

Industry Study

*2010 DBRS Corporate Rating Transition
and Default Study*

MARCH 2011



Insight beyond the rating.

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2010 DBRS Corporate Rating Transition and Default Study

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Introduction

DBRS's fifth corporate rating transition and seventh default study captures the history of DBRS corporate ratings assigned from inception in 1976 through December 31, 2010.

By demonstrating a positive relationship between the quality and stability of the credit ratings, the transition rates portray the stability of each DBRS credit rating category. Transition rates are provided for one-, three- and ten-year time horizons. In terms of rating actions, as expected, higher-rated credits ("A" and higher rating categories) are more stable and subject to fewer rating changes compared with lower grades (BBB and non-investment grade), which are more volatile, with more frequent rating actions occurring.

On a global corporate basis, the one-, three- and ten-year transition rates for AAA were 94.22%, 78.12% and 26.70%, respectively. The more meaningful one- and three-year rates exemplify highly stable ratings performance. From a default perspective, DBRS experienced no corporate defaults in 2010. This followed a record high of 17 defaults in the 2008–2009 period.

The body of this report includes an overview of rating transitions for 2010, a default history, cumulative default statistics and the underlying methodology. To summarize the findings, cumulative default curves stratified by rating category are presented, further illustrating the rank-order effect of ratings versus default experience over time. The appendix outlines transition rates for one-, three- and ten-year time periods for Canada and the United States and for the industrial, financial services, public finance, insurance and sovereigns sectors.

2010 Rating Changes

In general, over the long term, downgrades outpace upgrades for two reasons:

(1) Many companies have a target credit rating that they believe provides optimal efficiency in balancing credit costs and credit availability with shareholder returns and there is often little incentive to achieve a higher rating. In other cases, credit ratings are limited by industry considerations, typically when the industry is highly cyclical, such that positive steps taken by an individual company may not be rewarded with a rating upgrade. These factors limit the overall upward migration of ratings in general.

(2) On the downside, corporate objectives may cause a company to take some risky actions that sometimes fail because of a variety of factors, including poor economies, planning or execution. When recessions occur, some credits suffer. In some cases, leveraged buyout actions dramatically add to the debt levels of an entity and cause rating downgrades.

These factors create an inherent downward bias over the entire rating universe.

In 2010, the ratio of rating downgrades to rating upgrades was 1.6 times (representing 29 downgrades and 18 upgrades as defined by DBRS and across the entire corporate credit universe of DBRS ratings), close to the DBRS historic average of 1.8 times. This represented a sharp improvement from the 2009 ratio of 5.4 times, which was expected, as 2009 downgrade levels were inflated by an abnormally high level of downgrade actions in the area of U.S. and European banking. In 2011, DBRS expects the downgrade-to-upgrade ratio to remain below the 1.8 times DBRS historical average. The table on the following page provides some longer-term statistics.



DBRS Historical Upgrade and Downgrade Performance*

	2010 (1 Year)	2008–2010 (3 Years)	2001–2010 (10 Years)
Number of upgrades	18	60	273
Number of downgrades	29	200	568
Downgrade-to-upgrade ratio	1.61x	3.33x	2.08x

* Includes multiple rating actions to individual credits.

For further information on 2010 upgrades and downgrades and the DBRS outlook for 2011, see *DBRS Corporate 2010 Year in Review and 2011 Outlook*, published in January 2011.

Transition Rates

DBRS credit ratings are opinions based on quantitative and qualitative analysis of information sourced and received by DBRS that reflect the creditworthiness of an issuer, a security or an obligation. They are opinions based on forward-looking measurements that assess an issuer's ability and willingness to make timely payments on outstanding obligations (whether principal, interest, dividends or distributions) with respect to the terms of an obligation. While DBRS takes a longer-term "through the cycle" view of issuers when assessing their credit profiles, ratings will be pressured by recessionary conditions. More typically, ratings will fluctuate over time in response to unexpected positive or negative structural developments, which may be internally or externally driven. The tables on the following page summarize the historical migration experience of DBRS global corporate credit ratings over a one-, three- and ten-year horizon. Each table shows how rated issuers within each broad rating category (vertical axis) tend to migrate across the rating spectrum (horizontal axis) over a one-, three- and ten-year period.

DBRS corporate ratings demonstrate a positive relationship between the quality of a credit profile and its stability over time. This characteristic is particularly apparent among investment-grade ratings, while non-investment-grade ratings tend to exhibit a greater propensity to migrate across a wider range of rating categories. Furthermore, the difference in stability between higher and lower ratings seems to widen as the time period analyzed gets longer. When subject to rating actions, however, higher-rated credits ("A" and AA categories) have more chances of moving down than up the rating scale.



Global Corporate Aggregate Transition by Whole Rating Categories

One-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	94.22%	5.63%	0.15%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.48%	92.94%	6.25%	0.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.10%
A	0.05%	1.47%	93.63%	4.54%	0.09%	0.02%	0.00%	0.00%	0.02%	0.18%
BBB	0.07%	0.17%	3.88%	92.21%	2.75%	0.41%	0.17%	0.00%	0.00%	0.34%
BB	0.00%	0.00%	0.15%	7.90%	86.02%	3.80%	1.37%	0.00%	0.00%	0.76%
B	0.00%	0.00%	1.06%	0.00%	7.98%	77.66%	6.38%	0.53%	2.13%	4.26%
CCC	0.00%	0.00%	0.00%	0.00%	2.27%	11.36%	54.55%	2.27%	4.55%	25.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.00%	25.00%	0.00%	50.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Three-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	78.12%	19.84%	2.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	1.47%	80.47%	16.30%	1.29%	0.12%	0.06%	0.00%	0.00%	0.00%	0.29%
A	0.20%	4.43%	81.65%	12.34%	0.82%	0.26%	0.00%	0.00%	0.03%	0.28%
BBB	0.14%	0.65%	12.94%	77.29%	6.59%	1.26%	0.51%	0.00%	0.19%	0.42%
BB	0.00%	0.00%	2.09%	22.27%	62.88%	6.26%	3.71%	0.00%	0.46%	2.32%
B	0.00%	0.00%	1.00%	4.00%	21.00%	54.00%	8.00%	1.00%	1.00%	10.00%
CCC	0.00%	0.00%	14.29%	0.00%	14.29%	21.43%	42.86%	0.00%	0.00%	7.14%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Ten-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	26.70%	49.51%	22.82%	0.97%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	3.66%	53.46%	38.69%	3.79%	0.26%	0.13%	0.00%	0.00%	0.00%	0.00%
A	0.13%	11.54%	60.30%	23.14%	2.62%	1.34%	0.47%	0.07%	0.00%	0.40%
BBB	0.81%	3.22%	37.52%	47.83%	8.53%	0.32%	0.97%	0.00%	0.16%	0.64%
BB	0.00%	1.19%	9.52%	48.81%	34.52%	1.19%	1.19%	0.00%	0.00%	3.57%
B	0.00%	0.00%	14.29%	28.57%	42.86%	14.29%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Note: See appendix section for further breakdown. Includes private ratings and sovereigns ratings.



Default History

DBRS corporate default experience since 1976 represents 49 cases (see Definition of Default in the Methodology section on page 11). The table below outlines each example by name and the year in which the default occurred. In 2010, DBRS experienced no corporate defaults.

DBRS Corporate Defaults¹

Company	Inception Rating	Year Rating First Assigned	Rating at Beginning of Default Year	Default Year
Daon Development Corporation	BB	1978	BB	1982
Carma Ltd.	BB (low)	1978	CCC	1983
Nu-west Group Limited	BB (high)	1978	CCC	1984
Canadian Commercial Bank	A (low)	1982	BBB	1985
Northland Bank	BBB (low)	1985	BBB (low)	1985
Versatile Corporation	BB	1978	BBB (low)	1986
Campeau Corporation	BBB (low)	1985	B	1990
Algoma Steel Corporation, Limited, The	BBB	1976	BB	1991
Central Guaranty Trustco Limited	BBB	1985	A	1991
Central Capital Corporation	A (low)	1987	BBB	1991
Maxwell Communications Finance Canada Ltd.	A	1988	A (low)	1991
Bramalea Ltd.	BBB	1985	A	1992
Olympia & York 240 Sparks Street Limited	AA (high)	1985	AA (high)	1992
Trizec Corporation Ltd.	BBB	1978	A	1993
General Trustco of Canada Inc.	A (low)	1987	BBB (low)	1993
Cadillac Fairview Corporation Ltd.	BBB	1983	BBB	1994
Confederation Treasury Services Limited	AA (low)	1989	A (high)	1994
Bramalea City Centre	A	1988	BBB (high)	1995
The Loewen Group Inc.	BBB (low)	1997	BB (high)	1999
Laidlaw Inc.	BBB (high)	1996	BBB (high)	2000
Canadian Airlines Corporation	CCC	1998	CC	2000
Algoma Steel Inc.	B (high)	1999	B	2001
Teleglobe Inc.	A	1998	BBB (low)	2002
Microcell Telecommunications Inc.	B	1999	B	2002
AT & T Canada/Allstream Inc.	BBB	2000	BB (high)	2002
Saskatchewan Wheat Pool Inc.	BBB	1977	C	2003
Stelco Inc.	AA	1976	B (high)	2004
Air Canada	BB	1997	C	2004
Hollinger Inc.	B	2003	C	2005
Dana Corporation	BB (high)	2005	B (high)	2006
Pope & Talbot, Inc.	BB (low)	2004	CCC	2007
New Century Financial Corporation	BB	2006	BB	2007
Tembec Inc.	BB (high)	1998	CCC	2008

1. A small number of changes were made to the Year Rating First Assigned, the Rating at Beginning of Default Year and the Default Year columns versus prior DBRS studies, none of which had any impact on the underlying default and transition data and results in past studies issued by DBRS.



DBRS Corporate Defaults¹

Company	Inception Rating	Year Rating First Assigned	Rating at Beginning of Default Year	Default Year
Quebecor World Inc.	A (low)	1999	CCC	2008
Tribune Company	A	2004	B	2008
Lehman Brothers Inc.	AA (low)	2005	AA	2008
International Securities Trading Corporation plc	BBB	2006	CCC	2008
Fremont General Corporation	BB (low)	2006	CCC (low)	2008
Washington Mutual Bank	A (high)	2006	A (high)	2008
Education Resources Institute, Inc., The	A	2007	A	2008
Nortel Networks Limited	AA	1977	CCC	2009
Smurfit-Stone Container Corporation	B (high)	2004	B (high)	2009
Abitibi-Consolidated Inc.	BBB	1997	CCC (high)	2009
Bowater Canadian Forest Products Inc.	A	1989	CCC	2009
Chrysler LLC	B (high)	2007	CCC	2009
General Motors Corporation	A	1997	CC	2009
Colonial BancGroup, Inc.	BBB	2005	BBB	2009
Canwest Media Inc.	BB	2000	B (high)	2009
CIT Group Inc.	A (high)	1999	A (low)	2009

1. A small number of changes were made to the Year Rating First Assigned, the Rating at Beginning of Default Year and the Default Year columns versus prior DBRS studies, none of which had any impact on the underlying default and transition data and results in past studies issued by DBRS.

Within the universe of DBRS-rated issuers, two Canadian banks were among the first issuers to default on their DBRS-rated debt in the mid-1980s, with the next wave of defaults occurring in the early to mid-1990s. Companies that experienced defaults in this period included financial services companies, a large number of real estate companies, Confederation Life Insurance Company and Algoma Steel Inc. The next wave of defaults, circa the late 1990s through 2002, saw the impact of the global telecom decline as it affected Canadian players in this sector. AT & T Canada Inc./Allstream Inc. and Teleglobe Inc. deteriorated as they came under pressure from challenging business conditions.

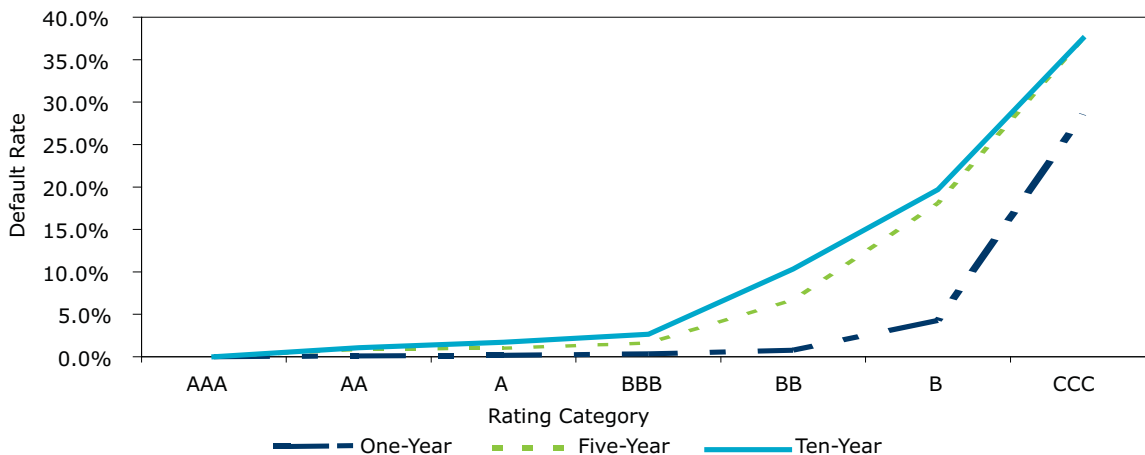
Next was the restructuring of Air Canada and the circumstances surrounding Hollinger Inc. and its subsequent investigation, which resulted in a default on its senior secured notes. It is important to note that Hollinger Inc. was officially downgraded to D in April 2005 but is cited as a default in 2004 as a result of its failure to pay an interest payment in March 2004. No DBRS-rated corporate issuers defaulted during 2005, the first year since 1998 to show no public corporate defaults. In 2006, there was only one default, which was due to difficult market conditions for auto-part suppliers. In 2007, there were two defaults – Pope & Talbot, Inc. in the forestry sector and New Century Financial Corporation in the financial services sector – as a result of subprime mortgage exposure. In 2008, there were a record number of defaults, dominated by financial services companies. The most notable default in 2008 was the collapse of Lehman Brothers Inc., which was a leading contributor to one of the greatest economic meltdowns since the Depression. The nine defaults recorded in 2009 represent the highest number of defaults of DBRS-rated issuers in one calendar year, narrowly beating out the 2008 record of eight defaults. The number of defaults in 2009 was not surprising given the economic climate. Defaults in 2009 were concentrated in the industrials sector (forestry, autos and print and media) and financial services. These industries were particularly hard hit by the continuance of the economic crisis into in 2009.

Default patterns generally follow economic cycles. During strong economic periods, default activity is minimal as the vast majority of sectors prosper. History bears out the fact that strong economic cycles



are ultimately followed by down cycles, and within this more challenging environment, more defaults occur. Where the defaults observed between 1991 and 1994 can largely be attributed to a weak real estate market, the defaults that occurred between 1999 and 2004 were generally less concentrated by industry. During those years, defaults were generally spread across several sectors. Defaults over the 2008–2009 period included a relatively high proportion of financial institutions.

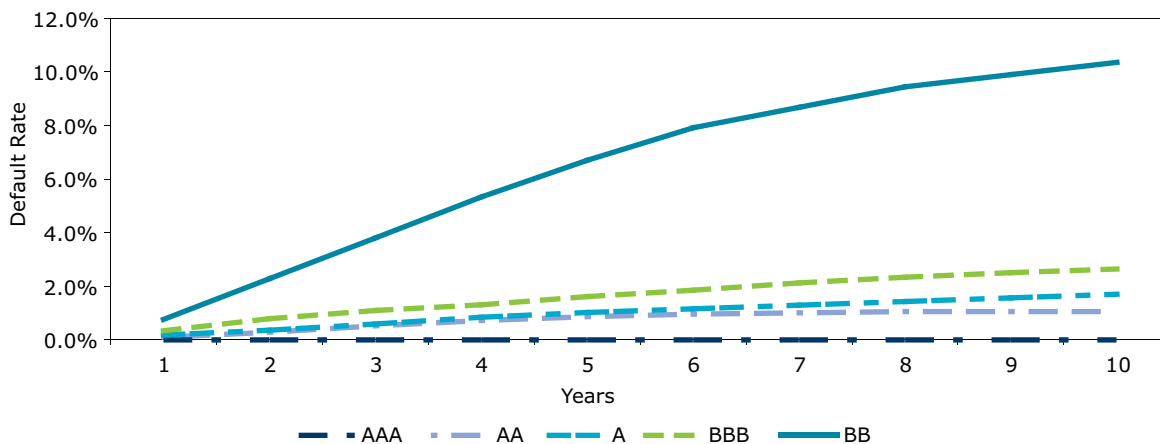
Effectiveness of DBRS Ratings as Default Predictors



Note: Aggregate ratings include private ratings and sovereign ratings. CCC category consists of entities rated CCC, CC and C.
 Source: DBRS.

The graph above illustrates the actual default probability measuring one-, five- and ten-year default rates. In DBRS’s 35-year history, there have been a total of 49 defaults out of 1,280 issuers. The relatively low 3.83% default rate reflects the high proportion of initial investment-grade ratings in DBRS rating history, noting that one-third of the defaults were in the 2008–2009 period and related to the fallout of the financial crisis.

Default Cumulative Rates by Rating Category



Note: Aggregate ratings include private ratings and sovereigns ratings.
 Source: DBRS.

The graph above illustrates the cumulative default rate for the AAA through BB categories. As expected, this sample set of AAA-rated entities has the lowest cumulative probability of default. The significant gap between the performance of the BBB and BB universes is also expected as the difference between investment-grade and non-investment-grade ratings is meaningful.



Cumulative Default Statistics

The table below illustrates the correlation between ratings and defaults over a ten-year time span, based on the full history of DBRS global corporate ratings. While ratio granularity in the lower rating categories suffers to some degree from the reality of small sample sizes, the table clearly exhibits that higher ratings have lower frequencies of default and vice versa.

Global Corporate Average Cumulative Default Rates (1976–2010) by Whole Rating Categories (Yearly)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
AAA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.10%	0.29%	0.53%	0.72%	0.86%	0.96%	1.01%	1.06%	1.06%	1.06%
A	0.18%	0.36%	0.59%	0.84%	1.02%	1.16%	1.30%	1.43%	1.57%	1.71%
BBB	0.34%	0.79%	1.10%	1.30%	1.61%	1.85%	2.13%	2.34%	2.51%	2.64%
BB	0.76%	2.28%	3.81%	5.33%	6.70%	7.91%	8.68%	9.44%	9.89%	10.35%
B	4.26%	9.04%	14.36%	17.02%	18.09%	19.15%	19.68%	19.68%	19.68%	19.68%
CCC/CC/C	28.57%	35.71%	37.50%	37.50%	37.50%	37.50%	37.50%	37.50%	37.50%	37.50%

Methodology

This study is based on information obtained from DBRS's proprietary database of ratings and defaults. As of December 31, 2010, this database comprised 1,280 families of issuers, which have experienced a total of 49 defaults since 1976.

DATA SET

The data consists of the following categories of issuers: industrials, financial services, government securities and insurance. Government securities are further broken down into sovereigns and public finance. At present, DBRS only rates Canadian public finance. In addition to countries, sovereigns consist of Canadian provinces, cities and municipalities. Within these categories, the study is limited to long-term (greater than one year) public ratings, Rule 144a private placement ratings and private ratings. Over DBRS's 35-year history, no private ratings have defaulted. Commercial paper and preferred shares were also excluded from the data set.

Rating transitions and defaults were tracked at the issuer level. Therefore, multiple debt lines were consolidated so that one rating was used per issuer. As a proxy for the issuer rating, DBRS selected the senior unsecured long-term rating or the corporate rating of the issuer. Where a senior unsecured rating or corporate rating did not exist, a rating based on the highest-rated security line was used. The DBRS corporate rating universe includes 1,280 families of issuers, from 1976 to December 31, 2010.

MULTIPLE ISSUERS

Issuing subsidiaries and affiliates (together referred to as related entities) were removed from the data set in cases where there is a direct relationship to the rating of the parent. This can be the result of (1) a legal guarantee from the parent in support of the debt obligations of the related entities or (2) an essential business relationship between the parent and the related entities that exists such that the ratings of the latter are predicated on the concept of implied support. The objective of the aforementioned adjustment is to eliminate the impact of the migration of a series of ratings that are ultimately reliant on one entity.



TRANSITION RATE CALCULATION

Transition rates for each given period were calculated by comparing the number of issuers that held a specific rating at the beginning of the relevant period with the distribution of the ratings of these same issuers at the end of the period. The transition rates represent a quotient where the numerator is the subset of issuers that held a specific beginning-of-period rating and that now hold a specific end-of-period rating, and the denominator is the number of issuers that held that specific beginning-of-period rating.

DEFINITION OF DEFAULT

A security rated D implies that the issuer has either not met a legally scheduled payment or has made it clear that it will miss such a payment in the near future or, in certain cases, that there has been a distressed exchange. In some cases, DBRS may not assign a D rating under a bankruptcy announcement scenario as allowances for grace periods may exist in the underlying legal documentation. Once assigned, the D rating will continue as long as the missed payment continues to be in arrears and until such time as the rating is discontinued or reinstated by DBRS. Please refer to Rating Definitions and Other Rating Information under Rating Policies on www.dbrs.com for further information.

CUMULATIVE DEFAULT RATE CALCULATION

Cumulative default rate (CDR) calculations for this study were based on static analysis, commencing with the assignment of the initial rating. The DBRS cumulative default percentages are computed based on a compilation of annual and monthly cohorts; DBRS calculates and publishes its CDR on both bases. Each cohort comprises all issuers with ratings in existence as of the cohort amalgamation date. Specifically, pools of issuer ratings were established as of December 31 of each year for the annual calculation and the last day of each month for the monthly calculation. The aggregation of rating counts over all cohorts is equivalent to collecting the numbers of each rating in existence over each year and month of the reference period without consideration to defaults. The same analysis is then performed taking only the ratings that eventually default. Average cumulative default probabilities are determined by computing the relevant quotients.

COMMENTS REGARDING THE APPENDIX

When reviewing the appendix data, the following should be noted:

- Reflective of the growth in ratings over time and the reality that discontinuations and defaults do occur, the tenor of many corporate ratings will be less than ten years. As such, there is often limited rating data available for a meaningful calculation of ten-year transition rates, a fact that is amplified when viewing transition rates by area, where the sample size may already be relatively small. Given these facts, data for some of the ten-year transition tables may appear unusual and will be less useful as a base in reaching conclusions.
- DBRS has not issued U.S. public finance ratings.
- In addition to countries, sovereigns consist of Canadian provinces, cities and municipalities.
- DBRS implemented a structured finance (SF) modifier on a global basis. For its SF modifier, DBRS uses the symbol "(sf)" next to the rating category for ratings that meet the requisite criteria in its press releases and rating reports and on its public website. The "(sf)" symbol only indicates that the security is an SF instrument and will not change the meaning or definition of the rating in any other way nor will it change the risk of any particular SF instrument. As exclusions from the (sf) modifier, covered bonds are included in financial services and Canada Housing Trust™ No. 1 is included in sovereigns. Refer to the following press release for additional detail: [DBRS Implements Global Structured Finance Modifier](#).



Appendix: Transition and Cumulative Default Tables

TRANSITION RATES BY NOTCHED RATING CATEGORIES

Global	13
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CUMULATIVE DEFAULT RATES BY NOTCHED RATING CATEGORIES

Global Corporate	44
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Global Transition Rates by Notched Rating Categories

One-Year	AAA	AA (high)	AA (low)	AA	AA (high)	A	A (low)	BBB (high)	BBB (low)	BB (high)	BB (low)	BB (high)	B (high)	B (low)	CCC (high)	CCC (low)	CC (high)	CC (low)	C (high)	C (low)	D
AAA	94.22%	3.50%	1.98%	0.15%	0.15%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	2.32%	82.78%	10.93%	2.32%	0.66%	0.33%	0.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.33%
AA	0.33%	1.86%	86.53%	6.02%	3.07%	1.64%	0.11%	0.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.11%
AA (low)	0.00%	0.00%	5.91%	84.43%	6.70%	2.27%	0.45%	0.00%	0.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (high)	0.10%	0.00%	0.60%	3.67%	85.30%	7.25%	2.38%	0.20%	0.10%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.20%
A	0.00%	0.06%	0.35%	0.75%	3.34%	86.36%	5.30%	1.78%	0.17%	0.12%	0.00%	0.00%	0.00%	0.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.23%
A (low)	0.06%	0.00%	0.06%	0.06%	0.48%	4.74%	86.19%	5.65%	1.98%	0.54%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.12%
BBB (high)	0.08%	0.08%	0.08%	0.00%	0.00%	0.76%	5.34%	85.34%	5.68%	1.61%	0.25%	0.25%	0.08%	0.08%	0.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.17%
BBB	0.08%	0.00%	0.00%	0.08%	0.08%	0.59%	2.10%	4.78%	4.02%	0.92%	1.42%	0.25%	0.17%	0.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.34%
BBB (low)	0.00%	0.00%	0.19%	0.19%	0.19%	0.37%	0.93%	1.48%	7.99%	6.11%	1.30%	0.37%	0.19%	0.74%	0.00%	0.19%	0.00%	0.00%	0.00%	0.00%	0.74%
BB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.43%	0.00%	0.87%	12.55%	72.29%	6.93%	1.73%	1.73%	0.43%	0.00%	0.43%	0.00%	0.00%	0.00%	0.00%	0.87%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.68%	4.70%	4.70%	4.70%	79.53%	3.69%	1.68%	2.01%	0.34%	0.00%	0.00%	0.00%	0.00%	1.01%
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.88%	6.98%	79.84%	3.88%	1.55%	0.78%	1.55%	0.00%	0.00%	0.00%	0.00%	0.00%
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.49%	1.16%	72.09%	4.65%	2.33%	1.16%	1.16%	0.00%	0.00%	0.00%	0.00%	4.65%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.47%	5.88%	63.24%	7.35%	7.35%	0.00%	5.88%	0.00%	0.00%	0.00%	1.47%	5.88%
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.94%	2.94%	8.82%	64.71%	2.94%	14.71%	0.00%	0.00%	0.00%	0.00%	1.47%	5.88%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	25.00%	0.00%	0.00%	0.00%	0.00%	25.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.56%	7.69%	2.56%	53.85%	0.00%	0.00%	0.00%	5.13%	23.08%
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	37.50%
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Global Transition Rates by Notched Rating Categories

Three-Year	AAA	AA (high)	AA (low)	AA	AA (low)	AA (high)	BBB (low)	BBB (high)	BBB	BBB (low)	BBB (high)	BB	BB (low)	BB (high)	BB	B (low)	B (high)	B	B (low)	B (high)	CCC (low)	CCC (high)	CCC	CCC (low)	CCC (high)	CC	CC (high)	CC	CC (low)	C	C (high)	C	C (low)	D			
AAA	78.12%	10.43%	8.38%	1.02%	1.64%	0.00%	0.41%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
AA (high)	6.72%	54.55%	21.34%	7.11%	5.93%	2.37%	0.79%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
AA	0.82%	5.58%	63.27%	14.01%	8.30%	6.12%	0.82%	0.68%	0.00%	0.27%	0.00%	0.00%	0.00%	0.00%	0.00%	0.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
AA (low)	0.28%	0.84%	15.20%	61.09%	11.58%	6.28%	2.09%	0.56%	0.84%	0.42%	0.14%	0.00%	0.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
A (high)	0.37%	0.00%	3.24%	7.72%	60.90%	16.19%	7.47%	1.74%	1.74%	0.00%	0.12%	0.00%	0.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
A	0.07%	0.21%	0.98%	3.21%	8.79%	62.53%	11.79%	4.88%	4.82%	0.63%	0.42%	0.70%	0.00%	0.14%	0.21%	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
A (low)	0.23%	0.00%	0.08%	0.31%	1.24%	12.57%	64.39%	12.18%	5.51%	2.40%	0.54%	0.08%	0.23%	0.00%	0.00%	0.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
BBB (high)	0.00%	0.23%	0.34%	0.11%	0.34%	3.63%	14.19%	62.20%	11.58%	2.84%	1.59%	0.68%	0.45%	0.34%	0.57%	0.00%	0.34%	0.00%	0.00%	0.00%	0.23%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
BBB	0.34%	0.00%	0.00%	0.34%	0.56%	3.58%	6.71%	12.86%	57.83%	8.72%	3.13%	3.02%	0.89%	0.22%	1.01%	0.00%	0.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
BBB (low)	0.00%	0.00%	0.00%	0.55%	1.37%	1.92%	2.19%	4.38%	18.08%	51.23%	7.95%	5.21%	1.64%	0.27%	1.64%	0.27%	0.27%	0.00%	0.00%	0.00%	1.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
BB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	1.37%	1.37%	1.37%	6.85%	22.60%	41.10%	11.64%	4.11%	2.74%	0.68%	1.37%	0.00%	0.00%	0.00%	0.00%	2.74%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.44%	5.74%	13.88%	6.70%	53.59%	6.70%	1.91%	1.44%	0.48%	0.00%	0.00%	0.00%	0.00%	3.83%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	1.32%	0.00%	2.63%	0.00%	6.58%	3.95%	19.74%	39.47%	14.47%	1.32%	0.00%	0.00%	0.00%	0.00%	0.00%	3.95%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.33%	0.00%	0.00%	9.30%	6.98%	4.65%	11.63%	34.88%	6.98%	9.30%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.41%	5.41%	8.11%	21.62%	21.62%	13.51%	0.00%	0.00%	0.00%	0.00%	13.51%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	15.00%	5.00%	0.00%	5.00%	20.00%	30.00%	0.00%	0.00%	0.00%	0.00%	15.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	



Global Transition Rates by Notched Rating Categories

Ten-Year	AAA	AA (high)	AA (low)	AA	A (high)	A	A (low)	BBB (high)	BBB (low)	BBB	BBB (low)	BBB (high)	BB	BB (low)	BB	B (high)	B	B (low)	CCC (high)	CCC (low)	CCC	CCC (high)	CCC (low)	CC (high)	CC	CC (high)	CC (low)	C	C (high)	C	C (low)	D			
AAA	26.70%	20.39%	16.99%	12.14%	15.53%	3.40%	3.88%	0.97%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%			
AA (high)	10.94%	14.84%	35.16%	17.19%	5.47%	9.38%	5.47%	1.56%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
AA	3.44%	4.23%	21.16%	25.13%	20.63%	12.96%	7.41%	3.44%	0.53%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	0.26%	
AA (low)	0.39%	2.70%	19.69%	28.57%	14.67%	20.46%	9.27%	3.47%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
A (high)	0.54%	1.35%	6.20%	9.43%	26.42%	22.64%	15.09%	6.20%	5.39%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	
A	0.00%	0.00%	5.31%	9.10%	13.35%	31.41%	14.87%	6.22%	12.14%	3.03%	0.61%	1.21%	0.15%	0.30%	0.76%	1.08%	0.15%	0.30%	0.46%	0.00%	0.00%	0.00%	0.00%	0.15%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
A (low)	0.00%	0.00%	1.30%	1.74%	8.68%	19.52%	29.93%	18.00%	13.67%	2.17%	3.47%	3.47%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	
BBB (high)	0.00%	0.00%	0.85%	2.98%	3.40%	11.91%	30.64%	25.96%	8.09%	6.81%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%	3.40%
BBB	1.63%	0.00%	2.29%	0.65%	5.88%	10.78%	14.71%	21.24%	20.92%	12.42%	3.27%	3.27%	3.92%	3.92%	3.92%	3.92%	3.92%	3.92%	3.92%	3.92%	3.92%	3.92%	3.92%	3.92%	3.92%	3.92%	3.92%	3.92%	3.92%	3.92%	3.92%	3.92%	3.92%	3.92%	3.92%
BBB (low)	0.00%	0.00%	1.25%	1.25%	2.50%	11.25%	22.50%	13.75%	15.00%	3.75%	5.00%	5.00%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%
BB (high)	0.00%	0.00%	0.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Canada Transition Rates by Notched Rating Categories

One-Year	AAA	AA (high)	AA (low)	AA	AA	AAA	AA (high)	A (high)	A	A (low)	BBB (high)	BBB (low)	BBB	BBB (high)	BB (high)	BB (low)	BB	BB (high)	B (high)	B (low)	CCC (high)	CCC (low)	CCC	CCC (high)	CCC (low)	CC (high)	CC	CC (high)	CC (low)	C (high)	C	C (low)	D
AAA	94.48%	2.11%	82.70%	12.24%	1.27%	0.00%	0.17%	0.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	0.44%	1.91%	85.04%	7.04%	3.67%	1.76%	0.00%	0.42%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.42%
AA (low)	0.00%	0.00%	5.43%	85.56%	6.06%	2.17%	0.00%	0.47%	0.00%	0.16%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (high)	0.13%	0.00%	0.65%	3.80%	84.69%	7.85%	2.23%	0.26%	0.13%	0.00%	0.13%	0.00%	0.00%	0.13%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.13%	
A	0.00%	0.07%	0.44%	0.59%	3.59%	85.85%	5.35%	1.91%	1.69%	0.22%	0.07%	0.00%	0.00%	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.22%	
A (low)	0.08%	0.00%	0.08%	0.08%	0.47%	5.06%	86.08%	5.38%	2.06%	0.47%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.08%	
BBB (high)	0.00%	0.00%	0.12%	0.00%	0.00%	0.74%	6.44%	84.01%	5.70%	1.86%	0.25%	0.37%	1.76%	0.22%	0.00%	0.12%	0.00%	0.00%	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.25%	
BBB (low)	0.00%	0.00%	0.00%	0.11%	0.11%	0.66%	2.32%	5.07%	83.90%	4.30%	0.77%	1.76%	0.22%	0.00%	0.22%	0.00%	0.00%	0.00%	0.22%	0.00%	0.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.33%	
BBB (high)	0.00%	0.00%	0.00%	0.26%	0.26%	0.53%	1.06%	1.85%	8.99%	74.60%	7.67%	1.85%	0.53%	0.26%	0.79%	0.00%	0.00%	0.26%	0.00%	0.26%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.79%		
BB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.56%	0.00%	0.00%	1.12%	12.92%	74.16%	7.30%	1.69%	1.12%	0.00%	0.00%	0.00%	1.12%	0.00%	0.41%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.56%		
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.05%	5.33%	4.51%	79.10%	2.87%	1.64%	2.46%	0.41%	0.00%	1.64%	0.00%	0.41%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.82%		
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.66%	9.76%	78.05%	3.66%	1.22%	1.22%	1.22%	3.66%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.17%	2.17%	2.17%	8.70%	67.39%	4.35%	4.35%	8.70%	4.35%	4.35%	4.35%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.35%		
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.22%	8.89%	8.89%	57.78%	8.89%	6.67%	8.89%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.67%		
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.88%	52.94%	11.76%	5.88%	17.65%	5.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%		
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	20.69%		
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	33.33%		
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		



Canada Transition Rates by Notched Rating Categories

Three-Year	AAA	AA (high)	AA (low)	AA	AA (high)	A	A (low)	BBB (high)	BBB (low)	BB (high)	BB (low)	B (high)	B (low)	CCC (high)	CCC (low)	CC (high)	CC (low)	C (high)	C (low)	D
AAA	79.14%	9.30%	8.16%	21.74%	1.13%	1.81%	0.00%	0.45%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	5.80%	56.04%	21.74%	6.28%	1.13%	1.81%	0.00%	0.45%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	1.02%	4.92%	61.12%	15.79%	0.51%	0.34%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (low)	0.36%	1.09%	13.59%	62.32%	11.05%	6.88%	1.99%	0.54%	0.91%	0.54%	0.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (high)	0.46%	0.00%	3.20%	7.77%	60.21%	16.77%	7.01%	1.98%	0.00%	0.15%	0.00%	0.30%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	0.26%	1.19%	3.15%	9.27%	61.90%	11.99%	4.85%	0.43%	0.85%	0.00%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (low)	0.29%	0.00%	0.10%	0.29%	1.36%	13.15%	63.88%	11.78%	5.84%	2.24%	0.49%	0.10%	0.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (high)	0.00%	0.00%	0.46%	0.15%	0.42%	3.40%	15.46%	61.82%	10.82%	2.47%	2.01%	0.93%	0.62%	0.31%	0.46%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.42%	0.00%	0.00%	0.42%	0.42%	3.66%	7.45%	12.66%	9.00%	3.66%	0.56%	0.14%	1.27%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (low)	0.00%	0.00%	1.08%	0.72%	1.81%	0.81%	2.89%	4.69%	19.13%	45.49%	9.39%	6.86%	2.17%	0.36%	1.08%	0.36%	0.00%	0.00%	0.00%	0.00%
BB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.88%	7.89%	23.68%	42.98%	10.53%	5.26%	0.00%	0.88%	1.75%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.23%	1.68%	6.70%	12.85%	6.70%	3.35%	1.68%	1.68%	0.56%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	2.00%	0.00%	0.00%	10.00%	6.00%	26.00%	38.00%	8.00%	2.00%	4.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.70%	0.00%	14.81%	7.41%	18.52%	29.63%	3.70%	14.81%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.14%	7.14%	10.71%	28.57%	14.29%	3.57%	17.86%	0.00%	0.00%	0.00%	0.00%	0.00%
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.00%	20.00%	20.00%	20.00%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	20.00%	0.00%	0.00%	0.00%	20.00%	0.00%	0.00%	40.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Canada Transition Rates by Notched Rating Categories

Ten-Year	AAA	AA (high)	AA (low)	AA	A (high)	A	A (low)	BBB (high)	BBB (low)	BBB	BB (high)	BB (low)	BB	B (high)	B	B (low)	CCC (high)	CCC (low)	CC (high)	CC (low)	C (high)	C	C (low)	D
AAA	26.46%	18.52%	15.25%	34.75%	16.95%	5.93%	9.32%	3.70%	4.23%	1.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	10.17%	3.80%	22.22%	24.85%	22.22%	11.99%	6.43%	3.51%	0.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	3.80%	2.89%	20.25%	29.34%	13.22%	20.66%	9.50%	0.83%	2.89%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (low)	0.41%	1.45%	6.65%	9.54%	26.01%	23.70%	14.74%	6.36%	4.91%	1.45%	1.45%	0.29%	0.00%	0.29%	1.16%	1.16%	0.00%	0.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (high)	0.29%	0.00%	4.92%	10.02%	12.90%	31.41%	15.28%	6.62%	11.71%	3.23%	0.68%	1.36%	0.17%	0.34%	0.51%	0.17%	0.00%	0.34%	0.00%	0.00%	0.00%	0.00%	0.00%	0.29%
A	0.00%	0.00%	1.20%	1.92%	9.11%	19.66%	29.50%	18.71%	12.71%	2.16%	3.36%	0.24%	0.72%	0.48%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.34%
A (low)	0.00%	0.00%	0.46%	3.20%	3.65%	12.33%	29.68%	26.03%	7.31%	7.31%	3.65%	0.00%	0.46%	0.46%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.24%
BBB (high)	1.75%	0.00%	2.11%	0.35%	6.32%	11.58%	15.79%	17.89%	20.70%	13.33%	3.51%	4.21%	1.05%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.46%
BBB	0.00%	0.00%	0.00%	1.27%	2.53%	11.39%	22.78%	13.92%	13.92%	15.19%	3.80%	6.33%	5.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.05%
BBB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.26%	0.00%	5.26%	0.00%	5.26%	15.79%	10.53%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.00%	14.00%	16.00%	18.00%	6.00%	34.00%	15.79%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.26%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.14%	14.29%	14.29%	14.29%	7.14%	14.29%	14.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.00%
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.14%	14.29%	14.29%	14.29%	7.14%	14.29%	14.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	20.00%	20.00%	40.00%	20.00%	20.00%	20.00%	20.00%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



United States Transition Rates by Notched Rating Categories

One-Year	AAA	AA (high)	AA	AA (low)	AA	A (high)	A	A (low)	BBB (high)	BBB (low)	BBB	BBB (high)	BB (high)	BB (low)	B (high)	B	B (low)	CCC (high)	CCC (low)	CC (high)	CC (low)	C (high)	C	C (low)	D
AAA	92.00%	8.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	5.00%	85.00%	5.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	1.89%	89.62%	3.77%	0.94%	0.94%	0.00%	0.00%	1.89%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (low)	0.00%	0.00%	4.91%	82.21%	8.59%	3.68%	0.61%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.94%
A (high)	0.00%	0.00%	0.69%	5.52%	84.83%	5.52%	2.76%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	0.00%	0.00%	1.75%	2.10%	88.46%	4.20%	1.40%	1.05%	0.00%	0.35%	0.00%	0.00%	0.00%	0.00%	0.35%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.35%
A (low)	0.00%	0.00%	0.00%	0.00%	0.71%	3.55%	86.52%	5.67%	2.13%	1.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.35%
BBB (high)	0.00%	0.33%	0.00%	0.00%	0.00%	0.00%	0.66%	2.31%	89.11%	5.94%	0.66%	3.33%	0.00%	0.00%	0.33%	0.00%	0.00%	0.00%	0.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.42%	1.25%	3.75%	3.75%	0.42%	1.25%	0.00%	0.42%	0.83%	0.42%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.81%	4.07%	3.25%	0.00%	0.00%	0.00%	0.81%	0.00%	0.81%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.42%
BB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.00%	5.00%	0.00%	0.00%	65.00%	7.50%	5.00%	2.50%	0.00%	2.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.81%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.04%	4.08%	81.63%	8.16%	2.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.50%
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.55%	84.09%	4.55%	2.27%	0.00%	0.00%	2.27%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.04%
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.26%	78.95%	2.63%	0.00%	0.00%	0.00%	2.63%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.26%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	71.43%	9.52%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.76%
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.00%	70.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.76%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	66.67%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	22.22%	11.11%	0.00%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	11.11%
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	22.22%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	66.67%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



United States Transition Rates by Notched Rating Categories

Three-Year	AAA	AA (high)	AA (low)	AA	AA (high)	A	A (low)	BBB (high)	BBB (low)	BBB (low)	BB (high)	BB (low)	B (high)	B (low)	CCC (high)	CCC (low)	CC (high)	CC (low)	C (high)	C (low)	D	
AAA	68.42%	21.05%	10.53%	7.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	21.43%	50.00%	7.14%	7.14%	0.00%	14.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	8.22%	67.12%	8.22%	5.48%	4.11%	0.00%	4.11%	0.00%	2.74%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (low)	0.00%	0.00%	11.48%	59.84%	16.39%	5.74%	3.28%	0.82%	0.82%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.82%
A (high)	0.00%	0.00%	5.15%	11.34%	59.79%	15.46%	5.15%	1.03%	1.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.03%
A	0.00%	0.00%	0.00%	4.46%	7.43%	65.84%	7.92%	4.46%	5.94%	0.50%	0.50%	0.00%	0.50%	1.49%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.99%
A (low)	0.00%	0.00%	0.00%	0.54%	0.00%	9.73%	67.03%	12.43%	5.41%	3.78%	0.54%	0.00%	0.00%	0.54%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (high)	0.00%	1.02%	0.00%	0.00%	0.00%	3.55%	8.12%	65.99%	14.21%	3.05%	0.51%	0.00%	0.51%	1.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	0.00%	0.00%	0.00%	1.27%	1.91%	4.46%	15.29%	7.64%	1.27%	0.64%	0.64%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.64%
BBB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	2.86%	0.00%	1.43%	12.86%	70.00%	4.29%	0.00%	0.00%	4.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.43%
BB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	4.17%	0.00%	4.17%	4.17%	0.00%	37.50%	20.83%	16.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.17%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	14.81%	7.41%	44.44%	29.63%	3.70%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.00%	44.00%	28.00%	4.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.00%
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	21.43%	0.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	14.29%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	44.44%	44.44%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	11.11%
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	40.00%	40.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



United States Transition Rates by Notched Rating Categories

Ten-Year	AAA	AA (high)	AA (low)	AA	AA	A (high)	A	A (low)	BBB (high)	BBB (low)	BBB	BBB (low)	BB (high)	BB	BB (low)	B (high)	B	B (low)	CCC (high)	CCC (low)	CC (high)	CC (low)	C (high)	C (low)	D
AAA	71.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	12.00%	40.00%	8.00%	16.00%	0.00%	0.00%	0.00%	4.00%	4.00%	4.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (low)	0.00%	0.00%	6.25%	18.75%	37.50%	18.75%	6.25%	0.00%	12.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (high)	0.00%	0.00%	11.11%	38.89%	11.11%	5.56%	0.00%	16.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	0.00%	9.68%	17.74%	17.74%	4.84%	3.23%	17.74%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (low)	0.00%	0.00%	4.17%	4.17%	8.33%	8.33%	20.83%	41.67%	4.17%	8.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (high)	0.00%	0.00%	6.67%	0.00%	0.00%	0.00%	0.00%	46.67%	26.67%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	5.26%	5.26%	0.00%	0.00%	0.00%	73.68%	15.79%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (low)	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (high)	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Financial Services Transition Rates by Notched Rating Categories

One-Year	AAA	AA (high)	AA (low)	AA	AA	A (high)	A	A (low)	BBB (high)	BBB (low)	BBB	BB (high)	BB (low)	B (high)	B	B (low)	CCC (high)	CCC (low)	CC (high)	CC (low)	C (high)	C	C (low)	D
AAA	91.01%	5.62%	73.28%	19.08%	3.82%	0.37%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	3.82%	0.00%	73.28%	19.08%	3.82%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.21%	2.51%	83.51%	7.72%	3.97%	1.46%	0.00%	0.00%	0.42%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.21%
AA (low)	0.00%	0.00%	8.55%	83.12%	5.56%	2.35%	0.00%	0.00%	0.21%	0.21%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (high)	0.00%	0.00%	0.58%	5.52%	82.27%	6.40%	3.78%	0.29%	0.29%	0.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.58%
A	0.00%	0.00%	1.01%	1.27%	4.81%	84.56%	4.05%	4.05%	1.52%	2.03%	0.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.51%
A (low)	0.43%	0.00%	0.43%	0.43%	2.58%	5.58%	80.69%	4.72%	4.72%	2.58%	1.72%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.43%
BBB (high)	0.80%	0.80%	0.80%	0.00%	0.00%	4.00%	5.60%	76.80%	7.20%	3.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	0.00%	0.81%	0.81%	0.81%	4.07%	8.13%	73.98%	2.44%	3.25%	0.81%	1.63%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.44%
BBB (low)	0.00%	0.00%	1.96%	0.00%	1.96%	1.96%	3.92%	0.00%	5.88%	5.88%	1.96%	0.00%	3.92%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.92%
BB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	13.04%	69.57%	8.70%	0.00%	0.00%	0.00%	8.70%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.57%	82.14%	0.00%	3.57%	7.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.57%
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Financial Services Transition Rates by Notched Rating Categories

Three-Year	AAA	AA (high)	AA (low)	AA	A (high)	A	A (low)	BBB (high)	BBB (low)	BBB (high)	BBB (low)	BB (high)	BB (low)	B (high)	B	B (low)	CCC (high)	CCC (low)	CC (high)	CC (low)	C (high)	C	C (low)	D
AAA	69.51%	12.11%	12.56%	2.24%	3.59%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	10.19%	31.48%	27.78%	14.81%	11.11%	2.78%	0.00%	1.85%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.83%	7.50%	56.94%	17.22%	8.33%	7.22%	0.83%	0.56%	0.00%	0.56%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (low)	0.00%	1.34%	23.12%	56.99%	8.60%	4.30%	1.61%	1.08%	1.08%	0.81%	0.27%	0.00%	0.27%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (high)	0.00%	0.00%	5.77%	11.92%	54.62%	15.00%	8.85%	1.54%	1.92%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.38%
A	0.31%	0.00%	2.19%	6.90%	11.91%	59.87%	7.21%	4.39%	3.76%	1.25%	0.00%	0.94%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.94%
A (low)	1.83%	0.00%	0.61%	2.44%	4.27%	12.20%	56.71%	7.32%	6.71%	6.71%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.22%
BBB (high)	0.00%	2.53%	3.80%	1.27%	3.80%	17.72%	8.86%	41.77%	11.39%	0.00%	1.27%	0.00%	0.00%	1.27%	3.80%	0.00%	1.27%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	0.00%	2.27%	3.41%	5.68%	15.91%	14.77%	35.23%	6.82%	1.14%	6.82%	0.00%	1.14%	2.27%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (low)	0.00%	0.00%	8.33%	0.00%	8.33%	11.11%	5.56%	2.78%	5.56%	8.33%	2.78%	0.00%	0.00%	0.00%	5.56%	2.78%	0.00%	5.56%	0.00%	0.00%	0.00%	0.00%	0.00%	2.27%
BB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	5.88%	0.00%	0.00%	0.00%	11.76%	52.94%	0.00%	5.88%	0.00%	5.88%	0.00%	5.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.69%	76.92%	0.00%	7.69%	0.00%	7.69%	0.00%	7.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	33.33%	33.33%	0.00%	33.33%	0.00%	33.33%	0.00%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	33.33%
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	33.33%	0.00%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Financial Services Transition Rates by Notched Rating Categories

Ten-Year	AAA	AA (high)	AA (low)	AA	AA	A (high)	A	A (low)	BBB (high)	BBB (low)	BBB	BBB (low)	BB (high)	BB	BB (low)	B (high)	B	B (low)	CCC (high)	CCC (low)	CC (high)	CC (low)	C (high)	C (low)	D
AAA	28.57%	11.28%	12.78%	12.78%	24.06%	3.76%	5.26%	1.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	6.56%	1.64%	22.95%	32.79%	8.20%	16.39%	11.48%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	4.20%	2.80%	25.87%	31.47%	11.89%	16.78%	2.10%	3.50%	0.70%	0.70%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (low)	0.00%	4.13%	31.40%	32.23%	13.22%	9.92%	4.96%	4.13%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (high)	1.00%	5.00%	9.00%	16.00%	41.00%	14.00%	3.00%	4.00%	2.00%	1.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.00%
A	0.00%	0.00%	13.74%	21.37%	17.56%	23.66%	6.87%	4.58%	6.11%	1.53%	0.76%	0.76%	0.00%	0.00%	0.76%	0.00%	0.76%	0.00%	1.53%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (low)	0.00%	0.00%	9.30%	2.33%	16.28%	34.88%	32.56%	4.65%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (high)	0.00%	0.00%	15.38%	23.08%	7.69%	38.46%	7.69%	0.00%	7.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	17.65%	2.94%	17.65%	23.53%	14.71%	0.00%	0.00%	23.53%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (low)	0.00%	0.00%	16.67%	16.67%	0.00%	0.00%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (high)	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Industrials Transition Rates by Notched Rating Categories

One-Year	AAA	AA (high)	AA (low)	AA	AA (high)	A	A (low)	BBB (high)	BBB (low)	BBB	BBB (low)	BB (high)	BB (low)	BB	B (high)	B (low)	CCC (high)	CCC (low)	CC (high)	CC (low)	C (high)	C (low)	D
AAA	91.38%	3.45%	4.31%	0.00%	0.86%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	0.00%	89.89%	2.25%	2.25%	1.12%	1.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.12%
AA	0.64%	0.64%	88.75%	4.50%	2.57%	2.57%	0.32%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (low)	0.00%	0.00%	2.58%	82.66%	9.96%	3.32%	1.48%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (high)	0.19%	0.00%	0.78%	2.33%	85.27%	9.11%	1.94%	0.19%	0.00%	0.00%	0.00%	0.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	0.08%	0.17%	0.66%	2.74%	86.21%	6.15%	1.91%	1.50%	0.17%	0.17%	0.17%	0.00%	0.00%	0.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.17%
A (low)	0.00%	0.00%	0.00%	0.00%	0.15%	4.37%	87.19%	5.78%	2.00%	0.37%	0.37%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.07%
BBB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.40%	5.11%	86.37%	5.61%	1.40%	1.40%	0.30%	0.30%	0.30%	0.10%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.20%
BBB	0.10%	0.00%	0.00%	0.00%	0.10%	0.58%	1.95%	4.28%	4.19%	1.27%	1.27%	0.97%	1.27%	0.19%	0.00%	0.29%	0.00%	0.10%	0.00%	0.00%	0.00%	0.00%	0.10%
BBB (low)	0.00%	0.00%	0.00%	0.21%	0.00%	0.21%	0.64%	1.71%	7.68%	80.38%	6.18%	1.28%	0.43%	0.00%	0.43%	0.00%	0.21%	0.00%	0.00%	0.00%	0.00%	0.00%	0.43%
BB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.51%	0.00%	1.02%	10.2%	72.59%	7.11%	2.03%	2.03%	0.51%	0.00%	0.51%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.02%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.87%	4.85%	79.48%	4.10%	1.49%	1.49%	0.37%	0.00%	0.37%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.75%
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.28%	6.56%	3.28%	6.56%	1.64%	0.82%	1.64%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.28%	0.00%	0.00%	3.85%	5.13%	1.28%	5.13%	5.13%	2.56%	2.56%	0.00%	1.28%	0.00%	0.00%	0.00%	0.00%	5.13%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.61%	0.00%	0.00%	1.61%	4.84%	4.84%	6.45%	6.45%	4.84%	4.84%	0.00%	6.45%	0.00%	0.00%	0.00%	0.00%	6.45%
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.70%	3.70%	3.70%	3.70%	3.70%	7.41%	62.96%	3.70%	14.81%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	25.00%	0.00%	0.00%	0.00%	0.00%	25.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.13%	3.13%	0.00%	56.25%	0.00%	0.00%	0.00%	0.00%	25.00%
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.00%	25.00%	0.00%	0.00%	0.00%	50.00%
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	60.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Industrials Transition Rates by Notched Rating Categories

Ten-Year	AAA	AA (high)	AA (low)	AA	A (high)	A	A (low)	BBB (high)	BBB (low)	BBB	BB (high)	BB (low)	BB	B (high)	B	B (low)	CCC (high)	CCC (low)	CCC	CC (high)	CC (low)	C (high)	C	C (low)	D
AAA	8.82%	26.47%	32.35%	41.67%	5.56%	5.88%	2.94%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	0.00%	36.11%	19.02%	20.49%	5.56%	5.88%	2.94%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	1.95%	19.02%	20.49%	5.56%	5.88%	2.94%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (low)	0.87%	0.00%	6.96%	17.39%	18.26%	35.65%	15.65%	1.74%	3.48%	0.00%	0.00%	0.00%	0.49%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (high)	0.43%	0.00%	3.42%	3.85%	22.22%	26.50%	19.66%	7.69%	7.69%	1.71%	2.14%	0.00%	0.00%	0.43%	1.28%	1.71%	0.00%	0.85%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.43%
A	0.00%	0.00%	3.30%	6.60%	10.10%	31.75%	18.35%	7.01%	14.23%	3.71%	0.62%	1.65%	0.00%	0.41%	0.82%	0.00%	0.21%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.62%
A (low)	0.00%	0.00%	0.26%	1.29%	6.46%	18.86%	30.75%	18.09%	16.28%	2.07%	4.13%	0.26%	0.78%	0.52%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.26%
BBB (high)	0.00%	0.00%	0.00%	1.51%	3.02%	8.04%	31.16%	30.65%	8.54%	2.01%	4.02%	0.00%	0.50%	0.00%	0.50%	0.00%	1.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.50%
BBB	1.94%	0.00%	0.39%	0.39%	4.65%	7.75%	15.50%	25.19%	22.87%	10.85%	3.10%	4.65%	1.16%	0.00%	0.00%	0.00%	0.39%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.16%
BBB (low)	0.00%	0.00%	0.00%	0.00%	2.90%	13.04%	20.29%	14.49%	13.04%	17.39%	4.35%	7.25%	5.80%	0.00%	0.00%	0.00%	0.00%	1.45%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	5.26%	5.26%	0.00%	5.26%	42.11%	5.26%	15.79%	10.53%	0.00%	0.00%	0.00%	0.00%	5.26%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.26%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	6.00%	6.00%	14.00%	16.00%	18.00%	6.00%	34.00%	6.00%	2.00%	2.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.00%
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	7.14%	14.29%	0.00%	42.86%	14.29%	7.14%	14.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	20.00%	0.00%	40.00%	20.00%	0.00%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Insurance Transition Rates by Notched Rating Categories

One-Year	AAA	AA (high)	AA (low)	A (high)	A (low)	BBB (high)	BBB (low)	BBB (low)	BB (high)	BB (low)	B (high)	B (low)	CCC (high)	CCC (low)	CC (high)	CC (low)	C (high)	C (low)	D
AAA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	0.00%	0.00%	92.31%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	0.00%	0.00%	0.00%	0.00%	7.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (low)	0.00%	0.00%	1.59%	93.65%	4.76%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (high)	0.00%	0.00%	0.00%	13.04%	86.96%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (low)	0.00%	0.00%	0.00%	0.00%	91.67%	8.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (high)	0.00%	0.00%	0.00%	0.00%	16.67%	66.67%	0.00%	16.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	0.00%	0.00%	0.00%	5.00%	90.00%	5.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.00%	25.00%	25.00%	0.00%	25.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	16.67%	83.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Insurance Transition Rates by Notched Rating Categories

Three-Year	AAA	AA (high)	AA	AA (low)	A (high)	A	A (low)	BBB (high)	BBB (low)	BBB	BBB (low)	BB (high)	BB (low)	B (high)	B	B (low)	CCC (high)	CCC (low)	CC (high)	CC (low)	C (high)	C	C (low)	D
AAA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	0.00%	0.00%	71.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	28.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (low)	0.00%	0.00%	2.04%	87.76%	10.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (high)	0.00%	0.00%	5.88%	35.29%	58.82%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	75.00%	0.00%	12.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	40.00%	40.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	73.33%	6.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Public Finance Transition Rates by Notched Rating Categories

Three-Year	AAA	AA (high)	AA (low)	AA	AA	A (high)	A (low)	AAA	BBB (high)	BBB (low)	BBB	BBB (low)	BBB (high)	BB	BB (high)	BB (low)	B (high)	B (low)	CCC (high)	CCC (low)	CC (high)	CC (low)	C (high)	C (low)	D
AAA	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	0.00%	61.11%	38.89%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	0.00%	96.97%	3.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (low)	0.00%	0.00%	0.00%	94.59%	5.41%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (high)	0.00%	0.00%	0.00%	5.08%	81.36%	13.56%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	0.00%	0.00%	0.00%	10.20%	77.55%	66.67%	12.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (low)	0.00%	0.00%	0.00%	0.00%	0.00%	27.78%	5.56%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	14.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Sovereigns Transition Rates by Notched Rating Categories

One-Year	AAA	AA (high)	AA (low)	AA	A (high)	A (low)	BBB (high)	BBB (low)	BBB	BB (high)	BB (low)	B (high)	B (low)	CCC (high)	CCC (low)	CC (high)	CC (low)	C (high)	C (low)	D
AAA	98.16%	1.84%	91.94%	4.84%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	3.23%	91.94%	4.84%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	4.84%	88.71%	4.84%	1.61%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (low)	0.00%	0.00%	12.50%	81.25%	6.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (high)	0.00%	0.00%	0.00%	4.00%	92.00%	2.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	0.00%	0.00%	0.00%	7.41%	88.89%	3.70%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (low)	0.00%	0.00%	0.00%	0.00%	12.50%	80.00%	7.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	19.05%	76.19%	4.76%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.52%	85.71%	4.76%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.25%	93.75%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	40.00%	60.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	33.33%	66.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Sovereigns Transition Rates by Notched Rating Categories

Three-Year	AAA	AA (high)	AA (low)	AA	AA (high)	A	A (low)	BBB (high)	BBB (low)	BBB (high)	BBB (low)	BB (high)	BB (low)	B (high)	B (low)	CCC (high)	CCC (low)	CC (high)	CC (low)	C (high)	C (low)	D
AAA	90.98%	9.02%	73.58%	15.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	11.32%	73.58%	15.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	15.09%	69.81%	13.21%	1.89%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (low)	0.00%	3.57%	32.14%	46.43%	17.86%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (high)	0.00%	0.00%	2.63%	7.89%	73.68%	7.89%	2.63%	5.26%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	0.00%	0.00%	4.00%	20.00%	70.00%	6.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (low)	0.00%	0.00%	0.00%	0.00%	0.00%	32.43%	48.65%	16.22%	2.70%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	4.76%	38.10%	52.38%	4.76%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	15.79%	10.53%	57.89%	15.79%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	33.33%	66.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.00%	75.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Sovereigns Transition Rates by Notched Rating Categories

Ten-Year	AAA	AA (high)	AA (low)	AA	A (high)	A (low)	BBB (high)	BBB (low)	BBB	BBB (low)	BB (high)	BB (low)	B (high)	B (low)	CCC (high)	CCC (low)	CC (high)	CC (low)	C (high)	C (low)	D
AAA	26.47%	52.94%	20.00%	20.59%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	40.00%	20.00%	40.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	23.33%	26.67%	13.33%	26.67%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (low)	0.00%	20.00%	50.00%	30.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (high)	0.00%	0.00%	35.29%	0.00%	17.65%	41.18%	5.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	0.00%	2.94%	0.00%	47.06%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A (low)	0.00%	0.00%	4.00%	8.00%	16.00%	20.00%	44.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (high)	0.00%	0.00%	0.00%	5.56%	5.56%	38.89%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	0.00%	0.00%	0.00%	41.67%	16.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	40.00%	40.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (high)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C (low)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Canada Aggregate Transition by Whole Rating Categories

One-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	94.48%	5.35%	0.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.51%	93.09%	6.14%	0.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.06%
A	0.06%	1.50%	93.60%	4.57%	0.09%	0.00%	0.00%	0.00%	0.03%	0.15%
BBB	0.05%	0.19%	4.45%	91.20%	3.30%	0.33%	0.10%	0.00%	0.00%	0.38%
BB	0.00%	0.00%	0.20%	8.53%	86.11%	3.57%	0.99%	0.00%	0.00%	0.60%
B	0.00%	0.00%	0.93%	0.00%	11.11%	74.07%	7.41%	0.00%	1.85%	4.63%
CCC	0.00%	0.00%	0.00%	0.00%	3.33%	6.67%	60.00%	3.33%	3.33%	23.33%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	33.33%	33.33%	0.00%	33.33%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	40.00%	60.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Three-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	79.14%	18.59%	2.27%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	1.48%	80.19%	16.77%	1.11%	0.07%	0.07%	0.00%	0.00%	0.00%	0.30%
A	0.21%	4.55%	81.64%	12.28%	0.91%	0.14%	0.00%	0.00%	0.03%	0.24%
BBB	0.18%	0.73%	13.76%	75.41%	7.95%	1.22%	0.31%	0.00%	0.06%	0.37%
BB	0.00%	0.00%	2.33%	23.32%	63.85%	4.08%	3.79%	0.00%	0.29%	2.33%
B	0.00%	0.00%	1.54%	6.15%	23.08%	47.69%	10.77%	0.00%	0.00%	10.77%
CCC	0.00%	0.00%	20.00%	0.00%	20.00%	10.00%	40.00%	0.00%	0.00%	10.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Ten-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	26.46%	47.62%	24.87%	1.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	3.70%	54.13%	38.32%	3.42%	0.28%	0.14%	0.00%	0.00%	0.00%	0.00%
A	0.07%	11.98%	60.43%	23.00%	2.74%	1.26%	0.22%	0.00%	0.00%	0.30%
BBB	0.86%	2.74%	38.59%	46.48%	9.09%	0.34%	1.03%	0.00%	0.17%	0.69%
BB	0.00%	0.00%	9.64%	49.40%	34.94%	1.20%	1.20%	0.00%	0.00%	3.61%
B	0.00%	0.00%	14.29%	28.57%	42.86%	14.29%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



United States Aggregate Transition by Whole Rating Categories

One-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	92.00%	8.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.35%	90.66%	7.96%	0.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.35%
A	0.00%	1.96%	92.85%	4.49%	0.14%	0.14%	0.00%	0.00%	0.00%	0.42%
BBB	0.00%	0.15%	2.10%	94.89%	1.50%	0.75%	0.30%	0.00%	0.00%	0.30%
BB	0.00%	0.00%	0.00%	3.76%	86.47%	5.26%	3.01%	0.00%	0.00%	1.50%
B	0.00%	0.00%	1.45%	0.00%	2.90%	81.16%	5.80%	1.45%	2.90%	4.35%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	23.08%	46.15%	0.00%	7.69%	23.08%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	33.33%	0.00%	66.67%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Three-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	68.42%	31.58%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	1.44%	75.12%	19.14%	3.35%	0.48%	0.00%	0.00%	0.00%	0.00%	0.48%
A	0.00%	5.37%	79.34%	13.22%	0.41%	1.03%	0.00%	0.00%	0.00%	0.62%
BBB	0.00%	0.47%	8.73%	83.96%	2.59%	1.65%	1.42%	0.00%	0.71%	0.47%
BB	0.00%	0.00%	1.32%	10.53%	63.16%	17.11%	3.95%	0.00%	1.32%	2.63%
B	0.00%	0.00%	0.00%	0.00%	10.71%	67.86%	3.57%	3.57%	3.57%	10.71%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Ten-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	71.43%	28.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	53.33%	35.56%	11.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	9.62%	48.08%	30.77%	1.92%	2.88%	3.85%	0.96%	0.00%	1.92%
BBB	0.00%	11.43%	20.00%	68.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Financial Services Aggregate Transition by Whole Rating Categories

One-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	91.01%	8.99%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.56%	93.14%	5.84%	0.37%	0.00%	0.00%	0.00%	0.00%	0.00%	0.09%
A	0.10%	3.29%	91.98%	4.01%	0.00%	0.00%	0.00%	0.00%	0.10%	0.51%
BBB	0.33%	1.34%	7.36%	83.95%	3.34%	1.34%	0.67%	0.00%	0.00%	1.67%
BB	0.00%	0.00%	0.00%	7.27%	80.00%	5.45%	5.45%	0.00%	0.00%	1.82%
B	0.00%	0.00%	0.00%	0.00%	5.88%	70.59%	11.76%	0.00%	11.76%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	12.50%	12.50%	37.50%	0.00%	12.50%	25.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	33.33%	0.00%	66.67%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Three-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	69.51%	26.91%	3.59%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	1.67%	80.60%	15.24%	2.02%	0.24%	0.00%	0.00%	0.00%	0.00%	0.24%
A	0.54%	10.77%	77.52%	9.83%	0.40%	0.00%	0.00%	0.00%	0.13%	0.81%
BBB	0.00%	5.42%	27.09%	52.22%	5.91%	4.93%	1.97%	0.00%	1.48%	0.99%
BB	0.00%	0.00%	3.03%	9.09%	63.64%	15.15%	3.03%	0.00%	3.03%	3.03%
B	0.00%	0.00%	0.00%	0.00%	16.67%	16.67%	50.00%	0.00%	16.67%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Ten-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	28.57%	36.84%	33.08%	1.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	3.08%	62.46%	30.77%	3.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.36%	29.56%	57.30%	9.12%	1.09%	1.46%	0.73%	0.00%	0.00%	0.36%
BBB	0.00%	26.42%	52.83%	16.98%	0.00%	0.00%	3.77%	0.00%	0.00%	0.00%
BB	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Industrials Aggregate Transition by Whole Rating Categories

One-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	91.38%	7.76%	0.86%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.30%	90.46%	9.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.15%
A	0.03%	0.88%	93.81%	5.02%	0.13%	0.03%	0.00%	0.00%	0.00%	0.10%
BBB	0.04%	0.04%	3.45%	93.10%	2.77%	0.28%	0.12%	0.00%	0.00%	0.20%
BB	0.00%	0.00%	0.17%	7.67%	86.71%	3.75%	1.02%	0.00%	0.00%	0.68%
B	0.00%	0.00%	1.20%	0.00%	8.38%	77.84%	5.99%	0.60%	1.20%	4.79%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	11.11%	58.33%	2.78%	2.78%	25.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.00%	25.00%	0.00%	50.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	40.00%	60.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Three-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	70.65%	27.17%	2.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.85%	74.62%	23.34%	0.51%	0.00%	0.17%	0.00%	0.00%	0.00%	0.51%
A	0.12%	2.40%	82.14%	13.82%	1.00%	0.36%	0.00%	0.00%	0.00%	0.16%
BBB	0.16%	0.16%	11.27%	79.85%	6.88%	0.87%	0.38%	0.00%	0.05%	0.38%
BB	0.00%	0.00%	2.08%	22.08%	63.64%	5.71%	3.90%	0.00%	0.26%	2.34%
B	0.00%	0.00%	1.09%	4.35%	21.74%	55.43%	5.43%	1.09%	0.00%	10.87%
CCC	0.00%	0.00%	14.29%	0.00%	14.29%	21.43%	42.86%	0.00%	0.00%	7.14%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Ten-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	8.82%	82.35%	8.82%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.28%	40.17%	53.93%	4.78%	0.56%	0.28%	0.00%	0.00%	0.00%	0.00%
A	0.09%	6.42%	60.49%	27.31%	3.25%	1.45%	0.45%	0.09%	0.00%	0.45%
BBB	0.95%	0.95%	34.41%	52.66%	8.94%	0.38%	0.76%	0.00%	0.19%	0.76%
BB	0.00%	0.00%	9.64%	49.40%	34.94%	1.20%	1.20%	0.00%	0.00%	3.61%
B	0.00%	0.00%	14.29%	28.57%	42.86%	14.29%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Insurance Aggregate Transition by Whole Rating Categories

One-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	94.74%	3.95%	1.32%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	6.25%	91.67%	2.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	3.33%	90.00%	3.33%	3.33%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	16.67%	83.33%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Three-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	87.50%	8.93%	3.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	20.59%	73.53%	2.94%	2.94%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	9.52%	76.19%	9.52%	4.76%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Ten-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	87.50%	12.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	50.00%	25.00%	25.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	0.00%	14.29%	85.71%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Public Finance Aggregate Transition by Whole Rating Categories

One-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	99.12%	0.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	0.57%	97.71%	1.71%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Three-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	97.73%	2.27%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	2.38%	92.06%	5.56%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Ten-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	22.22%	62.96%	14.81%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Sovereigns Aggregate Transition by Whole Rating Categories

One-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	98.16%	1.84%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	1.28%	96.79%	1.92%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	1.39%	96.53%	2.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	6.90%	93.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	20.00%	80.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Three-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	90.98%	9.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	4.48%	91.04%	4.48%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	4.80%	88.00%	7.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	0.00%	24.49%	75.51%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	71.43%	28.57%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Ten-Year	Rating at Period End (Percentage)									
	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
AAA	26.47%	73.53%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	26.15%	69.23%	4.62%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	13.16%	71.05%	15.79%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BBB	0.00%	2.86%	68.57%	28.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CCC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



Global Corporate Cumulative Default Rates (1976–2010) by Notched Rating Categories (Yearly)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
AAA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	0.33%	0.66%	0.99%	1.32%	1.65%	1.98%	2.31%	2.64%	2.64%	2.64%
AA	0.11%	0.11%	0.11%	0.22%	0.22%	0.22%	0.22%	0.22%	0.22%	0.22%
AA (low)	0.00%	0.34%	0.80%	1.02%	1.25%	1.37%	1.37%	1.37%	1.37%	1.37%
A (high)	0.20%	0.30%	0.40%	0.50%	0.50%	0.60%	0.60%	0.70%	0.89%	1.09%
A	0.23%	0.63%	1.04%	1.38%	1.67%	1.84%	2.13%	2.36%	2.59%	2.77%
A (low)	0.12%	0.12%	0.24%	0.48%	0.66%	0.79%	0.85%	0.91%	0.91%	0.97%
BBB (high)	0.17%	0.34%	0.51%	0.68%	1.02%	1.27%	1.53%	1.69%	1.86%	1.95%
BBB	0.34%	0.84%	1.17%	1.26%	1.43%	1.68%	1.93%	2.10%	2.18%	2.43%
BBB (low)	0.74%	1.67%	2.22%	2.78%	3.33%	3.52%	3.89%	4.26%	4.63%	4.63%
BB (high)	0.87%	1.74%	2.61%	3.04%	3.91%	5.65%	6.52%	7.39%	7.83%	8.26%
BB	1.01%	2.35%	3.69%	5.37%	7.38%	8.39%	9.40%	10.40%	11.07%	11.74%
BB (low)	0.00%	3.10%	6.20%	9.30%	10.08%	10.85%	10.85%	10.85%	10.85%	10.85%
B (high)	4.65%	10.47%	15.12%	17.44%	18.60%	20.93%	22.09%	22.09%	22.09%	22.09%
B	5.88%	10.29%	16.18%	20.59%	22.06%	22.06%	22.06%	22.06%	22.06%	22.06%
B (low)	0.00%	2.94%	8.82%	8.82%	8.82%	8.82%	8.82%	8.82%	8.82%	8.82%
CCC/CC/C	28.57%	35.71%	37.50%	37.50%	37.50%	37.50%	37.50%	37.50%	37.50%	37.50%

Global Corporate Cumulative Default Rates (1976–2010) by Notched Rating Categories (Monthly)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
AAA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA (high)	0.36%	0.72%	1.08%	1.44%	1.80%	2.16%	2.37%	2.37%	2.37%	2.37%
AA	0.09%	0.09%	0.09%	0.19%	0.27%	0.27%	0.27%	0.27%	0.27%	0.27%
AA (low)	0.03%	0.30%	0.79%	1.06%	1.22%	1.30%	1.30%	1.30%	1.30%	1.30%
A (high)	0.11%	0.22%	0.22%	0.29%	0.29%	0.37%	0.43%	0.49%	0.70%	0.92%
A	0.14%	0.51%	0.93%	1.26%	1.47%	1.66%	1.92%	2.17%	2.38%	2.61%
A (low)	0.09%	0.14%	0.29%	0.50%	0.72%	0.85%	0.87%	0.94%	1.01%	1.01%
BBB (high)	0.29%	0.49%	0.63%	0.77%	0.96%	1.26%	1.54%	1.75%	1.87%	1.96%
BBB	0.44%	0.94%	1.19%	1.40%	1.55%	1.77%	2.00%	2.10%	2.21%	2.43%
BBB (low)	0.82%	1.80%	2.72%	3.46%	3.86%	4.26%	4.69%	5.10%	5.37%	5.38%
BB (high)	0.89%	1.66%	2.02%	2.35%	3.52%	4.81%	5.78%	6.39%	6.87%	7.36%
BB	1.16%	1.92%	3.11%	5.19%	6.98%	7.99%	9.06%	9.81%	10.44%	10.57%
BB (low)	0.84%	4.14%	7.13%	9.73%	10.80%	11.11%	11.42%	11.42%	11.42%	11.42%
B (high)	5.37%	10.98%	14.14%	16.36%	17.99%	19.39%	19.98%	19.98%	19.98%	20.91%
B	7.47%	15.71%	21.62%	23.95%	25.35%	25.35%	25.35%	25.35%	25.35%	25.35%
B (low)	3.50%	7.01%	11.05%	11.05%	11.05%	11.05%	11.05%	11.05%	11.05%	11.05%
CCC/CC/C	29.10%	35.69%	36.17%	36.17%	36.17%	36.17%	36.17%	36.17%	36.17%	36.17%



Global Corporate Average Cumulative Default Rates (1976–2010) by Whole Rating Categories (Monthly)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
AAA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.10%	0.27%	0.53%	0.74%	0.89%	0.98%	1.01%	1.01%	1.01%	1.01%
A	0.11%	0.30%	0.53%	0.75%	0.91%	1.06%	1.18%	1.32%	1.48%	1.62%
BBB	0.45%	0.92%	1.24%	1.52%	1.73%	2.02%	2.31%	2.51%	2.65%	2.78%
BB	1.01%	2.24%	3.48%	5.03%	6.47%	7.44%	8.34%	8.90%	9.36%	9.59%
B	5.72%	11.82%	16.10%	17.91%	19.14%	19.79%	20.05%	20.05%	20.05%	20.48%
CCC/CC/C	29.10%	35.69%	36.17%	36.17%	36.17%	36.17%	36.17%	36.17%	36.17%	36.17%

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