.072	1.733	10.073
B1	0.029	0.016	0.017	0.009	0.043	0.107	0.088	0.071	0.128	0.228	0.618	2.599	6.934	61.398	9.239	3.916	1.067	0.582	0.230	0.345	2.486	9.851
B2	0.000	0.000	0.009	0.020	0.024	0.000	0.083	0.118	0.091	0.122	0.325	0.686	2.196	7.972	58.877	8.678	3.201	1.676	0.447	0.532	4.148	10.793
B3	0.000	0.007	0.053	0.000	0.012	0.028	0.069	0.074	0.065	0.131	0.081	0.263	0.627	3.401	7.480	56.863	5.278	3.719	1.012	1.261	8.118	11.459
Caa1	0.000	0.066	0.000	0.000	0.000	0.053	0.000	0.000	0.000	0.007	0.046	0.093	0.179	1.204	3.170	10.800	48.673	6.545	3.779	2.720	9.913	12.752
Caa2 ²	0.000	0.000	0.000	0.000	0.000	0.017	0.000	0.000	0.087	0.424	0.242	0.234	0.632	1.177	1.618	4.586	8.221	44.990	3.184	4.474	17.359	12.755
Caa3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.211	0.000	0.211	1.212	0.422	2.820	3.979	6.166	40.922	5.270	23.715	15.072
Ca-C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.000	0.315	0.090	0.562	2.000	1.169	3.483	5.011	37.730	29.685	19.865

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.

Corporate Default and Recovery Rates, 1920-2007

Exhibit 19

Annual Moody's-Rated Global Corporate Issuer Default Counts, 1920-2007¹

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	10	108	118	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	22	24	1984	1	12	13
1941	0	10	10	1985	0	15	15
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	82	82
1947	0	1	1	1991	1	63	64
1948	0	0	0	1992	0	31	31
1949	0	5	5	1993	0	19	19
1950	0	0	0	1994	0	16	16
1951	0	1	1	1995	0	27	27
1952	0	0	0	1996	0	17	17
1953	0	0	0	1997	0	24	24
1954	0	1	1	1998	1	48	49
1955	0	1	1	1999	1	100	101
1956	0	0	0	2000	4	122	126
1957	0	1	1	2001	4	182	186
1958	0	0	0	2002	16	130	146
1959	0	0	0	2003	0	81	81
1960	0	2	2	2004	0	39	39
1961	0	3	3	2005	2	29	31
1962	0	4	4	2006	0	32	32
1963	0	3	3	2007	0	18	18

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

Corporate Default and Recovery Rates, 1920-2007

Exhibit 20

Annual Rated Global Corporate Bond and Loan Default Volumes, 1970-2007¹

Cohort	Investment Grade			Speculative Grade			All Ratings		
	Bond	Loan	Total	Bond	Loan	Total	Bond	Loan	Total
1970	\$154	\$0	\$154	\$756	\$0	\$756	\$910	\$0	\$910
1971	\$0	\$0	\$0	\$132	\$0	\$132	\$132	\$0	\$132
1972	\$0	\$0	\$0	\$215	\$0	\$215	\$215	\$0	\$215
1973	\$17	\$0	\$17	\$94	\$0	\$94	\$112	\$0	\$112
1974	\$0	\$0	\$0	\$69	\$0	\$69	\$69	\$0	\$69
1975	\$0	\$0	\$0	\$176	\$0	\$176	\$176	\$0	\$176
1976	\$0	\$0	\$0	\$34	\$0	\$34	\$34	\$0	\$34
1977	\$68	\$0	\$68	\$179	\$0	\$179	\$247	\$0	\$247
1978	\$0	\$0	\$0	\$112	\$0	\$112	\$112	\$0	\$112
1979	\$0	\$0	\$0	\$18	\$0	\$18	\$18	\$0	\$18
1980	\$0	\$0	\$0	\$302	\$0	\$302	\$302	\$0	\$302
1981	\$0	\$0	\$0	\$47	\$0	\$47	\$47	\$0	\$47
1982	\$243	\$0	\$243	\$486	\$0	\$486	\$729	\$0	\$729
1983	\$0	\$0	\$0	\$1,190	\$0	\$1,190	\$1,190	\$0	\$1,190
1984	\$183	\$0	\$183	\$399	\$0	\$399	\$582	\$0	\$582
1985	\$0	\$0	\$0	\$1,595	\$0	\$1,595	\$1,595	\$0	\$1,595
1986	\$138	\$0	\$138	\$3,766	\$0	\$3,766	\$3,904	\$0	\$3,904
1987	\$40	\$0	\$40	\$9,363	\$242	\$9,605	\$9,403	\$242	\$9,645
1988	\$0	\$0	\$0	\$5,203	\$361	\$5,564	\$5,203	\$361	\$5,564
1989	\$1,506	\$0	\$1,506	\$10,196	\$0	\$10,196	\$11,702	\$0	\$11,702
1990	\$0	\$0	\$0	\$19,559	\$1,603	\$21,161	\$19,559	\$1,603	\$21,161
1991	\$1,348	\$0	\$1,348	\$14,863	\$350	\$15,213	\$16,211	\$350	\$16,561
1992	\$0	\$0	\$0	\$6,418	\$698	\$7,116	\$6,418	\$698	\$7,116
1993	\$0	\$0	\$0	\$1,827	\$424	\$2,251	\$1,827	\$424	\$2,251
1994	\$0	\$0	\$0	\$2,100	\$299	\$2,399	\$2,100	\$299	\$2,399
1995	\$0	\$0	\$0	\$4,788	\$27	\$4,816	\$4,788	\$27	\$4,816
1996	\$0	\$0	\$0	\$4,053	\$1,435	\$5,488	\$4,053	\$1,435	\$5,488
1997	\$0	\$0	\$0	\$5,054	\$948	\$6,002	\$5,054	\$948	\$6,002
1998	\$399	\$0	\$399	\$9,720	\$2,817	\$12,537	\$10,119	\$2,817	\$12,936
1999	\$461	\$1,225	\$1,686	\$26,222	\$13,044	\$39,266	\$26,683	\$14,269	\$40,952
2000	\$4,115	\$3,950	\$8,065	\$25,296	\$22,392	\$47,688	\$29,411	\$26,342	\$55,753
2001	\$22,351	\$5,363	\$27,714	\$77,706	\$33,850	\$111,556	\$100,057	\$39,213	\$139,269
2002	\$55,565	\$13,122	\$68,687	\$107,375	\$35,728	\$143,103	\$162,940	\$48,850	\$211,790
2003	\$0	\$870	\$870	\$35,078	\$9,428	\$44,506	\$35,078	\$10,297	\$45,375
2004	\$0	\$0	\$0	\$12,153	\$4,197	\$16,351	\$12,153	\$4,197	\$16,351
2005	\$2,155	\$2,825	\$4,980	\$26,633	\$8,745	\$35,378	\$28,788	\$11,570	\$40,358
2006	\$0	\$0	\$0	\$7,788	\$2,630	\$10,418	\$7,788	\$2,630	\$10,418
2007	\$0	\$0	\$0	\$4,714	\$1,983	\$6,697	\$4,714	\$1,983	\$6,697

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

Corporate Default and Recovery Rates, 1920-2007

Exhibit 21

Annual Issuer Default Counts and Volume Totals by Geographical Region, 1986-2007¹

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	\$3,904
1987	0	0	0	0	30	1987	\$0	\$0	\$0	\$0	\$9,645
1988	0	0	0	0	29	1988	\$0	\$0	\$0	\$0	\$5,564
1989	0	4	0	0	48	1989	\$0	\$1,144	\$0	\$0	\$10,558
1990	0	1	0	0	81	1990	\$0	\$200	\$0	\$0	\$20,961
1991	0	0	1	0	63	1991	\$0	\$0	\$999	\$0	\$15,562
1992	0	0	0	0	31	1992	\$0	\$0	\$0	\$0	\$7,116
1993	0	0	0	0	19	1993	\$0	\$0	\$0	\$0	\$2,251
1994	0	0	1	0	15	1994	\$0	\$0	\$774	\$0	\$1,625
1995	0	0	0	1	26	1995	\$0	\$0	\$0	\$0	\$4,816
1996	0	0	0	1	16	1996	\$0	\$0	\$0	\$218	\$5,270
1997	0	2	0	2	20	1997	\$0	\$614	\$0	\$310	\$5,079
1998	0	5	0	0	44	1998	\$0	\$1,444	\$0	\$0	\$11,492
1999	0	8	9	6	78	1999	\$0	\$3,445	\$4,012	\$1,608	\$31,887
2000	0	5	3	2	116	2000	\$0	\$1,048	\$713	\$238	\$53,754
2001	4	14	16	7	145	2001	\$2,758	\$7,750	\$10,635	\$2,034	\$116,092
2002	0	3	28	15	100	2002	\$0	\$1,112	\$48,007	\$9,640	\$153,030
2003	0	2	8	9	62	2003	\$0	\$374	\$3,623	\$3,038	\$38,340
2004	1	0	3	0	35	2004	\$183	\$0	\$1,873	\$366	\$13,929
2005	0	0	1	1	29	2005	\$0	\$0	\$207	\$100	\$40,050
2006	0	0	7	2	23	2006	\$0	\$0	\$1,601	\$167	\$8,650
2007	0	0	3	0	15	2007	\$0	\$0	\$771	\$0	\$5,926

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

Corporate Default and Recovery Rates, 1920-2007

Exhibit 22

Annual Average Defaulted Bond and Loan Recovery Rates, 1982-2007¹

Year	Lien Position						All Bonds
	Sr. Secured Bank Loans	Sr. Secured Bonds	Sr. Unsecured Bonds	Sr. Subordinated Bonds	Subordinated Bonds	Jr. Subordinated Bonds	
1982	NA	\$72.50	\$35.79	\$48.09	\$29.99	NA	\$35.57
1983	NA	\$40.00	\$52.72	\$43.50	\$40.54	NA	\$43.64
1984	NA	NA	\$49.41	\$67.88	\$44.26	NA	\$45.49
1985	NA	\$83.63	\$60.16	\$30.88	\$39.42	\$48.50	\$43.66
1986	NA	\$59.22	\$52.60	\$50.16	\$42.58	NA	\$48.38
1987	NA	\$71.00	\$62.73	\$44.81	\$46.89	NA	\$50.48
1988	NA	\$55.40	\$45.24	\$33.41	\$33.77	\$36.50	\$38.98
1989	NA	\$46.54	\$43.81	\$34.57	\$26.36	\$16.85	\$32.31
1990	\$75.25	\$33.81	\$37.01	\$25.64	\$19.09	\$10.70	\$25.50
1991	\$74.67	\$48.39	\$36.66	\$41.82	\$24.42	\$7.79	\$35.53
1992	\$61.13	\$62.05	\$49.19	\$49.40	\$38.04	\$13.50	\$45.89
1993	\$53.40	NA	\$37.13	\$51.91	\$44.15	NA	\$43.08
1994	\$67.59	\$69.25	\$53.73	\$29.61	\$38.23	NA	\$45.57
1995	\$75.44	\$62.02	\$47.60	\$34.30	\$41.54	NA	\$43.28
1996	\$88.23	\$47.58	\$62.75	\$43.75	\$22.60	NA	\$41.54
1997	\$78.75	\$75.50	\$56.10	\$44.73	\$35.96	\$30.58	\$49.39
1998	\$51.40	\$48.14	\$41.63	\$44.99	\$18.19	\$62.00	\$39.65
1999	\$75.82	\$43.00	\$38.04	\$28.01	\$35.64	NA	\$34.33
2000	\$68.32	\$39.23	\$23.81	\$20.75	\$31.86	\$15.50	\$25.18
2001	\$66.16	\$37.98	\$21.45	\$19.82	\$15.94	\$47.00	\$22.21
2002	\$58.80	\$48.37	\$29.69	\$23.21	\$24.51	NA	\$30.18
2003	\$73.43	\$63.46	\$41.87	\$37.27	\$12.31	NA	\$40.69
2004	\$87.74	\$73.25	\$54.25	\$46.54	\$94.00	NA	\$59.12
2005	\$82.07	\$71.93	\$54.88	\$26.06	\$51.25	NA	\$55.97
2006	\$76.02	\$74.63	\$55.02	\$41.41	\$56.11	NA	\$55.02
2007 ²	\$67.74	\$80.54	\$51.02	\$54.47	NA	NA	\$53.53

1. Issuer-weighted, based on 30-day post-default market prices. Discounted debt excluded.

2. Loan recoveries in 2007 are based on 5 loans from 2 issuers and one of the 5 loans is 2nd lien debt

Corporate Default and Recovery Rates, 1920-2007

Exhibit 23**Average Sr. Unsecured Bond Recovery Rates by Year Prior to Default, 1982-2007 ¹**

	Years Prior to Default				
	1	2	3	4	5
Aaa	--	--	--	97%	74.1%
Aa	95.38%	62.1%	30.75%	55.34%	41.64%
A	46.24%	54.84%	50.24%	47.67%	47.79%
Baa	46.27%	44.81%	45.95%	41.95%	43.82%
Ba	42.76%	40.8%	39.82%	43.11%	41.89%
B	37.62%	37.19%	40.17%	43.37%	47.02%
Caa-C	36.68%	36.3%	36.76%	38.88%	32.59%
Investment Grade	47.52%	48.86%	47.08%	45.57%	45.23%
Speculative Grade	37.9%	37.61%	39.47%	42.78%	44.47%
All Rated	38.72%	39.18%	40.98%	43.48%	44.68%

¹ Issuer-weighted, based on 30-day post-default market prices.

Corporate Default and Recovery Rates, 1920-2007

Exhibit 24

Annual Issuer-Weighted Corporate Default Rates by Letter Rating, 1920-2007¹

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	0.417	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	0.387	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	0.537	4.264	19.718	53.333	0.271	8.772	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	0.870	0.000	14.286	0.000	1.147	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	1.949	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	0.452	0.000	3.922	44.444	0.230	1.288	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	3.802	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	0.873	0.892	5.973	13.785	23.392	0.776	10.811	5.419	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	0.266	1.800	11.111	15.916	25.668	0.802	15.391	8.406	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	0.348	0.811	2.632	4.309	16.040	0.574	5.929	3.451	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	1.339	1.887	4.826	4.173	13.072	1.243	6.090	3.842	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	0.508	0.341	1.225	2.358	7.930	0.461	2.736	1.636	1980	0.000	0.000	0.000	0.000	0.000	4.938	33.333	0.000	1.619	0.343
1937	0.000	0.000	0.542	1.093	0.649	2.697	9.040	0.654	2.591	1.657	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	1.709	1.972	0.976	1.468	12.739	1.557	2.582	2.103	1982	0.000	0.000	0.257	0.314	2.740	2.410	25.000	0.212	3.560	1.037
1939	0.000	0.000	0.000	0.946	0.588	1.875	5.714	0.398	1.739	1.200	1983	0.000	0.000	0.000	0.000	0.911	6.306	40.000	0.000	3.818	0.964
1940	0.000	0.000	0.000	1.316	0.410	1.097	11.823	0.561	2.585	1.845	1984	0.000	0.000	0.000	0.368	0.833	6.723	100.000	0.096	3.324	0.925
1941	0.000	0.000	0.000	0.000	0.932	0.766	5.063	0.000	1.684	1.073	1985	0.000	0.000	0.000	0.000	1.404	7.534	0.000	0.000	3.440	0.946
1942	0.000	0.000	0.000	0.000	0.000	0.818	1.980	0.000	0.743	0.461	1986	0.000	0.000	0.000	1.361	2.029	11.667	26.667	0.319	5.634	1.904
1943	0.000	0.000	0.000	0.000	0.000	1.345	0.000	0.000	0.609	0.368	1987	0.000	0.000	0.000	0.000	2.712	6.226	20.000	0.000	4.228	1.502
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	1.242	6.339	28.571	0.000	3.585	1.358
1945	0.000	0.000	0.000	0.000	0.000	0.000	3.226	0.000	0.517	0.289	1989	0.000	0.607	0.000	0.598	2.976	8.934	25.000	0.288	5.787	2.344
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	3.333	15.922	58.824	0.000	9.939	3.559
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	0.273	4.775	12.560	36.842	0.065	9.190	2.882
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	0.300	9.274	28.000	0.000	5.111	1.400
1949	0.000	0.000	0.000	0.000	1.342	1.111	7.407	0.000	1.880	0.827	1993	0.000	0.000	0.000	0.000	0.548	4.593	27.907	0.000	3.035	0.816
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	4.173	5.128	0.000	2.066	0.601
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	0.690	4.313	8.772	0.000	2.897	0.919
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	1.386	13.605	0.000	1.633	0.528
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	0.181	1.983	14.194	0.000	1.942	0.662
1954	0.000	0.000	0.000	0.000	0.000	0.000	7.143	0.000	0.473	0.165	1998	0.000	0.000	0.000	0.120	0.739	4.008	10.959	0.039	3.077	1.187
1955	0.000	0.000	0.000	0.000	0.000	1.504	0.000	0.000	0.503	0.163	1999	0.000	0.000	0.000	0.104	1.228	5.355	19.672	0.037	5.372	2.198
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	0.385	0.848	5.749	20.408	0.139	6.297	2.611
1957	0.000	0.000	0.000	0.000	0.000	1.290	0.000	0.000	0.452	0.144	2001	0.000	0.000	0.168	0.195	1.116	9.340	31.855	0.134	9.978	3.875
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	0.168	1.249	1.472	4.774	28.475	0.516	7.954	3.085
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	0.927	2.338	20.751	0.000	5.098	1.766
1960	0.000	0.000	0.000	0.000	1.223	0.000	0.000	0.000	0.734	0.243	2004	0.000	0.000	0.000	0.000	0.367	0.824	12.474	0.000	2.387	0.842
1961	0.000	0.000	0.000	0.000	0.578	0.000	8.696	0.000	1.070	0.353	2005	0.000	0.000	0.000	0.178	0.000	1.106	6.563	0.062	1.665	0.620
1962	0.000	0.000	0.000	0.000	1.690	1.379	0.000	0.000	1.463	0.464	2006	0.000	0.000	0.000	0.000	0.178	1.248	7.516	0.000	1.737	0.617
1963	0.000	0.000	0.000	0.000	1.153	1.587	0.000	0.000	1.161	0.352	2007	0.000	0.000	0.000	0.000	0.000	0.000	6.569	0.000	0.911	0.311
											Mean	0.000	0.057	0.089	0.269	1.047	3.477	13.392	0.145	2.617	1.075
											Median	0.000	0.000	0.000	0.000	0.619	2.017	7.813	0.000	1.741	0.645
											StDev	n.a.	0.177	0.264	0.474	1.627	4.148	16.807	0.277	2.912	1.355
											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	1.709	1.972	11.111	19.718	100.000	1.557	15.391	8.406

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

Corporate Default and Recovery Rates, 1920-2007

Exhibit 25

Annual Issuer-Weighted Corporate Default Rates by Alphanumeric Rating, 1983-2007¹

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	0.964	
1984	0.000	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			100.000	0.096	3.324	0.925	
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	4.444	7.407	11.650		0.000		0.000	0.000	3.440	0.946	
1986	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.878	0.862	1.198	3.436	7.692	16.129	15.517		33.333		0.000	0.319	5.634	1.904
1987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.704	0.952	2.963	5.000	4.211	10.072		22.222		0.000	0.000	4.228	1.502	
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	4.360	6.897	10.811		23.529		50.000	0.000	3.585	1.358	
1989	0.000	0.000	0.000	1.361	0.000	0.000	0.000	0.000	0.826	1.042	0.787	1.818	4.711	5.755	9.722	18.045		27.273		0.000	0.288	5.787	2.344	
1990	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.540	2.791	3.486	8.543	21.250	29.114		53.846		75.000	0.000	9.939	3.559	
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	8.964	2.920	11.765	26.804		34.483		44.444	0.065	9.190	2.882	
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	0.730	1.015	1.563	24.561		29.268		22.222	0.000	5.111	1.400	
1993	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.806	0.000	0.752	2.575	3.419	9.302		23.529		44.444	0.000	3.035	0.816	
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	0.593	1.967	3.727	8.917		6.780		0.000	0.000	2.066	0.601	
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	1.770	3.991	7.143	1.942		2.597		21.622	0.000	2.897	0.919	
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	1.147	0.000	3.347		14.159		11.765	0.000	1.633	0.528	
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	0.442	0.000	1.320	7.353	0.000	11.765		19.608	0.000	1.942	0.662	
1998	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.319	0.000	0.000	1.136	1.045	1.942	6.803	5.674	6.316	11.905	20.000	20.000	0.039	3.077	1.187	
1999	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.333	0.461	0.514	2.177	2.198	7.029	9.351	12.903	27.184	12.500	46.512	0.037	5.372	2.198	
2000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.297	0.000	0.969	0.901	0.613	0.978	3.204	4.709	11.240	12.274	29.814	22.581	35.897	0.139	6.297	2.611	
2001	0.000	0.000	0.000	0.000	0.000	0.445	0.000	0.285	0.277	0.000	0.000	1.307	2.286	3.030	10.367	17.814	27.799	32.308	43.077	38.095	0.134	9.978	3.875	
2002	0.000	0.000	0.000	0.000	0.000	0.000	0.449	1.282	0.749	1.818	2.020	1.250	1.078	2.041	5.431	7.937	15.900	26.357	33.766	48.276	0.516	7.954	3.085	
2003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.546	0.699	1.405	0.346	2.333	5.525	7.512	22.727	31.250	33.898	0.000	5.098	1.766	
2004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.883	0.000	0.587	2.387	8.661	7.143	18.868	32.258	0.000	2.387	0.842	
2005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.249	0.303	0.000	0.000	0.000	0.000	0.862	2.473	3.096	5.587	23.529	23.256	0.062	1.665	0.627	
2006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.554	0.000	0.656	1.019	2.032	3.311	10.811	15.385	29.630	0.000	1.737	0.610	
2007	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	2.646	13.115	16.667	33.333	0.000	0.911	0.311	
Mean	0.000	0.000	0.000	0.054	0.000	0.018	0.018	0.104	0.097	0.417	0.634	0.643	1.829	2.747	6.498	10.507	9.129	21.656	23.762	29.210	0.068	4.404	1.537	
Median	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.514	1.078	2.198	5.431	9.302	7.512	23.128	21.290	29.630	0.000	3.585	1.187	
StDev	n.a.	n.a.	n.a.	0.272	n.a.	0.089	0.090	0.294	0.228	1.044	1.043	0.773	1.978	2.455	5.788	8.080	7.905	13.883	9.523	24.649	0.128	2.624	1.013	
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	0.000	0.000	0.000	12.500	0.000	0.000	0.911	0.311	
Max	0.000	0.000	0.000	1.361	0.000	0.445	0.449	1.282	0.826	4.878	3.704	2.791	8.964	8.543	21.250	29.114	27.799	53.846	43.077	100.000	0.516	9.978	3.875	

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.

Corporate Default and Recovery Rates, 1920-2007

Exhibit 26

Average Cumulative Issuer-Weighted
Global Default Rates, 1920-2007¹

Rating	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Aaa	0	0	0.019	0.077	0.163	0.255	0.368	0.531	0.701	0.897
Aa	0.061	0.181	0.286	0.446	0.704	1.013	1.336	1.651	1.953	2.294
A	0.073	0.237	0.500	0.808	1.116	1.448	1.796	2.131	2.504	2.901
Baa	0.288	0.850	1.561	2.335	3.142	3.939	4.707	5.475	6.278	7.061
Ba	1.336	3.200	5.315	7.490	9.587	11.56	13.363	15.111	16.733	18.435
B	4.047	8.786	13.494	17.720	21.425	24.656	27.594	30.037	32.154	33.929
Caa-C	13.728	22.46	29.029	33.916	37.638	40.584	42.872	44.921	46.996	48.981
Investment-Grade	0.144	0.431	0.805	1.230	1.687	2.157	2.626	3.091	3.578	4.076
Speculative-Grade	3.590	7.237	10.752	13.919	16.714	19.179	21.372	23.336	25.114	26.827
All Rated	1.406	2.878	4.315	5.626	6.802	7.854	8.803	9.667	10.484	11.281

Rating	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	1.073	1.212	1.363	1.411	1.452	1.532	1.617	1.683	1.771	1.828
Aa	2.677	3.095	3.513	3.933	4.254	4.492	4.682	4.877	5.094	5.265
A	3.342	3.772	4.151	4.503	4.919	5.284	5.555	5.810	6.075	6.333
Baa	7.799	8.537	9.243	9.889	10.444	11.007	11.529	12.002	12.439	12.912
Ba	19.996	21.519	23.036	24.344	25.510	26.638	27.811	28.911	29.851	30.779
B	35.641	37.258	38.693	40.075	41.402	42.675	43.729	44.521	45.074	45.375
Caa-C	50.994	53.073	55.045	57.113	59.123	60.978	62.627	64.202	65.678	67.133
Investment-Grade	4.582	5.088	5.565	6.004	6.415	6.794	7.115	7.414	7.711	8.004
Speculative-Grade	28.438	30.002	31.504	32.872	34.132	35.345	36.515	37.570	38.458	39.279
All Rated	12.048	12.797	13.503	14.146	14.738	15.292	15.791	16.246	16.663	17.062

¹ Monthly cohort frequency

Corporate Default and Recovery Rates, 1920-2007

Exhibit 27

Average Cumulative Issuer-Weighted
Global Default Rates, 1970-2007¹

Rating	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Aaa	0	0	0	0.026	0.100	0.173	0.252	0.336	0.428	0.525
Aa	0.008	0.018	0.042	0.106	0.178	0.261	0.344	0.416	0.463	0.521
A	0.020	0.094	0.218	0.342	0.467	0.612	0.762	0.934	1.120	1.308
Baa	0.170	0.478	0.883	1.360	1.835	2.322	2.794	3.257	3.780	4.353
Ba	1.125	3.019	5.298	7.648	9.805	11.771	13.465	15.084	16.700	18.426
B	4.660	10.195	15.566	20.325	24.692	28.743	32.527	35.734	38.599	40.922
Caa-C	17.723	27.909	36.116	42.603	47.836	51.627	54.539	57.729	61.295	64.928
Investment-Grade	0.065	0.197	0.384	0.603	0.824	1.058	1.287	1.519	1.769	2.036
Speculative-Grade	4.211	8.418	12.446	16.007	19.127	21.868	24.249	26.329	28.251	30.062
All Rated	1.417	2.819	4.135	5.275	6.240	7.072	7.783	8.405	8.985	9.537

Rating	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	0.631	0.745	0.863	0.930	1.004	1.084	1.172	1.204	1.204	1.204
Aa	0.588	0.697	0.848	0.989	1.094	1.220	1.373	1.518	1.697	1.884
A	1.517	1.715	1.924	2.122	2.396	2.701	3.038	3.379	3.731	4.082
Baa	4.949	5.595	6.256	6.952	7.601	8.231	8.856	9.466	9.991	10.510
Ba	20.255	22.15	24.004	25.815	27.533	29.305	30.953	32.333	33.661	34.852
B	43.036	45.041	46.719	48.545	50.212	51.365	51.926	52.375	52.375	52.375
Caa-C	66.573	66.573	67.777	69.192	70.298	72.256	72.783	72.783	72.783	72.783
Investment-Grade	2.318	2.618	2.935	3.249	3.575	3.914	4.270	4.617	4.949	5.282
Speculative-Grade	31.839	33.599	35.265	36.926	38.478	39.998	41.305	42.390	43.375	44.264
All Rated	10.079	10.619	11.148	11.666	12.168	12.671	13.153	13.595	14.010	14.412

¹ Monthly cohort frequency

Corporate Default and Recovery Rates, 1920-2007

Exhibit 28

Average Cumulative Issuer-Weighted
Global Default Rates, 1983-2007¹

Rating	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Aaa	0	0	0	0.035	0.078	0.129	0.186	0.191	0.191	0.191
Aa	0.009	0.021	0.048	0.115	0.183	0.229	0.263	0.291	0.315	0.366
A	0.020	0.101	0.241	0.372	0.499	0.637	0.766	0.899	1.015	1.095
Baa	0.192	0.529	0.943	1.436	1.939	2.428	2.885	3.292	3.674	4.070
Ba	1.166	3.238	5.835	8.453	10.688	12.713	14.479	16.045	17.471	18.889
B	4.663	10.286	15.752	20.574	25.022	29.192	33.068	36.342	39.083	41.238
Caa	15.371	25.497	33.792	40.661	45.803	49.430	51.870	54.519	59.178	65.735
Ca-C	32.905	43.080	51.514	56.862	63.287	66.166	70.860	75.522	75.522	75.522
Investment-Grade	0.069	0.208	0.397	0.616	0.834	1.045	1.237	1.409	1.564	1.710
Speculative-Grade	4.478	9.005	13.407	17.285	20.622	23.565	26.146	28.317	30.181	31.826
All Rated	1.594	3.184	4.689	5.979	7.042	7.939	8.690	9.300	9.803	10.234

Rating	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	0.191	0.191	0.191	0.191	0.191	0.191	0.191	0.191	0.191	0.191
Aa	0.427	0.546	0.680	0.778	0.883	1.007	1.154	1.331	1.450	1.461
A	1.181	1.249	1.353	1.488	1.723	2.034	2.392	2.787	3.073	3.246
Baa	4.511	4.988	5.618	6.328	6.876	7.356	7.955	8.586	9.114	9.323
Ba	20.324	21.828	23.288	24.863	26.298	27.725	29.192	30.501	31.960	33.097
B	43.237	45.245	47.037	49.112	50.970	51.971	52.595	53.366	53.366	53.366
Caa	69.249	69.249	71.527	74.090	76.105	79.829	80.929	80.929	80.929	80.929
Ca-C	75.522	75.522	75.522	75.522	75.522	75.522	75.522	75.522	75.522	75.522
Investment-Grade	1.868	2.037	2.259	2.500	2.747	3.013	3.329	3.675	3.936	4.056
Speculative-Grade	33.369	34.906	36.369	37.975	39.408	40.674	41.815	42.857	43.826	44.581
All Rated	10.635	11.030	11.443	11.884	12.291	12.685	13.098	13.522	13.868	14.069

¹ Monthly cohort frequency

Corporate Default and Recovery Rates, 1920-2007

Exhibit 29

Average Cumulative Issuer-Weighted
Global Default Rates by Alphanumeric Rating, 1983-2007¹

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	0.186	0.191	0.191	0.191
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	0.045	0.112	0.215	0.262	0.316	0.376	0.445	0.524
Aa3	0.017	0.035	0.068	0.122	0.176	0.232	0.267	0.283	0.287	0.341
A1	0.002	0.078	0.213	0.303	0.374	0.444	0.496	0.542	0.610	0.697
A2	0.024	0.076	0.207	0.392	0.559	0.720	0.898	1.083	1.242	1.337
A3	0.033	0.152	0.308	0.417	0.555	0.738	0.894	1.061	1.182	1.234
Baa1	0.145	0.385	0.662	0.892	1.130	1.346	1.630	1.817	1.960	2.093
Baa2	0.142	0.415	0.794	1.385	1.910	2.422	2.890	3.338	3.880	4.589
Baa3	0.311	0.842	1.467	2.162	2.968	3.773	4.439	5.075	5.562	5.901
Ba1	0.689	1.811	3.208	4.624	6.023	7.425	8.382	9.077	9.623	10.269
Ba2	0.785	2.211	4.031	5.940	7.583	8.762	9.965	11.186	12.396	13.488
Ba3	1.780	5.009	9.061	13.138	16.491	19.660	22.597	25.275	27.763	30.258
B1	2.562	7.096	11.949	16.362	20.862	25.099	29.389	33.161	36.191	38.529
B2	4.332	9.859	14.978	19.337	22.833	25.859	28.960	31.255	33.805	35.950
B3	8.501	16.098	23.246	29.669	35.501	41.333	45.445	48.933	51.270	53.035
Caa1	10.499	20.876	30.421	38.373	44.784	48.968	50.762	51.123	51.123	51.123
Caa2 ²	18.431	27.673	34.836	40.962	44.792	48.803	52.204	56.388	62.910	70.039
Caa3	25.580	37.593	44.525	49.578	54.653	54.989	54.989	54.989	54.989	54.989
Ca-C	32.905	43.080	51.514	56.862	63.287	66.166	70.860	75.522	75.522	75.522
Investment-Grade	0.069	0.208	0.397	0.616	0.834	1.045	1.237	1.409	1.564	1.710
Speculative-Grade	4.478	9.005	13.407	17.285	20.622	23.565	26.146	28.317	30.181	31.826
All Rated	1.594	3.184	4.689	5.979	7.042	7.939	8.690	9.300	9.803	10.234

Rating	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aaa	0.191	0.191	0.191	0.191	0.191	0.191	0.191	0.191	0.191	0.191
Aa1	0.168	0.168	0.350	0.577	0.839	0.941	0.941	0.941	0.941	0.941
Aa2	0.616	0.721	0.771	0.771	0.771	0.897	1.116	1.369	1.669	1.700
Aa3	0.407	0.584	0.755	0.866	0.978	1.109	1.266	1.457	1.477	1.477
A1	0.836	0.971	1.141	1.378	1.656	1.985	2.133	2.133	2.133	2.133
A2	1.381	1.432	1.491	1.561	1.649	1.848	2.291	2.831	3.213	3.317
A3	1.310	1.316	1.395	1.498	1.884	2.331	2.813	3.451	3.922	4.393
Baa1	2.258	2.537	2.911	3.507	4.063	4.755	5.391	5.680	5.680	5.680
Baa2	5.473	6.432	7.206	7.943	8.674	9.292	10.038	11.170	12.347	12.512
Baa3	6.133	6.262	7.052	7.879	8.180	8.203	8.562	8.995	9.359	9.863
Ba1	11.052	12.203	12.945	13.555	14.536	16.043	17.970	20.236	22.789	24.522
Ba2	15.042	16.991	18.875	20.811	23.065	25.086	26.856	27.127	27.602	27.602
Ba3	32.399	34.066	36.209	38.925	40.444	41.394	42.016	42.422	42.422	43.179
B1	40.477	42.262	44.008	46.555	48.299	49.545	49.545	49.545	49.545	49.545
B2	37.533	39.016	40.702	43.046	46.329	47.809	49.442	51.269	51.269	51.269
B3	55.737	58.889	60.886	61.766	62.060	62.060	62.536	63.360	63.360	63.360
Caa1	51.123									
Caa2 ²	73.253	73.253	75.235	77.464	79.216	82.455	83.412	83.412	83.412	83.412
Caa3										
Ca-C	75.522	75.522	75.522	75.522	75.522	75.522	75.522			
Investment-Grade	1.868	2.037	2.259	2.500	2.747	3.013	3.329	3.675	3.936	4.056
Speculative-Grade	33.369	34.906	36.369	37.975	39.408	40.674	41.815	42.857	43.826	44.581
All Rated	10.635	11.030	11.443	11.884	12.291	12.685	13.098	13.522	13.868	14.069

1. Monthly cohort frequency

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

Corporate Default and Recovery Rates, 1920-2007

Exhibit 30**2007 Global Issuer-Weighted
Speculative-Grade Default Rate Forecast**

Month	Forecast	High	Low
02/01/08	1.41%	1.65%	1.28%
03/01/08	1.76%	2.26%	1.52%
04/01/08	2.09%	2.84%	1.72%
05/01/08	2.27%	3.34%	1.75%
06/01/08	2.56%	3.97%	1.88%
07/01/08	2.85%	4.61%	2.02%
08/01/08	3.19%	5.31%	2.18%
09/01/08	3.56%	6.05%	2.39%
10/01/08	3.92%	6.77%	2.58%
11/01/08	4.22%	7.42%	2.72%
12/01/08	4.61%	8.19%	2.93%
01/01/09	4.81%	8.77%	2.95%

Exhibit 31**Annual Volume-Weighted
Corporate Default Rates by Letter Rating, 1994-2007¹**

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	1.971	2.797	0.000	1.220	0.249
1995	0.000	0.000	0.000	0.000	0.567	4.637	6.876	0.000	3.081	0.714
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	3.151	12.722	0.000	2.940	0.873
1999	0.000	0.000	0.000	0.140	2.216	5.197	21.064	0.031	6.051	1.164
2000	0.000	0.000	0.000	0.623	1.039	5.767	20.723	0.137	5.681	1.313
2001	0.000	0.000	1.175	1.640	1.178	14.061	62.776	0.907	16.733	3.497
2002	0.000	0.000	2.768	3.671	5.250	15.927	90.812	2.312	22.636	5.418
2003	0.000	0.000	0.000	0.000	3.622	2.560	17.426	0.000	5.736	1.003
2004	0.000	0.000	0.000	0.000	0.000	0.258	9.686	0.000	1.974	0.344
2005	0.000	0.000	0.000	0.201	0.000	1.639	16.322	0.073	3.759	0.749
2006	0.000	0.000	0.000	0.000	0.033	1.105	3.885	0.000	1.050	0.212
2007	0.000	0.000	0.000	0.000	0.000	0.000	3.622	0.000	0.597	0.116
Mean	0.000	0.000	0.282	0.448	1.060	4.354	21.281	0.247	5.406	1.201
Median	0.000	0.000	0.000	0.000	0.354	2.812	14.522	0.000	3.010	0.731
StDev	NA	NA	0.781	1.030	1.599	4.836	25.087	0.641	6.404	1.474
Min	0.000	0.000	0.000	0.000	0.000	0.000	2.797	0.000	0.597	0.116
Max	0.000	0.000	2.768	3.671	5.250	15.927	90.812	2.312	22.636	5.418

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

Corporate Default and Recovery Rates, 1920-2007

Exhibit 32

Average Volume-Weighted Corporate Default Rates by Letter Rating, 1994-2007¹

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	0.263	0.579	0.843	1.024	1.253
Baa	0.507	1.189	1.734	2.421	3.021
Ba	1.483	3.303	5.321	7.292	8.868
B	4.617	11.098	16.588	20.779	23.708
Caa-C	20.617	31.119	37.915	41.827	43.865
IG	0.268	0.617	0.901	1.180	1.448
SG	5.698	10.941	15.261	18.515	20.777
All	1.303	2.578	3.614	4.443	5.076

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

Exhibit 33

Average Annual Credit Loss Rates by Letter Rating, 1982-2007¹

Year	Aaa	Aa	A	Baa	Ba	B	Caa-C	Inv-Grade	Spec-Grade	All Rated
1982	0.000	0.000	0.165	0.202	1.759	1.547	16.053	0.136	2.286	0.666
1983	0.000	0.000	0.000	0.000	0.431	2.981	18.912	0.000	1.805	0.456
1984	0.000	0.000	0.000	0.186	0.421	3.401	50.590	0.049	1.682	0.468
1985	0.000	0.000	0.000	0.000	0.559	3.002	0.000	0.000	1.370	0.377
1986	0.000	0.000	0.000	0.645	0.962	5.530	12.640	0.151	2.671	0.902
1987	0.000	0.000	0.000	0.000	1.011	2.320	7.454	0.000	1.576	0.560
1988	0.000	0.000	0.000	0.000	0.680	3.471	15.645	0.000	1.963	0.744
1989	0.000	0.341	0.000	0.336	1.672	5.020	14.048	0.162	3.252	1.317
1990	0.000	0.000	0.000	0.000	2.099	10.029	37.053	0.000	6.261	2.242
1991	0.000	0.000	0.000	0.173	3.024	7.956	23.336	0.041	5.821	1.825
1992	0.000	0.000	0.000	0.000	0.152	4.712	14.227	0.000	2.597	0.711
1993	0.000	0.000	0.000	0.000	0.345	2.888	17.545	0.000	1.908	0.513
1994	0.000	0.000	0.000	0.000	0.109	1.931	2.373	0.000	0.956	0.278
1995	0.000	0.000	0.000	0.000	0.362	2.260	4.597	0.000	1.518	0.482
1996	0.000	0.000	0.000	0.000	0.000	0.516	5.068	0.000	0.608	0.197
1997	0.000	0.000	0.000	0.000	0.079	0.871	6.231	0.000	0.853	0.291
1998	0.000	0.000	0.000	0.070	0.431	2.339	6.397	0.023	1.796	0.693
1999	0.000	0.000	0.000	0.064	0.761	3.318	12.189	0.023	3.328	1.362
2000	0.000	0.000	0.000	0.293	0.646	4.380	15.549	0.106	4.798	1.989
2001	0.000	0.000	0.132	0.153	0.877	7.337	25.022	0.105	7.838	3.044
2002	0.000	0.000	0.118	0.878	1.035	3.357	20.021	0.363	5.592	2.169
2003	0.000	0.000	0.000	0.000	0.539	1.359	12.063	0.000	2.963	1.027
2004	0.000	0.000	0.000	0.000	0.168	0.377	5.707	0.000	1.092	0.385
2005	0.000	0.000	0.000	0.080	0.000	0.499	2.961	0.028	0.751	0.283
2006	0.000	0.000	0.000	0.000	0.080	0.561	3.381	0.000	0.781	0.274
2007	0.000	0.000	0.000	0.000	0.000	0.000	3.217	0.000	0.446	0.152

¹ Data in percent based on issuer-weighted average default rate and on issuer-weighted average senior unsecured bond recovery rates.

Corporate Default and Recovery Rates, 1920-2007

Exhibit 34**Average Cumulative Issuer-Weighted
Default Rates by Broad Industry Group, 1970-2007¹**

Industry Group	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Banking	0.333	0.671	1.022	1.343	1.603	1.821	1.960	2.099	2.223	2.353
Capital Industries	1.870	3.821	5.722	7.469	9.010	10.381	11.618	12.760	13.827	14.855
Consumer Industries	2.332	4.691	6.908	8.809	10.418	11.858	13.123	14.182	15.171	16.018
Energy & Environment	1.429	2.804	3.968	4.989	5.919	6.793	7.526	8.147	8.773	9.365
FIRE	0.413	0.808	1.245	1.713	2.121	2.500	2.857	3.177	3.482	3.782
Media & Publishing	2.783	5.648	8.447	10.879	13.027	14.752	15.950	16.753	17.559	18.397
Retail & Distribution	2.750	5.579	8.224	10.464	12.423	14.081	15.452	16.803	18.218	19.559
Sovereign & Public Finance	0.653	1.338	1.643	1.860	2.106	2.153	2.153	2.153	2.153	2.153
Technology	1.766	3.518	5.078	6.250	7.075	7.693	8.237	8.650	8.959	9.256
Transportation	2.171	3.912	5.466	6.760	7.823	8.738	9.518	10.274	10.970	11.715
Utilities	0.192	0.374	0.548	0.710	0.872	1.027	1.170	1.282	1.395	1.516

¹ Percent of all rated issuers in each industry group.

Corporate Default and Recovery Rates, 1920-2007

Exhibit 35

Annual Default Rates by Broad Industry Group, 1970-2007

Year	Banking	Capital Industries	Consumer Industries	Energy & Environment	FIRE	Media & Publishing	Retail & Distribution	Sovereign & Public Finance	Technology	Transportation	Utilities
1970		0.000	0.922	0.000	20.000	0.000	0.000	0.000	0.840	16.107	0.000
1971		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.400	0.000
1972		0.355	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.226	0.000
1973		0.352	0.000	0.000	0.000	0.000	2.899	0.000	0.000	1.667	0.000
1974		0.354	0.000	0.000	0.000	0.000	2.985	0.000	0.000	0.000	0.000
1975	0.000	0.356	0.769	0.000	0.000	4.444	1.504	0.000	0.000	0.000	0.000
1976	0.000	0.353	0.725	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1977	0.000	0.000	0.738	0.000	0.000	4.167	0.000	0.000	0.000	1.810	0.000
1978	0.000	0.000	0.738	1.227	0.000	0.000	1.538	0.000	0.735	0.000	0.000
1979	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.719	0.000	0.000
1980	0.000	0.743	0.000	1.124	0.000	0.000	0.000	0.000	0.000	0.957	0.000
1981	0.000	0.362	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.966	0.000
1982	0.000	1.091	0.000	0.926	0.000	3.922	4.545	0.000	1.869	2.062	0.000
1983	0.000	1.064	0.563	2.449	0.000	0.000	0.000	0.000	0.615	4.020	0.408
1984	0.000	0.697	1.061	3.953	0.000	0.000	0.000	0.000	1.813	1.058	0.000
1985	0.000	1.499	1.351	3.425	1.117	0.000	0.000	0.000	0.560	0.000	0.000
1986	0.000	3.315	1.938	7.971	0.000	1.802	0.962	0.000	0.517	2.778	0.000
1987	0.399	2.368	2.393	4.895	0.000	1.266	1.646	0.000	0.472	0.000	0.813
1988	2.034	0.781	2.548	1.434	0.583	3.315	1.550	0.000	1.210	0.000	0.413
1989	2.128	2.914	4.088	0.000	3.200	6.486	0.709	16.667	1.186	1.843	0.000
1990	2.677	5.148	7.837	0.649	0.000	5.882	7.213	0.000	1.188	5.479	0.402
1991	1.813	3.547	3.663	1.290	0.484	4.000	9.353	0.000	1.590	8.911	0.815
1992	0.503	1.918	2.756	0.639	0.459	7.042	2.362	0.000	1.139	0.000	0.813
1993	0.469	1.515	1.119	1.170	0.000	2.759	2.290	0.000	0.367	0.000	0.000
1994	0.000	0.202	0.910	0.000	0.000	1.183	2.516	0.000	1.042	2.553	0.388
1995	0.000	1.221	2.663	0.488	1.064	0.000	1.729	0.000	0.649	0.826	0.000
1996	0.000	0.488	1.245	0.885	0.000	2.381	0.560	0.000	0.596	0.000	0.363
1997	0.000	0.438	2.191	0.000	0.271	1.303	2.564	0.000	0.543	0.766	0.000
1998	0.131	1.133	2.178	0.946	0.888	2.667	5.783	0.000	0.698	0.669	0.000
1999	0.251	2.211	4.489	4.545	0.600	2.746	2.637	3.448	1.858	5.573	0.630
2000	0.000	4.103	6.226	1.381	0.781	1.684	6.009	0.000	2.388	4.416	0.000
2001	0.122	7.025	5.518	1.628	1.167	3.805	7.745	0.000	7.295	3.145	0.569
2002	0.611	2.933	2.078	4.326	0.184	9.670	3.030	0.000	8.810	5.229	0.546
2003	0.000	2.579	1.975	1.550	0.352	3.526	4.124	0.000	4.095	2.632	0.543
2004	0.000	1.497	2.285	0.253	0.172	1.538	1.111	0.000	0.713	1.307	0.265
2005	0.112	1.321	0.500	0.742	0.132	0.488	1.729	0.000	0.235	3.185	0.256
2006	0.000	1.528	0.963	0.000	0.215	1.399	1.102	0.000	0.709	1.250	0.000
2007	0.000	0.838	0.643	0.000	0.000	0.911	1.648	0.000	0.231	0.000	0.000

Corporate Default and Recovery Rates, 1920-2007

Exhibit 36

Cumulative Issuer-Weighted Default Rates by Annual Cohort, 1970-2007

Cohort formed in 1/1/1970

Rating	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	251	0.000	0.000	0.000	0.417	0.417	0.842	0.842	0.842	0.842	0.842	1.303	1.303	1.303	1.303	1.303	1.303	1.808	1.808	2.908	2.908
Baa	375	0.537	0.537	0.537	1.109	1.400	1.400	1.707	2.343	3.002	3.002	3.361	3.361	4.528	4.932	5.349	5.783	7.162	8.160	9.257	9.848
Ba	239	4.264	5.143	5.600	6.077	7.058	8.079	8.618	9.195	10.426	10.426	10.426	11.990	14.505	15.400	15.400	17.451	21.854	24.354	24.354	25.852
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	743	0.271	0.271	0.271	0.695	0.839	0.985	1.134	1.438	1.750	1.750	2.080	2.080	2.602	2.958	3.140	3.326	4.285	4.891	5.749	5.973
Speculative-grade	290	8.772	9.854	11.720	12.498	13.302	14.142	14.585	15.526	16.526	16.526	16.526	17.776	21.105	21.816	21.816	23.428	26.928	28.917	28.917	30.121
All Rated	1033	2.638	2.936	3.442	3.960	4.277	4.602	4.824	5.281	5.754	5.754	6.010	6.274	7.366	7.789	7.934	8.381	9.775	10.599	11.303	11.673

Cohort formed in 1/1/1971

Rating	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	280	0.000	0.000	0.367	0.367	0.742	0.742	0.742	0.742	0.742	1.143	1.143	1.559	1.979	1.979	1.979	2.415	2.415	3.360	3.360	3.360
Baa	400	0.000	0.000	0.528	0.797	0.797	1.085	1.681	2.303	2.303	2.640	2.640	3.751	4.136	4.533	4.946	6.254	7.196	8.224	8.774	9.929
Ba	232	0.870	1.321	1.792	2.762	4.278	4.811	5.381	6.598	6.598	6.598	8.123	10.573	11.445	11.445	13.424	18.768	21.230	21.230	22.702	22.702
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	794	0.000	0.000	0.392	0.525	0.660	0.799	1.082	1.372	1.372	1.680	1.680	2.330	2.663	2.833	3.007	3.724	4.288	5.085	5.294	5.943
Speculative-grade	264	1.147	3.128	3.954	4.810	6.151	6.622	7.626	8.694	8.694	8.694	10.027	13.584	14.342	14.342	16.055	20.693	22.807	22.807	24.094	24.094
All Rated	1058	0.285	0.770	1.266	1.570	1.986	2.200	2.641	3.097	3.097	3.343	3.598	4.785	5.193	5.332	5.764	7.107	7.898	8.573	8.928	9.482

Cohort formed in 1/1/1972

Rating	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	302	0.000	0.338	0.338	0.338	0.338	0.338	0.338	0.338	0.338	0.338	0.720	1.106	1.106	1.106	1.507	1.507	2.379	2.379	2.858	3.355
Baa	433	0.000	0.485	0.732	0.986	1.249	1.797	2.369	2.369	2.997	2.997	3.688	4.046	4.414	4.796	6.002	6.872	7.825	8.840	10.444	12.676
Ba	227	0.000	0.466	1.426	2.927	3.454	4.014	5.203	5.203	5.203	6.667	9.804	10.639	11.528	14.337	19.376	21.663	21.663	23.002	24.415	31.825
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	853	0.000	0.363	0.486	0.611	0.739	1.001	1.271	1.271	1.557	1.557	2.011	2.320	2.478	2.639	3.304	3.828	4.570	4.960	5.973	7.018
Speculative-grade	262	1.949	2.758	3.594	4.906	5.367	6.340	7.369	7.369	7.369	8.629	12.660	13.376	14.143	16.573	20.941	22.905	22.905	24.073	25.318	31.869
All Rated	1115	0.455	0.921	1.206	1.595	1.795	2.208	2.634	2.634	2.864	3.103	4.212	4.592	4.853	5.389	6.639	7.375	8.003	8.500	9.536	11.320

Corporate Default and Recovery Rates, 1920-2007

Cohort formed in 1/1/1973

Rating	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	307	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.370	0.745	0.745	0.745	1.137	1.137	1.989	1.989	2.455	2.938	3.456
Baa	447	0.452	0.683	1.157	1.403	1.913	2.446	2.446	3.030	3.030	3.674	4.343	5.031	5.745	6.870	7.680	8.565	9.513	11.518	13.103	13.103
Ba	205	0.000	1.013	2.071	2.631	3.223	4.472	4.472	4.472	5.988	10.006	10.851	10.851	12.718	17.763	21.213	21.213	22.537	23.933	32.627	34.193
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	72.222	72.222	72.222	72.222	72.222	72.222	72.222	72.222	72.222
Investment-grade	875	0.230	0.347	0.586	0.707	0.956	1.212	1.212	1.484	1.484	1.917	2.360	2.662	2.970	3.607	4.109	4.818	5.191	6.354	7.157	7.372
Speculative-grade	236	1.288	2.175	3.104	3.595	4.629	5.716	5.716	5.716	7.030	11.886	12.621	12.621	14.269	18.734	21.763	21.763	22.948	24.212	32.120	33.534
All Rated	1111	0.454	0.732	1.111	1.306	1.707	2.121	2.121	2.344	2.575	3.768	4.259	4.511	5.030	6.241	7.098	7.705	8.185	9.354	11.084	11.453

Cohort formed in 1/1/1974

Rating	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	305	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.369	0.742	0.742	0.742	1.131	1.131	1.969	1.969	2.423	2.895	3.405	3.405
Baa	436	0.000	0.474	0.720	1.229	1.762	1.762	2.347	2.347	2.993	3.663	4.354	5.073	5.451	6.272	7.167	8.119	9.629	11.219	11.219	11.219
Ba	196	0.000	1.090	1.668	2.281	3.575	3.575	3.575	4.356	8.461	9.325	9.325	11.204	18.267	21.696	21.696	23.058	25.908	34.711	36.303	38.123
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	50.000	50.000	50.000	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	1.690	2.128	2.425	2.730	3.044	3.539	4.237	4.603	5.553	6.339	6.550	6.550
Speculative-grade	228	1.342	2.282	2.779	3.827	4.930	4.930	4.930	6.250	11.111	11.849	11.849	13.497	19.707	22.699	22.699	23.907	26.487	34.580	36.034	37.674
All Rated	1101	0.275	0.651	0.844	1.242	1.652	1.652	1.872	2.101	3.401	3.887	4.137	4.650	5.847	6.693	7.293	7.766	8.916	10.619	10.983	11.182

Cohort formed in 1/1/1975

Rating	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	320	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.356	0.356	0.356	0.727	0.727	1.529	1.529	1.966	2.878	3.372	3.906	3.906
Baa	416	0.000	0.000	0.263	0.812	0.812	1.416	1.416	2.409	3.094	3.796	4.525	4.907	5.734	6.186	7.151	9.175	10.759	10.759	10.759	10.759
Ba	200	1.026	2.107	3.249	3.850	3.850	3.850	4.573	8.405	9.209	9.209	10.972	17.601	20.812	21.994	23.262	24.585	31.379	32.839	34.458	34.458
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	50.000	50.000	50.000	50.000	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	1.165	1.583	1.867	2.157	2.456	2.927	3.589	3.935	5.013	5.940	6.139	6.354	6.354
Speculative-grade	235	1.743	2.659	4.105	5.117	5.117	5.117	6.329	10.820	11.501	11.501	13.034	18.804	21.572	22.584	23.674	25.987	33.208	34.492	35.901	35.901
All Rated	1125	0.360	0.545	0.925	1.317	1.317	1.527	1.745	2.981	3.443	3.680	4.166	5.301	6.101	6.809	7.254	8.489	10.244	10.585	10.956	10.956

Corporate Default and Recovery Rates, 1920-2007

Cohort formed in 1/1/1976

Rating	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	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	0.985	2.137	2.137	3.330	3.330	3.330	3.330	3.330	3.330
A	369	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.613	0.613	0.613	1.270	1.270	2.345	2.345	3.120	4.336	4.336	4.815	4.815	5.330	5.330
Baa	375	0.000	0.282	0.577	0.577	0.901	0.901	2.314	3.046	3.797	4.578	4.988	5.867	5.867	6.896	9.061	10.187	10.778	10.778	10.778	10.778	10.778
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	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	46.356
Caa-C	2	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	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	0.349	0.349	0.989	1.514	1.781	2.056	2.483	2.931	3.560	3.889	5.079	5.957	6.145	6.350	6.350	6.350	6.576
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	33.923
All Rated	1154	0.175	0.535	0.906	0.906	1.104	1.309	2.473	3.018	3.241	3.702	4.902	5.663	6.336	6.759	8.075	9.891	10.215	10.569	10.569	10.569	10.763

Cohort formed in 1/1/1977

Rating	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	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	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	1.204	1.204	2.910	2.910	4.018	5.176	5.176	5.633	5.633	6.126	6.126	6.126
Baa	361	0.285	0.585	0.585	0.585	0.585	2.008	2.744	3.501	4.289	4.702	5.587	5.587	6.621	8.255	9.384	9.978	9.978	9.978	9.978	9.978	9.978
Ba	197	0.522	1.618	1.618	2.229	2.886	5.660	6.389	6.389	7.982	13.919	16.772	17.819	18.922	20.072	27.284	28.582	30.011	30.011	30.011	30.011	30.011
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	56.731
Caa-C	2	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	50.000	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	0.843	1.352	1.612	1.879	2.294	2.730	3.647	3.966	5.122	5.974	6.157	6.357	6.357	6.578	6.578	6.578
Speculative-grade	229	1.345	2.758	2.758	3.815	4.950	8.571	9.212	9.212	10.642	15.988	18.547	19.483	20.477	22.570	30.313	31.515	32.832	32.832	32.832	32.832	32.832
All Rated	1160	0.351	0.712	0.712	0.905	1.105	2.238	2.769	2.987	3.437	4.606	5.347	6.263	6.673	7.951	9.714	10.029	10.375	10.375	10.565	10.565	10.565

Cohort formed in 1/1/1978

Rating	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	71	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.538	1.538	1.538	3.101	3.101	3.101	3.101	3.101	3.101	3.101	3.101	3.101
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	1.774
A	375	0.000	0.000	0.000	0.000	0.000	0.594	0.594	0.594	1.233	1.233	2.649	2.649	4.188	4.995	4.995	5.472	5.472	5.987	5.987	5.987	5.987
Baa	347	0.000	0.000	0.000	0.000	1.377	1.734	2.468	2.851	3.251	4.533	4.994	5.981	7.539	9.157	9.725	9.725	9.725	9.725	9.725	9.725	9.725
Ba	189	1.084	1.084	1.084	1.741	4.529	5.992	5.992	9.179	15.065	16.942	17.980	19.081	21.377	28.579	29.878	32.740	32.740	32.740	32.740	32.740	32.740
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	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	50.000
Investment-grade	922	0.000	0.000	0.000	0.000	0.608	0.981	1.235	1.366	1.771	2.338	3.234	3.545	4.836	5.669	5.847	6.042	6.042	6.257	6.257	6.257	6.257
Speculative-grade	229	1.790	1.790	2.797	3.877	7.320	8.536	9.182	11.873	18.321	20.712	21.588	22.522	25.482	32.881	34.039	36.576	36.576	36.576	36.576	36.576	36.576
All Rated	1151	0.352	0.352	0.540	0.735	1.837	2.353	2.671	3.218	4.581	5.420	6.309	6.708	8.224	9.941	10.248	10.752	10.752	10.937	10.937	10.937	10.937

Corporate Default and Recovery Rates, 1920-2007

Cohort formed in 1/1/1979

Rating	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	75	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.449	1.449	1.449	2.920	2.920	2.920	2.920	2.920	2.920	2.920	2.920	2.920	2.920
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	1.743
A	373	0.000	0.000	0.000	0.000	0.582	0.582	0.582	1.207	1.207	2.600	2.600	3.729	4.516	4.516	4.983	4.983	5.482	5.482	5.482	5.482	5.482
Baa	339	0.000	0.314	0.314	1.673	2.026	2.388	2.765	2.765	4.031	4.488	5.478	8.103	9.739	10.312	10.312	10.312	10.312	10.312	10.312	10.312	10.312
Ba	210	0.490	0.490	1.051	3.407	5.876	9.144	11.866	18.315	19.886	20.747	21.663	24.547	31.684	32.777	35.136	35.136	35.136	35.136	35.136	35.136	35.136
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	50.000
Investment-grade	917	0.000	0.113	0.113	0.709	1.075	1.200	1.328	1.592	2.148	3.027	3.333	4.761	5.581	5.757	5.949	5.949	6.160	6.160	6.160	6.160	6.160
Speculative-grade	247	0.418	1.307	2.256	5.255	7.367	10.745	13.691	21.224	23.297	24.052	24.860	28.295	34.814	35.832	38.045	38.045	38.045	38.045	38.045	38.045	38.045
All Rated	1164	0.087	0.358	0.545	1.604	2.297	3.010	3.640	5.168	5.974	6.830	7.214	8.946	10.606	10.903	11.390	11.390	11.569	11.569	11.569	11.569	11.569

Cohort formed in 1/1/1980

Rating	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	88	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.258	1.258	1.258	2.540	2.540	2.540	2.540	2.540	2.540	2.540	2.540	2.540	2.540	2.540
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	1.843
A	380	0.000	0.000	0.275	0.837	0.837	0.837	1.738	2.053	3.058	3.058	4.147	4.905	4.905	5.353	5.353	5.833	5.833	5.833	5.833	5.833	6.925
Baa	339	0.000	0.000	0.992	1.336	1.689	2.422	2.422	3.242	4.122	5.525	8.005	10.055	11.129	11.129	11.129	11.129	11.129	11.129	11.129	11.129	11.129
Ba	208	0.000	0.533	3.877	5.038	8.714	11.906	17.982	20.198	21.021	23.713	26.539	33.681	35.948	38.388	38.388	38.388	38.388	39.821	39.821	39.821	39.821
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	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	55.556
Investment-grade	934	0.000	0.000	0.459	0.811	0.931	1.177	1.559	2.226	3.068	3.507	4.871	5.809	6.144	6.327	6.327	6.530	6.530	6.530	6.530	6.530	6.996
Speculative-grade	255	1.619	2.482	6.546	8.438	12.452	15.607	22.921	25.388	26.069	28.287	32.206	39.159	41.121	43.243	43.243	43.243	43.243	44.477	44.477	44.477	44.477
All Rated	1189	0.343	0.521	1.710	2.369	3.239	4.036	5.693	6.677	7.487	8.215	9.980	11.816	12.380	12.843	12.843	13.013	13.013	13.196	13.196	13.196	13.589

Cohort formed in 1/1/1981

Rating	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	92	0.000	0.000	0.000	0.000	0.000	0.000	1.242	1.242	1.242	2.525	2.525	2.525	2.525	2.525	2.525	2.525	2.525	2.525	2.525	2.525	2.525
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	2.546	3.959
A	388	0.000	0.266	0.266	0.266	0.266	1.154	1.467	2.133	2.133	3.216	3.975	3.975	4.426	4.426	4.911	4.911	4.911	4.911	6.007	6.568	6.568
Baa	338	0.000	0.632	1.961	2.650	3.365	3.365	3.763	4.615	5.968	8.343	9.805	10.816	10.816	10.816	10.816	10.816	10.816	10.816	10.816	10.816	11.595
Ba	244	0.000	3.587	4.995	7.964	11.583	18.214	20.656	21.340	24.336	28.361	35.570	37.632	39.859	39.859	39.859	39.859	41.196	42.596	42.596	42.596	42.596
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	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	40.000
Investment-grade	950	0.000	0.329	0.781	1.012	1.250	1.621	2.141	2.961	3.387	4.713	5.472	5.797	5.974	5.974	6.171	6.171	6.171	6.171	6.624	7.325	7.325
Speculative-grade	295	0.703	4.771	6.711	10.401	13.839	21.693	24.235	24.799	27.264	31.957	38.799	40.548	42.450	42.450	42.450	42.450	43.579	44.754	44.754	44.754	44.754
All Rated	1245	0.163	1.347	2.135	3.127	4.059	6.005	6.933	7.699	8.503	10.418	12.167	12.705	13.147	13.147	13.309	13.309	13.484	13.666	14.042	14.624	14.624

Corporate Default and Recovery Rates, 1920-2007

Cohort formed in 1/1/1982

Rating	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	94	0.000	0.000	0.000	0.000	0.000	1.227	1.227	1.227	2.510	2.510	2.510	2.510	2.510	2.510	2.510	2.510	2.510	2.510	2.510	2.510
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	4.730	4.730
A	394	0.257	0.257	0.257	0.257	1.126	1.126	1.778	1.778	3.197	3.941	3.941	4.378	4.378	4.378	4.378	4.378	4.378	4.911	5.457	8.854
Baa	329	0.314	0.314	1.355	2.075	2.451	3.255	4.119	5.489	7.894	9.383	10.419	10.419	10.419	10.419	10.419	10.419	10.419	11.181	11.971	11.971
Ba	259	2.740	5.218	7.851	11.500	18.308	20.450	21.046	23.678	27.998	32.880	34.744	36.752	36.752	36.752	36.752	38.056	39.464	39.464	39.464	42.529
B	42	2.410	9.917	15.139	17.921	30.310	30.310	30.310	30.310	35.671	54.970	54.970	54.970	54.970	54.970	54.970	54.970	54.970	54.970	54.970	54.970
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	962	0.212	0.212	0.548	0.780	1.261	1.768	2.571	2.990	4.440	5.190	5.511	5.686	5.686	5.880	5.880	5.880	5.880	6.325	7.014	8.437
Speculative-grade	313	3.560	7.649	10.541	13.931	21.590	23.805	24.299	26.493	30.728	36.931	38.518	40.238	40.238	40.238	40.238	41.334	42.508	42.508	42.508	45.091
All Rated	1275	1.037	2.029	2.970	3.943	6.072	6.957	7.690	8.462	10.431	12.131	12.655	13.084	13.084	13.242	13.242	13.414	13.591	13.959	14.528	16.095

Cohort formed in 1/1/1983

Rating	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	97	0.000	0.000	0.000	0.000	2.439	2.439	2.439	3.775	3.775	3.775	3.775	3.775	3.775	3.775	3.775	3.775	3.775	3.775	3.775	3.775
Aa	224	0.000	0.000	0.000	0.000	0.482	1.975	1.975	1.975	1.975	1.975	1.975	1.975	2.685	2.685	2.685	2.685	2.685	2.685	3.546	4.448
A	429	0.000	0.000	0.000	0.260	0.260	0.837	0.837	2.084	3.060	3.754	4.129	4.129	4.129	4.129	4.129	4.129	4.129	4.619	6.141	6.682
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	8.805	10.809	12.895	15.059
Ba	230	0.911	2.394	4.516	12.154	14.197	17.332	20.926	25.995	31.559	31.559	33.000	33.000	33.000	33.000	34.811	36.700	38.678	40.722	44.882	49.122
B	114	6.306	11.015	17.860	25.138	28.416	29.600	32.307	40.088	49.910	54.919	57.736	57.736	57.736	57.736	57.736	57.736	57.736	57.736	57.736	57.736
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	1020	0.000	0.305	0.410	0.956	1.419	2.156	2.411	3.341	4.029	4.323	4.484	4.484	4.663	4.663	4.663	4.663	4.870	5.507	6.822	7.742
Speculative-grade	355	3.818	6.971	10.652	17.961	20.825	23.127	26.286	32.255	39.098	40.711	42.521	42.521	42.521	42.521	43.694	44.960	46.270	47.630	50.423	53.297
All Rated	1375	0.964	1.963	2.920	5.018	6.009	7.069	7.884	9.708	11.399	11.886	12.287	12.287	12.435	12.435	12.596	12.763	13.109	13.822	15.294	16.450

Cohort formed in 1/1/1984

Rating	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	79	0.000	0.000	0.000	1.481	1.481	1.481	3.166	3.166	3.166	3.166	3.166	3.166	3.166	3.166	3.166	3.166	3.166	3.166	3.166	3.166
Aa	241	0.000	0.000	0.000	0.887	1.807	1.807	1.807	1.807	1.807	1.807	1.807	2.451	2.451	2.451	2.451	2.451	2.451	3.228	4.041	4.041
A	460	0.000	0.225	0.461	0.708	1.482	1.751	2.872	3.748	4.369	4.369	4.369	4.369	4.369	4.369	4.369	4.369	4.808	6.165	6.646	7.173
Baa	276	0.368	0.368	0.782	1.244	1.760	2.846	3.992	5.196	5.196	5.901	5.901	5.901	5.901	5.901	5.901	6.861	8.886	10.992	13.190	13.190
Ba	246	0.833	3.490	12.154	14.330	18.054	21.571	27.061	32.180	33.142	34.220	34.220	34.220	34.220	35.715	35.715	37.385	39.100	42.631	46.216	46.216
B	120	6.723	12.768	20.114	23.988	27.133	32.031	42.048	49.180	51.439	56.551	56.551	56.551	56.551	56.551	60.689	60.689	60.689	60.689	60.689	60.689
Caa-C	2	100.000																			
Investment-grade	1056	0.096	0.194	0.400	0.947	1.644	2.007	2.892	3.549	3.830	3.984	3.984	4.156	4.156	4.156	4.156	4.354	4.967	6.232	7.118	7.356
Speculative-grade	368	3.324	7.110	15.283	18.060	21.564	25.575	32.639	38.347	39.673	41.908	41.908	41.908	41.908	42.936	44.077	45.254	46.471	48.990	51.573	51.573
All Rated	1424	0.925	1.957	4.127	5.206	6.543	7.678	9.778	11.357	11.813	12.313	12.313	12.453	12.453	12.606	12.765	13.094	13.771	15.169	16.270	16.466

Corporate Default and Recovery Rates, 1920-2007

Cohort formed in 1/1/1985

Rating	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	80	0.000	0.000	0.000	0.000	0.000	1.681	1.681	1.681	1.681	1.681	1.681	1.681	1.681	1.681	1.681	1.681	1.681	1.681	1.681	1.681
Aa	301	0.000	0.000	0.000	0.774	0.774	0.774	0.774	0.774	0.774	0.774	1.375	1.375	1.375	1.375	1.375	1.375	2.095	2.851	2.851	2.851
A	521	0.000	0.209	1.329	2.281	2.530	3.842	4.664	4.953	4.953	4.953	4.953	4.953	4.953	4.953	4.953	5.378	6.252	6.715	7.214	7.214
Baa	272	0.000	1.224	1.224	1.744	2.842	3.417	4.621	5.269	5.984	5.984	5.984	5.984	5.984	5.984	8.062	10.251	12.538	14.934	14.934	14.934
Ba	294	1.404	6.702	9.288	12.758	18.297	23.889	29.350	30.853	31.686	31.686	32.676	32.676	33.817	33.817	35.128	36.508	40.887	43.842	43.842	43.842
B	148	7.534	16.962	23.142	26.558	30.754	42.295	48.890	51.162	56.588	56.588	56.588	56.588	56.588	60.929	60.929	60.929	60.929	60.929	60.929	60.929
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	1174	0.000	0.367	0.864	1.613	1.951	2.776	3.390	3.654	3.800	3.800	3.964	3.964	3.964	3.964	4.349	4.945	5.968	6.829	7.058	7.058
Speculative-grade	447	3.440	10.091	13.940	17.682	22.704	30.124	35.790	37.429	39.270	39.270	40.715	40.715	41.550	42.478	43.462	44.499	47.796	50.041	50.041	50.041
All Rated	1621	0.946	3.020	4.405	5.916	7.366	9.637	11.272	11.794	12.256	12.256	12.651	12.651	12.794	12.944	13.412	14.058	15.393	16.443	16.629	16.629

Cohort formed in 1/1/1986

Rating	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	108	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	296	0.000	0.000	0.777	0.777	1.210	1.210	1.210	1.210	1.210	1.800	1.800	1.800	1.800	1.800	1.800	2.519	3.258	3.258	3.258	3.258
A	580	0.000	0.188	0.783	1.198	1.853	2.307	2.307	2.307	2.307	2.307	2.307	2.307	2.307	2.307	3.022	3.765	4.562	4.993	4.993	5.451
Baa	305	1.361	1.361	3.072	3.966	5.826	7.290	8.343	8.935	8.935	8.935	8.935	8.935	8.935	10.645	11.543	12.469	14.372	14.372	14.372	14.372
Ba	360	2.029	5.909	8.487	13.490	20.054	26.914	28.734	30.790	32.278	33.075	33.075	34.973	34.973	34.973	37.382	43.771	45.094	45.094	45.094	46.578
B	186	11.667	17.595	21.566	25.548	35.093	40.940	46.846	50.390	50.390	50.390	50.390	50.390	53.697	61.414	61.414	61.414	61.414	61.414	61.414	61.414
Caa-C	9	26.667	26.667	45.000	45.000	45.000	45.000	45.000	45.000	45.000	100.000										
Investment-grade	1289	0.319	0.405	1.228	1.612	2.416	2.939	3.164	3.288	3.288	3.428	3.428	3.428	3.428	3.760	4.274	4.977	5.899	6.095	6.095	6.306
Speculative-grade	555	5.634	10.187	13.461	18.044	25.453	31.858	34.793	37.199	38.268	39.438	39.438	40.815	41.599	43.304	45.089	49.823	50.807	50.807	50.807	51.900
All Rated	1844	1.904	3.296	4.807	6.287	8.696	10.536	11.321	11.901	12.110	12.441	12.441	12.686	12.814	13.351	14.043	15.328	16.225	16.383	16.383	16.725

Cohort formed in 1/1/1987

Rating	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	131	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	317	0.000	0.000	0.000	0.382	0.382	0.382	0.382	0.382	0.918	0.918	0.918	0.918	0.918	0.918	1.579	2.255	2.255	2.255	2.255	2.255
A	551	0.000	0.000	0.404	1.248	1.685	1.685	1.685	1.685	1.685	1.685	1.685	1.685	1.685	2.032	2.751	3.517	4.338	4.338	4.773	4.773
Baa	335	0.000	1.060	1.433	3.393	5.034	6.344	7.307	7.307	7.307	7.307	7.967	7.967	9.382	10.125	11.655	12.437	12.437	12.437	12.437	12.437
Ba	465	2.712	4.474	9.257	15.955	22.547	25.970	28.982	30.673	31.911	32.605	34.191	35.105	35.105	37.250	40.673	44.269	44.269	44.269	45.680	45.680
B	265	6.226	13.472	20.277	31.666	40.685	44.983	47.059	47.059	47.059	47.059	47.059	49.057	53.487	58.025	60.423	65.882	65.882	65.882	65.882	65.882
Caa-C	10	20.000	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	65.333
Investment-grade	1334	0.000	0.248	0.507	1.410	1.974	2.275	2.495	2.495	2.620	2.620	2.758	2.758	3.056	3.365	4.160	4.822	5.171	5.171	5.359	5.359
Speculative-grade	740	4.228	8.128	13.573	21.833	29.143	32.784	35.433	36.562	37.818	38.286	39.341	40.560	41.911	44.745	47.752	51.771	51.771	51.771	52.755	52.755
All Rated	2074	1.502	3.013	4.979	8.145	10.608	11.770	12.578	12.841	13.215	13.315	13.632	13.854	14.320	15.044	16.165	17.338	17.613	17.613	17.911	17.911

Corporate Default and Recovery Rates, 1920-2007

Cohort formed in 1/1/1988

Rating	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	137	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	342	0.000	0.318	0.651	0.651	0.651	0.651	0.651	1.118	1.118	1.118	1.118	1.118	1.683	2.262	2.850	2.850	2.850	2.850	2.850	2.850
A	553	0.000	0.384	0.983	1.396	1.396	1.396	1.396	1.396	1.396	1.396	1.396	1.396	1.396	2.085	2.449	3.229	3.229	3.646	3.646	3.646
Baa	325	0.000	0.337	1.399	2.868	4.036	4.894	4.894	4.894	4.894	5.473	5.473	6.107	6.771	8.820	10.239	10.239	10.239	10.239	10.239	10.239
Ba	509	1.242	6.506	12.595	19.783	22.823	26.030	26.949	27.964	29.094	30.371	31.089	31.881	33.595	38.271	42.319	42.319	42.319	43.560	43.560	46.570
B	330	6.339	13.368	25.484	34.678	39.429	43.122	44.886	46.965	46.965	48.259	54.437	58.082	61.981	64.154	69.098	69.098	69.098	69.098	69.098	69.098
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	64.286
Investment-grade	1357	0.000	0.316	0.893	1.407	1.681	1.881	1.881	1.995	1.995	2.121	2.121	2.258	2.541	3.419	4.030	4.350	4.350	4.523	4.523	4.523
Speculative-grade	850	3.585	9.474	17.794	25.632	29.239	32.560	33.746	35.410	36.157	37.409	39.789	41.387	43.686	47.461	51.582	51.582	51.582	52.446	52.446	54.492
All Rated	2207	1.358	3.710	6.980	9.855	11.115	12.173	12.482	12.979	13.155	13.528	14.021	14.436	15.084	16.433	17.611	17.859	17.859	18.129	18.129	18.426

Cohort formed in 1/1/1989

Rating	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	156	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	337	0.607	0.607	0.607	0.607	0.607	0.607	1.050	1.050	1.050	1.050	1.050	1.575	2.115	2.664	2.664	2.664	2.664	2.664	2.664
A	581	0.000	0.182	0.560	0.560	0.560	0.560	0.560	0.560	0.560	0.560	0.560	0.560	1.496	1.825	2.176	2.176	2.553	2.553	2.553
Baa	345	0.598	1.228	1.882	2.920	2.920	2.920	2.920	2.920	3.414	3.414	3.963	4.540	6.912	8.773	9.432	9.432	9.432	9.432	9.432
Ba	489	2.976	9.981	17.570	20.267	23.450	23.863	24.789	26.340	28.087	30.066	30.802	33.202	37.597	43.313	43.313	43.313	43.313	43.313	46.183
B	365	8.934	22.742	31.240	37.239	41.233	43.999	47.293	47.293	49.489	53.477	56.527	59.808	61.635	65.783	65.783	65.783	68.415	68.415	68.415
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	1419	0.288	0.513	0.825	1.075	1.075	1.075	1.179	1.179	1.293	1.293	1.416	1.672	2.727	3.413	3.703	3.703	3.860	3.860	3.860
Speculative-grade	866	5.787	15.739	23.735	27.673	31.107	32.378	34.116	35.097	36.946	39.502	40.937	43.527	46.950	51.943	51.943	51.943	52.712	52.712	54.513
All Rated	2285	2.344	6.050	8.937	10.344	11.354	11.702	12.224	12.462	12.966	13.498	13.870	14.550	15.967	17.344	17.568	17.568	17.812	17.812	18.082

Cohort formed in 1/1/1990

Rating	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
Aaa	178	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	383	0.000	0.000	0.000	0.000	0.000	0.363	0.363	0.363	0.363	0.363	0.363	0.824	1.297	1.297	1.297	1.297	1.297	1.297
A	606	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.281	0.570	0.873	1.195	1.195	1.541	1.541	1.541
Baa	340	0.000	0.628	0.628	0.628	0.628	0.628	0.628	0.628	0.628	1.168	1.734	4.642	7.071	7.719	7.719	7.719	7.719	7.719
Ba	475	3.333	11.037	13.579	16.553	17.322	18.607	19.543	21.606	23.361	24.005	26.768	32.026	36.121	36.121	36.121	36.121	36.121	38.509
B	383	15.922	25.698	33.458	37.234	39.516	42.297	43.146	45.176	48.957	52.004	55.372	57.313	63.880	63.880	63.880	66.770	66.770	66.770
Caa-C	18	58.824	67.059	67.059	67.059	67.059	67.059	67.059	67.059	67.059	100.000								
Investment-grade	1507	0.000	0.141	0.141	0.141	0.141	0.234	0.234	0.234	0.234	0.346	0.578	1.418	2.166	2.429	2.429	2.572	2.572	2.572
Speculative-grade	876	9.939	18.503	23.142	26.368	27.713	29.514	30.384	32.345	34.619	36.323	39.081	43.126	47.565	47.565	47.565	48.278	48.278	49.882
All Rated	2383	3.559	6.536	8.006	8.968	9.342	9.879	10.094	10.551	11.035	11.461	12.171	13.559	14.914	15.119	15.119	15.344	15.344	15.593

Corporate Default and Recovery Rates, 1920-2007

Cohort formed in 1/1/1991

Rating	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
Aaa	165	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	431	0.000	0.000	0.000	0.000	0.312	0.312	0.312	0.312	0.312	0.312	0.721	1.146	1.146	1.146	1.146	1.146	1.146
A	598	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.272	0.552	0.843	1.152	1.152	1.482	1.482	1.482
Baa	372	0.273	0.273	0.273	0.273	0.273	0.273	0.273	0.273	0.710	1.164	3.484	5.424	5.942	5.942	5.942	6.551	6.551
Ba	376	4.775	6.049	7.888	8.313	9.271	10.317	12.052	14.044	15.539	18.803	24.156	28.071	28.071	29.250	29.250	29.250	30.694
B	331	12.560	22.402	27.896	30.658	34.621	35.418	38.267	41.762	44.502	47.543	49.292	56.946	56.946	56.946	59.478	59.478	62.180
Caa-C	20	36.842	36.842	36.842	36.842	36.842	36.842	36.842	36.842	57.895	57.895	78.947	78.947	78.947	78.947	78.947	78.947	78.947
Investment-grade	1566	0.065	0.065	0.065	0.065	0.151	0.151	0.151	0.151	0.253	0.464	1.227	1.909	2.149	2.149	2.281	2.420	2.420
Speculative-grade	727	9.190	14.231	17.590	18.987	21.130	22.036	24.088	26.491	28.781	31.791	36.227	41.086	41.086	41.818	42.615	42.615	44.380
All Rated	2293	2.882	4.348	5.273	5.632	6.212	6.418	6.854	7.317	7.805	8.483	9.809	11.105	11.301	11.405	11.623	11.738	11.979

Cohort formed in 1/1/1992

Rating	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	154	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	440	0.000	0.000	0.000	0.281	0.281	0.281	0.281	0.281	0.281	0.653	0.653	0.653	0.653	0.653	0.653	0.653
A	689	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.230	0.469	0.971	1.235	1.235	1.235	1.235	1.235
Baa	385	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.402	0.820	2.995	4.387	4.889	4.889	5.436	6.013	6.013
Ba	358	0.300	1.002	1.002	1.906	2.401	3.498	5.348	7.436	9.712	14.571	18.885	18.885	19.925	21.077	21.077	22.450
B	265	9.274	16.271	20.165	24.901	27.298	30.131	33.624	36.333	40.881	42.620	50.270	50.270	50.270	50.270	50.270	50.270
Caa-C	27	28.000	32.966	32.966	32.966	32.966	42.542	42.542	56.906	56.906	71.271	71.271	71.271	71.271	71.271	71.271	85.635
Investment-grade	1668	0.000	0.000	0.000	0.076	0.076	0.076	0.076	0.167	0.355	1.043	1.561	1.781	1.781	1.901	2.028	2.028
Speculative-grade	650	5.111	8.576	10.158	12.491	13.658	15.636	17.921	20.527	23.382	27.509	32.490	32.490	33.158	33.893	33.893	35.599
All Rated	2318	1.400	2.298	2.681	3.266	3.517	3.916	4.339	4.859	5.478	6.698	7.902	8.084	8.181	8.384	8.491	8.716

Cohort formed in 1/1/1993

Rating	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	128	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	456	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
A	733	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.198	0.613	1.048	1.278	1.278	1.278	1.278	1.278
Baa	457	0.000	0.000	0.256	0.256	0.256	0.552	1.177	1.823	3.495	4.560	4.938	4.938	5.350	5.784	5.784
Ba	390	0.548	0.548	2.609	3.354	4.604	6.017	8.100	9.828	13.521	17.437	17.437	17.437	18.284	19.182	20.162
B	253	4.593	9.387	14.406	16.336	19.393	22.172	27.431	33.190	37.082	41.324	42.868	44.548	44.548	46.641	48.961
Caa-C	24	27.907	27.907	34.773	42.926	42.926	42.926	61.951	61.951	80.975	80.975	80.975	80.975	80.975	80.975	80.975
Investment-grade	1774	0.000	0.000	0.066	0.066	0.066	0.142	0.299	0.543	1.139	1.586	1.776	1.776	1.880	1.990	1.990
Speculative-grade	667	3.035	4.861	8.153	9.522	11.344	13.154	16.526	19.501	23.526	27.392	27.864	28.383	28.940	30.140	31.451
All Rated	2441	0.816	1.283	2.129	2.446	2.842	3.264	4.024	4.753	5.935	6.963	7.197	7.280	7.453	7.727	7.920

Corporate Default and Recovery Rates, 1920-2007

Cohort formed in 1/1/1994

Rating	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	123	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	417	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	867	0.000	0.000	0.000	0.000	0.000	0.000	0.158	0.488	0.831	1.013	1.013	1.013	1.013	1.013
Baa	527	0.000	0.204	0.204	0.427	0.660	1.872	2.377	3.700	4.539	4.839	4.839	5.175	5.529	5.905
Ba	442	0.236	1.773	2.049	2.967	4.703	7.808	10.393	13.157	16.621	17.181	17.181	17.871	19.399	19.399
B	333	4.173	8.513	11.751	13.639	17.093	21.909	27.295	32.367	36.876	39.835	43.147	43.147	44.534	46.074
Caa-C	41	5.128	10.878	21.363	21.363	21.363	35.039	35.039	63.911	63.911	63.911	63.911	63.911	63.911	63.911
Investment-grade	1934	0.000	0.055	0.055	0.116	0.180	0.511	0.716	1.218	1.594	1.753	1.753	1.842	1.936	2.034
Speculative-grade	816	2.066	4.915	6.793	8.036	10.314	14.353	17.800	21.838	25.567	26.959	28.134	28.564	29.997	30.530
All Rated	2750	0.601	1.438	1.947	2.310	2.893	4.025	4.890	6.085	7.105	7.490	7.696	7.841	8.149	8.312

Cohort formed in 1/1/1995

Rating	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	118	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	454	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	933	0.000	0.000	0.000	0.000	0.000	0.138	0.425	0.875	1.034	1.034	1.034	1.034	1.034
Baa	542	0.000	0.000	0.000	0.432	1.553	2.023	3.502	4.021	4.021	4.021	4.333	4.667	5.026
Ba	451	0.690	0.938	2.036	3.581	7.006	9.652	12.488	15.127	16.638	16.638	17.258	18.620	18.620
B	456	4.313	6.812	9.644	12.936	16.788	22.002	31.039	38.164	42.063	43.963	44.677	45.490	46.422
Caa-C	63	8.772	17.460	17.460	23.253	33.962	38.679	58.043	66.435	66.435	83.217	83.217	83.217	100.000
Investment-grade	2047	0.000	0.000	0.000	0.114	0.410	0.594	1.107	1.445	1.516	1.516	1.597	1.682	1.771
Speculative-grade	970	2.897	4.660	6.508	9.071	13.025	16.877	22.957	27.723	30.281	31.443	32.084	33.153	33.951
All Rated	3017	0.919	1.460	2.002	2.786	4.013	5.077	6.883	8.224	8.832	9.069	9.259	9.529	9.744

Cohort formed in 1/1/1996

Rating	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	124	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	478	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	1007	0.000	0.000	0.000	0.000	0.122	0.374	0.639	0.779	0.779	0.779	0.779	0.779
Baa	626	0.000	0.000	0.177	0.726	1.300	2.702	3.333	3.557	3.796	4.052	4.609	4.609
Ba	477	0.000	0.712	2.309	6.151	8.429	12.273	14.567	16.324	16.324	16.874	18.106	18.794
B	532	1.386	4.267	8.844	12.089	17.793	25.301	32.962	37.040	40.053	40.742	41.559	43.491
Caa-C	79	13.605	19.776	26.829	42.119	48.055	64.038	68.833	68.833	84.417	84.417	84.417	84.417
Investment-grade	2235	0.000	0.000	0.050	0.206	0.422	0.930	1.226	1.352	1.419	1.490	1.640	1.640
Speculative-grade	1088	1.633	3.766	7.155	11.432	15.472	21.461	26.220	28.903	30.455	31.034	32.026	33.156
All Rated	3323	0.528	1.190	2.217	3.499	4.696	6.553	7.897	8.575	8.941	9.108	9.407	9.598

Corporate Default and Recovery Rates, 1920-2007

Cohort formed in 1/1/1997

Rating	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Aaa	125	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	514	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
A	1077	0.000	0.000	0.000	0.107	0.330	0.564	0.938	0.938	0.938	0.938	0.938
Baa	721	0.000	0.147	0.756	1.395	2.575	3.286	3.476	3.680	4.119	4.599	4.599
Ba	588	0.181	1.399	5.470	8.704	11.658	14.312	16.009	16.009	16.442	17.405	18.492
B	632	1.983	6.783	10.813	16.364	26.061	32.825	36.526	40.052	40.556	42.366	43.835
Caa-C	81	14.194	23.387	37.317	47.986	68.121	72.371	72.371	72.371	72.371	72.371	72.371
Investment-grade	2437	0.000	0.044	0.225	0.461	0.906	1.218	1.440	1.499	1.624	1.757	1.757
Speculative-grade	1301	1.942	5.397	9.951	14.611	21.406	26.000	28.537	30.120	30.565	31.837	33.015
All Rated	3738	0.662	1.813	3.325	4.833	7.035	8.475	9.257	9.659	9.850	10.211	10.433

Cohort formed in 1/1/1998

Rating	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Aaa	113	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	561	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.250	0.250
A	1093	0.000	0.000	0.100	0.310	0.530	0.883	0.883	0.883	0.883	0.883
Baa	856	0.120	0.615	1.129	2.208	3.349	3.502	3.831	4.186	4.573	4.573
Ba	709	0.739	3.338	6.708	10.722	13.456	15.396	15.950	16.567	17.265	18.060
B	812	4.008	10.598	18.075	28.788	35.999	41.441	45.829	46.484	48.898	50.854
Caa-C	118	10.959	28.767	39.364	58.021	62.685	66.719	69.613	69.613	69.613	69.613
Investment-grade	2623	0.039	0.200	0.410	0.848	1.311	1.509	1.667	1.780	1.899	1.899
Speculative-grade	1639	3.077	8.682	14.549	22.752	27.729	31.421	33.877	34.471	35.862	37.081
All Rated	4262	1.187	3.322	5.501	8.562	10.484	11.738	12.549	12.787	13.219	13.500

Cohort formed in 1/1/1999

Rating	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Aaa	102	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	594	0.000	0.000	0.000	0.000	0.000	0.226	0.226	0.226	0.226
A	1108	0.000	0.000	0.197	0.404	0.733	0.733	0.733	0.733	0.733
Baa	972	0.104	0.647	1.559	2.772	3.166	3.450	3.756	4.253	4.253
Ba	767	1.228	3.759	7.135	9.963	11.786	12.482	13.524	14.404	15.065
B	953	5.355	14.426	24.687	34.007	38.829	42.613	43.370	45.572	47.956
Caa-C	221	19.672	29.938	50.204	56.606	63.282	68.722	68.722	68.722	68.722
Investment-grade	2776	0.037	0.227	0.624	1.128	1.397	1.540	1.641	1.803	1.803
Speculative-grade	1941	5.372	12.001	20.608	26.908	30.564	33.051	33.859	35.213	36.490
All Rated	4717	2.198	4.917	8.447	11.063	12.485	13.372	13.681	14.166	14.491

Corporate Default and Recovery Rates, 1920-2007

Cohort formed in 1/1/2000

Rating	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Aaa	117	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	597	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
A	1172	0.000	0.181	0.372	0.675	0.782	0.782	0.782	0.782
Baa	1062	0.385	0.889	2.074	2.657	2.907	3.311	3.747	3.747
Ba	614	0.848	2.508	4.561	6.198	6.198	7.090	7.753	8.128
B	1122	5.749	16.170	25.322	30.283	33.846	35.550	38.151	40.223
Caa-C	279	20.408	42.209	52.259	58.890	65.146	66.391	67.954	67.954
Investment-grade	2948	0.139	0.392	0.889	1.215	1.346	1.484	1.631	1.631
Speculative-grade	2015	6.297	15.597	22.630	26.675	29.266	30.593	32.285	33.437
All Rated	4963	2.611	6.399	9.347	10.987	11.929	12.427	13.003	13.298

Cohort formed in 1/1/2001

Rating	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Aaa	115	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa	660	0.000	0.000	0.000	0.000	0.000	0.000	0.000
A	1218	0.168	0.432	0.712	0.712	0.712	0.712	0.712
Baa	1051	0.195	1.744	2.191	2.432	2.821	3.241	3.241
Ba	556	1.116	2.965	4.595	4.861	5.770	6.464	6.864
B	1082	9.340	19.295	24.762	28.196	30.027	32.762	34.753
Caa-C	264	31.855	43.663	54.746	61.829	64.010	65.395	65.395
Investment-grade	3044	0.134	0.773	1.038	1.119	1.248	1.385	1.385
Speculative-grade	1902	9.978	17.710	22.615	25.388	26.899	28.712	29.873
All Rated	4946	3.875	7.107	8.977	9.924	10.457	11.040	11.322

Cohort formed in 1/1/2002

Rating	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Aaa	130	0.000	0.000	0.000	0.000	0.000	0.000
Aa	681	0.000	0.000	0.000	0.000	0.000	0.000
A	1221	0.168	0.346	0.346	0.346	0.346	0.346
Baa	1158	1.249	1.632	1.735	1.956	2.076	2.076
Ba	577	1.472	3.323	4.243	5.281	6.465	6.809
B	840	4.774	9.933	12.644	14.695	17.443	19.575
Caa-C	314	28.475	41.673	50.959	53.332	57.480	57.480
Investment-grade	3190	0.516	0.723	0.759	0.837	0.879	0.879
Speculative-grade	1731	7.954	13.287	16.253	17.915	20.122	21.234
All Rated	4921	3.085	4.974	5.909	6.434	7.040	7.305

Corporate Default and Recovery Rates, 1920-2007

Cohort formed in 1/1/2003

Rating	Issuers	Year 1	Year 2	Year 3	Year 4	Year 5
Aaa	124	0.000	0.000	0.000	0.000	0.000
Aa	629	0.000	0.000	0.000	0.000	0.000
A	1204	0.000	0.000	0.000	0.000	0.000
Baa	1136	0.000	0.000	0.207	0.320	0.320
Ba	565	0.927	1.340	2.038	2.569	2.875
B	817	2.338	3.989	6.131	8.676	10.467
Caa-C	314	20.751	33.920	36.345	41.812	42.852
Investment-grade	3093	0.000	0.000	0.075	0.116	0.116
Speculative-grade	1696	5.098	8.094	9.725	11.847	12.932
All Rated	4789	1.766	2.744	3.293	3.923	4.205

Cohort formed in 1/1/2004

Rating	Issuers	Year 1	Year 2	Year 3	Year 4
Aaa	136	0.000	0.000	0.000	0.000
Aa	606	0.000	0.000	0.000	0.000
A	1187	0.000	0.000	0.000	0.000
Baa	1155	0.000	0.190	0.190	0.190
Ba	574	0.367	0.574	1.287	1.561
B	908	0.824	2.051	4.137	5.309
Caa-C	266	12.474	19.328	24.640	26.306
Investment-grade	3084	0.000	0.071	0.071	0.071
Speculative-grade	1748	2.387	4.019	6.021	6.919
All Rated	4832	0.842	1.432	2.055	2.311

Cohort formed in 1/1/2005

Rating	Issuers	Year 1	Year 2	Year 3
Aaa	137	0.000	0.000	0.000
Aa	712	0.000	0.000	0.000
A	1288	0.000	0.000	0.000
Baa	1159	0.178	0.178	0.178
Ba	581	0.000	0.632	0.876
B	973	1.106	2.931	4.043
Caa-C	312	6.563	11.502	14.545
Investment-grade	3296	0.062	0.062	0.062
Speculative-grade	1866	1.665	3.618	4.750
All Rated	5162	0.627	1.272	1.616

Corporate Default and Recovery Rates, 1920-2007

Cohort formed in 1/1/2006

Rating	Issuers	Year 1	Year 2
Aaa	133	0.000	0.000
Aa	812	0.000	0.000
A	1414	0.000	0.000
Baa	1148	0.000	0.000
Ba	608	0.178	0.178
B	1124	1.248	2.169
Caa-C	261	7.516	12.625
Investment-grade	3507	0.000	0.000
Speculative-grade	1993	1.737	2.901
All Rated	5500	0.610	0.989

Cohort formed in 1/1/2007

Rating	Issuers	Year 1
Aaa	144	0.000
Aa	998	0.000
A	1643	0.000
Baa	1131	0.000
Ba	617	0.000
B	1230	0.000
Caa-C	297	6.569
Investment-grade	3916	0.000
Speculative-grade	2144	0.911
All Rated	6060	0.311

Corporate Default and Recovery Rates, 1920-2007

Exhibit 37**Average Cumulative Issuer-Weighted Global Default Rates by Alphanumeric Rating, 1998-2007¹**

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	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aa3	0.000	0.000	0.000	0.000	0.000	0.062	0.173	0.173	0.173	0.173
A1	0.000	0.000	0.000	0.000	0.036	0.055	0.055	0.055	0.055	0.055
A2	0.046	0.107	0.250	0.346	0.459	0.515	0.515	0.515	0.515	0.515
A3	0.047	0.188	0.327	0.434	0.518	0.535	0.535	0.535	0.535	0.535
Baa1	0.205	0.494	0.761	0.895	0.945	1.043	1.260	1.578	1.664	1.664
Baa2	0.188	0.461	0.820	1.307	1.660	1.984	2.210	2.348	2.575	2.575
Baa3	0.391	0.932	1.543	2.208	3.004	3.423	3.850	4.329	4.487	4.487
Ba1	0.425	1.261	2.107	2.485	3.156	3.646	3.682	3.682	3.682	3.682
Ba2	0.772	1.709	2.810	4.033	4.784	5.064	5.448	6.478	7.529	10.164
Ba3	1.058	3.013	5.786	8.520	10.237	11.756	13.253	14.667	16.115	17.791
B1	1.708	5.761	10.205	14.071	17.138	19.589	21.210	23.752	26.606	28.372
B2	3.890	8.845	13.693	18.070	20.571	23.059	26.466	28.515	30.509	32.415
B3	6.180	13.237	21.022	27.626	33.347	39.093	42.574	45.193	48.755	51.105
Caa1	10.542	20.898	30.391	38.060	44.455	48.734	50.512	50.512	50.512	50.512
Caa2	18.983	29.514	37.236	42.707	44.986	46.832	46.832	46.832	46.832	46.832
Caa3	25.542	36.941	44.011	48.826	54.037	54.381	54.381	54.381	54.381	54.381
Ca-C	38.275	50.330	59.545	62.492	65.639	66.259	66.259	66.259	66.259	66.259
Investment-Grade	0.101	0.253	0.434	0.609	0.771	0.883	0.987	1.083	1.133	1.133
Speculative-Grade	4.694	9.270	13.699	17.277	19.790	21.774	23.273	24.635	26.038	27.382
All Rated	1.784	3.482	5.071	6.308	7.149	7.763	8.219	8.621	8.985	9.283

¹ Monthly cohort frequency**Exhibit 38****Average Five-Year Letter Rating Migration Rates, 1970-2007¹**

Cohort rating	Aaa	Aa	A	Baa	Ba	B	Caa	Ca_C	Default	WR
Aaa	52.832	24.597	5.471	0.335	0.280	0.042	0.040	0.000	0.090	16.313
Aa	3.289	50.412	21.730	3.305	0.577	0.188	0.041	0.000	0.170	20.288
A	0.207	7.933	53.492	14.532	2.880	0.878	0.178	0.007	0.469	19.424
Baa	0.238	1.250	13.744	46.892	9.366	2.964	0.508	0.069	1.803	23.167
Ba	0.047	0.218	2.294	11.556	27.853	11.725	1.373	0.185	8.435	36.315
B	0.048	0.072	0.306	1.534	7.243	21.778	4.461	0.678	22.417	41.463
Caa	0.000	0.000	0.000	0.862	2.219	6.694	6.328	1.012	42.856	40.029
Ca-C	0.000	0.000	0.000	0.000	0.273	2.336	1.517	2.549	47.057	46.268

¹ Monthly cohort frequency

Corporate Default and Recovery Rates, 1920-2007

Rating Migrations in Exhibit 39 – 43 are measured by percent of issuers. The rating migration statistics in these five tables reflect only rating changes resulting from improvement/deterioration of issuers' credit qualities. Rating changes due to Moody's revision in its rating methodology such as LGD and JDA are excluded.

*Exhibit 39*2007 One-Year Letter Rating Migration Rates,
accounting for methodology changes

Cohort rating	End-of-Period Rating									WR
	Aaa	Aa	A	Baa	Ba	B	Caa	Ca_C	Default	
Aaa	89.785	4.839	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.376
Aa	0.471	91.055	3.484	0.094	0.000	0.094	0.000	0.000	0.000	4.802
A	0.000	3.153	89.596	2.711	0.063	0.000	0.063	0.000	0.000	4.414
Baa	0.000	0.093	3.061	88.868	1.855	0.186	0.000	0.000	0.000	5.937
Ba	0.000	0.000	0.000	4.000	76.320	5.440	0.640	0.000	0.000	13.600
B	0.081	0.000	0.000	0.081	4.394	71.033	7.567	0.325	0.000	16.517
Caa	0.000	0.000	0.000	0.000	0.000	10.490	66.084	1.748	5.245	16.434
Ca-C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	37.500	37.500	25.000

*Exhibit 40*Average One-Year Letter Rating Migration Rates, 1920-2007,
accounting for methodology changes¹

Cohort rating	End-of-Period Rating									WR
	Aaa	Aa	A	Baa	Ba	B	Caa	Ca_C	Default	
Aaa	87.606	7.274	0.819	0.163	0.023	0.001	0.000	0.000	0.000	4.115
Aa	1.209	85.318	6.433	0.685	0.174	0.037	0.002	0.004	0.063	6.075
A	0.085	2.925	85.061	5.299	0.697	0.108	0.023	0.008	0.076	5.716
Baa	0.044	0.310	4.567	81.128	5.118	0.780	0.157	0.017	0.294	7.586
Ba	0.007	0.082	0.481	5.896	73.682	6.947	0.560	0.051	1.323	10.969
B	0.007	0.054	0.172	0.640	6.253	71.537	4.962	0.502	3.919	11.953
Caa	0.000	0.028	0.037	0.216	0.917	8.481	63.255	3.514	12.018	11.534
Ca-C	0.000	0.000	0.117	0.000	0.477	3.262	7.283	55.613	19.891	13.358

¹ Monthly cohort frequency

Corporate Default and Recovery Rates, 1920-2007

*Exhibit 41***Average One-Year Letter Rating Migration Rates, 1970-2007,
accounting for methodology changes¹**

Cohort rating	End-of-Period Rating									
	Aaa	Aa	A	Baa	Ba	B	Caa	Ca_C	Default	WR
Aaa	89.066	7.146	0.611	0.000	0.014	0.002	0.000	0.000	0.000	3.161
Aa	0.991	87.369	6.825	0.253	0.055	0.017	0.000	0.000	0.007	4.483
A	0.069	2.710	87.532	4.926	0.499	0.091	0.025	0.003	0.020	4.125
Baa	0.048	0.224	4.797	84.341	4.324	0.781	0.223	0.022	0.170	5.070
Ba	0.008	0.055	0.395	5.660	75.730	7.672	0.534	0.047	1.096	8.802
B	0.012	0.041	0.154	0.369	5.497	73.580	4.868	0.635	4.488	10.355
Caa	0.000	0.032	0.032	0.192	0.683	9.878	58.129	3.554	14.705	12.794
Ca-C	0.000	0.000	0.000	0.000	0.401	2.630	8.513	38.667	29.975	19.813

¹ Monthly cohort frequency

Corporate Default and Recovery Rates, 1920-2007

Exhibit 42

2007 One-Year Alphanumeric Rating Migration Rates, accounting for methodology changes

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	CaC		Default	
Aaa	89.785	3.763	0.538	0.538	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	5.376
Aa1	0.816	89.388	0.000	5.306	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	4.490
Aa2	0.450	7.207	86.036	0.901	3.604	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	1.802
Aa3	0.336	0.840	4.706	82.857	3.361	1.008	0.504	0.168	0.000	0.000	0.000	0.000	0.000	0.000	0.168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.050
A1	0.000	0.259	1.427	2.724	88.327	1.946	0.519	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	4.799
A2	0.000	0.000	0.476	3.095	4.286	80.714	6.667	1.429	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.238	0.000	0.000	0.000	0.000	0.000	3.095
A3	0.000	0.253	0.000	0.000	0.253	8.101	76.709	7.089	1.772	0.506	0.253	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.063
Baa1	0.000	0.000	0.000	0.000	0.000	0.811	7.027	79.730	2.432	0.811	1.351	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.838
Baa2	0.000	0.000	0.000	0.000	0.000	0.263	0.789	5.789	83.421	4.737	0.526	0.000	0.263	0.263	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.947
Baa3	0.000	0.000	0.000	0.305	0.000	0.000	0.000	1.220	10.061	78.354	2.744	0.610	0.305	0.000	0.000	0.305	0.000	0.000	0.000	0.000	0.000	0.000	6.098
Ba1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.105	6.630	69.613	4.420	5.525	0.552	0.552	0.552	1.105	0.552	0.552	0.000	0.000	0.000	8.840
Ba2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.082	7.143	61.735	9.184	2.041	1.020	1.020	0.000	0.000	0.000	0.000	0.000	0.000	13.776
Ba3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.210	2.016	10.484	60.081	4.839	4.435	0.000	0.000	0.000	0.000	0.000	0.000	0.000	16.935
B1	0.306	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.306	0.917	2.446	8.257	60.856	8.869	1.835	0.612	0.000	0.000	0.000	0.000	0.000	15.596
B2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.228	0.456	2.506	8.428	57.631	9.112	3.872	0.456	1.595	0.228	0.000	0.000	15.490
B3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.432	1.512	6.048	59.179	9.935	3.456	0.648	0.648	0.000	0.000	18.143
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	0.990	1.980	10.396	55.941	8.911	2.970	0.495	1.980	16.337	
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	1.538	3.077	10.769	47.692	1.538	4.615	12.308	18.462	
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	0.000	5.263	0.000	63.158	5.263	15.789	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	0.000	0.000	37.500	37.500	25.000	

Corporate Default and Recovery Rates, 1920-2007

Exhibit 43

Average One-Year Alphanumeric Rating Migration Rates, 1983-2007, accounting for methodology changes¹

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	CaC		Default	
Aaa	88.353	5.085	1.913	0.386	0.313	0.120	0.013	0.000	0.000	0.000	0.018	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.797
Aa1	2.382	80.080	6.524	5.485	1.006	0.244	0.132	0.092	0.023	0.007	0.033	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.988
Aa2	0.944	4.538	77.185	7.892	2.846	1.173	0.353	0.076	0.086	0.000	0.000	0.000	0.029	0.019	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.850
Aa3	0.225	1.266	3.912	77.907	7.707	2.488	0.637	0.189	0.141	0.068	0.011	0.030	0.030	0.017	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.017	5.350
A1	0.087	0.168	0.893	5.028	78.992	6.649	2.425	0.574	0.335	0.082	0.186	0.122	0.042	0.048	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.002	4.355
A2	0.086	0.061	0.311	0.995	5.044	77.128	7.292	2.676	0.858	0.336	0.209	0.093	0.128	0.044	0.037	0.005	0.026	0.029	0.006	0.000	0.024	4.612	
A3	0.044	0.109	0.422	0.326	1.546	7.215	73.283	6.496	3.312	1.077	0.478	0.203	0.203	0.108	0.047	0.027	0.002	0.005	0.007	0.012	0.033	5.044	
Baa1	0.040	0.043	0.127	0.203	0.477	1.963	6.743	72.692	7.227	3.022	0.895	0.483	0.335	0.463	0.067	0.037	0.070	0.036	0.000	0.019	0.143	4.915	
Baa2	0.046	0.102	0.040	0.102	0.267	0.772	2.974	6.351	72.721	6.499	1.687	0.687	0.730	0.505	0.257	0.148	0.164	0.026	0.019	0.013	0.142	5.750	
Baa3	0.058	0.005	0.026	0.047	0.157	0.443	0.567	3.080	8.507	69.729	5.264	2.507	1.175	0.791	0.382	0.209	0.253	0.139	0.157	0.059	0.309	6.136	
Ba1	0.026	0.002	0.024	0.053	0.196	0.180	0.387	0.620	2.902	9.174	64.394	4.764	4.091	1.238	1.075	0.750	0.101	0.218	0.064	0.029	0.660	9.053	
Ba2	0.000	0.000	0.031	0.000	0.038	0.082	0.084	0.442	0.956	3.081	8.531	61.616	7.560	2.790	2.409	1.022	0.230	0.166	0.125	0.056	0.754	10.026	
Ba3	0.000	0.020	0.010	0.024	0.030	0.131	0.124	0.188	0.257	0.702	2.701	6.165	62.727	7.210	4.673	2.238	0.473	0.319	0.076	0.072	1.734	10.126	
B1	0.028	0.016	0.017	0.009	0.043	0.100	0.088	0.071	0.142	0.275	0.698	2.562	6.624	61.988	8.935	3.879	1.065	0.581	0.229	0.344	2.481	9.825	
B2	0.000	0.000	0.009	0.020	0.024	0.000	0.084	0.119	0.091	0.100	0.327	0.682	2.210	7.681	59.378	8.387	3.210	1.690	0.441	0.535	4.171	10.841	
B3	0.000	0.007	0.053	0.000	0.012	0.028	0.069	0.074	0.065	0.131	0.081	0.286	0.715	3.256	7.100	57.656	4.969	3.683	1.012	1.261	8.119	11.424	
Caa1	0.000	0.065	0.000	0.000	0.000	0.052	0.000	0.000	0.000	0.007	0.118	0.092	0.150	1.315	2.977	9.146	51.138	6.261	3.592	2.689	9.747	12.652	
Caa2	0.000	0.000	0.000	0.000	0.000	0.018	0.000	0.000	0.088	0.431	0.246	0.237	0.642	1.196	1.680	4.415	7.493	45.268	3.316	4.380	17.687	12.902	
Caa3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.210	0.000	0.210	1.180	0.420	2.807	3.961	5.483	41.737	5.194	24.003	14.795	
Ca-C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.091	0.000	0.320	0.091	0.571	2.032	1.187	3.242	4.292	38.128	29.886	20.160	

¹ Monthly cohort frequency

Corporate Default and Recovery Rates, 1920-2007

Guide to Data Tables and Charts

In this section we briefly describe the interpretation of some of the Exhibits contained in this report. 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 higher bounds. The lower and higher bounds represent positive and negative economic scenarios for the U.S. unemployment rate and high yield spread.

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.

Exhibits 14 – 18 and Exhibits 39 - 43 all represent one-year rating migration rates for different time periods. Rating migrations in Exhibit 14 – 18 include rating changes stemming from improvement/deterioration of issuers' credit qualities as well as Moody's revision in its rating methodologies including LGD and JDA. In comparison, rating migrations in Exhibits 39 – 43 exclude rating changes that solely resulted from Moody's revision in its rating methodologies.

Exhibit 23 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 37.2% two-year B recovery rate reported in Exhibit 23 indicates that the average recovery rate on B rated issues that default at some time within a two-year period, not mean recovery rate for issuers rated B *exactly* two years before default.⁶ 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 11.

Exhibits 26 through 29 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 25.02% average rate between 1983 and 2007 (see Exhibit 28). 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 32 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 risk. 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 36 shows the cumulative issuer-weighted historical default rates of cohorts formed at annual intervals between the years 1970 and 2007 (January 1 of each year). These data are a subset of the data used to calculate the issuer-weighted averages shown in Exhibits 26 through 28 (which, again, are based on cohorts formed at monthly time intervals). The default rates in Exhibit 36 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.

⁶ The details of the calculation may be found in Moody's Special Comment "Recovery Rates on Defaulted Bonds and Preferred Stocks."

Corporate Default and Recovery Rates, 1920-2007

Default and Recovery Experience for Preferred Stock, 1983-2007⁷

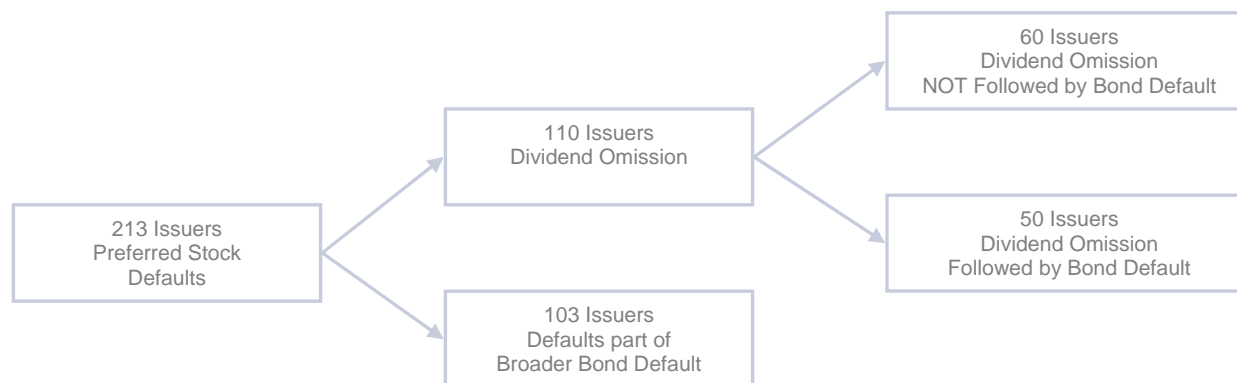
In contrast to bonds and loans, preferred stock is a security that pays dividends rather than interest, lacks a commitment to repay principal at maturity, and maintains a legal equity status. Preferred stock ranks above common equity and below debt in a firm's capital structure. Preferred stock can be either cumulative or non-cumulative with respect to dividends. The cumulative trait implies that missed dividends become in fact "arrears" that must be "cleared" through payment to preferred stockholders before the distribution of any common stock dividend.⁸

Preferred stock can either be issued by a corporation directly or through a special-purpose trust; hence, we make a distinction between trust preferred vs. non-trust preferred securities. The common way a trust-preferred security is issued is that the issuer first sets up a trust and issues a note (usually a very junior, subordinated obligation) to the trust, and then has the trust issue the trust preferred security. The proceeds from the preferred stock issuance are passed on to the company in exchange for the note. The note that is issued to the trust usually has very similar terms, with respect to coupon and expected redemption date, as the trust's preferred stock. Many trust preferred securities issued by banks and other financial institutions are hybrid securities that have a number of debt-like characteristics, often with very long term maturity dates (30 years or more), allowances for early redemption by the issuer, periodic interest payment requirements, and par value redemption requirements. On the other hand, trust preferred securities often allow the deferral of interest payments, sometimes for up to five years.

Just as issuers may miss interest/principal payments on bonds and loans, they may miss dividend payments on preferred stock dividend as well. A dividend on preferred stock is considered to be "passed" or "omitted" if it was not declared either in the amount or at the regular dividend date prescribed in the prospectus. We use the term "omitted" for missed dividends because though they do not represent a breach of contract; they are significant credit events. We define a "dividend impairment" on preferred stock as occurring when 1) preferred stockholders experience dividend omissions (or other contractual payments, such as sinking fund payments or redemptions), 2) preferred stockholders are forced to exchange the issue for one of lower economic value, or 3) the firm enters into a broad-based bond default or enters into bankruptcy.

Since January 1, 1983, 251 Moody's rated issuers worldwide have dividends impaired on 400 Moody's rated preferred stocks issues. Out of these 251 issuers, 38 were issuers of trust preferred stock while the remaining 213 were non-trust issuers. Of the 213 non-trust issuers' impairments on preferred stock, 103 issuers' impairments were initiated began as part of a broader bond default and 110 were initiated by dividend omissions. Among these 110 dividend omissions, 50 were followed by a broad bond default and 60 were not. (See Exhibit 44.)

Exhibit 44



⁷ Contributed by Ozgur Kan and Praveen Varma of Moody's Analytics.

⁸ A preferred stock's arrears are, in most cases, the cumulative total of omitted dividends. Some cumulative preferred stock charters, however, only allow arrears to accumulate for a limited number of periods.

Corporate Default and Recovery Rates, 1920-2007

Out of the 251 trust and non-trust preferred stock impairments, we have collected recovery estimates, based on trading prices 30 days after impairment, on 33 trust preferred stock issuers and 136 non-trust issuers. Exhibit 45 reports the issuer-weighted recovery rates for both trust and non-trust preferred stock by the nature of the first impairment event. The table shows that higher recovery rates were experienced when the initial impairment arose simply from a dividend omission, which is to be expected. The table also shows, somewhat surprisingly, that recovery rates for trust preferred stock have been modestly lower for trust preferred stock than for non-trust preferred stock. For example, the average recovery rate for trust-preferred stock resulting from Chapter 11 default events is 11% compared to 16% for non-trust preferred stock. Though the sample underlying this analysis is small, it suggests that higher priority ranking of the note backing the trust preferred claim has not resulted in higher recoveries in practice compared to ordinary preferred stock lacking such backing.

Exhibit 45

Preferred Stock Recovery Rates by Initial Impairment Type, 1983-2007¹

		Impairment Type				
		Dividend Omission	Distressed Exchange	Chapter 11	Missed Payment	Other
Trust Preferred Stock	Mean	18%	NA	11%	9%	6%
	Median	8%	NA	3%	8%	2%
	Std Dev.	26%	NA	16%	6%	5%
	N	15	0	9	4	5
Non-Trust Preferred Stock	Mean	35%	22%	16%	19%	2%
	Median	30%	22%	5%	8%	2%
	Std Dev.	27%	20%	28%	21%	2%
	N	85	2	19	26	4

¹ Issuer-weighted, measured by trading prices 30 days after default.

Recovery rates on preferred stock can also vary depending on whether the dividend promise is cumulative or non-cumulative. Exhibit 46 presents preferred stock recovery rates for cumulative versus non-cumulative preferred stock. The table shows that cumulative preferred stock generally has a higher average recovery rate than non-cumulative preferred stock, regardless of whether the dividend omission is followed by or associated with a broader debt default.

Corporate Default and Recovery Rates, 1920-2007

Exhibit 46**Preferred Stock Recovery Rates,
Cumulative vs. Non-Cumulative, 1983-2007¹**

			All Impairments	Cumulative	Non- Cumulative
Non-Trust Issuers	Dividend Omissions Not Followed by Subsequent Bond Default	Mean	39%	42%	33%
		Median	37%	38%	30%
	Dividend Omissions Followed by Subsequent Bond Default	Mean	31%	34%	26%
		Median	20%	25%	14%
	Preferred Stock Impairment Part of Outright Bond Default	Mean	17%	20%	13%
		Median	7%	6%	7%
Trust Preferred Stock	Mean	13%	18%	7%	
	Median	7%	8%	3%	

¹ Issuer-weighted, measured by trading prices 30 days after default.

As shown in Exhibit 46, the average recovery rates of non-trust preferred stock are 33% and 42%, for non-cumulative and cumulative issuers, respectively, when dividend omission are not followed by a subsequent bond default. Similarly, the average recovery rates for non-trust preferred stock in dividend omissions that are followed by subsequent bond default are 26% and 34% for non-cumulative and cumulative issues. The low average recovery rates based on prices shortly after dividend omissions suggests that the market usually puts a high weight on the likelihood that the dividend omission is a good predictor of a broader future bond default.

Exhibit 46 also shows that cumulative trust preferred stock has a higher average recovery rate of 18% compared to the average recovery rate of 7% for non-cumulative trust preferred stock.

Corporate Default and Recovery Rates, 1920-2007

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

This year's report includes changes to the universe of study whose net effect is to reduce the total number of issuers in the universe of study. The reason for these changes is to include only issuers that are truly debt obligors that can possibly default in the future. Specifically, rated issuers which do not have any debt obligations that they either issue or guarantee are now excluded from the universe of study. Secondly, we implement changes with regard to debt assumption. Specifically, issuers' rating histories are deemed to end when all of their debts are assumed by third parties, which are commonly the result of mergers and acquisitions. In these cases, the rating histories of the assumed debt will be transferred to the assumer starting from the assumption date. Such debt assumption adjustment is made in order to ensure that debts are linked to the appropriate obligors and that the number of debt obligors is measured correctly.

Change in Definition of Default

In prior years, Moody's default definition included grace period defaults which are cases where interest payments are missed on the original schedule dates but are cured within a contractual grace period. Effective from May 2007, Moody's revised its definition of default to exclude grace period defaults. The reason for this change is that grace period defaults are often allowed by most bond indentures and generally not considered to be legal defaults. As a result of the change in the definition of default, historical data has been revised and 32 out of approximately 1,260 rated defaults have been eliminated during 1985-2006 period, affecting \$7.0 billion bonds. Moreover, 11 rated issuers, with \$1.7 billion of bonds, have default dates moved forward in time.

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.

Corporate Default and Recovery Rates, 1920-2007

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.⁹ 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 .

$$d_i^y(t) = \frac{x_i^y(t)}{n_i^y(0) - \sum_{j=1}^{t-1} x_i^y(j) - \sum_{j=1}^{t-1} w_i^y(j) - \frac{1}{2} w_i^y(t)}$$

where $n_i^y(0)$ is equal to the number of issuers holding rating i on cohort date y , $\sum_{j=1}^{t-1} x_i^y(j)$ denotes the

number of issuers rated i on cohort date y that defaulted in the periods prior to the current time period,

$\sum_{j=1}^{t-1} w_i^y(j)$ is equal to the number of issuers rated i on cohort date y that had their ratings withdrawn in the

periods prior to the current one, and $w_i^y(t)$ is the number of issuers rated i on cohort date y that had their ratings withdrawn in period t .

The denominator of the marginal default rate adjusts for defaults and rating withdrawals that occur in periods prior to period t , as well as makes a small adjustment for withdrawals that occur in time period t . Withdrawn ratings that occur within the time period t are treated as if they were censored at the midpoint of the interval, that is, treated like they were at risk for half the time.

⁹ See Moody's Special Comment "Measuring Corporate Default Rates".

Corporate Default and Recovery Rates, 1920-2007

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.

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

Corporate Default and Recovery Rates, 1920-2007

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.¹⁰ 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.

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.¹¹ 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

¹⁰ This table is derived from Moody's Special Comment "Recovery Rates on Defaulted Bonds and Preferred Stocks."

¹¹ For a more detailed discussion of rating accuracy metrics see Moody's Special Comment "Measuring the Performance of Corporate Bond Ratings."

Corporate Default and Recovery Rates, 1920-2007

defaults from non-defaults would score an AR of 100%, while a rating system that had zero predictive ability would score 50%.¹²

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 2007. As of January 1, 2007 over 6,000 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 1982-2007 period, the dataset consists includes post-default prices for approximately 3,000 defaulted instruments issued by over 1,400 defaulting corporations. Moody's makes the 1970-2007 credit rating, default, and recovery rate data used in this study available through its Default Risk Service (DRS) database.

¹² 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.

Corporate Default and Recovery Rates, 1920-2007

Moody's Related Research

Special Comments:

- Corporate Default and Recovery Rates, 1920-2006, Feb 2007 (102071)
- Introducing Moody's Credit Transition Model, Aug 2007 (104290)
- A Cyclical Model of Multiple Horizon Credit Rating Transitions and Default, Aug 2007 (103869)
- Measuring Corporate Default Rates, Nov 2006 (100779)
- Adjusting Moody's LGD Assessments to Meet Basel II Downturn Requirements, Nov 2007 (105723)
- Moody's Ultimate Recovery Database, Apr 2007 (102664)
- Recovery Rates on Defaulted Corporate Bonds and Preferred Stocks, 1982-2003, Dec 2003 (80272)
- Measuring the Performance of Corporate Bond Ratings, Apr 2003 (77916)
- Guide to Moody's Default Research: November 2007 Update (106248)

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.

Corporate Default and Recovery Rates, 1920-2007

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