

Default, Transition, and Recovery:

2023 Annual Global Corporate Default And Rating Transition Study

March 28, 2024

Key Takeaways

- The number of global corporate defaults nearly doubled to 153 in 2023 from 85 in 2022, as higher interest rates added to pressure on the lowest-rated issuers.
- The consumer/services sector led the global default tally for a third straight year, accounting for 25% of defaults.
- Of the defaulters that were rated at the start of the year, all but two were speculative grade: Silicon Valley Bank and its parent SVB Financial Group, which we rated in the 'BBB' category at the start of 2023.
- Even as defaults rose, credit quality broadly improved. We upgraded more issuers (8.8%) than we downgraded (7.4%), and the one-year global Gini ratio (a measure of ratings performance) rose by 7.6 percentage points to 90.7%.

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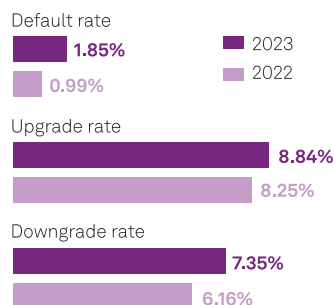
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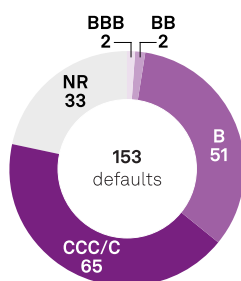
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2023 global corporate default and transition study snapshot



Default totals by rating category*



2023

Mounting challenges for lower-rated issuers in 2023 contributed to a near doubling of defaults year-over-year. Despite this, credit quality improved for many other issuers, as upgrades increased and outnumbered downgrades for the year.

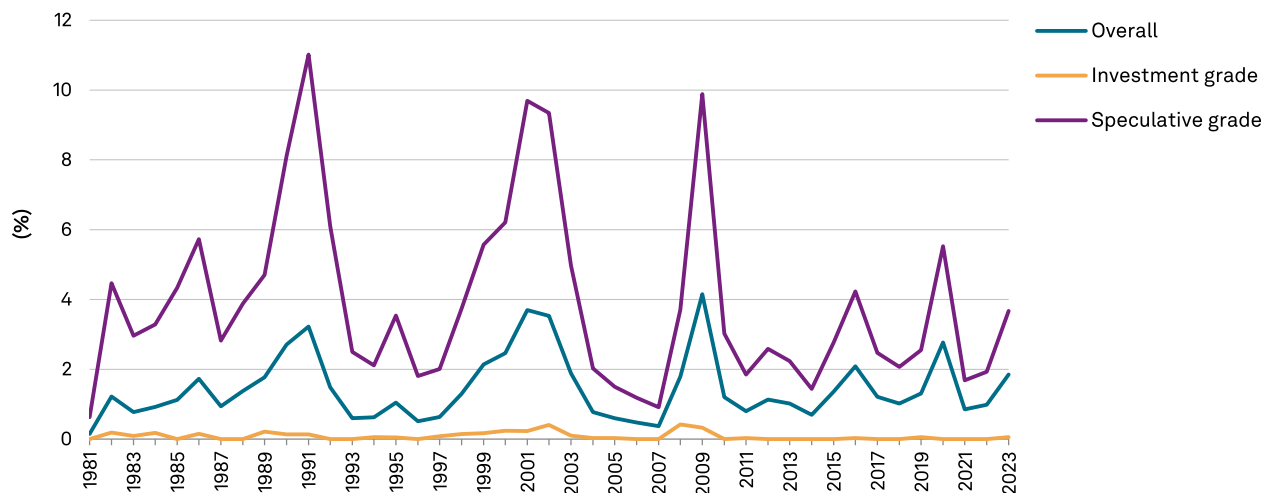
*Rating category shows rating one year prior to default. NR--Not rated. Source: S&P Global Ratings. Copyright © 2024 by Standard & Poor's Financial Services LLC. All rights reserved.

Defaults Nearly Double As Inflation Pressures Weaker Credits

The number of defaults nearly doubled in 2023, rising to 153 (from 85) as inflation and higher interest rates squeezed some issuers' cash flows. Furthermore, financing conditions were challenging for the lowest-rated borrowers and funding liquidity was tight. These conditions heightened the credit stress on the lowest-rated issuers, and the global speculative-grade ('BB+' or lower) default rate rose to 3.7% in 2023 from 1.9% in 2022 (see chart 1 and table 1).

Chart 1

Global default rates: Investment grade versus speculative grade



Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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Table 1

Global corporate default summary

Year	Total defaults*	Investment-grade defaults	Speculative-grade defaults	Default		Investment-grade default rate (%)	Speculative-grade default rate (%)	Total debt outstanding (bil. \$)
				rate (%)				
1981	2	0	2	0.15		0.00	0.63	0.06
1982	18	2	15	1.22		0.19	4.46	0.90
1983	12	1	10	0.77		0.09	2.96	0.37
1984	14	2	12	0.93		0.17	3.29	0.36
1985	19	0	18	1.12		0.00	4.34	0.31
1986	34	2	30	1.73		0.15	5.73	0.46
1987	19	0	19	0.94		0.00	2.82	1.60
1988	32	0	29	1.38		0.00	3.88	3.30
1989	44	3	35	1.77		0.21	4.70	7.28

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Table 1

Global corporate default summary (cont.)

Year	Total defaults*	Investment-grade defaults	Speculative-grade defaults	Default rate (%)	Investment-grade default rate (%)	Speculative-grade default rate (%)	Total debt outstanding (bil. \$)
1990	70	2	56	2.71	0.14	8.10	21.15
1991	93	2	65	3.22	0.13	11.02	23.65
1992	39	0	32	1.49	0.00	6.10	5.40
1993	26	0	14	0.60	0.00	2.50	2.38
1994	21	1	15	0.62	0.05	2.12	2.30
1995	35	1	29	1.05	0.05	3.54	8.97
1996	20	0	16	0.51	0.00	1.81	2.65
1997	23	2	20	0.63	0.08	2.01	4.93
1998	57	4	49	1.30	0.14	3.74	11.27
1999	109	5	92	2.14	0.17	5.57	39.38
2000	136	7	109	2.46	0.24	6.21	43.28
2001	229	7	172	3.70	0.23	9.70	118.79
2002	226	13	159	3.53	0.41	9.34	190.92
2003	120	3	89	1.88	0.10	4.97	62.89
2004	56	1	38	0.77	0.03	2.02	20.66
2005	40	1	31	0.60	0.03	1.50	42.00
2006	30	0	26	0.47	0.00	1.18	7.13
2007	24	0	21	0.37	0.00	0.91	8.15
2008	127	14	89	1.79	0.42	3.71	429.63
2009	268	11	223	4.15	0.33	9.89	627.70
2010	83	0	64	1.20	0.00	3.02	97.48
2011	53	1	44	0.80	0.03	1.85	84.30
2012	83	0	66	1.13	0.00	2.59	86.70
2013	81	0	62	1.02	0.00	2.23	97.29
2014	60	0	45	0.69	0.00	1.44	91.55
2015	113	0	94	1.36	0.00	2.77	110.31
2016	163	1	143	2.08	0.03	4.23	239.79
2017	95	0	83	1.21	0.00	2.47	104.57
2018	82	0	71	1.02	0.00	2.07	131.65
2019	118	2	92	1.31	0.06	2.55	183.21
2020	225	0	198	2.77	0.00	5.53	353.43
2021	72	0	60	0.85	0.00	1.68	66.28
2022	85	0	71	0.99	0.00	1.93	106.98
2023	153	2	127	1.85	0.06	3.67	222.44

*This column includes companies that were no longer rated one year prior to default. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

With sectors exposed to consumer spending challenged by shifting demand, the consumer/service sector had the most defaults globally (39), while the leisure time/media sector had the highest default rate (5.38%). The U.S. region led defaults (accounting for 96), followed by Europe (30), emerging markets (19), and the other developed region (eight).

Even though defaults rose steeply, performance among issuers was mixed, with many experiencing positive rating actions. Although downgrades increased in 2023, these continued to be outpaced by upgrades by a ratio of 1.20 to 1.

Much of the credit pressure was concentrated among the lowest-rated issuers. At the start of the year, we rated 78% of 2023 defaulters in the 'CCC'/'C' category.

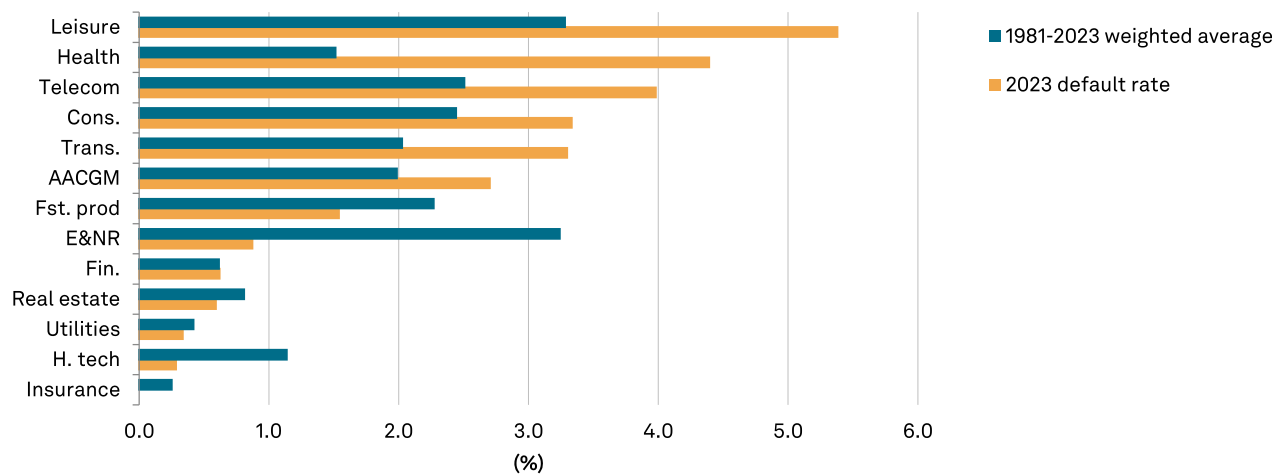
This default and rating transition study includes industrials, utilities, financial institutions (banks, brokerages, asset managers, and other financial entities), and insurance companies globally with long-term local currency ratings from S&P Global Ratings. We calculated all default rates on an issuer-weighted basis. The default rates that we refer to as weighted averages in this study use the number of issuers at the beginning of each year as the basis for each year's weight. (For a detailed explanation of our data sources and methodology, see Appendix I.)

Defaults increased broadly across most sectors in 2023. However, divergences in credit quality by sector became apparent as the number of defaults declined in a few sectors: energy and natural resources, forest and building products/homebuilders, high tech/computers/office equipment, and real estate. Each of these sectors saw fewer defaults than in 2022, and each also exhibited a default rate in 2023 that was below the long-term average for the sector.

In contrast, default rates for several sectors revealed pockets of credit weakness in 2023. Default rates in 2023 were considerably above the long-term sector average in seven sectors. These sectors with above-average default rates include several exposed to shifting consumer spending and preferences (such as leisure time/media and consumer/services), as well as some that were especially challenged by higher costs for labor and other business inputs (including health care and transportation) (see chart 2).

Chart 2

Global corporate default rates by industry: 2023 versus long-term average



Trans.--Transportation; Leisure--Leisure time/media; H. Tech--High technology/computers/office equipment; Health--Healthcare/chemicals; Fst. prod--Forest and building products/homebuilders; Fin.--Financial institutions; E&NR--Energy and natural resources; Cons.--Consumer/service sector; AACGM--Aerospace/automotive/capital goods/metal. Source: S&P Global Ratings Credit Research & Insights; S&P Global Market Intelligence's CreditPro®. Copyright © 2024 by Standard & Poor's Financial Services LLC. All rights reserved.

S&P Global Ratings Credit Research & Insight's default studies establish a clear correlation between low ratings and defaults: defaults occur at a higher rate among lower-rated issuers.

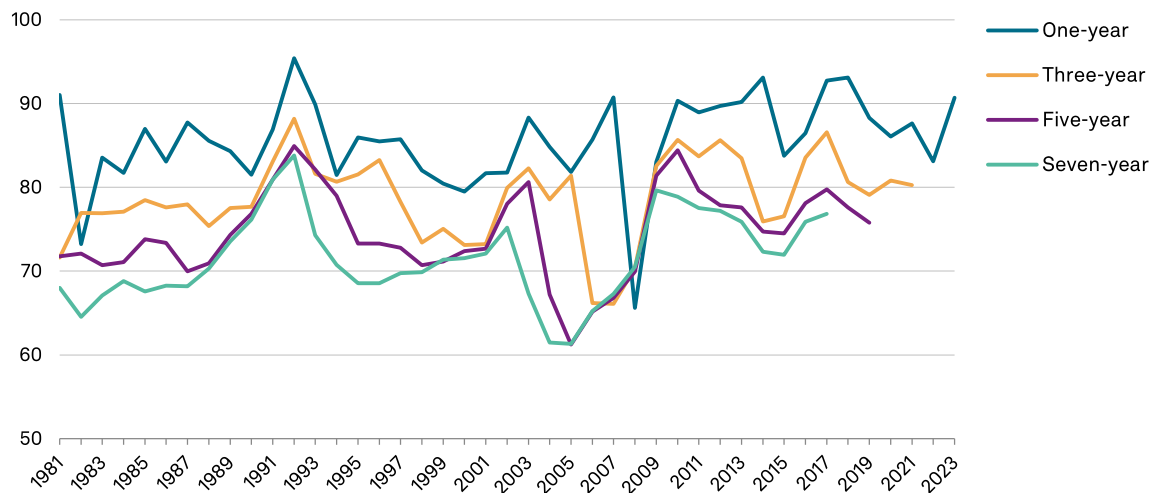
Of the 153 defaulters in 2023, 129 were rated at the start of the year, and all but two of these were speculative grade. We rated two defaulters--U.S.-based issuer Silicon Valley Bank and its nonoperating holding company, SVB Financial Group--in the 'BBB' category at the beginning of 2023, and these were the first investment-grade (rated 'BBB-' or above) defaults since 2019. We lowered our ratings on Silicon Valley Bank and SVB Financial Group in March 2023, after the Federal Deposit Insurance Corp. was appointed as receiver. This occurred following a rapid acceleration of customer deposit outflows. This was made worse by the bank's concentration in corporate deposits from investor-funded technology companies and its unrealized loss position in its held-to-maturity securities portfolio.

In addition to these defaulters that were rated at the start of 2023, 24 defaulters were not rated at that time. These include 11 issuers that previously defaulted in 2023, five issuers that we initially rated after Jan. 1, 2023, and eight that we had previously rated, but were not rated (NR) at the start of 2023.

Ratings provide our view of the rank ordering of an entity's default risk, and one measure for how our ratings perform as a rank ordering is the Gini ratio. The Gini ratio is a measure of the rank-ordering power of ratings over a given time horizon. It shows the ratio of actual rank-ordering performance to theoretically perfect rank ordering. With such a large share of 2023's defaults concentrated in the 'CCC'/'C' category, the one-year Gini ratio remained high for the year at 90.7%; up 7.6 percentage points from 2022 and above the one-year weighted average Gini ratio of 82.6% (see chart 3 and table 2).

Chart 3

Gini coefficients by pool year across multiple time horizons



Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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Table 2

Global average Gini coefficients by broad sector (1981–2023)

Sector	--Time horizon--			
	One-year	Three-year	Five-year	Seven-year
Global				
Weighted average	82.63	75.16	71.65	69.17
Average	85.57	78.73	74.58	71.58
Standard deviation	5.37	5.00	5.23	5.20
Financial				
Weighted average	80.15	70.31	63.79	59.38
Average	83.56	77.13	70.26	64.76
Standard deviation	19.48	14.55	16.79	17.26
Nonfinancial				
Weighted average	80.62	72.13	68.54	66.14
Average	84.49	76.70	72.51	69.60
Standard deviation	5.93	5.12	5.25	4.95

Note: Numbers in parentheses are standard deviations. Source: S&P Global Ratings Credit Research & Insights; S&P Global Market Intelligence's CreditPro®.

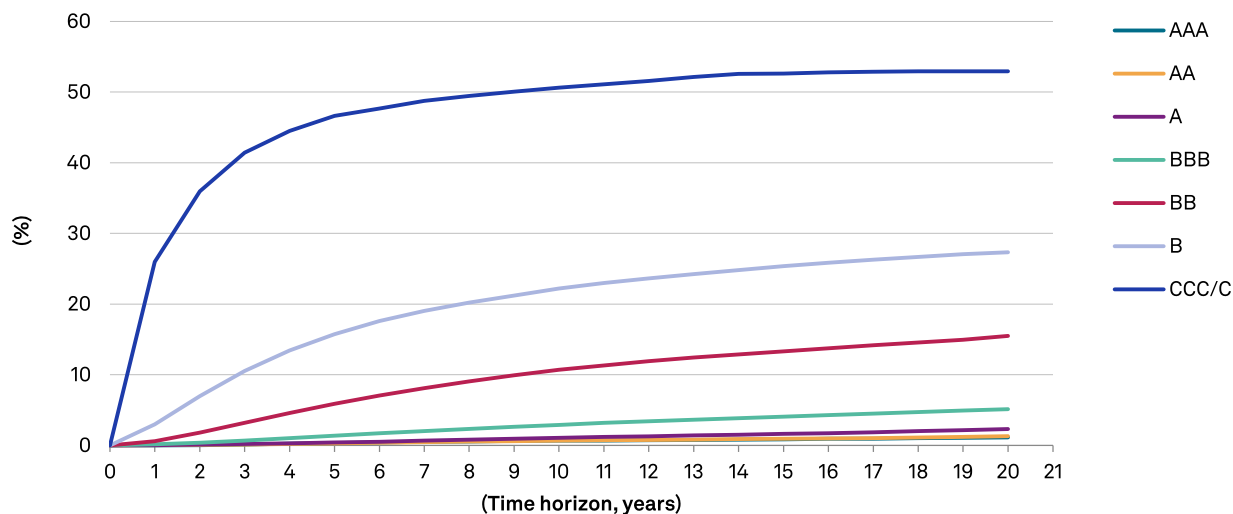
As the Gini ratios show, corporate ratings have served as effective measures of relative credit risk over time (For details on the Gini methodology, refer to Appendix II.)

Default, Transition, and Recovery: 2023 Annual Global Corporate Default And Rating Transition Study

Cumulative default rates and rating transition rates are another measure of ratings performance over time. Cumulative default rates show that lower ratings have historically corresponded to higher default rates over both short and long time horizons (see chart 4). For more on rating transitions, see table 20 and subsequent exhibits.

Chart 4

Global corporate average cumulative default rates by rating, 1981 to 2023



Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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The increase in defaults in 2023 largely came from the lower rating levels. Default rates rose slightly for both the 'B' and 'BBB' categories, but the 'CCC'/'C' category had the most pronounced increase, with its default rate more than doubling year-over-year (see tables 3 and 4).

Table 3

Global corporate annual default rates by rating category (%)

	AAA	AA	A	BBB	BB	B	CCC/C
1981	0.00	0.00	0.00	0.00	0.00	2.33	0.00
1982	0.00	0.00	0.21	0.35	4.24	3.18	21.43
1983	0.00	0.00	0.00	0.34	1.15	4.70	6.67
1984	0.00	0.00	0.00	0.68	1.13	3.49	25.00
1985	0.00	0.00	0.00	0.00	1.48	6.53	15.38
1986	0.00	0.00	0.18	0.34	0.88	8.77	23.08
1987	0.00	0.00	0.00	0.00	0.38	3.12	12.28
1988	0.00	0.00	0.00	0.00	1.05	3.68	20.37
1989	0.00	0.00	0.18	0.61	0.72	3.41	33.33
1990	0.00	0.00	0.00	0.58	3.56	8.56	31.25
1991	0.00	0.00	0.00	0.55	1.67	13.84	33.87

Table 3

**Global corporate annual default rates by rating category
(%) (cont.)**

	AAA	AA	A	BBB	BB	B	CCC/C
1992	0.00	0.00	0.00	0.00	0.00	6.99	30.19
1993	0.00	0.00	0.00	0.00	0.70	2.62	13.33
1994	0.00	0.00	0.14	0.00	0.28	3.07	16.67
1995	0.00	0.00	0.00	0.17	1.00	4.57	28.00
1996	0.00	0.00	0.00	0.00	0.45	2.90	8.00
1997	0.00	0.00	0.00	0.25	0.19	3.50	12.00
1998	0.00	0.00	0.00	0.41	0.98	4.65	42.86
1999	0.00	0.17	0.18	0.19	0.95	7.33	33.82
2000	0.00	0.00	0.26	0.36	1.15	7.68	35.96
2001	0.00	0.00	0.26	0.33	2.91	11.34	45.45
2002	0.00	0.00	0.00	1.00	2.83	8.11	44.19
2003	0.00	0.00	0.00	0.22	0.57	4.03	32.53
2004	0.00	0.00	0.08	0.00	0.44	1.45	15.83
2005	0.00	0.00	0.00	0.07	0.31	1.74	9.02
2006	0.00	0.00	0.00	0.00	0.30	0.81	13.33
2007	0.00	0.00	0.00	0.00	0.20	0.25	15.24
2008	0.00	0.38	0.38	0.49	0.81	4.09	27.27
2009	0.00	0.00	0.22	0.55	0.75	10.87	49.46
2010	0.00	0.00	0.00	0.00	0.58	0.86	22.83
2011	0.00	0.00	0.00	0.07	0.00	1.68	16.54
2012	0.00	0.00	0.00	0.00	0.30	1.57	27.70
2013	0.00	0.00	0.00	0.00	0.10	1.52	24.67
2014	0.00	0.00	0.00	0.00	0.00	0.78	17.42
2015	0.00	0.00	0.00	0.00	0.16	2.40	26.51
2016	0.00	0.00	0.00	0.06	0.47	3.74	33.00
2017	0.00	0.00	0.00	0.00	0.08	1.00	26.56
2018	0.00	0.00	0.00	0.00	0.00	0.94	27.18
2019	0.00	0.00	0.00	0.11	0.00	1.49	29.61
2020	0.00	0.00	0.00	0.00	0.94	3.54	47.88
2021	0.00	0.00	0.00	0.00	0.00	0.52	10.99
2022	0.00	0.00	0.00	0.00	0.32	1.10	13.84
2023	0.00	0.00	0.00	0.11	0.17	1.24	30.89

Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 4

Descriptive statistics on one-year global default rates (%)

	AAA	AA	A	BBB	BB	B	CCC/C
Minimum	0.00	0.00	0.00	0.00	0.00	0.25	0.00
Maximum	0.00	0.38	0.38	1.00	4.24	13.84	49.46
Weighted long-term average	0.00	0.02	0.05	0.14	0.57	2.98	25.98
Median	0.00	0.00	0.00	0.06	0.47	3.18	25.00
Standard deviation	0.00	0.06	0.10	0.25	0.96	3.23	11.73
2008 default rates	0.00	0.38	0.38	0.49	0.81	4.09	27.27
Latest four quarters (2023Q1-2023Q4)	0.00	0.00	0.00	0.11	0.17	1.24	30.89
Difference between last four quarters and weighted average	0.00	(0.02)	(0.05)	(0.03)	(0.41)	(1.74)	4.91
# of standard deviations		(0.28)	(0.49)	(0.14)	(0.42)	(0.54)	0.42

Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Annual Global Trends: A Steep Rise In Defaults

The number of global corporate defaults rose by 80% in 2023 compared to the previous year, and this increase brought the number of defaults to the highest since 2020. Default tallies have been rising since 2021, when defaults dipped to a seven-year low in the wake of the pandemic and resulting fiscal and monetary support, characterized by very low interest rates and extremely easy financing conditions for most borrowers.

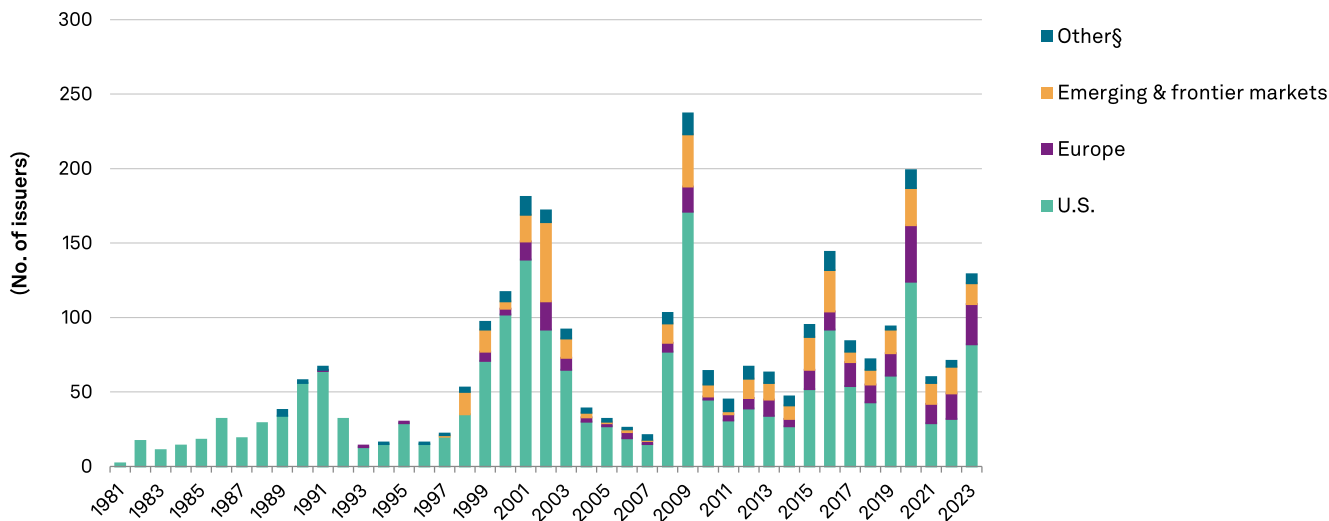
However, by 2023, benchmark interest rates were higher following tightening policies of central banks globally and financing conditions were more challenging.

These default counts include issuers that were not rated as of the beginning of 2023, and we count these as unrated defaults because they were not included among the static pool of rated issuers from Jan. 1, 2023.

The number of rated defaults (of issuers that were rated on Jan. 1, 2023) also rose by almost 80%, to 129 in 2023 from 71 in 2022. By debt amount, defaults more than doubled year-over-year to \$222.4 billion from \$107.0 billion (see charts 5 and 6).

Chart 5

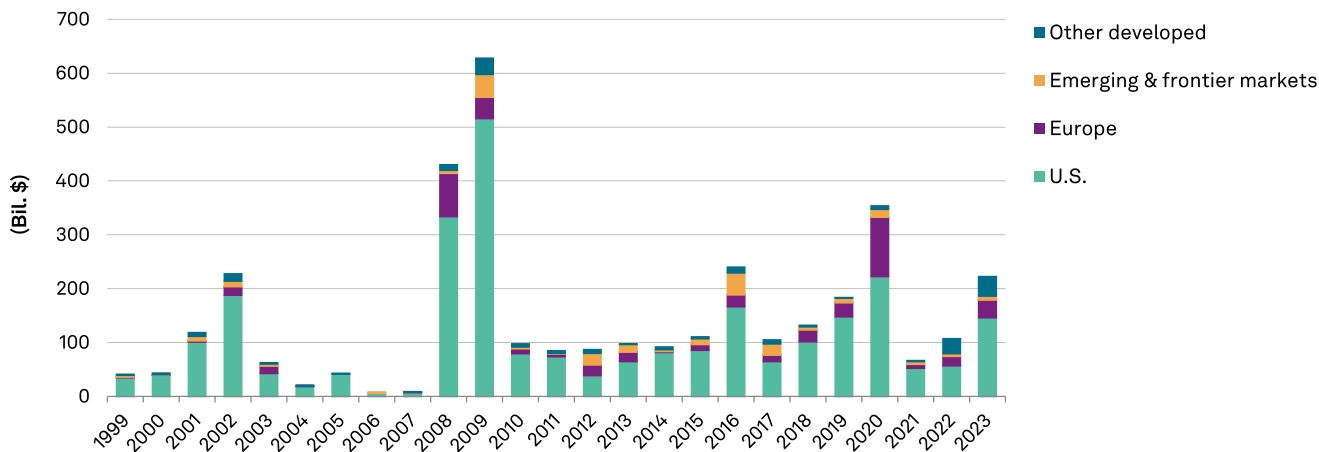
Annual corporate defaults by number of issuers*



*Count excludes defaults that were not rated prior to Jan. 1 of each year. \$Other includes Australia, Brunei Darussalam, Canada, Israel, Japan, Korea, New Zealand, and Singapore. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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Chart 6

Annual global corporate defaulters' debt amounts outstanding



Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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The U.S. accounted for most of the increase in defaults. Among U.S. issuers, the number of rated defaults rose by 50 year-over-year (to 82), while the amount of debt affected by U.S. corporate defaults rose by nearly \$90 billion (to \$146.5 billion in 2023).

Issuers from the U.S. represented an outsized share of defaults in 2023. U.S. issuers accounted for 64% of the rated defaults in 2023 (and 66% of the defaulted debt amount). By contrast, the U.S. represents about 45% of the population of rated issuers. With its highly developed capital markets, the U.S. also accounts for the majority of the world's speculative-grade issuers, with 52% of the global total. In our view, because most defaults tend to come from speculative-grade issuers, the concentration of defaults among U.S. issuers is not surprising.

By region, speculative-grade default rates increased globally, as well as in the U.S., European, and other developed regions, while the default rate fell in emerging and frontier markets in 2023. The speculative-grade default rate in the U.S. more than doubled to 4.47%, while in Europe, the default rate rose by 1.3 percentage points to 3.51%. In both of these regions, speculative-grade default rates in 2023 exceeded the long-term average since 1981. However, in the other developed and emerging and frontier market regions, the default rates remained below the long-term averages (see table 5 and chart 21).

Table 5

Annual corporate speculative-grade default rate by geographic region (%)

Year	U.S. & tax havens*	Europe§	Emerging & frontier markets	Other¶
1981	0.63	0.00	n/a	0.00
1982	4.49	0.00	n/a	0.00
1983	3.00	0.00	n/a	0.00
1984	3.35	0.00	0.00	0.00
1985	4.43	0.00	n/a	0.00
1986	5.81	0.00	n/a	0.00
1987	2.87	0.00	n/a	0.00
1988	3.92	0.00	n/a	0.00
1989	4.36	0.00	n/a	37.50
1990	7.93	0.00	n/a	28.57
1991	10.69	50.00	n/a	25.00
1992	6.25	0.00	n/a	0.00
1993	2.40	20.00	0.00	0.00
1994	2.21	0.00	0.00	0.00
1995	3.66	9.09	0.00	0.00
1996	1.86	0.00	0.00	2.70
1997	2.18	0.00	0.00	1.92
1998	3.26	0.00	8.84	2.41
1999	5.26	6.32	7.32	4.46
2000	7.39	2.56	2.07	5.22
2001	10.54	8.46	6.55	9.45
2002	7.24	12.59	17.21	4.32
2003	5.60	3.73	3.83	3.40

Table 5

Annual corporate speculative-grade default rate by geographic region (%) (cont.)

2004	2.44	1.62	0.83	1.83
2005	2.02	0.95	0.24	1.20
2006	1.37	1.81	0.43	0.68
2007	1.02	0.96	0.20	2.05
2008	4.30	2.51	2.19	4.20
2009	11.78	8.12	5.95	8.96
2010	3.46	1.02	1.55	7.32
2011	2.15	1.59	0.38	3.35
2012	2.65	2.23	2.36	3.33
2013	2.19	2.87	1.80	2.70
2014	1.61	0.97	1.30	2.11
2015	2.85	2.11	3.13	2.75
2016	5.19	1.95	3.65	4.23
2017	3.08	2.60	0.92	2.64
2018	2.41	1.96	1.25	2.65
2019	3.11	2.25	1.99	0.72
2020	6.65	5.41	3.23	4.41
2021	1.54	1.83	1.88	1.55
2022	1.66	2.20	2.38	1.55
2023	4.47	3.51	2.10	2.30
Average	4.08	2.93	2.98	3.37
Median	3.26	2.15	2.03	2.70
Std. Dev.	2.62	2.86	3.59	2.19
Min	0.63	0.00	0.00	0.68
Max	11.78	12.59	17.21	9.45

*U.S., Bermuda, and Cayman Islands. §Austria, Belgium, British Virgin Islands, Bulgaria, Channel Islands, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Gibraltar, Greece, Guernsey, Hungary, Iceland, Ireland, Isle of Man, Italy, Jersey, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova Republic of, Monaco, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom. ¶Australia, Brunei Darussalam, Canada, Israel, Japan, Korea, New Zealand, and Singapore. N/A--Not available. Note: Descriptive statistics for regions other than U.S. calculated from 1996 to 2023 due to sample size considerations. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 6

Largest global rated defaulters by year

Largest corporate defaulters by outstanding debt amount

Year defaulted	Issuer	Amount (mil. \$)
1994	Confederation Life Insurance	2,415
1995	Grand Union Co./Grand Union Capital	2,163
1996	Tiphook Finance	700
1997	Flagstar Corp.	1,021

Table 6

Largest global rated defaulters by year (cont.)

Largest corporate defaulters by outstanding debt amount

Year defaulted	Issuer	Amount (mil. \$)
1998	Service Merchandise Co.	1,326
1999	Integrated Health Services Inc.	3,394
2000	Owens Corning	3,299
2001	Enron Corp.	10,779
2002	WorldCom Inc.	30,000
2003	Parmalat Finanziaria SpA	7,177
2004	RCN Corp.	1,800
2005	Calpine Corp.	9,559
2006	Pliant Corp.	1,644
2007	Movie Gallery Inc.	1,225
2008	Lehman Brothers Holdings Inc.	144,426
2009	Ford Motor Co.	70,989
2010	Energy Future Holdings Corp.	47,648
2011	Texas Competitive Electric Holdings Co. LLC	32,460
2012	BTA Bank J.S.C.	10,184
2013	Texas Competitive Electric Holdings Co. LLC	31,628
2014	Texas Competitive Electric Holdings Co. LLC	28,651
2015	Arch Coal Inc.	6,025
2016	Petroleos de Venezuela, S.A.	19,859
2017	Petroleos de Venezuela, S.A.	17,617
2018	iHeartCommunications Inc.	20,176
2019	Community Health Systems Inc.	23,432
2020	Frontier Communications Corp.	22,453
2021	China Evergrande Group	11,025
2022	Bausch Health Cos. Inc.	25,365
2023	Bausch Health Cos. Inc.	26,052

Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Credit quality improved for many issuers

Even though the number of defaults rose sharply in 2023, with higher interest rates contributing to credit deterioration, credit quality improved for many other issuers during the year. Upgrades increased, and more issuers were upgraded than were downgraded.

The upgrade rate rose to 8.8% (from 8.2%). While this exceeded the downgrade rate (7.4%), the downgrade rate increased more than the upgrade rate in 2023--it was up from 6.2% in 2022 (see table 7).

Table 7

Summary of annual corporate rating changes (%)*

Year	Issuers as of Jan. 1	Upgrades	Downgrades\$	Defaults	Withdrawn ratings	Changed ratings	Unchanged ratings	Downgrade/upgrade ratio
1981	1,349	9.86	13.27	0.15	2.08	25.35	74.65	1.35
1982	1,398	5.65	12.80	1.22	5.51	25.18	74.82	2.27
1983	1,421	7.25	11.89	0.77	5.21	25.12	74.88	1.64
1984	1,512	11.11	10.19	0.93	2.78	25.00	75.00	0.92
1985	1,603	7.74	13.91	1.12	4.05	26.82	73.18	1.80
1986	1,851	7.19	15.56	1.73	6.70	31.17	68.83	2.17
1987	2,015	7.10	11.96	0.94	9.03	29.03	70.97	1.69
1988	2,103	8.94	11.75	1.38	8.04	30.10	69.90	1.31
1989	2,142	9.66	10.97	1.77	7.56	29.97	70.03	1.14
1990	2,141	6.12	15.18	2.71	6.40	30.41	69.59	2.48
1991	2,078	5.97	14.05	3.22	3.51	26.76	73.24	2.35
1992	2,153	9.52	11.47	1.49	3.86	26.34	73.66	1.20
1993	2,336	8.60	9.25	0.60	8.18	26.63	73.37	1.07
1994	2,562	7.18	9.33	0.62	4.57	21.70	78.30	1.30
1995	2,865	9.11	9.95	1.05	4.54	24.64	75.36	1.09
1996	3,126	9.63	7.81	0.51	7.04	24.98	75.02	0.81
1997	3,486	9.27	8.06	0.63	7.43	25.39	74.61	0.87
1998	4,085	7.47	11.58	1.30	7.98	28.32	71.68	1.55
1999	4,543	5.97	11.97	2.14	8.89	28.97	71.03	2.01
2000	4,713	6.85	12.62	2.46	6.98	28.92	71.08	1.84
2001	4,837	5.85	16.44	3.70	7.34	33.33	66.67	2.81
2002	4,878	5.15	18.88	3.53	7.07	34.62	65.38	3.67
2003	4,885	6.39	14.39	1.88	7.23	29.89	70.11	2.25
2004	5,043	8.92	7.59	0.77	7.18	24.47	75.53	0.85
2005	5,332	12.87	9.19	0.60	8.35	31.00	69.00	0.71
2006	5,494	12.34	8.72	0.47	8.63	30.16	69.84	0.71
2007	5,677	13.55	9.35	0.37	10.66	33.93	66.07	0.69
2008	5,751	7.91	16.01	1.79	7.56	33.28	66.72	2.02
2009	5,637	4.79	19.14	4.15	8.75	36.83	63.17	4.00
2010	5,337	11.86	8.75	1.20	6.39	28.20	71.80	0.74
2011	5,652	12.24	11.98	0.80	7.70	32.71	67.29	0.98
2012	5,835	8.31	12.19	1.13	6.84	28.47	71.53	1.47
2013	6,067	11.37	9.35	1.02	6.69	28.43	71.57	0.82
2014	6,510	9.09	8.49	0.69	7.25	25.53	74.47	0.93
2015	6,911	7.37	11.85	1.36	8.19	28.77	71.23	1.61

Table 7

Summary of annual corporate rating changes (%)* (cont.)

Year	Issuers as of Jan. 1	Upgrades	Downgrades§	Defaults	Withdrawn ratings	Changed ratings	Unchanged ratings	Downgrade/upgrade ratio
2016	6,908	7.89	12.10	2.08	8.31	30.39	69.61	1.53
2017	6,878	8.85	8.78	1.21	9.10	27.94	72.06	0.99
2018	6,948	9.00	8.77	1.02	8.07	26.86	73.14	0.97
2019	7,193	6.33	8.98	1.31	7.88	24.50	75.50	1.42
2020	7,157	2.74	18.43	2.77	6.90	30.84	69.16	6.73
2021	7,061	10.15	5.47	0.85	8.58	25.05	74.95	0.54
2022	7,202	8.25	6.16	0.99	8.54	23.94	76.06	0.75
2023	6,977	8.84	7.35	1.85	5.91	23.95	76.05	0.83
Weighted average		8.45	11.13	1.49	7.45	28.52	71.48	1.61
Average		8.38	11.44	1.45	6.96	28.23	71.77	1.60
Median		8.31	11.58	1.20	7.25	28.32	71.68	1.31
Standard deviation		2.31	3.31	0.94	1.83	3.35	3.35	1.11
Minimum		2.74	5.47	0.15	2.08	21.70	63.17	0.54
Maximum		13.55	19.14	4.15	10.66	36.83	78.30	6.73

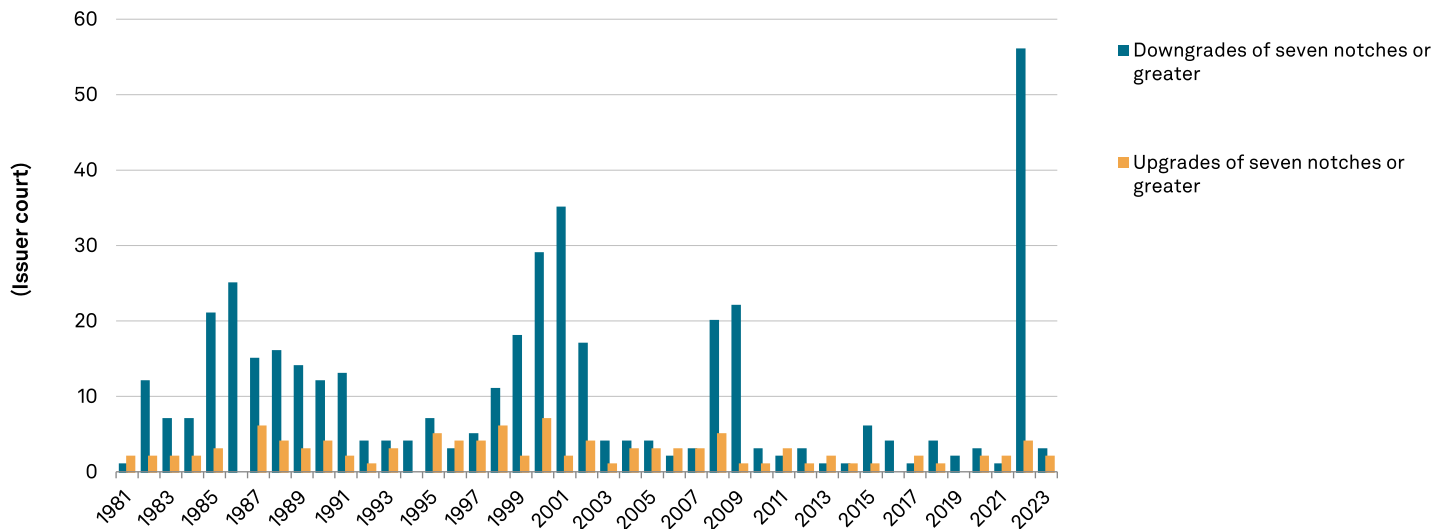
*This table compares the net change in ratings from the first to the last day of each year. All intermediate ratings are disregarded. §Excludes downgrades to 'D', shown separately in the default column. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

2023 saw fewer large, multinotch downgrades

We define a large, multinotch downgrade as a downward transition of a rating by more than six notches in a year. There were three such downgrades in 2023, which was starkly lower than the 56 in 2022. In 2022, most of these large downgrades were of Russian issuers that faced multinotch downgrades before the ratings were withdrawn following the start of the Russia-Ukraine conflict (see chart 7).

Chart 7

Count of global corporate issuers with big rating moves



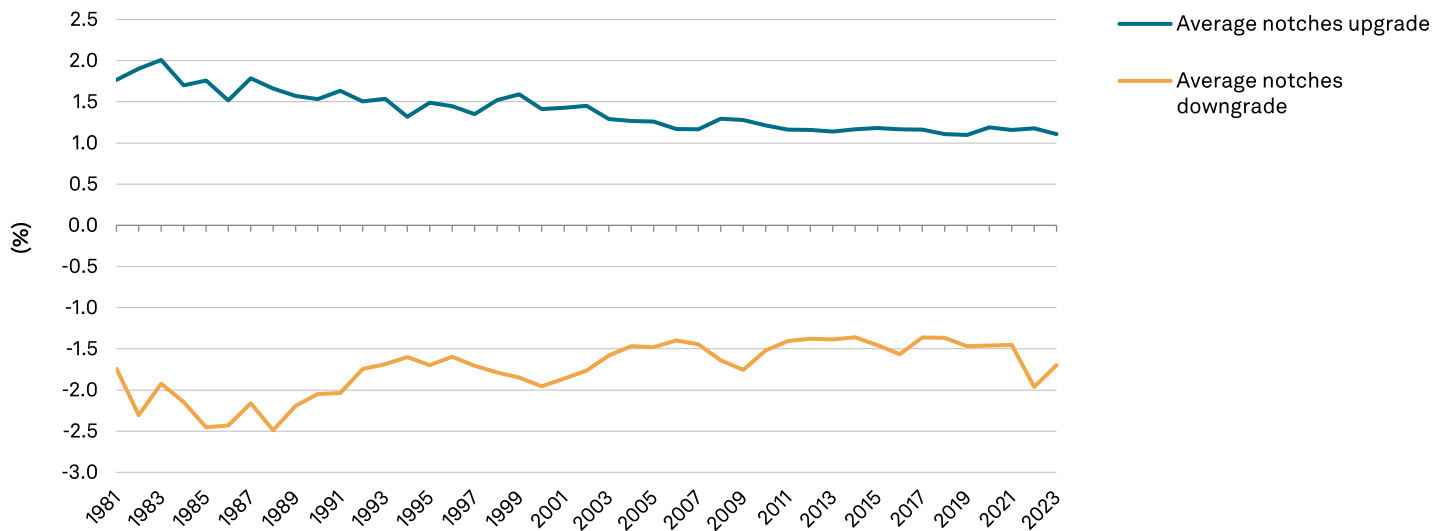
Big rating moves defined as rating upgrades or downgrades of seven notches or greater. Downgrades include movements to default. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®. Copyright © 2024 by Standard & Poor's Financial Services LLC. All rights reserved.

For these counts of large downgrades, we include movements to 'D' (default). This is in contrast to elsewhere in this report where we normally exclude defaults from our calculation of downgrade rates. In 2023, the large, multinotch downgrades included Silicon Valley Bank and its parent SVB Financial Group, along with one other defaulter--the Brazilian chemicals company Unigel Participacoes S.A.

Large, multinotch downgrades such as these are outliers, especially in years of high credit stability. Since 1981, the annual average for the number of notches per downgrade has been 1.74 notches. In 2023, the average number of notches for a downgrade was 1.70, down from 1.97 in 2022. The average number of notches for an upgrade also decreased slightly to 1.11 in 2023 from 1.18 in 2022. (see chart 8).

Chart 8

Average notch movements among global rating actions



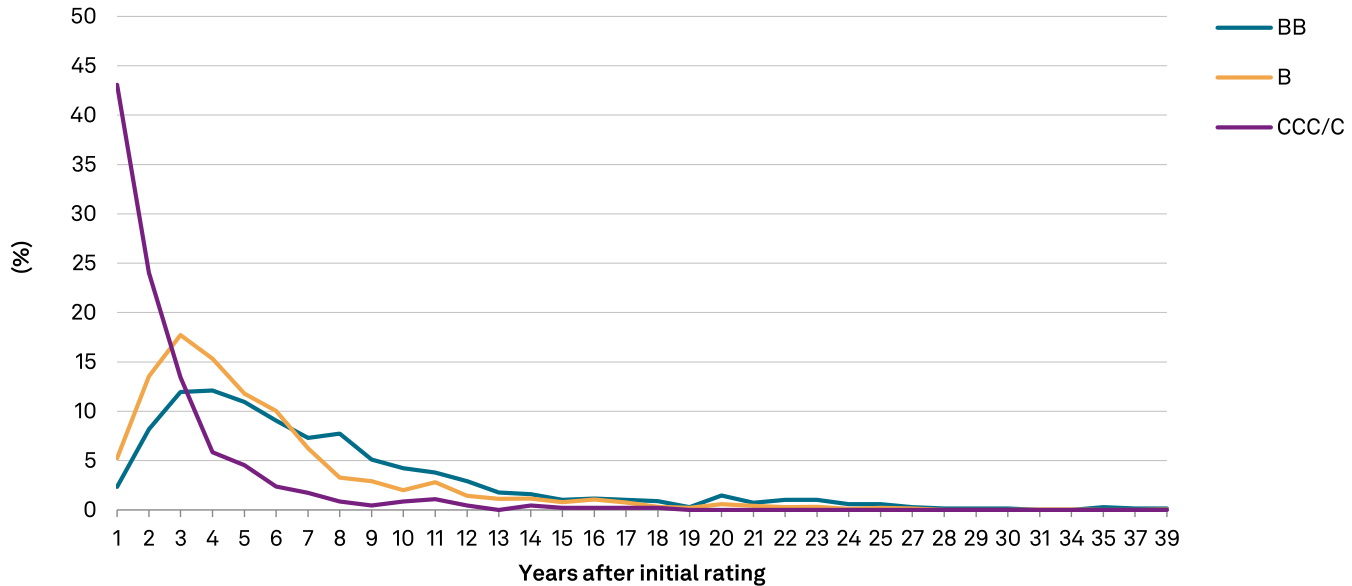
Long-term average based on data from 1981-2023. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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Lower initial ratings correspond with a shorter time to default

Among the issuers that default, most defaults tend to occur in the first few years after the initial rating. In addition, the average time from initial rating to default tends to be shorter for issuers initially rated at lower rating levels (see chart 9).

Chart 9

Tracking global corporate default rates from initial rating category



Data based on universe of defaulters from 1981-2023. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

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Among the issuers with an initial rating in the 'CCC'/'C' category, the majority of the defaults occurred within the first two years after the initial rating. For those with an initial rating in the 'B' category, the majority of defaults occurred within the first four years after the initial rating. For 'BB' issuers, the majority of defaults have taken place within six years.

An issuer's credit quality tends to deteriorate in the run-up to an eventual default, and most ratings will transition lower during the path to default. With this deterioration, an issuer is most often rated 'CCC+' or lower immediately prior to a default.

The high default rate among the 'CCC'/'C' category aligns with our criteria for assigning ratings in the 'CCC'/'C' category (see "Criteria For Assigning 'CCC+', 'CCC', 'CCC- ', And 'CC' Ratings," Oct. 1, 2012). Many of the issuers to which we assign an initial rating of 'CCC+' or lower are those that have previously defaulted, including through a distressed exchange. For the purposes of this study, we treat a rating after a default as a new initial rating for the issuer.

While the 'CCC'/'C' category has the highest default rate from initial rating category, only about 5% of initial ratings are in the 'CCC' category. Most new ratings are in the 'B' (41%) or 'BB' (18%) categories.

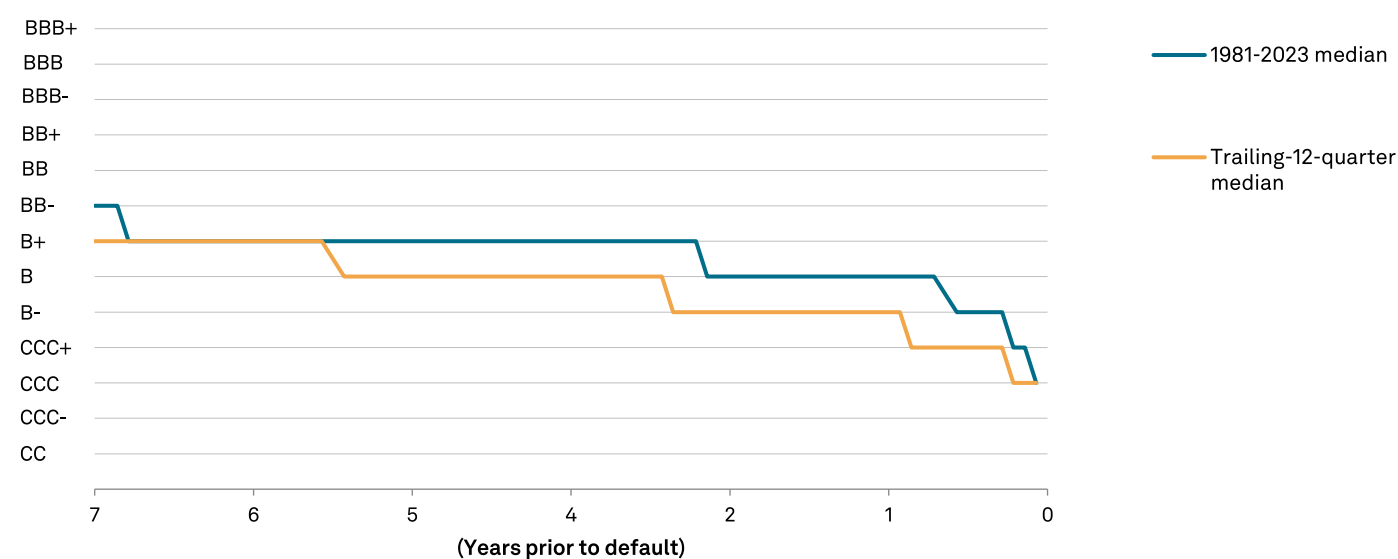
Median Ratings And The Path To Default

Defaults of investment-grade issuers (where an issuer was investment-grade at the start of the year in which it defaulted) are becoming more infrequent. 2023 had the first defaults of investment-grade issuers in four years, and there have been only six defaults of investment-grade issuers since 2010 (averaging 0.4 a year). In the 29 years prior to 2010, defaults of investment-grade issuers were more frequent, averaging three per year, but still accounted for a very small portion of defaults.

For most, the path toward a default tends to follow a gradual deterioration that accelerates as default nears (see chart 10). The median rating for an issuer seven years before default is 'BB-', gradually falling to 'B-' eight months before default, and then down to 'CCC' about a month before default. Among issuers that defaulted more recently (within the last three years), the path to default has been less steep. We initially rated 97% of these more recent defaulters speculative grade, and the median rating on them seven years prior to default is lower ('B+'), falling to 'B-' a year before default, and to 'CCC' three months before default.

Chart 10

Median rating path of corporate defaulters



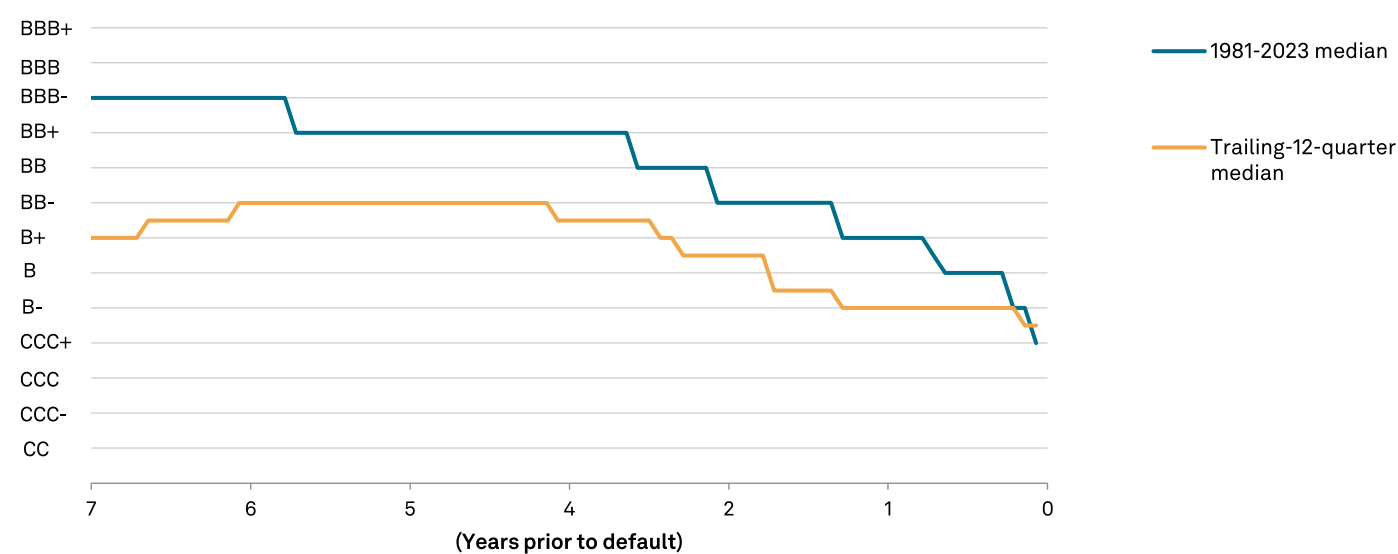
Data through Dec. 31, 2023. Note: Here, we do not include rating changes to 'NR'. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®. Copyright © 2024 by Standard & Poor's Financial Services LLC. All rights reserved.

The typical path to default diverges for financial services and nonfinancial corporate issuers. The median rating for all financial services defaulters seven years prior to default is higher ('BBB-'), than nonfinancial corporates ('B+'), (see charts 11 and 12). The population of financial services issuers is about 90% investment grade, and financial institutions are typically more confidence-sensitive than nonfinancial companies.

For some financial services issuers, the loss of confidence from stakeholders (such as counterparties or funding sources) can contribute to a rapid decline in liquidity and credit quality. We saw this in 2023 with the sudden default of Silicon Valley Bank and SVB Financial Holdings after an unexpected repositioning of the bank's balance sheet sparked steep, sudden deposit outflows, and the resulting loss of confidence precipitated funding and liquidity stress. Despite the occasional rapid descent into default such as this, defaults among financial services issuers remain much rarer than among nonfinancial issuers.

Chart 11

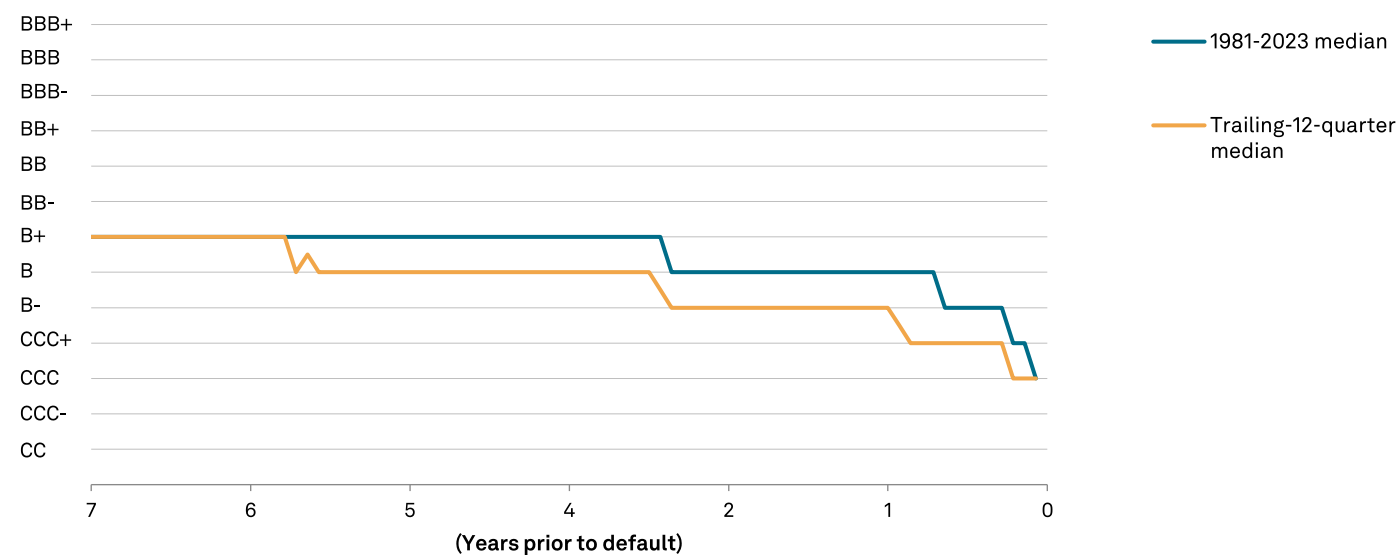
Median rating path of financial defaulters



Data through Dec. 31, 2023. Note: Here, we do not include rating changes to 'NR'. Financial sector includes insurance companies and financial institutions. Source: S&P Global Ratings Credit Research & Insights; S&P Global Market Intelligence's CreditPro®. Copyright © 2024 by Standard & Poor's Financial Services LLC. All rights reserved.

Chart 12

Median rating path of nonfinancial defaulters



Note: Here, we do not include rating changes to 'NR'. Data through Dec. 31, 2023. Source: S&P Global Ratings Credit Research & Insights; S&P Global Market Intelligence's CreditPro®.
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For nonfinancial defaulters, defaults are much more common than among financial services issuers, and this results in a larger pool of defaulters. In the 43 years covered in this study, 3,080 nonfinancial issuers defaulted, compared with just 329 financial services issuers. Default statistics for financial services issuers are more greatly affected by outliers because of the smaller pool of defaults.

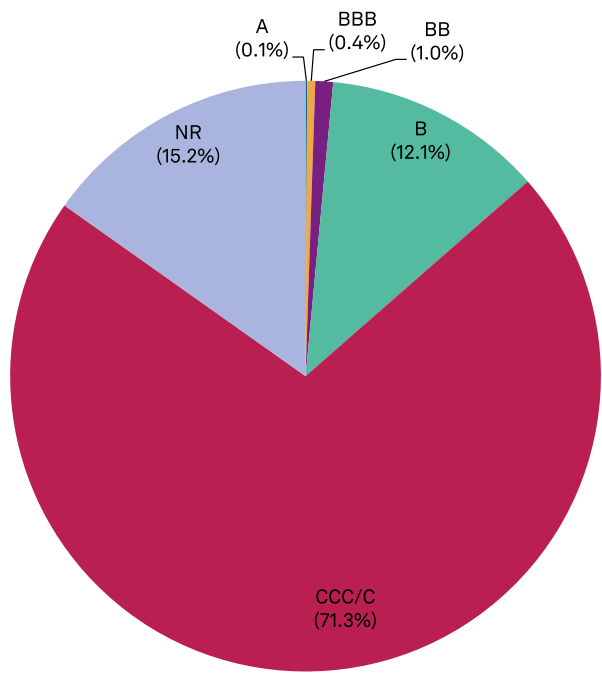
We only include defaulters in our annual default rate calculations that are rated as of Jan. 1 in the year of default. If S&P Global Ratings withdraws its rating on an issuer prior to Jan. 1 of the year in which it defaults, it is not included in the annual default rate calculation for that year. Issuers sometimes default after S&P Global Ratings withdraws its rating--we make our best effort to capture these defaults in our database. Historically, about 15% of defaults are of entities that were no longer rated at the time of default.

Although we exclude defaulters that are not rated as of Jan. 1 of a given year from one-year annual default rate calculations for that year, we include them for all years in which they had an active rating on Jan. 1. When an issuer emerges from default (including following distressed exchanges), we consider it a separate entity, with a new initial rating after the default event.

For all defaults in our database, 71% were rated below 'CCC+' when they defaulted (see chart 13). Very infrequently, an investment-grade rating will default, in total accounting for just over half a percent of all defaults. Of the 2023 defaults, 89% were rated below 'CCC+' when they defaulted. As mentioned above, only Silicon Valley Bank and its parent SVB Financial Group were rated investment grade one year before they defaulted.

Chart 13a

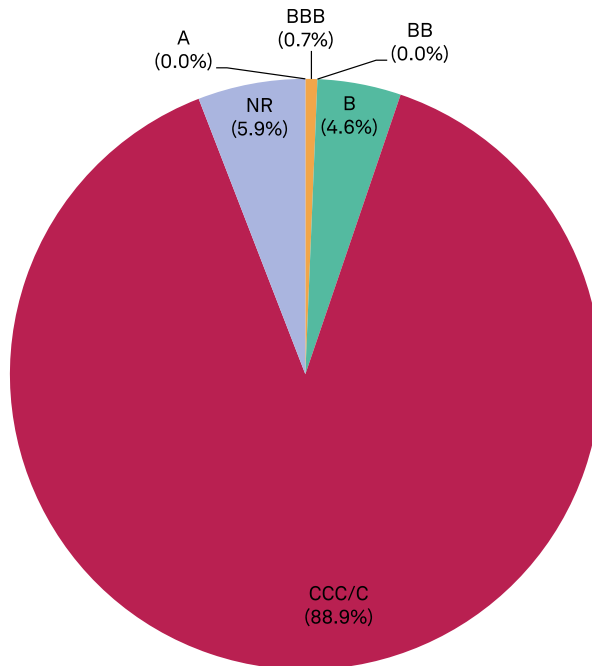
Default distribution by rating prior to 'D' (1981-2023)



Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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Chart 13b

Default distribution by rating prior to 'D' (2023)



Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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Default Observations for 2023:

- Of the 153 corporate defaults in 2023, the majority (96) were from companies in the U.S. and associated tax havens (Bermuda and the Cayman Islands). Europe followed with 30 defaults, emerging and frontier markets had 18, while the other developed region had nine.
- Distressed exchanges (which are typically selective defaults) accounted for 54% of all defaults, well more than missed interest or principal payments (22%). In a distressed exchange, we viewed an exchange of one or more of the issuer's financial obligations as tantamount to default.
- Various types of bankruptcy filings accounted for about 19% of all defaults (see table 8 for a list of all the publicly-rated defaulters from 2023, including classifications of the reason for default).
- The largest default in 2023 came from Bausch Health Cos. Inc., which accounted for \$26 billion of the debt affected by defaults during the year. Bausch defaulted through a distressed exchange, and this marks the second year in a row where Bausch was the year's largest default.
- Five of the defaulters in 2023 were initially rated investment-grade, and each of these were initially rated in the 'BBB' category.

Default, Transition, and Recovery: 2023 Annual Global Corporate Default And Rating Transition Study

- Among the five defaulters initially rated investment-grade, the average time to default--the time between first rating and date of default--was 18 years, with an associated standard deviation of 8.3 years.
- In contrast, the average time to default among entities initially rated speculative-grade was 4.8 years, with an associated standard deviation of 4.8 years.
- The issuer with the longest time to default in 2023 was Mexico-based TV Azteca S.A. de C.V., with an initial issuer credit rating of 'B' as of Jan. 22, 1997, 26 years before we lowered the rating to 'D' in March 2023.
- In contrast, the issuer with the shortest time to default (three days) was Americanas S.A., a Brazilian issuer from the consumer/service sector.

Table 8

2023 global publicly rated corporate defaults

Company name	Reason for default	Country	Industry	Debt amount outstanding (Mil. \$)	Default date	Rating one year prior to default	Rating three years prior to default	First rating	Date of first rating
Moran Foods LLC (SAL Acquisition Corp.)(A)	Distressed exchange	U.S.	Consumer/service sector	317.6	1/3/2023	B-	-	B-	5/13/2020
Americanas S.A. (Lojas Americanas S.A.)	Payment suspension	Brazil	Consumer/service sector	1,000.0	1/16/2023	-	-	B	1/13/2023
Party City Holdings Inc. (PC Nextco Holdings LLC)	Chapter 11	U.S.	Consumer/service sector	1,711.7	1/19/2023	B	-	CCC	7/29/2020
Mexarrend S.A.P.I. de C.V.	Missed principal	Mexico	Financial institutions	300.0	1/20/2023	B	BB-	B+	11/4/2010
Serta Simmons Bedding LLC	Chapter 11	U.S.	Consumer/service sector	3,001.0	1/24/2023	CCC	-	CCC-	5/12/2021
Bed Bath & Beyond Inc.(A)	Grace period default	U.S.	Consumer/service sector	1,500.0	1/27/2023	-	-	CC	1/9/2023
Cooper-Standard Holdings Inc.	Distressed exchange	U.S.	Aerospace/automotive/capital goods/metal	990.0	1/30/2023	B-	B+	BB-	3/19/2013
Missouri TopCo Ltd.	Distressed exchange	U.K.	Consumer/service sector	349.0	1/31/2023	CCC+	-	CCC-	8/6/2020
Invacare Corp.	Chapter 11	U.S.	Health care/chemicals	0.0	1/31/2023	NR	NR	B	1/18/2007
Oi S.A.	Grace period default	Brazil	Telecommunications	1,653.6	2/3/2023	CCC+	-	CCC+	10/16/2020
KNB Holdings Corp.	Chapter 11	U.S.	Consumer/service sector	295.0	2/9/2023	CCC	CCC+	B	3/24/2017
Yak Access LLC	Distressed exchange	U.S.	Aerospace/automotive/capital goods/metal	860.0	2/10/2023	CCC+	B	B	5/30/2018
K&N Parent Inc.	Distressed exchange	U.S.	Aerospace/automotive/capital goods/metal	558.0	2/14/2023	-	-	CCC-	10/18/2022
99 cents only stores LLC	Payment suspension	U.S.	Consumer/service sector	350.0	2/15/2023	CCC+	CCC+	CCC+	8/1/2019

Table 8

2023 global publicly rated corporate defaults (cont.)

Company name	Reason for default	Country	Industry	Debt amount outstanding (Mil. \$)	Default date	Rating one year prior to default	Rating three years prior to default	First rating	Date of first rating
Avaya Holdings Corp.	Chapter 11	U.S.	High tech/computers/office equipment	2,943.0	2/15/2023	B+	B	B	6/6/2018
Diamond Sports Group LLC	Missed interest	U.S.	Leisure time/media	8,949.5	2/15/2023	-	-	CCC+	3/16/2022
Stanadyne Holdings Inc.	Chapter 11	U.S.	Aerospace/automotive/capital goods/metal	0.0	2/16/2023	NR	NR	B+	12/14/2004
AMC Entertainment Holdings Inc.	Distressed exchange	U.S.	Leisure time/media	6,646.2	2/17/2023	CCC+	-	CCC-	1/25/2021
Premier Brands Group Holdings LLC	Distressed exchange	U.S.	Consumer/service sector	325.0	2/17/2023	CCC	-	CCC	10/15/2020
Altisource Portfolio Solutions S.A.	Distressed exchange	Luxembourg	Financial institutions	0.0	2/22/2023	CCC+	B	B+	11/5/2012
Foodco Bondco SAU	Missed interest	Spain	Consumer/service sector	630.8	2/22/2023	CCC+	B	B	10/16/2019
Bausch Health Cos. Inc.	Distressed exchange	Canada	Health care/chemicals	26,051.5	2/24/2023	-	-	CCC+	10/4/2022
Equinox Holdings Inc.	Distressed exchange	U.S.	Leisure time/media	3,056.1	2/28/2023	CCC	-	CCC	5/26/2020
Rising Tide Holdings Inc. (A)	Distressed exchange	U.S.	Consumer/service sector	0.0	2/28/2023	B-	-	B-	5/12/2021
Akorn Operating Co. LLC	Chapter 7	U.S.	Health care/chemicals	370.0	3/1/2023	CCC+	-	CCC+	10/21/2020
Community Health Systems Inc. (A)	Distressed exchange	U.S.	Health care/chemicals	13,870.7	3/2/2023	B-	-	CCC+	12/23/2020
LendingTree Inc. (A)	Distressed exchange	U.S.	Leisure time/media	450.0	3/6/2023	B	-	B	8/6/2021
Silicon Valley Bank	Regulatory directive	U.S.	Financial institutions	0.0		BBB+	BBB+	BBB	12/8/2003
Loyalty Ventures Inc.	Chapter 11	U.S.	Consumer/service sector	500.0	3/10/2023	B+	-	B+	9/28/2021
Bioplan USA Inc.	Grace period default	U.S.	Leisure time/media	349.4	3/14/2023	CCC+	CCC+	B	8/4/2014
Gol Linhas Aereas Inteligentes S.A.	Distressed exchange	Brazil	Transportation	650.0	3/14/2023	CCC+	B	CCC	7/6/2016
Technicolor Creative Studios (A)	Missed interest	France	Leisure time/media	586.2	3/14/2023	-	-	B	10/21/2022

Table 8

2023 global publicly rated corporate defaults (cont.)

Company name	Reason for default	Country	Industry	Debt amount outstanding (Mil. \$)	Default date	Rating one year prior to default	Rating three years prior to default	First rating	Date of first rating
Mallinckrodt PLC (A)	Distressed exchange	Ireland	Health care/chemicals	3,601.0	3/16/2023	-	-	B-	6/17/2022
SVB Financial Group	Chapter 11	U.S.	Financial institutions	3,300.0	3/17/2023	BBB	BBB	BBB-	12/8/2003
National CineMedia Inc.	Missed interest	U.S.	Leisure time/media	1,195.0	3/17/2023	B-	B+	B+	1/29/2007
TV Azteca S.A. de C.V.	Chapter 11	Mexico	Leisure time/media	0.0	3/20/2023	NR	NR	B	1/22/1997
Flint HoldCo S.a.r.l.	Missed principal	Luxembourg	Health care/chemicals	137.7	3/23/2023	CCC+	CCC+	B+	10/29/2014
Toro Private Holdings I Ltd.	Distressed exchange	U.K.	Transportation	3,680.0	3/31/2023	CCC+	-	CCC+	10/2/2020
Wahoo Fitness Acquisition LLC	Missed principal/interest	U.S.	Consumer/service sector	255.0	3/31/2023	B	-	B	7/23/2021
FQM (Akubra) Inc.	Chapter 11	Canada	Energy and natural resources	0.0	4/5/2023	NR	NR	B+	5/8/2012
Lannett Co. Inc.	Missed interest	U.S.	Health care/chemicals	350.0	4/6/2023	CCC+	B-	B+	10/15/2015
Rodan & Fields LLC	Payment suspension	U.S.	Consumer/service sector	800.0	4/6/2023	CCC	CCC+	BB-	5/23/2018
Covis Finco S.a.r.l.	Distressed exchange	Switzerland	Health care/chemicals	1,189.8	4/6/2023	B	-	B	3/7/2022
QualTek LLC	Missed interest	U.S.	Aerospace/automotive/capital goods/metal	380.0	4/10/2023	B-	B	B	6/25/2018
Guacolda Energia S.A. (A)	Distressed exchange	Chile	Utilities	500.0	4/12/2023	B	BB-	BB+	8/10/2016
Adler Group S.A. (ADO Group Ltd.)	Distressed exchange	Luxembourg	Real estate	3,939.6	4/17/2023	B-	BBB-	BBB-	11/28/2018
David's Bridal LLC	Chapter 11	U.S.	Consumer/service sector	0.0	4/17/2023	NR	NR	B-	2/4/2019
Skillz Inc.	Distressed exchange	U.S.	Leisure time/media	300.0	4/19/2023	CCC+	-	B-	12/9/2021
Bed Bath & Beyond Inc. (B)	Chapter 11	U.S.	Consumer/service sector	1,500.0	4/24/2023	-	-	CCC-	3/6/2023
Burger BossCo Intermediate Inc.	Missed principal/interest	U.S.	Consumer/service sector	217.5	4/27/2023	CCC	-	CCC	1/15/2021
Grupo IDESA S.A. de C.V.	Distressed exchange	Mexico	Health care/chemicals	300.0	4/27/2023	CCC+	CCC-	BB-	12/2/2013
FXI Holdings Inc.	Distressed exchange	U.S.	Health care/chemicals	1,300.0	5/1/2023	B-	CCC+	B	10/23/2017
WeWork Cos. LLC (A)	Distressed exchange	U.S.	Consumer/service sector	702.0	5/2/2023	CCC+	CCC+	B	4/24/2018

Table 8

2023 global publicly rated corporate defaults (cont.)

Company name	Reason for default	Country	Industry	Debt amount outstanding (Mil. \$)	Default date	Rating one year prior to default	Rating three years prior to default	First rating	Date of first rating
Frigoglass SAIC	Distressed exchange	Greece	Consumer/service sector	235.8	5/5/2023	CCC	B-	B-	2/2/2018
CatLuxe S.a.r.l. (CatLuxe Acquisition S.a.r.l.)	Distressed exchange	Luxembourg	Consumer/service sector	235.9	5/8/2023	CCC	-	CCC	3/1/2021
Range Parent Inc. (A)	Distressed exchange	U.S.	Aerospace/automotive/capital goods/metal	620.0	5/10/2023	CCC+	CCC+	B	8/10/2018
Telesat Canada (Telesat Holdings Inc.) (A)	Distressed exchange	Canada	Telecommunications	3,558.5	5/15/2023	B	BB-	BBB	7/30/1998
Envision Healthcare Corp. (Envision Healthcare Holdings Inc.)	Chapter 11	U.S.	Health care/chemicals	13,347.0	5/16/2023	-	-	CCC	9/2/2022
Monitronics International Inc.	Chapter 11	U.S.	Consumer/service sector	822.5	5/16/2023	CCC+	B-	B-	8/29/2019
At Home Group Inc.	Distressed exchange	U.S.	Consumer/service sector	1,400.0	5/17/2023	B	CCC+	B	9/9/2016
CareerBuilder LLC	Distressed exchange	U.S.	Leisure time/media	415.0	5/17/2023	B-	B	B	7/13/2017
Curo Group Holdings Corp.	Distressed exchange	U.S.	Financial institutions	317.7	5/18/2023	B-	B-	B	2/19/2013
Venator Materials PLC	Chapter 11	U.K.	Health care/chemicals	975.0	5/18/2023	B-	B-	B-	4/24/2020
LifeScan Global Corp.	Distressed exchange	U.S.	Health care/chemicals	1,875.0	5/22/2023	B	B	B+	5/8/2018
Genesis Care Pty Ltd.	Chapter 11	Australia	Health care/chemicals	1,900.4	6/1/2023	CCC+	B	B+	10/1/2018
Lucky Bucks LLC	Missed principal/interest	U.S.	Leisure time/media	610.0	6/1/2023	B	-	B	6/30/2021
Diebold Nixdorf Inc.	Chapter 11	U.S.	High tech/computers/office equipment	4,277.0	6/2/2023	-	-	CCC+	1/9/2023
PGX Holdings Inc.	Chapter 11	U.S.	Consumer/service sector	0.0	6/4/2023	NR	-	CCC+	6/5/2020
KCI BT Holdings L.P.	Distressed exchange	U.S.	Consumer/service sector	620.7	6/5/2023	CCC	-	CCC	8/13/2021
Cyxtera Technologies Inc.	Chapter 11	U.S.	Telecommunications	1,017.1	6/6/2023	B-	-	B-	9/1/2021
U.S. TelePacific Holdings Corp.	Distressed exchange	U.S.	Telecommunications	680.0	6/7/2023	CCC+	-	CCC+	3/8/2022

Table 8

2023 global publicly rated corporate defaults (cont.)

Company name	Reason for default	Country	Industry	Debt amount outstanding (Mil. \$)	Default date	Rating one year prior to default	Rating three years prior to default	First rating	Date of first rating
Tacora Resources Inc.	Distressed exchange	Canada	Energy and natural resources	225.0	6/9/2023	B-	-	B-	5/3/2021
InterCement Brasil S.A. (InterCement Participacoes S.A.)	Missed principal/interest	Brazil	Forest and building products/homebuilders	0.0	6/12/2023	NR	NR	BB	7/4/2005
Instant Brands Holdings Inc.	Chapter 11	U.S.	Consumer/service sector	450.0	6/13/2023	B	B	B	2/3/2003
Photo Holdings LLC	Distressed exchange	U.S.	Leisure time/media	3,590.0	6/21/2023	B-	-	B-	7/6/2021
URS Holdco Inc.	Distressed exchange	U.S.	Transportation	373.3	6/23/2023	CCC+	B-	B	10/4/2017
Azul S.A.	Distressed exchange	Brazil	Transportation	1,000.0	7/14/2023	CCC+	CCC+	B+	10/11/2017
NSA International LLC	Distressed exchange	U.S.	Consumer/service sector	500.0	7/14/2023	CCC	CCC	B	10/8/2018
MVK Intermediate Holdings LLC	Distressed exchange	U.S.	Consumer/service sector	395.0	7/18/2023	CCC+	B	B	7/16/2019
Mallinckrodt PLC (B)	Missed interest	Ireland	Health care/chemicals	3,601.0	7/18/2023	-	-	CCC	3/23/2023
Anchor Glass Container Corp.	Missed interest	U.S.	Aerospace/automotive/capital goods/metal	856.8	7/20/2023	CCC+	-	CCC+	10/15/2020
Exela Technologies Inc.	Distressed exchange	U.S.	Consumer/service sector	1,103.7	7/21/2023	CCC-	-	CCC-	12/17/2021
U.S. Renal Care Inc.	Distressed exchange	U.S.	Health care/chemicals	2,480.0	7/28/2023	B-	B-	B	5/5/2010
Western Global Airlines Inc.	Chapter 11	U.S.	Transportation	0.0	8/7/2023	B	B	B	7/29/2020
Yellow Corp.	Chapter 11	U.S.	Transportation	600.0	8/8/2023	B-	CCC+	CCC	8/9/2011
Takko Fashion S.a.r.l.	Distressed exchange	Luxembourg	Consumer/service sector	464.7	8/8/2023	CCC-	-	CCC-	8/19/2020
Rackspace Technology Global Inc.	Distressed exchange	U.S.	Telecommunications	3,300.0	8/10/2023	B	B	BB+	11/9/2015
CNG Holdings Inc.	Distressed exchange	U.S.	Financial institutions	310.0	8/16/2023	CCC+	B	CCC	8/9/2016
Guacolda Energia S.A. (B)	Distressed exchange	Chile	Utilities	500.0	8/16/2023	-	-	CCC+	4/14/2023
Strategic Materials Holding Corp.	Missed principal/interest	U.S.	Aerospace/automotive/capital goods/metal	355.0	8/16/2023	CCC	CCC	B	10/19/2017

Table 8

2023 global publicly rated corporate defaults (cont.)

Company name	Reason for default	Country	Industry	Debt amount outstanding (Mil. \$)	Default date	Rating one year prior to default	Rating three years prior to default	First rating	Date of first rating
Pure Fishing	Distressed exchange	U.S.	Leisure time/media	744.4	8/21/2023	CCC+	CCC+	B	12/12/2018
Dawn Acquisitions LLC	Distressed exchange	U.S.	Telecommunications	600.0	8/22/2023	CCC	-	CCC	8/15/2022
Maverick Gaming LLC	Distressed exchange	U.S.	Leisure time/media	350.0	8/25/2023	B-	-	B-	8/5/2021
Digital Media Solutions Inc.	Missed interest	U.S.	Leisure time/media	275.0	8/28/2023	B	-	B	4/26/2021
Casino Guichard - Perrachon S.A.	Missed interest	France	Consumer/service sector	8,972.6	8/31/2023	B	B	BBB+	5/12/1999
Carvana Co.	Distressed exchange	U.S.	Aerospace/automotive/capital goods/metal	5,725.0	9/1/2023	CCC+	CCC+	CCC+	9/10/2018
Cornerstone Chemical Co.	Missed interest	U.S.	Health care/chemicals	897.0	9/7/2023	B-	B-	B-	3/19/2013
Haya Holdco 2 PLC	Distressed exchange	Spain	Consumer/service sector	342.9	9/11/2023	CCC+	-	CCC+	6/14/2022
Learfield Communications LLC	Distressed exchange	U.S.	Leisure time/media	920.0	9/13/2023	CCC+	CCC+	B	8/9/2017
Sunac China Holdings Ltd.	Chapter 15	Cayman Islands	Real estate	0.0	9/19/2023	NR	BB-	BB-	3/3/2011
Ideal Standard International S.A.	Distressed exchange	Luxembourg	Forest and building products/homebuilders	325.0	9/21/2023	CCC+	-	B-	9/14/2021
Rising Tide Holdings Inc. (B)	Distressed exchange	U.S.	Consumer/service sector	520.5	9/21/2023	-	-	CCC	3/24/2023
Wheel Pros Inc.	Distressed exchange	U.S.	Aerospace/automotive/capital goods/metal	1,540.0	9/21/2023	B-	B-	B	3/16/2018
Poseidon Investment Intermediate L.P.	Distressed exchange	U.S.	Aerospace/automotive/capital goods/metal	1,670.0	10/4/2023	B-	-	B	10/16/2020
Ensign Energy Services Inc.	Distressed exchange	Canada	Energy and natural resources	0.0	10/13/2023	CCC+	-	CCC+	5/27/2022
Rite Aid Corp.	Chapter 11	U.S.	Consumer/service sector	4,969.0	10/16/2023	-	-	CCC+	12/7/2022
Akumin Inc.	Chapter 11	Canada	Health care/chemicals	550.0	10/24/2023	B-	B-	B-	10/20/2020
Air Methods Corp.	Chapter 11	U.S.	Health care/chemicals	1,810.0	10/25/2023	B-	B-	B	4/4/2017
Investimentos e Participacoes em Infraestrutura S.A. - Invepar	Distressed exchange	Brazil	Transportation	0.0	10/25/2023	CCC+	-	CCC+	1/19/2022
Muganbank OJSC	Regulatory directive	Azerbaijan	Financial institutions	0.0	10/25/2023	B-	CCC+	CCC+	4/6/2010

Table 8

2023 global publicly rated corporate defaults (cont.)

Company name	Reason for default	Country	Industry	Debt amount outstanding (Mil. \$)	Default date	Rating one year prior to default	Rating three years prior to default	First rating	Date of first rating
ClubCorp Holdings Inc.	Distressed exchange	U.S.	Leisure time/media	1,742.0	11/1/2023	CCC+	CCC+	B	8/4/2017
TortoiseEcofin Parent Holdco LLC	Distressed exchange	U.S.	Financial institutions	317.5	11/1/2023	CCC+	B	BB-	11/10/2017
WeWork Cos. LLC (B)	Missed interest	U.S.	Consumer/service sector	1,914.0	11/1/2023	-	-	CCC+	5/12/2023
Unigel Participacoes S.A.	Missed interest	Brazil	Health care/chemicals	0.0	11/2/2023	BB-	B+	B+	5/21/2018
Audacy Inc.	Missed interest	U.S.	Leisure time/media	2,007.3	11/8/2023	CCC+	B	BB-	10/29/1999
CWT Travel Group Inc.	Distressed exchange	U.S.	Leisure time/media	715.0	11/9/2023	CCC+	-	CCC+	12/21/2021
Telesat Canada (Telesat Holdings Inc.) (B)	Distressed exchange	Canada	Telecommunications	3,558.5	11/10/2023	-	-	CCC+	5/31/2023
API Holdings III Corp.	Distressed exchange	U.S.	Aerospace/automotive/capital goods/metal	315.4	11/13/2023	CCC+	B-	B	4/23/2019
Quincy Health LLC	Distressed exchange	U.S.	Health care/chemicals	894.5	11/13/2023	CCC	-	B-	12/15/2020
MHP SE	Distressed exchange	Ukraine	Consumer/service sector	1,400.0	11/14/2023	-	-	CC	4/21/2023
Moran Foods LLC (SAL Acquisition Corp.) (B)	Distressed exchange	U.S.	Consumer/service sector	317.6	11/15/2023	-	-	CCC+	1/5/2023
FinThrive Software Intermediate Holdings Inc.	Distressed exchange	U.S.	Health care/chemicals	2,050.0	11/20/2023	B-	-	B-	1/12/2021
Tele Columbus AG	Missed interest	Germany	Telecommunications	422.4	11/27/2023	B-	B-	B+	3/11/2015
Praesidiad Group Ltd.	Distressed exchange	U.K.	Aerospace/automotive/capital goods/metal	293.5	11/28/2023	CCC+	CCC+	B	11/28/2017
Matrix Holdings Inc.	Missed interest	U.S.	Telecommunications	595.0	12/5/2023	B-	-	B-	1/28/2022
Tullow Oil PLC	Distressed exchange	U.K.	Energy and natural resources	0.0	12/5/2023	B-	CCC+	BB	10/25/2013
HealthChannels Intermediate HoldCo LLC (HealthChannels LLC)	Distressed exchange	U.S.	Health care/chemicals	385.0	12/6/2023	B-	B	B	3/7/2018
LendingTree Inc. (B)	Distressed exchange	U.S.	Leisure time/media	450.0	12/7/2023	-	-	CCC+	3/8/2023

Table 8

2023 global publicly rated corporate defaults (cont.)

Company name	Reason for default	Country	Industry	Debt amount outstanding (Mil. \$)	Default date	Rating one year prior to default	Rating three years prior to default	First rating	Date of first rating
Community Health Systems Inc. (B)	Distressed exchange	U.S.	Health care/chemicals	12,850.4	12/11/2023	-	-	CCC+	3/9/2023
Lecta Ltd.	Distressed exchange	Luxembourg	Forest and building products/homebuilders	344.8	12/11/2023	CCC+	CCC+	CCC+	10/27/2020
Outerstuff LLC	Missed principal/interest	U.S.	Consumer/service sector	222.1	12/13/2023	CCC	CCC	CCC	12/8/2020
FR BR Holdings LLC	Missed interest	U.S.	Energy and natural resources	515.6	12/15/2023	CCC+	B-	B-	11/27/2018
Range Parent Inc. (B)	Distressed exchange	U.S.	Aerospace/automotive/capital goods/metal	595.0	12/19/2023	-	-	CCC	6/9/2023
Wittur International Holding GmbH	Distressed exchange	Germany	Transportation	595.9	12/21/2023	CCC+	B-	B	5/1/2015
Signa Development Selection AG	Foreign bankruptcy	Austria	Forest and building products/homebuilders	272.5	12/22/2023	B	-	B	7/13/2021
SK Neptune Husky Intermediate IV S.a r.l.	Missed principal/interest	Switzerland	Health care/chemicals	0.0	12/28/2023	B-	-	B	1/31/2022

This total does not match Table 1 because it excludes confidentially rated defaults. Sources: S&P Global Ratings Credit Research & Insights. S&P CreditPro®.

Table 9

One-year global corporate default rates by rating modifier (%)

	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC/C
1981	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.28	0.00	0.00
1982	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.70	0.00	0.00	2.86	7.04	2.22	2.33	8.33	21.43
1983	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39	2.13	0.00	1.59	1.25	10.00	5.26	6.67
1984	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45	0.00	0.00	1.61	1.49	2.17	3.57	8.33	25.00
1985	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59	1.49	1.37	2.63	13.11	8.33	15.38
1986	0.00	0.00	0.00	0.00	0.00	0.00	0.77	0.00	0.79	0.00	1.79	1.19	0.00	5.29	12.16	17.07	23.08
1987	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	1.33	5.95	6.98	12.28
1988	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.33	2.02	4.50	10.00	20.37
1989	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.89	0.80	0.00	0.00	0.00	2.04	0.43	7.80	5.13	33.33
1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	0.00	1.10	2.74	3.09	4.50	4.89	12.26	22.58	31.25
1991	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.75	0.00	3.64	1.12	1.05	8.72	16.25	32.43	33.87
1992	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72	14.93	20.83	30.19

Table 9

One-year global corporate default rates by rating modifier (%) (cont.)

	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC/C
1993	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96	0.00	1.30	5.88	4.17	13.33
1994	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.00	1.83	6.58	3.13	16.67
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.00	1.57	1.12	2.76	8.00	7.50	28.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.56	2.35	3.74	3.85	8.00
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.35	0.00	0.00	0.00	0.41	0.72	5.34	14.58	12.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	1.05	0.67	1.59	0.73	2.62	7.51	9.46	42.86
1999	0.00	0.00	0.00	0.36	0.00	0.24	0.28	0.00	0.27	0.31	0.55	1.33	0.91	4.26	10.41	15.60	33.82
2000	0.00	0.00	0.00	0.00	0.00	0.24	0.58	0.00	0.25	0.89	0.00	0.81	2.07	5.84	9.92	11.61	35.96
2001	0.00	0.00	0.00	0.00	0.57	0.24	0.00	0.23	0.47	0.27	0.50	1.19	5.59	5.61	16.95	22.46	45.45
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	0.86	1.06	1.52	1.74	4.78	3.25	10.00	19.70	44.19
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.53	0.48	0.95	0.28	1.72	5.24	9.45	32.53
2004	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.67	0.53	0.47	2.36	2.84	15.83
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.38	0.00	0.51	0.79	2.66	2.94	9.02
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.50	0.55	0.81	1.56	13.33
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.24	0.19	0.00	0.90	15.24
2008	0.00	0.00	0.43	0.40	0.32	0.21	0.60	0.19	0.61	0.72	1.23	0.66	0.69	3.16	3.47	7.56	27.27
2009	0.00	0.00	0.00	0.00	0.29	0.39	0.00	0.42	0.19	1.13	0.00	1.05	0.98	6.00	10.79	17.77	49.46
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.37	0.57	0.00	0.74	2.14	22.83
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.42	1.28	4.53	16.54
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.61	1.44	3.53	27.70
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.77	0.83	4.11	24.67
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.33	2.77	17.42
2015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.22	1.75	2.03	4.33	26.51
2016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.24	0.00	1.11	0.92	2.33	10.78	33.00
2017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.41	0.44	2.89	26.56
2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96	1.89	27.18
2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.00	1.17	0.68	3.35	29.61
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.00	1.99	1.86	2.13	6.88	47.88
2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	0.26	0.41	10.99
2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.61	1.03	0.57	1.77	13.84
2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.14	0.00	0.00	0.00	0.42	0.00	0.38	2.96	30.89
Average	0.00	0.00	0.01	0.02	0.04	0.04	0.06	0.11	0.20	0.22	0.45	0.65	1.12	1.99	5.35	8.20	24.45
Median	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.57	1.30	3.57	5.26	25.00
Standard deviation	0.00	0.00	0.07	0.08	0.13	0.10	0.19	0.27	0.33	0.40	0.83	0.81	1.58	1.99	4.87	7.30	11.73
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 9

One-year global corporate default rates by rating modifier (%) (cont.)

	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC/C
Maximum	0.00	0.00	0.43	0.40	0.57	0.39	0.77	1.08	1.45	1.39	3.64	3.09	7.04	8.72	16.95	32.43	49.46

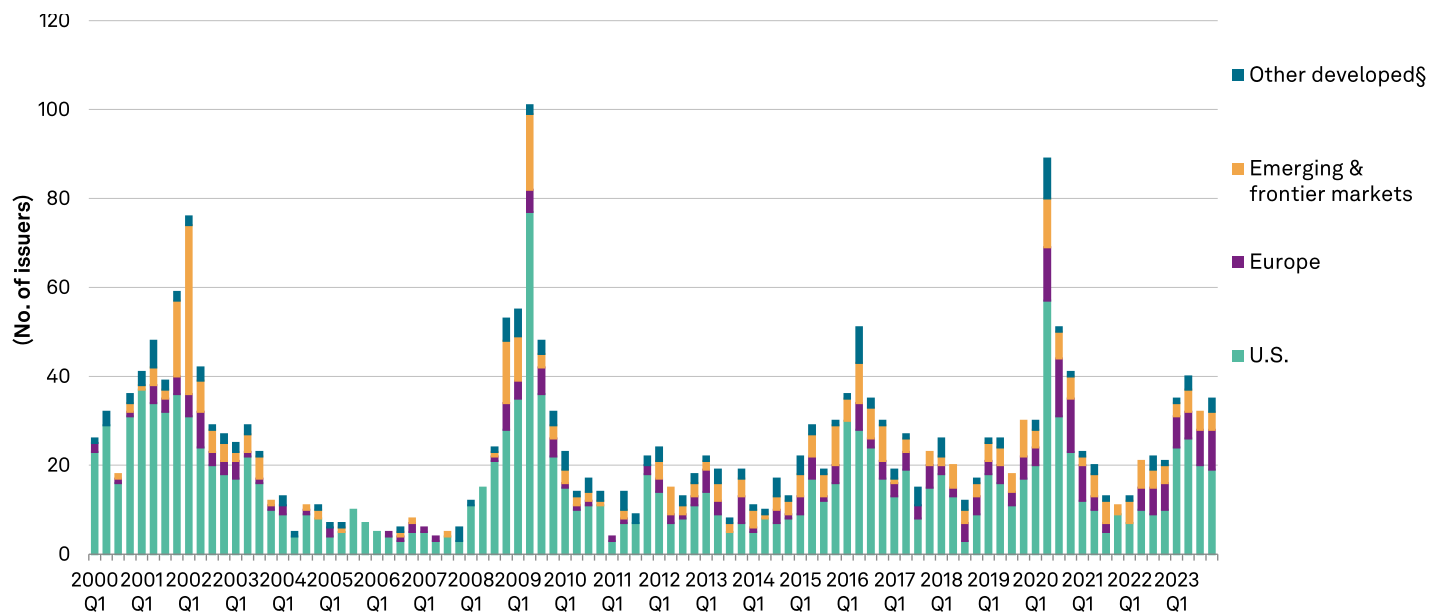
Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Quarterly Default Trends

Looking at quarterly default rates in 2023, defaults peaked globally in the second quarter (with 40) and then slowed slightly in the second half of the year. However, default rates by region diverged during this period. The quarterly speculative-grade default rates fell in the second half of the year in the U.S. and the emerging and frontier markets, while the European speculative-grade default rate continued to climb to its high of 1.22% in the fourth quarter (see chart 16).

Chart 14

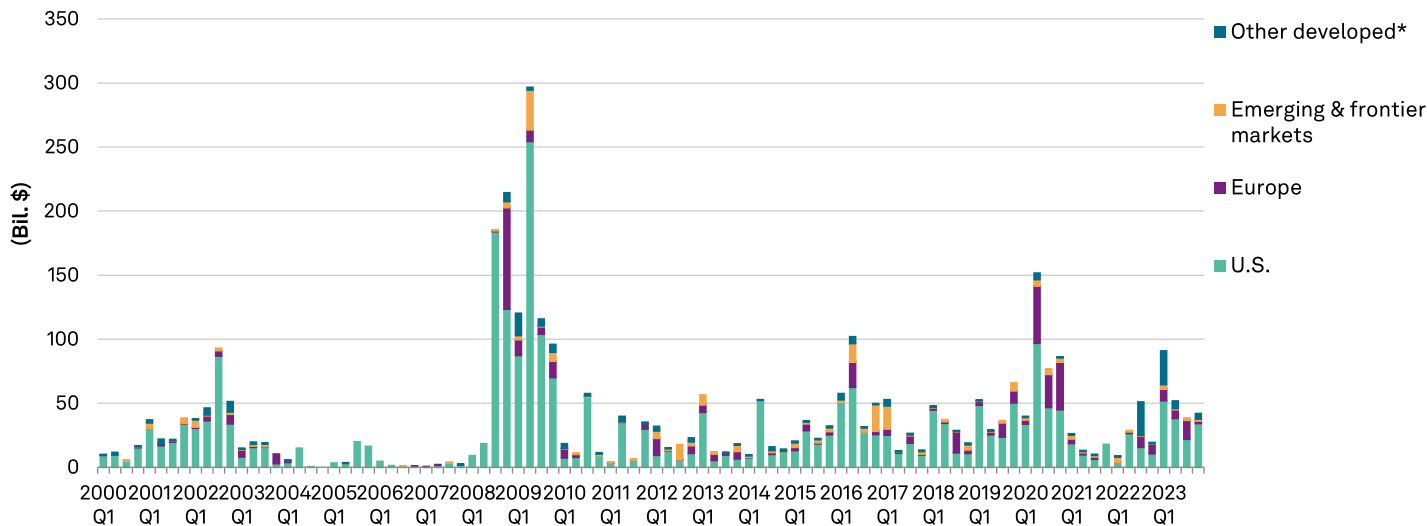
Quarterly corporate defaults by number of issuers*



*Count excludes defaults that were not rated one quarter prior to default. §Other developed includes Australia, Brunei Darussalam, Canada, Israel, Japan, Korea, New Zealand, and Singapore. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Chart 15

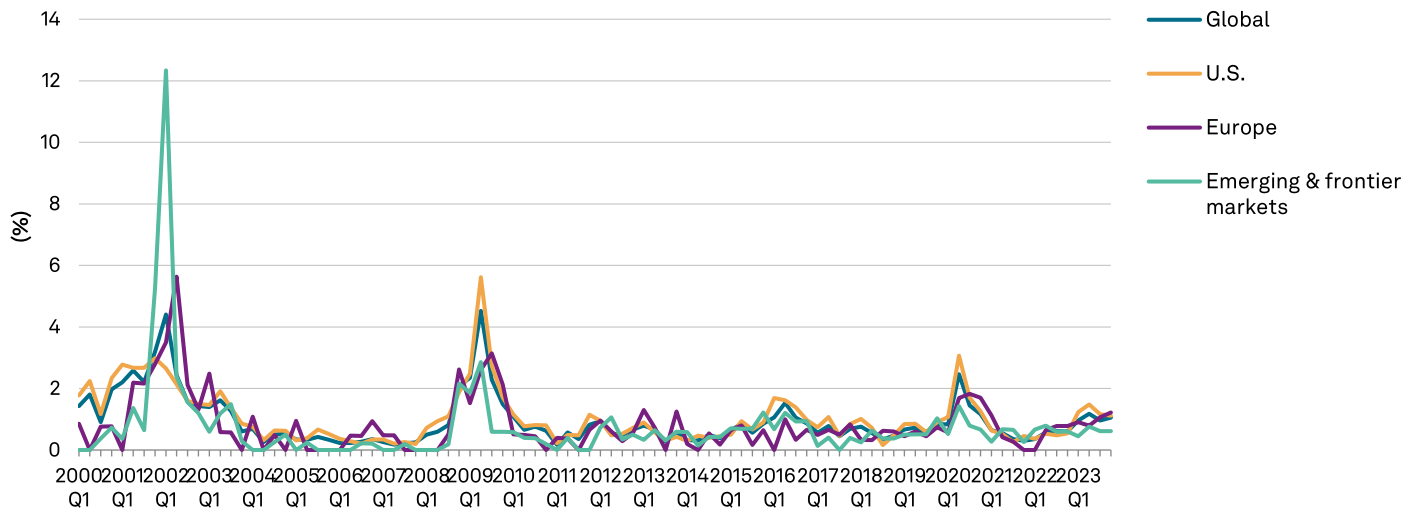
Quarterly global corporate defaulters' debt amounts outstanding



*Other developed includes Australia, Brunei Darussalam, Canada, Israel, Japan, Korea, New Zealand, and Singapore.
Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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Chart 16

Quarterly speculative-grade default rates by region



Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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Lower Ratings Remain Vulnerable To Default

There exists a correlation between initial ratings and time to default (see table 10). Higher initial ratings correspond with both lower rates of default and (for those that do default) a longer time between initial rating and default. For example, for the entire population of defaulters in this study (1981-2023), 43.5% of issuers initially rated 'CCC+' or lower eventually defaulted (with an average time to default of 2.1 years), while issuers originally rated in the 'B' category had a lower lifetime default rate (of 20.85%) and a longer average time to default (5.1 years). By contrast, issuers initially rated in the 'A' category exhibit a much lower lifetime default rate (3.2%), with a much longer average time to default of 14.4 years.

Table 10

Time to default from original rating for global corporate defaulters (1981-2023)

Original rating	Defaults	Default rate based on initial rating	Average years from original rating*	Median years from original rating	Standard deviation of years from original rating	Range
AAA	8	1.96%	18.0	18.5	11.4	23.0
AA	33	2.55%	17.2	19.3	10.5	37.8
A	101	3.19%	14.4	11.4	9.5	40.4
BBB	234	5.79%	9.6	7.7	7.0	36.1
BB	686	16.05%	7.2	5.5	5.8	37.8
B	1885	20.85%	5.1	3.8	4.4	38.1
CCC/C	462	43.46%	2.1	1.3	2.6	17.4
Total	3409	14.64%	5.9	4.0	5.7	42.0

*Or Dec. 31, 1980, whichever is later. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

The same relationship between initial rating and default is maintained when looking at the post-initial rating (see table 11). Broadly speaking, the average and median times to default for each rating category are longer when based on the initial rating than when based on subsequent ratings.

In both cases, the standard deviations of the times to default rises with higher rating levels. This reflects the lower-frequency and higher degree of variation among the higher-rated issuers that eventually defaulted.

Table 11

Time to default from post-original ratings for global corporate defaulters (1981-2023)

Rating	Average years from rating category	Median years from rating category	Standard deviation of years from rating category
AAA	27.4	27.7	10.0
AA	14.9	15.8	9.4
A	11.5	9.9	8.3
BBB	8.5	6.6	7.0
BB	6.2	4.3	5.9
B	3.4	2.0	4.0

Table 11

Time to default from post-original ratings for global corporate defaulters (1981-2023) (cont.)

Rating	Average years from rating category	Median years from rating category	Standard deviation of years from rating category
CCC/C	0.9	0.4	1.7
NR	5.4	3.2	6.0
Total	3.4	1.3	5.0

NR--Not rated. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Of all issuers that defaulted from 1981-2023, only eight companies initially rated 'AAA' have defaulted: Macy's Inc., Ally Financial Inc., Ambac Assurance Corp., Mutual Benefit Life Insurance Co., Executive Life Insurance Co. CA, Confederation Life Insurance Co., Motors Liquidation Co. (formerly known as General Motors Corp.), and Eastman Kodak Co. These issuers averaged 18 years between initial rating and default, but with a higher standard deviation than the other rating categories.

By contrast, issuers that defaulted within one year of an initial rating are highly concentrated within the lowest rating categories. Of the 317 companies that defaulted within 12 months of an initial rating, 94% were rated in either the 'B' or 'CCC'/'C' categories (see table 12).

Table 12

Cumulative defaulters by time horizon among global corporates, from original rating (1981-2023)*

	AAA	AA	A	BBB	BB	B	CCC/C	Total
No. of issuers defaulting within:								
One year	0	0	0	3	16	99	199	317
Three years	0	1	6	29	154	688	372	1250
Five years	0	3	13	72	312	1199	420	2019
Seven years	2	6	28	106	424	1506	439	2511
Total	8	33	101	234	686	1885	462	3409
% of total defaults per time frame								
One year	0.0	0.0	0.0	0.9	5.0	31.2	62.8	
Three years	0.0	0.1	0.5	2.3	12.3	55.0	29.8	
Five years	0.0	0.1	0.6	3.6	15.5	59.4	20.8	
Seven years	0.1	0.2	1.1	4.2	16.9	60.0	17.5	
Total	0.2	1.0	3.0	6.9	20.1	55.3	13.6	

*Or Dec. 31, 1980, whichever is later. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 13 shows the number of cumulative defaults for all subsequent ratings (post-initial rating). The total count is different from table 12 because an issuer typically has multiple post-initial ratings, but it can only have one initial rating. Because of this, issuers are generally counted multiple times in table 13. Times to default in table 13 are from the date that each entity received a unique rating in its path to default. In contrast, table 21 reports transition-to-default rates using

the static pool methodology (which calculates movements to default from the beginning of each static pool year). Data in table 13 also differs from the default rates in table 24 that are based on the static pool methodology. (For more information on methodologies and definitions, see Appendix I.)

Table 13

Cumulative defaulters by time horizon among global corporates, from post-original ratings (1981-2023)

	AAA	AA	A	BBB	BB	B	CCC/C	NR	Total
No. of issuers defaulting within:									
One year	0	0	10	73	185	1142	3178	147	4735
Three years	0	7	42	150	483	2325	3892	342	7241
Five years	0	9	63	213	680	2912	4064	448	8389
Seven years	0	15	78	280	830	3200	4123	519	9045
Total	4	51	225	547	1249	3673	4187	705	10641
% of total defaults per time frame									
	AAA	AA	A	BBB	BB	B	CCC/C	NR	
One year	0.0	0.0	0.2	1.5	3.9	24.1	67.1	3.1	
Three years	0.0	0.1	0.6	2.1	6.7	32.1	53.7	4.7	
Five years	0.0	0.1	0.8	2.5	8.1	34.7	48.4	5.3	
Seven years	0.0	0.2	0.9	3.1	9.2	35.4	45.6	5.7	
Total	0.0	0.5	2.1	5.1	11.7	34.5	39.3	6.6	

Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro.

Over longer time horizons, the incidence of defaults from low rating categories becomes even more pronounced (see table 14). For example, of the 421 defaults recorded in the most recent five-year pool that began January 2019, 98% of the defaulters were rated speculative-grade on Jan. 1, 2019. The eight publicly rated investment-grade defaults from this period are listed in table 15. While each of these eight issuers were rated investment-grade as of Jan 1, 2019, three of these issuers were speculative-grade a year or more before their default.

Table 14

Defaults and survivor rates in latest one-year, three-year, and five-year pools

Rating	--Latest one-year--			--Latest three-year--			--Latest five-year--		
	# of ratings as of 01/01/2023	# of defaults through December 2023	Non-default rate (%)	# of ratings as of 01/01/2021	# of defaults through December 2023	Non-default rate (%)	# of ratings as of 01/01/2019	# of defaults through December 2023	Non-default rate (%)
Global									
AAA	7	0	100	8	0	100	8	0	100
AA	282	0	100	287	0	100	327	0	100

Table 14

Defaults and survivor rates in latest one-year, three-year, and five-year pools (cont.)

Rating	--Latest one-year--			--Latest three-year--			--Latest five-year--		
	# of ratings as of 01/01/2023	# of defaults through December 2023	Non-default rate (%)	# of ratings as of 01/01/2021	# of defaults through December 2023	Non-default rate (%)	# of ratings as of 01/01/2019	# of defaults through December 2023	Non-default rate (%)
A	1367	0	100	1398	0	100	1400	0	100
BBB	1859	2	99.9	1805	2	99.9	1846	8	99.6
BB	1200	2	99.8	1183	14	98.8	1330	37	97.2
B	1935	24	98.8	1925	68	96.5	2076	263	87.3
CCC/C	327	101	69.1	455	125	72.5	206	113	45.1
Nonfinancials									
AAA	4	0	100	5	0	100	5	0	100
AA	75	0	100	73	0	100	97	0	100
A	563	0	100	590	0	100	585	0	100
BBB	1284	0	100	1218	0	100	1283	6	99.5
BB	945	2	99.8	919	11	98.8	1057	32	97.0
B	1744	22	98.7	1683	60	96.4	1817	249	86.3
CCC/C	304	97	68.1	432	122	71.8	194	105	45.9
Financials									
AAA	3	0	100	3	0	100	3	0	100
AA	207	0	100	214	0	100	230	0	100
A	804	0	100	808	0	100	815	0	100
BBB	575	2	99.7	587	2	99.7	563	2	99.6
BB	255	0	100	264	3	98.9	273	5	98.2
B	191	2	99.0	242	8	96.7	259	14	94.6
CCC/C	23	4	82.6	23	3	87.0	12	8	33.3

Note: The totals included may differ from the counts in Table 1 because defaults that are not rated at the beginning of the pool year are excluded.
Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 15

Investment-grade defaults in five-year 2019 static pool

Company name	Country	Industry	Default date	Rating one year prior to default	Rating three years prior to default	First rating	Date of first rating	Year of default
Adler Group S.A.	Luxembourg	Real estate	4/17/2023	B-	BBB-	BBB-	11/28/2018	2023
PG&E Corp. (A)	U.S.	Utilities	1/29/2019	A-	BBB	BBB+	3/10/2009	2019

Table 15

Investment-grade defaults in five-year 2019 static pool (cont.)

Company name	Country	Industry	Default date	Rating one year prior to default	Rating three years prior to default	First rating	Date of first rating	Year of default
Pacific Gas & Electric Co. (A)	U.S.	Utilities	1/16/2019	A-	BBB	BBB-	4/16/2004	2019
Ruby Pipeline LLC	U.S.	Energy and natural resources	4/1/2022	B-	BBB-	BBB-	2/10/2012	2022
SVB Financial Group	U.S.	Financial institutions	3/17/2023	BBB	BBB	BBB-	12/8/2003	2023
Silicon Valley Bank	U.S.	Financial institutions	3/10/2023	BBB+	BBB+	BBB	12/8/2003	2023
Tupperware Brands Corp.	U.S.	Consumer/service sector	7/10/2020	BBB-	BBB-	BBB+	6/19/1996	2020
Washington Prime Group Inc.	U.S.	Real estate	3/17/2021	BB-	BBB-	BBB	4/21/2014	2021

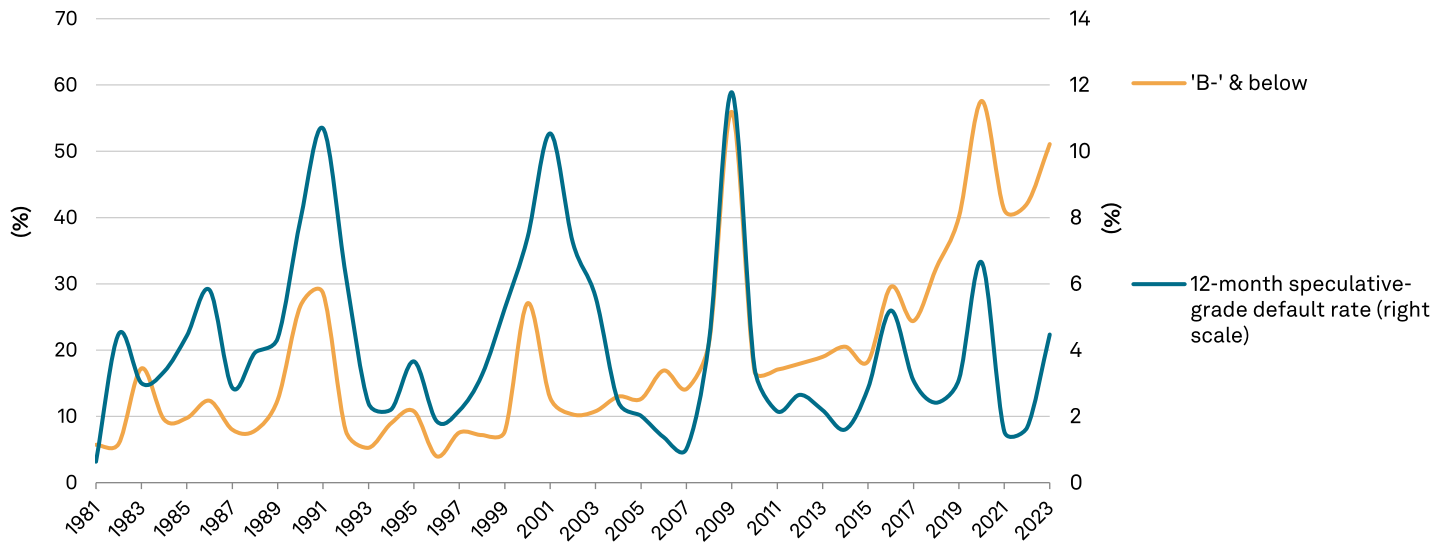
Note: Excludes confidentially rated defaults. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

The proportion of newly assigned speculative-grade ratings at 'B-' or lower in the U.S. and the U.S. speculative-grade default rate show some correlation historically (see chart 17).

The growth of speculative-grade ratings, particularly issuers rated 'B-' and lower, is symptomatic of a weakening of the credit quality of the pool of rated issuers, with a growing population showing fundamentally higher default risk. In 2023, the share of new speculative-grade issuers rated 'B-' and lower rose to 51% from 42% in 2022, although this was still below the all-time high of 58% reached in 2020.

Chart 17

Speculative-grade origination trends and default rate: U.S. and tax havens



U.S. and tax havens: U.S., Bermuda, and Cayman Islands. 'B-' and below ratings calculated as a share of total speculative grade. Data through Dec. 31, 2023. Source: S&P Global Ratings Credit Research & Insights; S&P Global Market Intelligence's CreditPro®.

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Industry Variations: Leisure Time And Media Led Default Rates

Defaults in 2023 came from nearly all sectors but were heavily represented by consumer/services (with 39 defaults). Six sectors had 2023 default rates above 2%, and seven sectors had a default rate in 2023 that was higher than their long-term weighted average (see table 16).

Table 16

Global corporate default rates by industry (%)

	2023	2022	Weighted average (1981-2023)	Median	Standard deviation	Minimum	Maximum
Aerospace/automotive/capital goods/metal	2.70	0.77	1.99	1.40	1.88	0.00	9.31
Consumer/service sector	3.33	1.96	2.44	1.85	1.61	0.00	6.48
Energy and natural resources	0.87	1.83	3.24	1.83	3.00	0.00	14.18
Financial institutions	0.62	0.45	0.61	0.35	0.67	0.00	2.70
Forest & building products/homebuilders	1.54	1.07	2.27	1.41	2.81	0.00	14.95
Health care/chemicals	4.39	1.35	1.51	0.90	1.30	0.00	4.65

Table 16

Global corporate default rates by industry (%) (cont.)

	2023	2022	Weighted average (1981-2023)	Median	Standard deviation	Minimum	Maximum
High tech/computers/office equipment	0.28	0.84	1.14	0.84	1.45	0.00	5.00
Insurance	0.00	0.00	0.25	0.12	0.87	0.00	4.76
Leisure time/media	5.38	1.91	3.28	2.10	3.11	0.00	16.62
Real estate	0.59	1.40	0.81	0.00	2.57	0.00	12.00
Telecommunications	3.98	1.49	2.51	0.98	3.51	0.00	17.94
Transportation	3.30	1.08	2.03	1.87	1.55	0.00	6.12
Utility	0.34	0.16	0.42	0.17	0.72	0.00	4.38

Includes investment-grade and speculative-grade rated entities. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

By sector, the leisure time and media sector led with a 5.4% default rate in 2023, which was elevated compared to its long-term weighted average of 3.3%. Consumer-facing sectors, including leisure time and media and the consumer/service sector, faced challenges related to shifting demand as consumers adjusted spending in response to high inflation. The leisure time and media sector also has a relatively higher default risk than other sectors because it has the highest concentration of speculative-grade issuers.

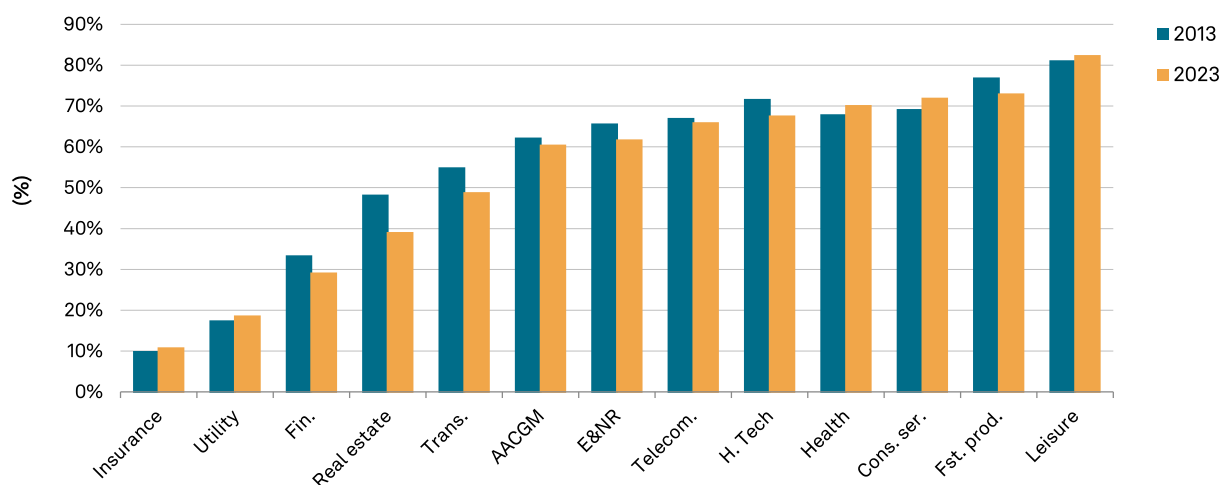
The health care and chemicals sector showed the biggest difference between its 2023 default rate and its historical average (4.4% in 2023 compared to 1.5% overall). Higher costs from staffing shortages and debt burdens have strained the credit quality of many lower-rated issuers in this sector.

The biggest surprises on the upside were energy and natural resources (where the default rate fell to 0.9% in 2023, well below its 3.2% long-term average); high tech, computers, and office equipment (0.3% in 2023 compared to 1.1% long-term average); and forest, building products, and homebuilders (1.5% in 2023 compared to 2.3% overall).

Across sectors, the portion of issuers rated speculative-grade varies widely. While leisure time and media has the highest concentration of speculative-grade issuers (82%), the insurance sector has the lowest share (10.7%) (see chart 18). To some extent, we expect sectors with a higher concentration of speculative-grade ratings to exhibit higher default rates over time. The share of speculative-grade ratings has grown over the past decade in five sectors: insurance, utilities, consumer/service, health care/chemicals, and leisure time/media.

Chart 18

Share of speculative-grade ratings to total by industry (%)



Figures reflect year-end. Trans.--Transportation; Leisure--Leisure time/media; H. Tech--High technology/computers/office equipment; Health--Health care/chemicals; Fst. prod--Forest and building products/homebuilders; Fin.--Financial institutions; E&NR--Energy and natural resources; Cons.--Consumer/service sector; AACGM--Aerospace/automotive/capital goods/metal. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®
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Broad sector default rates reflect some of this difference between the ratings distribution, within financial and nonfinancial sectors (see table 17).

Table 17

Cumulative global corporate default rates by sector (%)

	2023	2022	Average (1981-2023)	Median	Standard deviation	Minimum	Maximum
Financial institutions							
One-year	0.62	0.45	0.63	0.35	0.67	0.00	2.70
Three-year	1.20	0.82	1.80	1.28	1.47	0.00	6.31
10-year	3.67	2.87	4.54	3.99	2.34	1.71	9.68
Insurance							
One-year	0.00	0.00	0.45	0.12	0.87	0.00	4.76
Three-year	0.00	0.12	1.36	0.87	1.61	0.00	7.14
10-year	0.48	0.36	4.25	4.03	3.28	0.24	14.71
All financials							
One-year	0.39	0.28	0.54	0.39	0.51	0.00	1.98
Three-year	0.75	0.56	1.59	1.20	1.10	0.18	4.74
10-year	2.40	1.83	4.40	3.53	2.28	1.71	8.87

Table 17

Cumulative global corporate default rates by sector (%) (cont.)

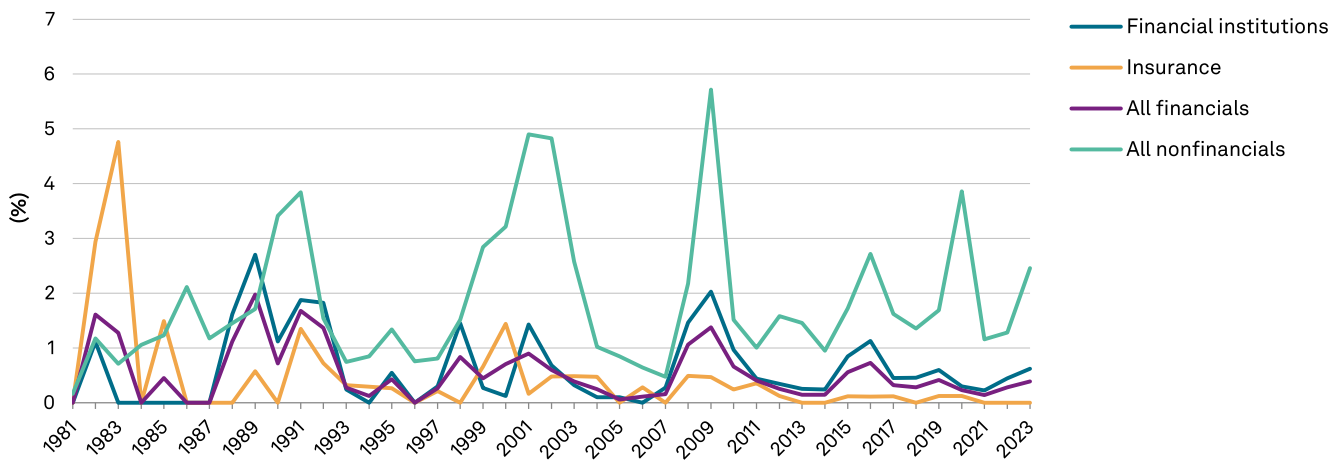
	2023	2022	Average (1981-2023)	Median	Standard deviation	Minimum	Maximum
All nonfinancials							
One-year	2.46	1.28	1.84	1.46	1.27	0.16	5.72
Three-year	3.92	5.74	5.12	4.13	2.68	1.88	12.28
10-year	9.65	9.34	11.15	10.40	3.03	6.96	19.36

Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®

The speculative-grade share of nonfinancial corporate ratings tends to be higher than that of financial services issuers. This is reflected in the higher average default rates for nonfinancials--including over one-, three, and ten-year horizons--than for financial services. The 0.54% one-year average default rate for financial services is considerably lower than the 1.28% default rate for nonfinancials. The annual default rate for financial services has remained below 2% since 1990 (and below 1% for the past 14 years), while the default rate for nonfinancials has been above 1% in 13 of the past 14 years (see chart 19). The gap in default rates between financial and nonfinancial issuers is even wider over longer time horizons (see chart 20).

Chart 19

One-year default rates by broad sector

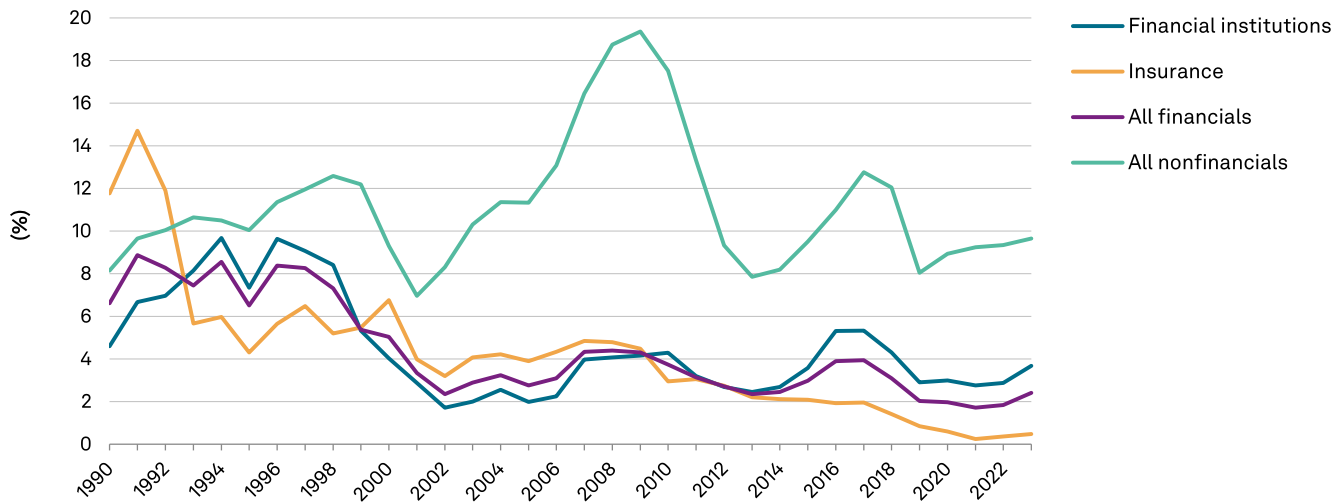


Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

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Chart 20

Ten-year default rates by broad sector



Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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Table 18

Time to default from original rating* grouped by industry (%)

	Median original rating (defaulters)	Median original rating (industry)	Defaults	Average years from original rating*	Median years from original rating	Standard deviation of years from original rating	Range (years)
Aerospace/automotive/capital goods/metal	B+	BB-	438.00	6.44	4.58	5.77	36.15
Consumer/service sector	B+	B+	675.00	6.45	4.50	6.37	39.35
Energy and natural resources	B	B+	451.00	4.67	3.38	4.73	35.45
Financial institutions	B+	BBB	252.00	5.91	3.76	5.98	28.62
Forest and building products/homebuilders	B+	B+	186.00	6.23	4.51	5.48	28.22
Health care/chemicals	B+	B+	211.00	5.88	3.79	6.02	37.85
High tech/computers/office equipment	B+	B+	110.00	5.56	3.88	5.78	41.73
Insurance	BBB	A-	77.00	7.87	6.60	6.26	28.57
Leisure time/media	B	B+	449.00	5.72	3.95	5.49	34.13
Real estate	B+	BBB-	74.00	4.46	3.16	3.92	21.40
Telecommunications	B	B+	207.00	4.14	3.08	4.21	39.09
Transportation	B+	BB	183.00	6.36	4.31	6.29	36.33

Table 18

Time to default from original rating* grouped by industry (%) (cont.)

	Median original rating (defaulters)	Median original rating (industry)	Defaults	Average years from original rating*	Median years from original rating	Standard deviation of years from original rating	Range (years)
Utility	BB+	BBB+	96.00	6.67	4.46	6.61	30.40
Total	B+	BB-	3,409.00	5.85	4.04	5.75	41.99

*Or Dec. 31, 1980, whichever is later. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 19

Time to default from post-original ratings, grouped by industry (%)

	Average years to default	Median years to default	Standard deviation of years to default
Aerospace/automotive/capital goods/metal	3.8	1.6	5.2
Consumer/service sector	3.9	1.8	5.5
Energy and natural resources	2.7	1.0	4.1
Financial institutions	3.3	1.1	4.8
Forest and building products/homebuilders	2.8	1.2	4.0
Health care/chemicals	3.4	1.4	5.1
High tech/computers/office equipment	3.9	1.7	5.4
Insurance	3.1	1.7	3.7
Leisure time/media	3.2	1.2	4.6
Real estate	2.4	1.0	3.8
Telecommunications	2.1	0.7	4.0
Transportation	4.4	1.6	6.1
Utility	3.3	0.9	5.2
Total	3.4	1.3	5.0

Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro® .

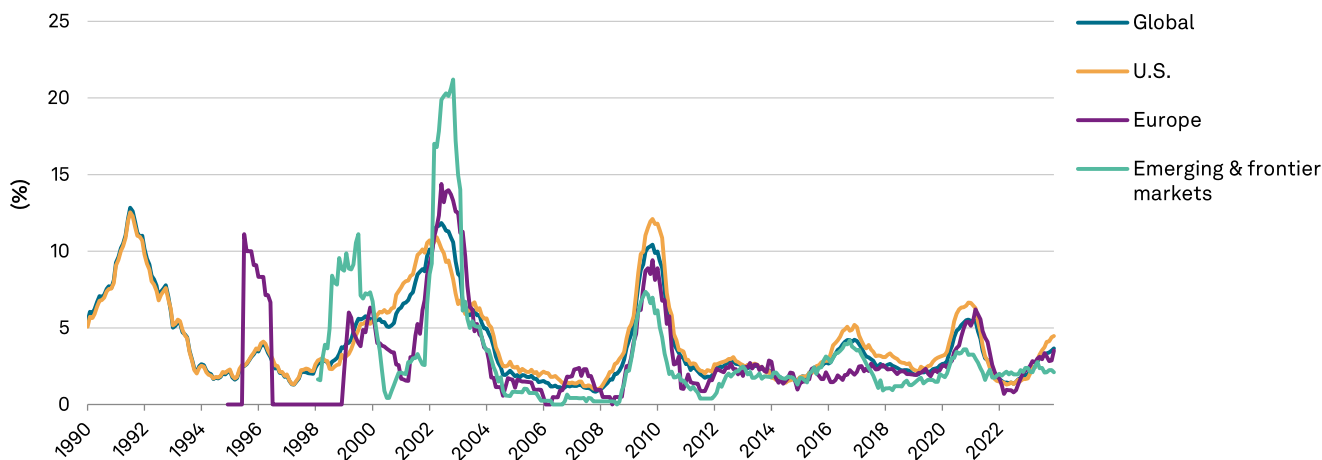
Regional Variations

While slowing economic growth, rising interest rates, and tighter financing conditions were common themes among corporate issuers globally in 2023, default rate trends varied by region.

For example, the U.S. had the highest speculative-grade default rate in the 12-month period ending in December 2023, with 4.5% (up 2.8 percentage points from 2022), compared with Europe's 3.5% default rate (which was up a more modest 1.3 percentage points). By contrast, the speculative-grade default rate for emerging and frontier markets fell during the year, down 0.28 percentage points to 2.1% (see chart 21).

Chart 21

Trailing 12-month corporate speculative-grade default rate

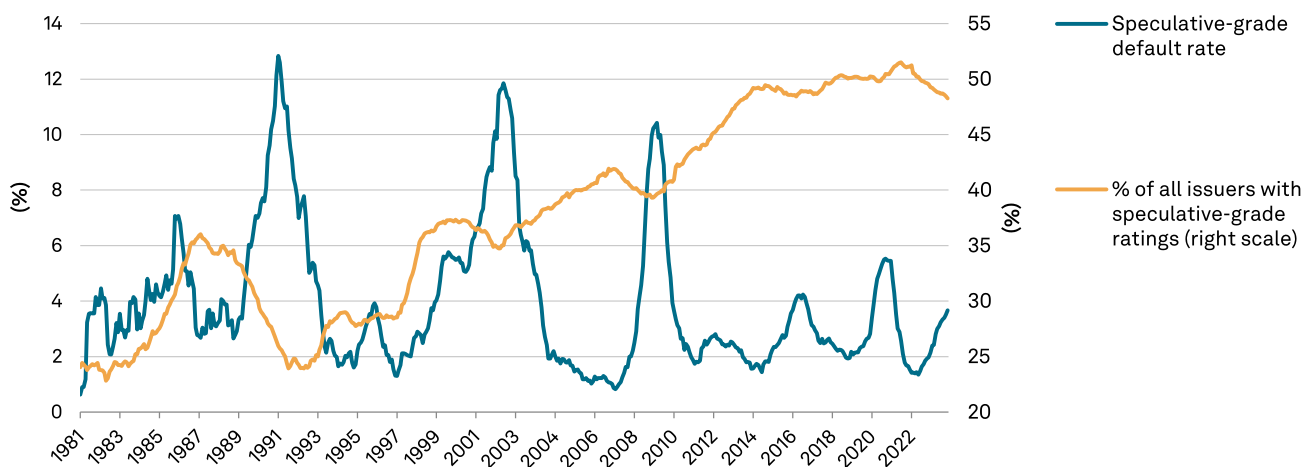


Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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Speculative-grade issuers continue to represent a higher share of rated issuers in the U.S. than in the world overall. By the end of 2023, 55% of rated U.S. issuers were speculative-grade, versus 44% in Europe and 48% globally (see charts 22 through 24).

Chart 22

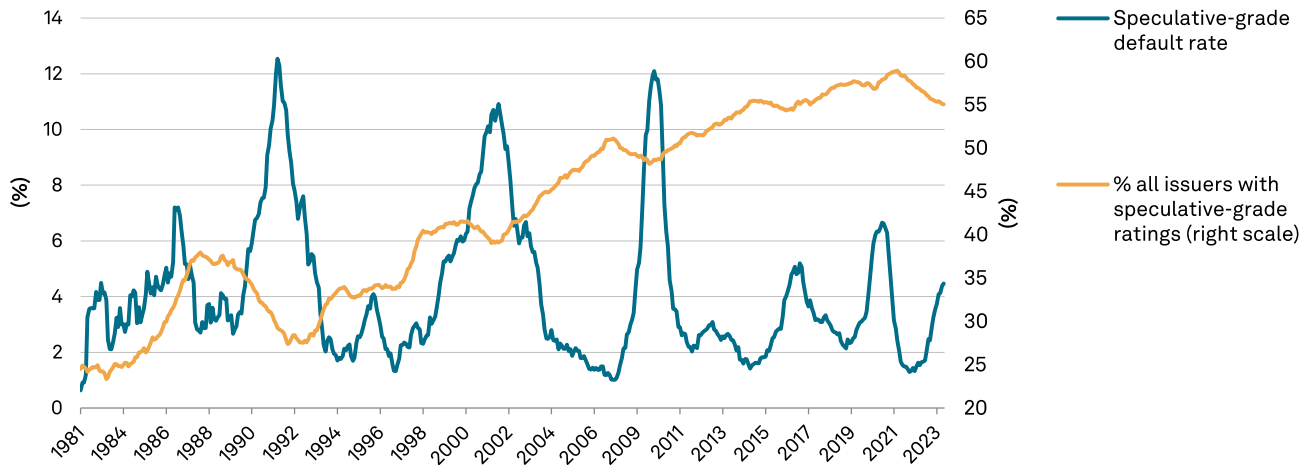
Global corporate speculative-grade default rate versus prevalence of speculative-grade issuers



Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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Chart 23

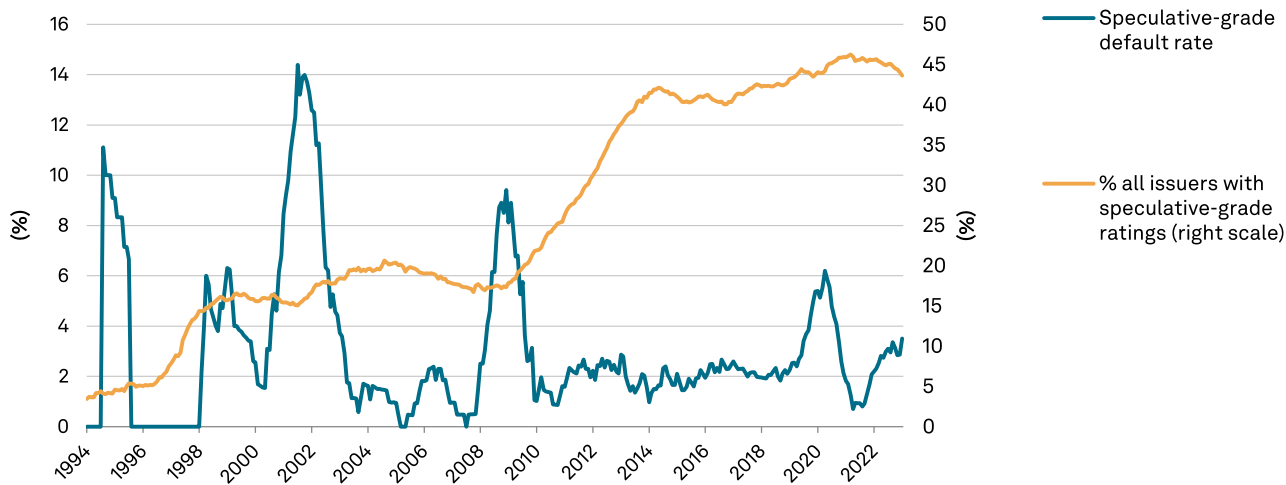
U.S. corporate speculative-grade default rate versus prevalence of speculative-grade issuers



Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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Chart 24

European corporate speculative grade default rate versus prevalence of speculative-grade issuers



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Transition And Cumulative Default Rates Demonstrate Ratings Performance

Transition rates, which measure the change in a rating--including both upgrades and downgrades--over a given horizon, are another useful measure of ratings performance. Rating transition rates show that higher ratings tend to be more stable, while speculative-grade ratings generally experience more volatility.

Transition rates in 2023 continued to show a strong rank-ordering relationship between ratings and credit risk (see table 20). For instance, 97% of issuers rated 'A' at the beginning of 2023 were still rated 'A' by the end of the year, while the comparable share of issuers still rated 'B' was only 79%. The inverse relationship between higher ratings and defaults can be seen across time horizons and regions.

Table 20

2023 One-year corporate transition rates by region (%)

From/to	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
Global									
AAA	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AA	0.00	96.81	1.42	0.00	0.00	0.00	0.00	0.00	1.77
A	0.00	0.15	96.78	1.02	0.00	0.00	0.00	0.00	2.05
BBB	0.00	0.00	1.61	92.68	0.97	0.43	0.11	0.11	4.09
BB	0.00	0.00	0.17	3.92	85.67	3.83	0.25	0.17	6.00
B	0.00	0.00	0.00	0.10	4.24	79.07	5.84	1.24	9.51
CCC/C	0.00	0.00	0.00	0.00	0.00	7.34	47.40	30.89	14.37
From/to	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
U.S.									
AAA	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AA	0.00	95.80	1.68	0.00	0.00	0.00	0.00	0.00	2.52
A	0.00	0.00	96.66	2.16	0.00	0.00	0.00	0.00	1.18
BBB	0.00	0.00	0.67	93.84	1.47	0.54	0.13	0.27	3.08
BB	0.00	0.00	0.20	3.35	85.83	5.12	0.39	0.00	5.12
B	0.00	0.00	0.00	0.18	3.67	78.28	7.33	1.28	9.26
CCC/C	0.00	0.00	0.00	0.00	0.00	7.33	43.98	34.55	14.14
From/to	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
Europe									
AAA	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AA	0.00	94.94	2.53	0.00	0.00	0.00	0.00	0.00	2.53
A	0.00	0.51	95.91	0.77	0.00	0.00	0.00	0.00	2.81
BBB	0.00	0.00	3.37	90.34	0.67	0.45	0.22	0.00	4.94
BB	0.00	0.00	0.00	8.88	80.84	3.27	0.47	0.00	6.54
B	0.00	0.00	0.00	0.00	3.75	78.96	5.00	1.04	11.25

Table 20

2023 One-year corporate transition rates by region (%) (cont.)

CCC/C	0.00	0.00	0.00	0.00	0.00	12.00	40.00	29.33	18.67
From/to	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
Emerging and frontier markets									
AAA	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
A	0.00	0.00	97.75	0.00	0.00	0.00	0.00	0.00	2.25
BBB	0.00	0.00	1.12	95.51	0.22	0.45	0.00	0.00	2.70
BB	0.00	0.00	0.00	2.38	87.83	1.85	0.26	0.53	7.14
B	0.00	0.00	0.00	0.00	7.53	79.50	3.35	1.67	7.95
CCC/C	0.00	0.00	0.00	0.00	0.00	2.04	69.39	16.33	12.24

NR--Not rated. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Transition tables also include default rates for a given time horizon. The default rates in these tables show the rank-ordering power of ratings. In 2023, there were no defaults from issuers rated 'A' or above, marking the 14th consecutive year with no defaults from these higher rating levels.

Occasional exceptions are usually due to outliers within smaller sample sizes or rare default events. For example, even though the default rate for the 'BBB' category for U.S. issuers (0.3%) was higher than that of the 'BB' category in 2023, the relationship still holds globally, where the 'BB' default rate (0.17%) exceeded that of the 'BBB' category (0.11%) in 2023. Sample size is an important consideration when analyzing transition rates. Subsets of issuers pooled by rating, region, or sector, for example, can become quite small.

On average from 1981 to 2023, higher ratings have been more stable (see table 21). When analyzing transition matrices that present averages computed over multiple static pools, the standard deviations associated with each transition point in the matrix can be large relative to averages.

Table 21

Global corporate average transition rates (1981 to 2023) (%)

From/to	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
One-year									
AAA	87.26	8.94	0.51	0.03	0.10	0.03	0.05	0.00	3.08
	(7.36)	(7.16)	(0.81)	(0.13)	(0.26)	(0.17)	(0.34)	(0.00)	(2.45)
AA	0.46	87.63	7.57	0.45	0.05	0.06	0.02	0.02	3.76
	(0.53)	(5.17)	(4.20)	(0.66)	(0.18)	(0.20)	(0.06)	(0.07)	(1.71)
A	0.02	1.50	89.21	4.72	0.24	0.10	0.01	0.05	4.14
	(0.08)	(1.06)	(3.98)	(2.21)	(0.37)	(0.23)	(0.06)	(0.10)	(1.67)
BBB	0.00	0.07	3.08	87.13	3.28	0.41	0.09	0.14	5.80
	(0.03)	(0.14)	(1.60)	(4.03)	(1.65)	(0.63)	(0.19)	(0.23)	(1.48)
BB	0.01	0.02	0.10	4.46	78.59	6.40	0.51	0.57	9.33
	(0.05)	(0.08)	(0.23)	(1.91)	(4.61)	(3.09)	(0.66)	(0.77)	(2.17)

Table 21

Global corporate average transition rates (1981 to 2023) (%) (cont.)

B	0.00	0.02	0.06	0.15	4.46	75.03	4.85	2.98	12.46
	(0.00)	(0.07)	(0.18)	(0.19)	(2.03)	(3.81)	(2.63)	(2.92)	(2.30)
CCC/C	0.00	0.00	0.08	0.14	0.43	13.34	44.95	25.98	15.08
	(0.00)	(0.00)	(0.36)	(0.55)	(0.81)	(7.39)	(8.42)	(11.65)	(4.51)
From/to	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
Three-year									
AAA	65.94	21.92	2.29	0.31	0.21	0.08	0.10	0.13	9.03
	(11.93)	(12.14)	(1.68)	(0.75)	(0.46)	(0.29)	(0.41)	(0.36)	(5.27)
AA	1.06	67.84	17.88	1.88	0.31	0.19	0.02	0.11	10.70
	(0.87)	(9.44)	(6.12)	(1.43)	(0.49)	(0.43)	(0.07)	(0.18)	(3.76)
A	0.05	3.52	71.72	10.84	1.01	0.36	0.07	0.20	12.23
	(0.09)	(2.18)	(7.66)	(3.01)	(1.01)	(0.57)	(0.13)	(0.26)	(3.48)
BBB	0.01	0.22	7.62	67.66	6.46	1.34	0.23	0.69	15.76
	(0.05)	(0.36)	(2.99)	(7.76)	(2.07)	(1.23)	(0.33)	(0.87)	(3.16)
BB	0.01	0.04	0.40	10.10	50.03	10.99	1.11	3.25	24.07
	(0.05)	(0.12)	(0.63)	(3.50)	(7.82)	(2.68)	(0.83)	(3.23)	(3.44)
B	0.00	0.02	0.15	0.60	8.79	42.81	5.40	10.82	31.41
	(0.04)	(0.09)	(0.39)	(0.71)	(3.56)	(4.97)	(2.01)	(6.69)	(4.60)
CCC/C	0.00	0.00	0.09	0.42	1.36	16.50	10.44	41.51	29.68
	(0.00)	(0.00)	(0.42)	(1.03)	(1.45)	(6.69)	(5.52)	(12.16)	(7.54)
From/to	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
Five-year									
AAA	50.00	28.66	4.74	0.85	0.23	0.16	0.08	0.34	14.94
	(12.19)	(13.28)	(2.73)	(1.50)	(0.45)	(0.40)	(0.27)	(0.57)	(6.76)
AA	1.33	53.33	23.85	3.30	0.50	0.33	0.04	0.29	17.04
	(1.02)	(9.63)	(5.15)	(1.89)	(0.62)	(0.57)	(0.10)	(0.37)	(4.49)
A	0.07	4.52	59.11	14.02	1.66	0.56	0.12	0.43	19.52
	(0.09)	(2.44)	(8.83)	(2.75)	(1.22)	(0.80)	(0.17)	(0.44)	(4.08)
BBB	0.02	0.34	9.89	54.94	7.23	1.82	0.31	1.46	23.98
	(0.07)	(0.49)	(2.94)	(8.47)	(1.68)	(1.40)	(0.35)	(1.39)	(4.15)
BB	0.01	0.06	0.79	11.92	34.67	10.94	1.12	6.12	34.39
	(0.05)	(0.15)	(0.91)	(3.07)	(7.95)	(1.91)	(0.85)	(4.77)	(3.66)
B	0.01	0.02	0.18	1.16	9.08	26.15	3.46	16.71	43.24
	(0.09)	(0.07)	(0.47)	(1.14)	(3.05)	(4.57)	(1.24)	(7.57)	(5.70)
CCC/C	0.00	0.00	0.08	0.61	2.48	11.90	2.64	47.21	35.08
	(0.00)	(0.00)	(0.41)	(1.51)	(1.89)	(4.71)	(3.16)	(10.98)	(7.96)

Table 21

Global corporate average transition rates (1981 to 2023) (%) (cont.)

From/to	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
Seven-year									
AAA	38.44	32.72	6.79	1.51	0.23	0.18	0.10	0.49	19.53
	(11.18)	(13.66)	(3.04)	(1.85)	(0.46)	(0.42)	(0.30)	(0.70)	(7.21)
AA	1.40	42.47	27.15	4.38	0.66	0.33	0.03	0.48	23.10
	(1.03)	(8.35)	(4.16)	(1.97)	(0.62)	(0.49)	(0.08)	(0.53)	(4.53)
A	0.07	4.91	49.89	15.72	2.11	0.67	0.11	0.73	25.79
	(0.11)	(2.00)	(8.45)	(2.13)	(1.33)	(0.85)	(0.17)	(0.60)	(4.03)
BBB	0.03	0.44	10.90	46.09	7.16	2.00	0.31	2.23	30.84
	(0.10)	(0.55)	(2.52)	(7.90)	(0.87)	(1.18)	(0.31)	(1.74)	(4.38)
BB	0.00	0.07	1.11	12.31	25.55	9.82	0.91	8.78	41.45
	(0.00)	(0.15)	(1.00)	(2.87)	(6.98)	(1.90)	(0.61)	(5.63)	(3.35)
B	0.00	0.01	0.23	1.61	8.22	17.37	1.97	20.56	50.02
	(0.06)	(0.07)	(0.51)	(1.35)	(2.20)	(4.02)	(0.67)	(7.70)	(5.83)
CCC/C	0.00	0.00	0.21	0.86	3.13	7.10	2.16	48.40	38.14
	(0.00)	(0.00)	(0.51)	(1.77)	(2.03)	(3.70)	(2.58)	(10.43)	(8.27)

Note: Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

For an example of this higher stability for higher ratings, issuers rated 'AAA' were still rated 'AAA' one year later 87.3% of the time. By contrast, just 45% of issuers in the 'CCC'/'C' category were still rated in that category one year later. This relationship between higher ratings and higher ratings stability holds even over longer time periods (see table 21) and when broken out by region (see table 22).

Table 22

Average one-year corporate transition rates (1981 to 2023) (%)

From/to	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
U.S.									
AAA	87.54	8.55	0.56	0.04	0.16	0.04	0.04	0.00	3.07
	(10.21)	(10.03)	(1.13)	(0.20)	(0.39)	(0.27)	(0.27)	(0.00)	(2.54)
AA	0.48	87.57	7.20	0.54	0.07	0.09	0.03	0.03	3.97
	(0.52)	(6.13)	(4.56)	(0.81)	(0.22)	(0.27)	(0.11)	(0.15)	(2.32)
A	0.04	1.55	88.76	5.12	0.33	0.13	0.03	0.06	3.98
	(0.12)	(1.23)	(4.35)	(2.52)	(0.48)	(0.30)	(0.10)	(0.15)	(1.83)
BBB	0.01	0.10	3.23	87.13	3.44	0.54	0.09	0.19	5.26
	(0.05)	(0.17)	(1.90)	(4.80)	(1.81)	(0.82)	(0.15)	(0.30)	(1.85)
BB	0.02	0.04	0.16	4.61	78.10	7.43	0.55	0.68	8.42
	(0.08)	(0.11)	(0.28)	(2.29)	(5.39)	(3.99)	(0.65)	(0.83)	(2.41)

Table 22

Average one-year corporate transition rates (1981 to 2023) (%) (cont.)

B	0.00	0.03	0.08	0.16	4.16	75.78	4.99	3.18	11.61
	(0.00)	(0.09)	(0.21)	(0.23)	(1.98)	(4.18)	(2.78)	(3.13)	(2.52)
CCC/C	0.00	0.00	0.12	0.18	0.51	12.62	44.69	27.83	14.05
	(0.00)	(0.00)	(0.47)	(0.69)	(1.02)	(8.09)	(8.10)	(12.55)	(4.79)
From/to	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
Europe									
AAA	87.20	9.03	0.46	0.00	0.00	0.00	0.11	0.00	3.20
	(8.75)	(7.61)	(1.37)	(0.00)	(0.00)	(0.00)	(0.80)	(0.00)	(4.60)
AA	0.25	86.61	9.35	0.50	0.00	0.00	0.00	0.00	3.29
	(0.63)	(7.02)	(6.41)	(1.11)	(0.00)	(0.00)	(0.00)	(0.00)	(2.35)
A	0.01	1.67	88.59	4.92	0.13	0.03	0.00	0.03	4.62
	(0.04)	(1.72)	(5.00)	(3.42)	(0.31)	(0.39)	(0.00)	(0.08)	(1.91)
BBB	0.00	0.06	3.80	86.34	3.06	0.26	0.09	0.05	6.35
	(0.00)	(1.14)	(1.95)	(4.84)	(2.55)	(0.47)	(0.25)	(0.18)	(2.84)
BB	0.00	0.00	0.08	5.21	75.67	6.38	0.35	0.35	11.95
	(0.00)	(0.00)	(0.54)	(2.58)	(6.52)	(3.33)	(0.89)	(0.76)	(4.38)
B	0.00	0.00	0.02	0.18	4.60	74.15	5.01	1.79	14.25
	(0.00)	(0.00)	(0.18)	(0.44)	(3.04)	(6.05)	(3.02)	(2.82)	(4.70)
CCC/C	0.00	0.00	0.00	0.16	0.00	13.51	44.72	25.00	16.61
	(0.00)	(0.00)	(0.00)	(0.55)	(0.00)	(8.91)	(14.98)	(14.56)	(8.06)
From/to	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
Emerging and frontier markets									
AAA	86.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
	(35.52)	(30.71)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(20.06)
AA	1.40	86.59	9.22	0.00	0.00	0.00	0.00	0.00	2.79
	(8.34)	(17.47)	(14.38)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(5.06)
A	0.00	0.92	91.80	4.19	0.22	0.18	0.00	0.03	2.65
	(0.00)	(1.41)	(5.43)	(4.03)	(0.70)	(0.48)	(0.00)	(0.15)	(2.92)
BBB	0.00	0.01	1.77	87.87	4.15	0.32	0.13	0.09	5.65
	(0.00)	(0.08)	(1.93)	(5.40)	(4.01)	(1.09)	(0.90)	(0.33)	(2.42)
BB	0.00	0.00	0.03	3.62	80.71	4.56	0.56	0.55	9.97
	(0.00)	(0.00)	(1.16)	(2.47)	(4.45)	(2.51)	(1.75)	(1.09)	(3.46)
B	0.00	0.00	0.00	0.11	5.86	71.85	4.11	3.07	15.01
	(0.00)	(0.00)	(0.00)	(0.27)	(3.92)	(5.00)	(3.59)	(3.21)	(3.62)
CCC/C	0.00	0.00	0.00	0.00	0.36	15.91	48.22	17.93	17.58
	(0.00)	(0.00)	(0.00)	(0.00)	(0.87)	(13.23)	(16.74)	(14.23)	(10.02)

Note: Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

The relationship is more discontinuous when we examine rating transitions across modifiers--these variations are, in part, a result of sample sizes (see table 23). For example, 'AA+' rated issuers were still rated 'AA+' one year later 80.6% of the time, while 81.2% of 'AA' rated issuers were still rated 'AA' one year later. In this case, the 'AA+' figure is derived from a much smaller sample than that for 'AA'.

Table 23

Average one-year transition rates for global corporates by rating modifier, 1981 to 2023 (%)

From/to	--Rating--																		
	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC/C	D	NR
AAA	87.26	5.78	2.49	0.67	0.15	0.23	0.13	0.00	0.03	0.00	0.03	0.05	0.03	0.00	0.03	0.00	0.05	0.00	3.08
	(7.36)	(6.14)	(3.15)	(1.03)	(0.44)	(0.55)	(0.33)	(0.00)	(0.13)	(0.00)	(0.17)	(0.18)	(0.13)	(0.00)	(0.17)	(0.00)	(0.34)	(0.00)	(2.45)
AA+	2.08	80.58	10.09	3.22	0.64	0.34	0.17	0.04	0.08	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.71
	(3.55)	(11.96)	(7.31)	(3.94)	(2.18)	(0.87)	(0.45)	(0.23)	(0.62)	(0.21)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(2.86)
AA	0.40	1.37	81.22	8.36	2.58	1.11	0.34	0.37	0.12	0.08	0.05	0.03	0.02	0.02	0.00	0.02	0.05	0.02	3.87
	(0.51)	(1.66)	(9.05)	(6.38)	(2.55)	(1.21)	(0.57)	(0.80)	(0.34)	(0.23)	(0.16)	(0.12)	(0.10)	(0.11)	(0.00)	(0.09)	(0.15)	(0.08)	(2.44)
AA-	0.04	0.10	3.54	79.58	9.53	2.11	0.56	0.23	0.15	0.06	0.02	0.00	0.00	0.02	0.07	0.00	0.00	0.02	3.97
	(0.12)	(0.29)	(4.21)	(7.55)	(4.81)	(2.51)	(0.83)	(0.46)	(0.41)	(0.23)	(0.19)	(0.00)	(0.00)	(0.14)	(0.35)	(0.00)	(0.00)	(0.09)	(1.96)
A+	0.00	0.08	0.39	4.07	80.06	8.13	1.95	0.55	0.30	0.08	0.05	0.08	0.01	0.06	0.03	0.00	0.00	0.04	4.13
	(0.00)	(0.26)	(0.67)	(2.63)	(7.15)	(3.55)	(1.51)	(0.62)	(0.42)	(0.18)	(0.15)	(0.23)	(0.05)	(0.17)	(0.12)	(0.00)	(0.00)	(0.13)	(1.89)
A	0.03	0.04	0.19	0.37	5.10	80.00	6.44	2.20	0.77	0.24	0.08	0.09	0.05	0.07	0.02	0.00	0.01	0.05	4.25
	(0.12)	(0.12)	(0.47)	(0.48)	(2.09)	(5.83)	(2.96)	(1.71)	(0.91)	(0.36)	(0.18)	(0.25)	(0.27)	(0.26)	(0.09)	(0.00)	(0.05)	(0.11)	(2.05)
A-	0.04	0.01	0.05	0.13	0.37	6.14	79.57	6.94	1.71	0.51	0.11	0.11	0.09	0.09	0.03	0.01	0.03	0.05	4.03
	(0.17)	(0.04)	(0.14)	(0.25)	(0.58)	(3.08)	(6.56)	(3.05)	(1.53)	(0.59)	(0.30)	(0.31)	(0.21)	(0.26)	(0.07)	(0.07)	(0.13)	(0.16)	(1.78)
BBB+	0.00	0.01	0.04	0.05	0.19	0.66	6.58	77.56	7.65	1.41	0.31	0.25	0.11	0.14	0.08	0.02	0.05	0.09	4.80
	(0.00)	(0.04)	(0.14)	(0.16)	(0.39)	(0.93)	(2.95)	(7.13)	(3.56)	(1.34)	(0.48)	(0.52)	(0.20)	(0.43)	(0.26)	(0.08)	(0.15)	(0.23)	(1.98)
BBB	0.01	0.01	0.03	0.02	0.08	0.27	0.89	7.11	77.45	5.91	1.20	0.58	0.24	0.19	0.10	0.05	0.05	0.14	5.68
	(0.06)	(0.06)	(0.12)	(0.11)	(0.20)	(0.62)	(0.90)	(3.22)	(5.65)	(2.37)	(1.04)	(0.65)	(0.42)	(0.41)	(0.34)	(0.12)	(0.11)	(0.25)	(1.89)
BBB-	0.01	0.01	0.01	0.04	0.05	0.11	0.23	1.02	8.84	73.50	5.34	1.91	0.74	0.35	0.20	0.14	0.19	0.21	7.10
	(0.06)	(0.04)	(0.05)	(0.18)	(0.15)	(0.33)	(0.49)	(1.13)	(3.08)	(5.35)	(2.69)	(1.41)	(0.73)	(0.68)	(0.43)	(0.40)	(0.49)	(0.37)	(2.14)
BB+	0.03	0.00	0.00	0.02	0.02	0.07	0.07	0.37	1.41	10.68	67.11	7.30	2.38	0.96	0.47	0.20	0.30	0.28	8.33
	(0.19)	(0.00)	(0.00)	(0.11)	(0.09)	(0.33)	(0.25)	(0.63)	(1.77)	(4.33)	(7.47)	(4.33)	(1.88)	(1.51)	(1.01)	(0.34)	(0.82)	(0.55)	(2.57)
BB	0.00	0.00	0.03	0.01	0.00	0.05	0.06	0.14	0.56	1.77	9.73	65.72	8.40	2.31	0.97	0.35	0.46	0.45	9.00
	(0.00)	(0.00)	(0.18)	(0.06)	(0.00)	(0.32)	(0.21)	(0.38)	(0.93)	(2.00)	(4.00)	(5.18)	(3.58)	(1.49)	(1.18)	(0.57)	(0.87)	(0.64)	(2.87)
BB-	0.00	0.00	0.00	0.01	0.01	0.01	0.05	0.08	0.20	0.29	1.55	9.77	64.21	8.29	2.89	0.76	0.71	0.88	10.28
	(0.00)	(0.00)	(0.00)	(0.09)	(0.07)	(0.07)	(0.26)	(0.22)	(0.40)	(0.58)	(1.54)	(4.34)	(5.38)	(3.84)	(1.52)	(0.73)	(0.79)	(1.32)	(2.46)
B+	0.00	0.01	0.00	0.03	0.00	0.03	0.05	0.04	0.05	0.12	0.27	1.39	8.49	62.61	9.35	2.52	1.72	1.86	11.47
	(0.00)	(0.05)	(0.00)	(0.13)	(0.00)	(0.08)	(0.18)	(0.12)	(0.15)	(0.20)	(0.30)	(1.06)	(3.62)	(5.68)	(4.04)	(1.41)	(1.60)	(1.91)	(2.67)
B	0.00	0.00	0.01	0.01	0.00	0.02	0.03	0.02	0.04	0.03	0.08	0.21	1.04	7.34	61.97	10.00	3.84	2.73	12.63
	(0.00)	(0.00)	(0.07)	(0.05)	(0.00)	(0.17)	(0.31)	(0.07)	(0.25)	(0.09)	(0.26)	(0.48)	(1.06)	(3.03)	(6.45)	(4.66)	(2.90)	(3.71)	(2.58)
B-	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.04	0.04	0.07	0.05	0.13	0.33	1.83	9.53	56.80	11.99	5.33	13.81

Table 23

Average one-year transition rates for global corporates by rating modifier, 1981 to 2023 (%) (cont.)

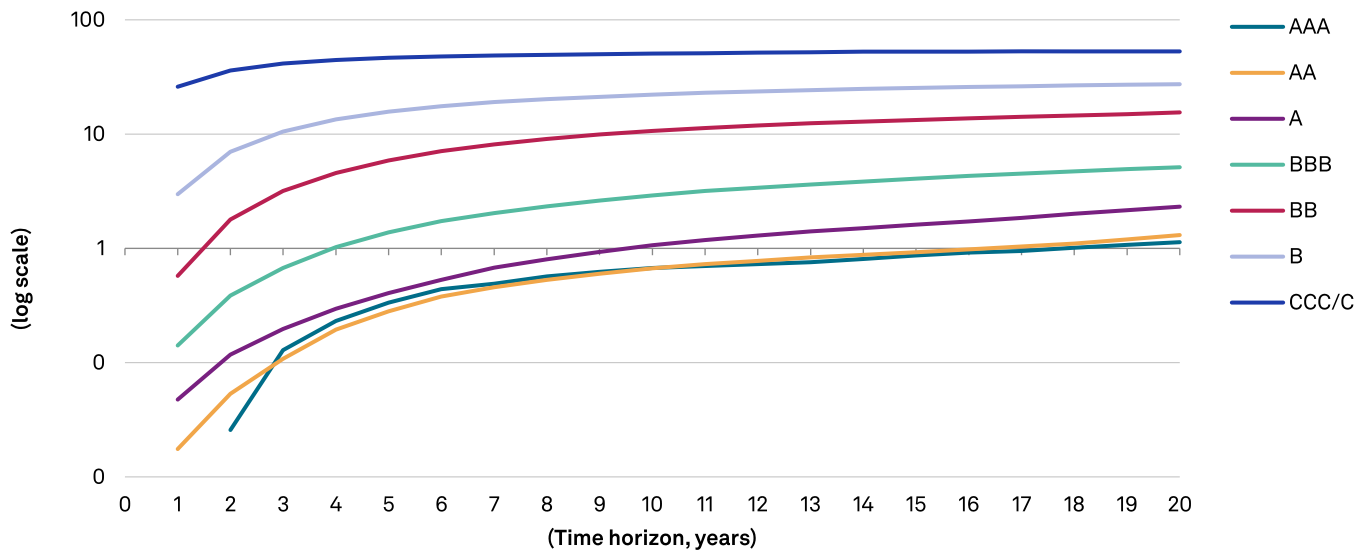
From/to	--Rating--																		
	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC/C	D	NR
	(0.00)	(0.00)	(0.00)	(0.00)	(0.24)	(0.23)	(0.00)	(0.26)	(0.15)	(0.35)	(0.36)	(0.68)	(0.73)	(2.03)	(4.57)	(7.11)	(5.51)	(5.39)	(3.85)
CCC/C	0.00	0.00	0.00	0.00	0.02	0.00	0.06	0.04	0.06	0.04	0.02	0.12	0.29	0.74	2.44	10.16	44.95	25.98	15.08
	(0.00)	(0.00)	(0.00)	(0.00)	(0.19)	(0.00)	(0.31)	(0.38)	(0.27)	(0.31)	(0.19)	(0.43)	(0.65)	(1.33)	(2.55)	(5.68)	(8.42)	(11.65)	(4.51)

Note: Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Generally, the highest proportions of rating changes for either a rating category or rating modifier occur at adjacent rating categories and rating modifiers. Small sample sizes can result in historical default rates that seem counterintuitive. But these default rates do not imply that, for example, 'AAA' rated companies are riskier than 'AA+' rated companies, but rather that both are highly unlikely to default (see table 26).

Chart 25

Global corporate average cumulative default rates by rating (1981 to 2023)



*Data provided is identical to that found in chart 4, converted to log-scale. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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Table 24

Global corporate average cumulative default rates (1981 to 2023) (%)

Rating	--Time horizon (years)--														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AAA	0.00	0.03	0.13	0.23	0.34	0.44	0.49	0.57	0.62	0.68	0.70	0.73	0.75	0.81	0.86
AA	0.02	0.05	0.11	0.19	0.28	0.38	0.46	0.53	0.60	0.67	0.73	0.78	0.83	0.88	0.93
A	0.05	0.12	0.20	0.30	0.41	0.53	0.68	0.80	0.93	1.07	1.19	1.30	1.41	1.51	1.62
BBB	0.14	0.39	0.68	1.02	1.38	1.73	2.03	2.33	2.63	2.90	3.18	3.40	3.61	3.84	4.07
BB	0.57	1.79	3.19	4.57	5.88	7.08	8.12	9.07	9.93	10.69	11.32	11.91	12.43	12.86	13.32
B	2.98	6.99	10.55	13.44	15.75	17.60	19.04	20.20	21.22	22.18	23.01	23.64	24.24	24.81	25.38
CCC/C	25.98	35.95	41.42	44.49	46.65	47.69	48.78	49.47	50.07	50.64	51.10	51.60	52.17	52.59	52.65
Investment grade	0.08	0.22	0.38	0.58	0.78	0.99	1.18	1.37	1.54	1.72	1.88	2.01	2.15	2.28	2.42
Speculative grade	3.52	6.77	9.56	11.83	13.70	15.22	16.46	17.50	18.42	19.27	19.98	20.58	21.14	21.64	22.12
All rated	1.49	2.89	4.11	5.13	5.99	6.70	7.30	7.80	8.25	8.66	9.01	9.31	9.58	9.84	10.08

Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 25

Average cumulative default rates for corporates by region (1981 to 2023) (%)

Rating	--Time horizon (years)--														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
U.S.															
AAA	0.00	0.04	0.16	0.28	0.40	0.53	0.57	0.65	0.73	0.81	0.85	0.89	0.93	1.02	1.10
AA	0.03	0.07	0.16	0.28	0.40	0.53	0.66	0.78	0.87	0.98	1.06	1.14	1.21	1.28	1.36
A	0.06	0.18	0.31	0.47	0.62	0.80	1.01	1.20	1.40	1.61	1.80	1.97	2.14	2.28	2.44
BBB	0.19	0.49	0.84	1.29	1.76	2.23	2.65	3.06	3.47	3.87	4.24	4.52	4.79	5.08	5.39
BB	0.68	2.14	3.88	5.57	7.11	8.59	9.87	11.06	12.11	13.08	13.90	14.67	15.35	15.89	16.45
B	3.18	7.54	11.46	14.64	17.18	19.24	20.85	22.13	23.25	24.30	25.18	25.87	26.54	27.17	27.79
CCC/C	27.83	39.03	45.06	48.65	51.21	52.38	53.74	54.48	55.21	55.87	56.50	57.00	57.53	57.97	57.97
Investment grade	0.11	0.28	0.50	0.76	1.04	1.33	1.60	1.86	2.11	2.37	2.60	2.79	2.97	3.15	3.34
Speculative grade	3.95	7.70	10.95	13.58	15.73	17.51	18.96	20.16	21.23	22.22	23.05	23.76	24.42	24.99	25.54
All rated	1.82	3.57	5.11	6.40	7.47	8.38	9.14	9.79	10.37	10.91	11.37	11.76	12.11	12.44	12.76
Europe															
AAA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
AA	0.00	0.02	0.05	0.10	0.14	0.20	0.22	0.25	0.28	0.28					
A	0.03	0.06	0.09	0.13	0.20	0.26	0.33	0.35	0.37	0.38					
BBB	0.05	0.14	0.25	0.37	0.48	0.66	0.82	0.98	1.15	1.30					
BB	0.35	1.13	1.90	2.59	3.40	4.09	4.72	5.18	5.58	5.98					

Table 25

Average cumulative default rates for corporates by region (1981 to 2023) (%) (cont.)

Rating	--Time horizon (years)--														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
B	1.79	4.73	7.48	9.78	11.78	13.28	14.40	15.18	15.86	16.41					
CCC/C	25.00	35.29	40.84	44.95	46.90	47.49	47.83	48.23	48.23	48.80					
Investment grade	0.03	0.08	0.13	0.20	0.27	0.36	0.45	0.51	0.57	0.62					
Speculative grade	2.78	5.36	7.48	9.20	10.69	11.79	12.64	13.25	13.77	14.23					
All rated	0.82	1.58	2.19	2.69	3.12	3.45	3.71	3.89	4.04	4.17					
Emerging and frontier markets															
AAA	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	0.00	0.00	0.00	0.00					
A	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03					
BBB	0.09	0.40	0.77	1.19	1.58	1.83	1.98	2.09	2.17	2.20					
BB	0.55	1.56	2.63	3.68	4.59	5.31	5.94	6.50	7.00	7.37					
B	3.07	6.25	8.69	10.74	12.32	13.53	14.61	15.52	16.28	17.08					
CCC/C	17.93	23.11	26.09	26.82	28.02	28.95	29.74	30.58	31.12	31.51					
Investment grade	0.07	0.28	0.53	0.81	1.08	1.25	1.35	1.43	1.48	1.50					
Speculative grade	2.58	4.71	6.43	7.87	9.06	9.99	10.81	11.53	12.15	12.70					
All rated	1.47	2.76	3.84	4.78	5.57	6.18	6.70	7.15	7.53	7.87					

Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 26

Global corporate average cumulative default rates by rating modifier (1981 to 2023) (%)

Rating	--Time horizon (years)--														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AAA	0.00	0.03	0.13	0.23	0.34	0.44	0.49	0.57	0.62	0.68	0.70	0.73	0.75	0.81	0.86
AA+	0.00	0.04	0.04	0.09	0.14	0.18	0.23	0.28	0.33	0.38	0.44	0.49	0.55	0.60	0.66
AA	0.02	0.03	0.08	0.21	0.34	0.45	0.57	0.67	0.75	0.84	0.91	0.96	1.05	1.11	1.16
AA-	0.02	0.07	0.15	0.21	0.28	0.37	0.43	0.49	0.55	0.61	0.66	0.71	0.72	0.76	0.80
A+	0.04	0.08	0.17	0.28	0.37	0.45	0.54	0.63	0.74	0.86	0.96	1.08	1.20	1.35	1.48
A	0.05	0.12	0.19	0.29	0.40	0.55	0.70	0.83	0.99	1.17	1.31	1.42	1.52	1.58	1.71
A-	0.05	0.14	0.22	0.32	0.44	0.57	0.76	0.90	1.01	1.11	1.21	1.33	1.44	1.53	1.61
BBB+	0.09	0.24	0.43	0.61	0.81	1.04	1.21	1.41	1.66	1.90	2.11	2.26	2.43	2.63	2.84
BBB	0.14	0.34	0.53	0.84	1.14	1.45	1.74	2.02	2.31	2.59	2.88	3.11	3.32	3.44	3.64
BBB-	0.21	0.62	1.15	1.75	2.36	2.89	3.36	3.80	4.15	4.48	4.81	5.10	5.37	5.76	6.07

Table 26

Global corporate average cumulative default rates by rating modifier (1981 to 2023) (%) (cont.)

Rating	--Time horizon (years)--														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
BB+	0.28	0.87	1.56	2.29	3.02	3.74	4.35	4.76	5.25	5.75	6.10	6.53	6.94	7.24	7.71
BB	0.45	1.40	2.72	3.92	5.17	6.20	7.14	7.99	8.83	9.57	10.32	10.86	11.31	11.61	11.93
BB-	0.88	2.74	4.68	6.67	8.41	10.07	11.48	12.87	13.98	14.91	15.62	16.35	16.99	17.60	18.16
B+	1.86	5.06	8.21	10.92	13.14	14.85	16.39	17.69	18.86	19.95	20.88	21.54	22.27	22.97	23.63
B	2.73	6.44	9.79	12.60	14.88	16.88	18.25	19.26	20.21	21.15	21.75	22.37	22.84	23.22	23.66
B-	5.33	11.35	16.13	19.58	22.19	24.05	25.48	26.59	27.42	28.10	29.05	29.66	30.16	30.71	31.16
CCC/C	25.98	35.95	41.42	44.49	46.65	47.69	48.78	49.47	50.07	50.64	51.10	51.60	52.17	52.59	52.65
Investment grade	0.08	0.22	0.38	0.58	0.78	0.99	1.18	1.37	1.54	1.72	1.88	2.01	2.15	2.28	2.42
Speculative grade	3.52	6.77	9.56	11.83	13.70	15.22	16.46	17.50	18.42	19.27	19.98	20.58	21.14	21.64	22.12
All rated	1.49	2.89	4.11	5.13	5.99	6.70	7.30	7.80	8.25	8.66	9.01	9.31	9.58	9.84	10.08

Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Gini Ratios And Lorenz Curves

A quantitative analysis of the performance of S&P Global Ratings' corporate ratings shows that they continue to correlate with default risk across several time horizons. As one measure of ratings performance, we plotted the cumulative share of defaulters against the cumulative share of issuers by rating in a Lorenz curve to visually render the accuracy of its rank ordering (for definitions and methodology, refer to Appendix II).

Over the long term, the global weighted average Gini coefficient was 82.6% over the one-year horizon, 75.2% over three years, 71.7% over five years, and 69.2% over seven years (see table 27). If the rank ordering of ratings had little predictive value, the cumulative share of defaulting corporate entities and the cumulative share of all entities at each rating would be nearly the same, producing a Gini ratio of zero.

Table 27

Corporate Gini coefficients by region (1981-2023)

Region	--Time horizon--			
	One-year	Three-year	Five-year	Seven-year
Global				
Weighted average	82.63	75.16	71.65	69.17
Average	85.57	78.73	74.58	71.58
Standard deviation	5.37	5.00	5.23	5.20
U.S.				
Weighted average	80.51	72.39	68.85	66.34

Table 27

Corporate Gini coefficients by region (1981-2023) (cont.)

Region	--Time horizon--			
	One-year	Three-year	Five-year	Seven-year
Average	84.52	76.58	72.12	68.99
Standard deviation	6.68	6.43	6.43	6.03
Europe				
Weighted average	89.95	85.00	82.58	79.76
Average	91.35	87.22	82.47	77.17
Standard deviation	4.95	5.19	5.96	10.17

Note: Numbers in parentheses are standard deviations. Average and standard deviation for Europe calculated for the period 1996-2023 due to sample size considerations. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 28

Gini coefficients for global corporates by broad sector (1981-2023)

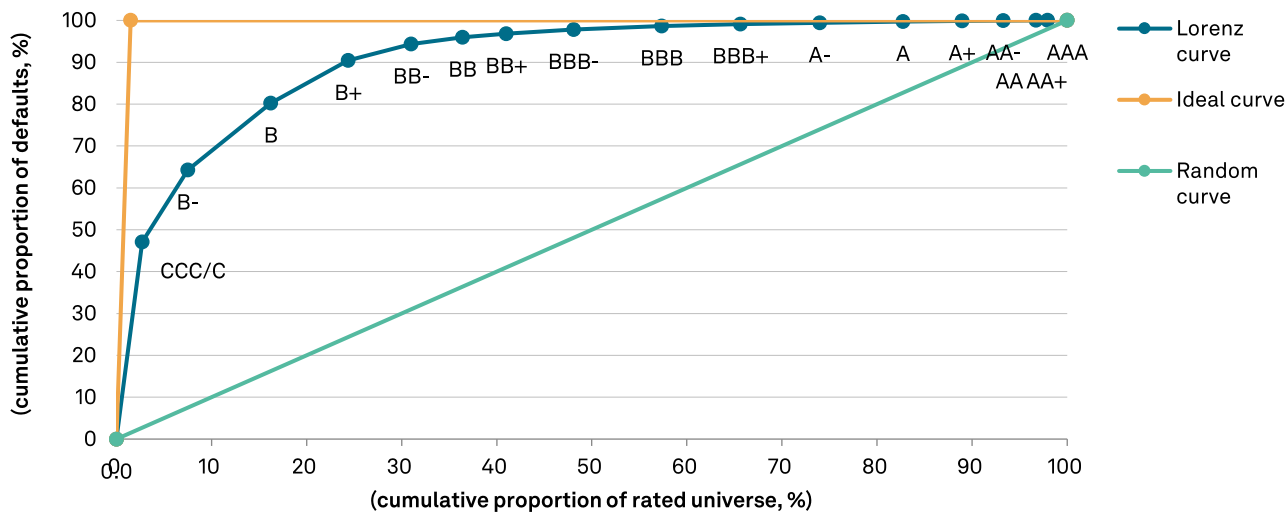
Sector	--Time horizon--			
	One-year	Three-year	Five-year	Seven-year
Financial				
Weighted average	80.15	70.31	63.79	59.38
Average	83.56	77.13	70.26	64.76
Standard deviation	19.48	14.55	16.79	17.26
Nonfinancial				
Weighted average	80.62	72.13	68.54	66.14
Average	84.49	76.70	72.51	69.60
Standard deviation	5.93	5.12	5.25	4.95

Note: Numbers in parentheses are standard deviations. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

In line with our expectations, the Gini coefficients decline over time because longer time horizons allow for greater credit deterioration among higher-rated entities. For example, in the one-year global Lorenz curve, 96.8% of defaults occurred in the speculative-grade category, which constituted just 41.0% of all corporate ratings (see chart 26).

Chart 26

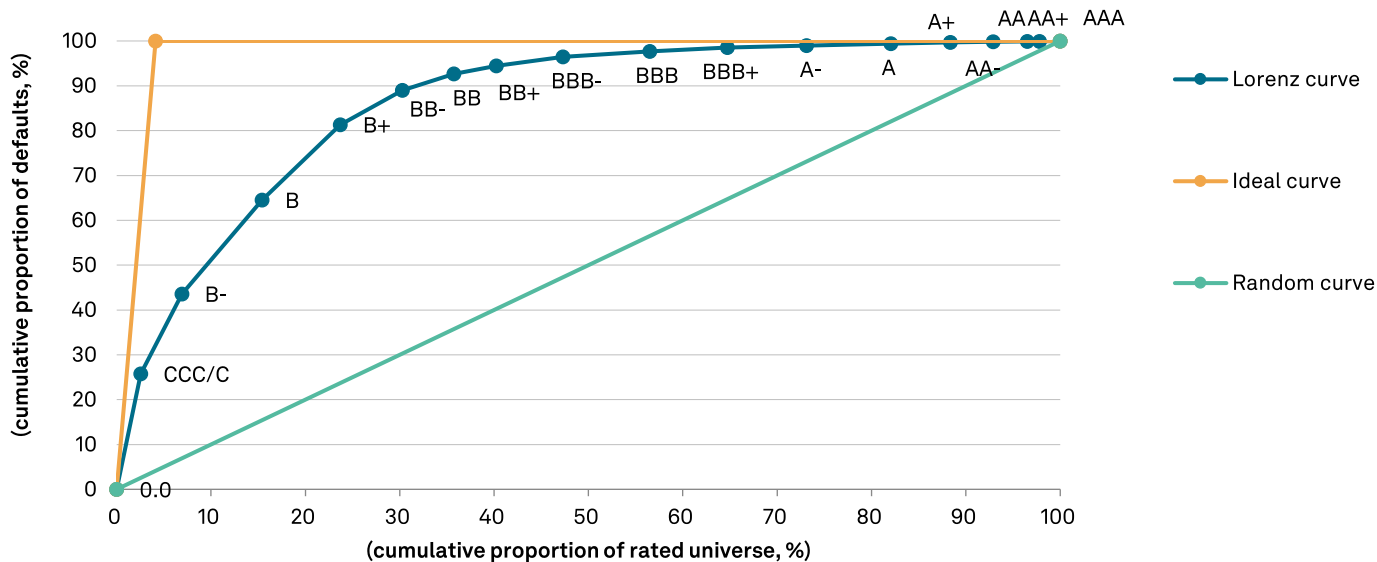
Global one-year relative corporate ratings performance (1981-2023)



Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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Chart 27

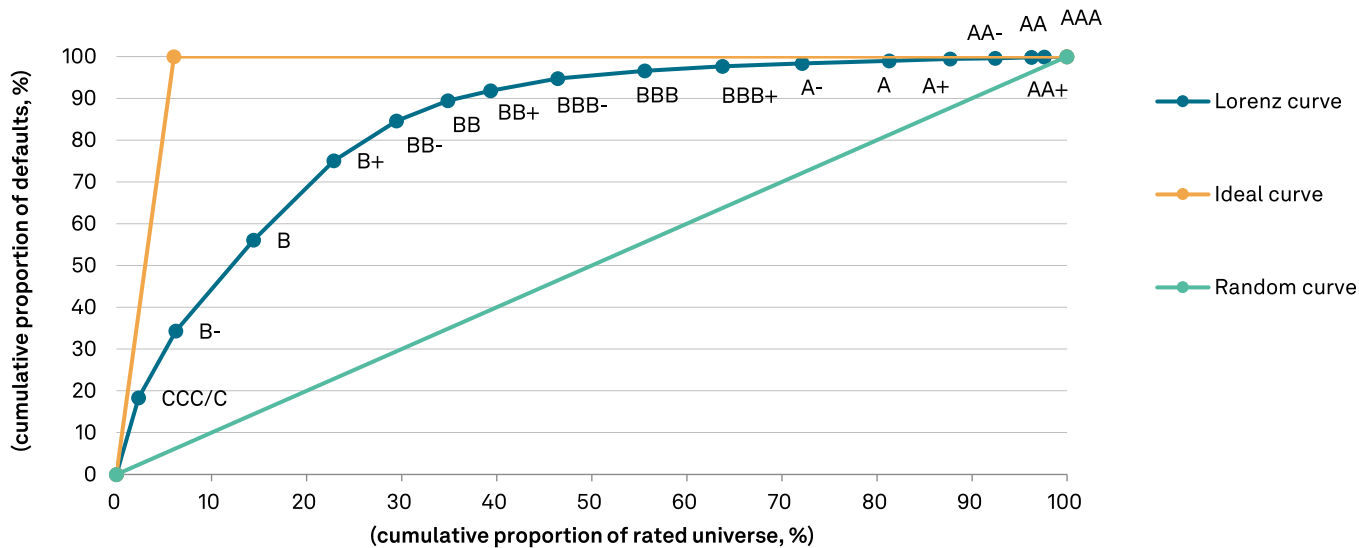
Global three-year relative corporate ratings performance (1981-2023)



Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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Chart 28

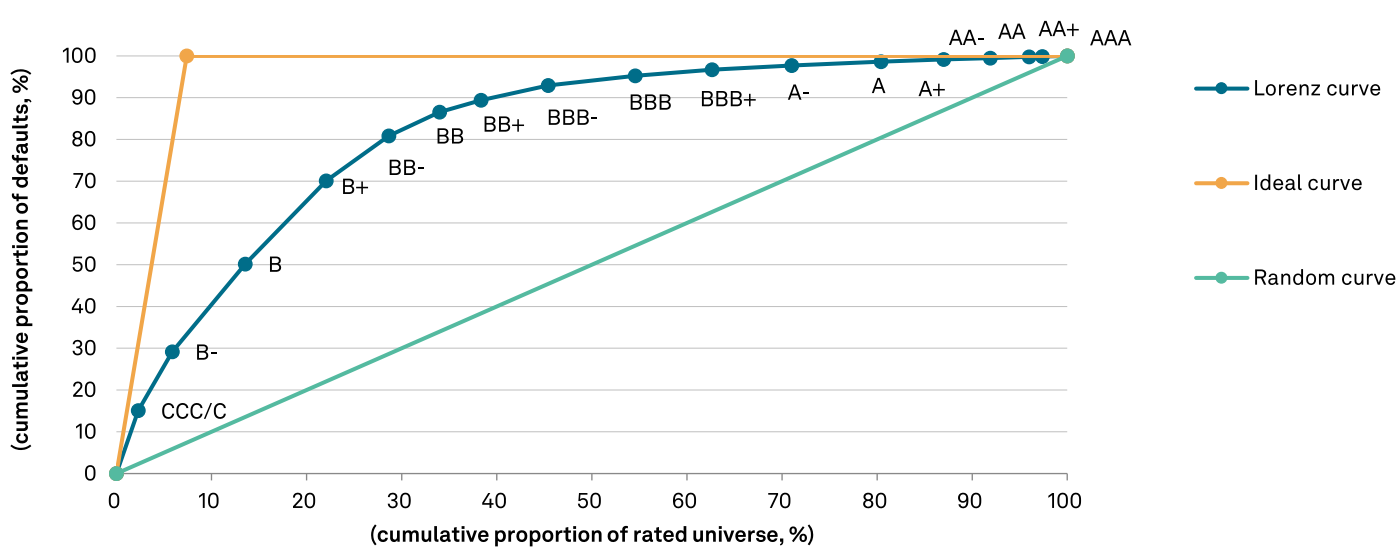
Global five-year relative corporate ratings performance (1981-2023)



Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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Chart 29

Global seven-year relative corporate ratings performance (1981-2023)

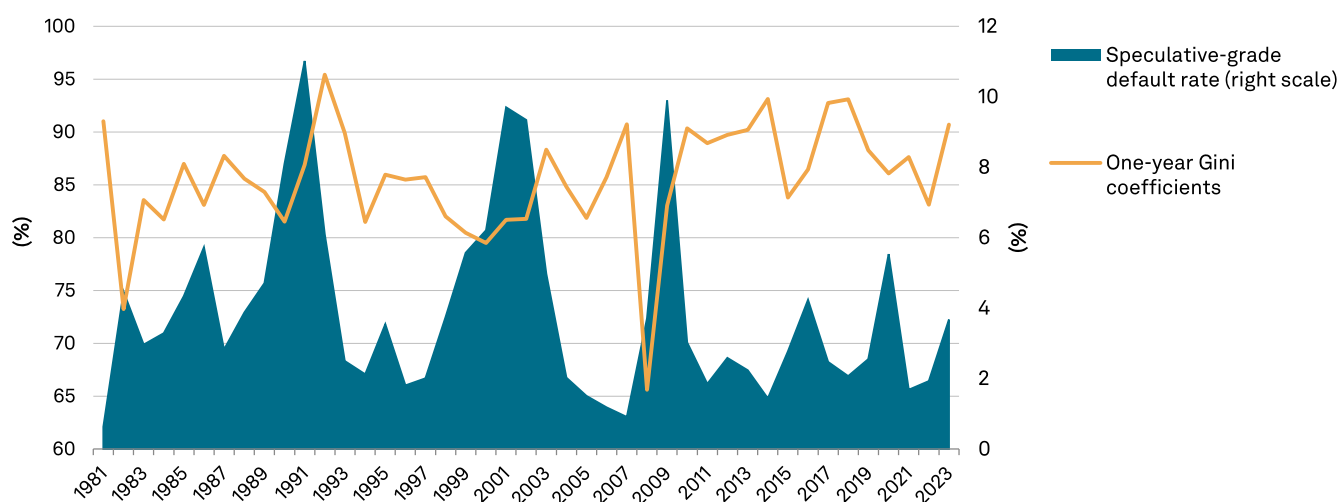


Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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One-year Gini coefficients appear to be broadly cyclical and negatively correlated with default rates (see chart 30). In an economic downturn, the risk that higher-rated issuers experience rapid credit deterioration rises; in periods with high default rates, there tends to be greater variation in the distribution of issuer ratings prior to default, which reduces the Gini ratio.

Chart 30

Global one-year Gini coefficients versus speculative-grade default rate



Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.
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Appendix I: Methodology And Definitions

This long-term corporate default and rating transition study uses the CreditPro database of long-term local currency issuer credit ratings. The analysis excludes public information ("pi") ratings and ratings based on the guarantee of another company or government entity. We also do not include short-term issuer credit ratings.

S&P Global Ratings does not require all issuers with rated debt to have an issuer credit rating. Therefore, if an issuer has rated debt but not an issuer credit rating, we assign a proxy rating so that the CreditPro corporate dataset accurately represents the complete universe of ratings. The local currency senior unsecured rating is the preferred debt rating used for the proxy because it is usually consistent with the issuer credit rating. In a small number of cases, we use the subordinated debt rating or the senior secured rating as the proxy.

An S&P Global Ratings issuer credit rating is a forward-looking opinion about an obligor's overall creditworthiness. This opinion focuses on the obligor's capacity and willingness to meet its financial commitments as they come due. It does not apply to any specific financial obligation because it does not take into account the nature and provisions of any single obligation, its standing in bankruptcy or liquidation, statutory preferences, or the legality and enforceability of the obligation. Counterparty credit ratings and sovereign credit ratings are forms of issuer credit ratings. Issuer credit ratings can be either long term or short term.

Our ongoing enhancement of the database used to generate this study could lead to outcomes that differ to some degree from those reported in previous studies. However, this poses no continuity problem because each study reports statistics back to Dec. 31, 1980. Therefore, each annual default study is self-contained and effectively supersedes all previous versions.

Issuers included in this study

This study analyzes the rating histories of 23,288 issuers that S&P Global Ratings rated as of Dec. 31, 1980, or that were first rated between that date and Dec. 31, 2023. These include industrials, utilities, financial institutions, and insurance companies around the world with long-term local currency ratings. Structured finance vehicles, public-sector issuers, and sovereign issuers are the subjects of separate default and transition studies, and we exclude them from this study.

In this study, the insurance industry includes life insurance, health insurance, property/casualty insurance, reinsurance, bond insurance, mortgage insurance, and title insurance. In addition to these subsectors, this study groups insurance service providers (such as insurance brokers and third-party administrators that are rated according to corporate criteria) with the insurance industry.

To avoid overcounting, we exclude subsidiaries with debt that is fully guaranteed by a parent or with default risk that is considered identical to that of a parent. The latter are companies with obligations that are not legally guaranteed by a parent but that have operating or financing activities that are so inextricably entwined with those of the parent that it would be impossible to imagine the default of one and not the other. At times, however, some of these subsidiaries might not yet have been covered by a parent's guarantee, or the relationship that combines the default risk of parent and subsidiary might have come to an end or might not have begun. We included such subsidiaries for the period during which they had a distinct and separate risk of default.

Issuers with withdrawn ratings

S&P Global Ratings withdraws ratings when an entity's entire debt is paid off or when the program or programs rated are terminated and the relevant debt extinguished. Others are withdrawn because of a lack of cooperation, particularly when a company is experiencing financial difficulties and refuses to provide all the information needed to continue surveillance on the ratings, or at the entity's request. For the purposes of this study, an issuer credit rating may also be withdrawn as a result of mergers and acquisitions.

Definition of default

An obligor rated 'SD' (selective default) or 'D' (default) is in default on one or more of its financial obligations, including rated and unrated financial obligations but excluding hybrid instruments classified as regulatory capital or in nonpayment according to terms. An obligor is considered in default unless S&P Global Ratings believes that such payments will be made within five business days of the due date in the absence of a stated grace period, or within the earlier of the stated grace period or 30 calendar days.

A 'D' rating is assigned when S&P Global Ratings believes that the default will be a general default and that the obligor will fail to pay all or substantially all of its obligations as they come due. An 'SD' rating is assigned when S&P Global Ratings believes that the obligor has selectively defaulted on a specific issue or class of obligations but will continue to meet its payment obligations on other issues or classes of obligations in a timely manner. S&P Global Ratings lowers its rating on

an obligor to 'D' or 'SD' if the obligor is conducting a distressed exchange offer.

'R' (regulatory intervention) indicates that an obligor is under regulatory supervision owing to its financial condition. This does not necessarily indicate a default event, but during the period of regulatory supervision, the regulators may have the power to favor one class of obligations over others or pay some obligations and not others. Preferred stock is not considered a financial obligation; thus, a missed preferred stock dividend is not normally equated with default. On July 5, 2020, we removed the 'R' symbol from all rating scales.

We deem 'D', 'SD', and 'R' issuer ratings to be defaults for the purposes of this study. A default is assumed to take place on the earliest of:

- The date S&P Global Ratings revised the rating(s) to 'D', 'SD', or 'R';
- The date a debt payment was missed;
- The date a distressed exchange offer was announced; or
- The date the debtor filed for, or was forced into, bankruptcy.

When an issuer defaults, it is not uncommon for S&P Global Ratings to subsequently withdraw the 'D' rating. For the purposes of this study, if an issuer defaults, we end its rating history at 'D'. If any defaulting entity reemerges from bankruptcy--or otherwise restructures its defaulted debt instruments, thereby reestablishing regular, timely payment of all its debts--we reenter this issuer into the database as a new entity. Its rating history after the default event is included in all calculations as entirely separate from its experience leading up to its earlier default.

Many practitioners use statistics from this default study to estimate the "probability of default" and "probability of rating transition." It is important to note that S&P Global Ratings' credit ratings do not imply a specific probability of default.

Regional definitions

Within this study, tables and charts are often presented using specific geographic regions. Some countries can be included in multiple regions, and S&P Global Ratings does not have corporate issuer credit ratings in every country. The regions covered in this study are:

U.S. and tax havens: U.S., Bermuda, and the Cayman Islands

Other developed: Australia, Brunei Darussalam, Canada, Israel, Japan, Republic of Korea, New Zealand, and Singapore

Europe: Austria, Belgium, British Virgin Islands, Bulgaria, Channel Islands, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Gibraltar, Greece, Guernsey, Hungary, Iceland, Ireland, Isle of Man, Italy, Jersey, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova Republic of, Monaco, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, and the U.K.

Emerging markets in this study consist of the following subregions:

Asia-Pacific: Bangladesh, Bhutan, China, Fiji, Hong Kong, India, Indonesia, Macao Special Administrative Region of China, Malaysia, Mongolia, Pakistan, Papua New Guinea, Philippines, Sri Lanka, Taiwan, Thailand, British Indian Ocean Territory, and Vietnam

EMEA: Angola, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Bulgaria, Cote d'Ivoire, Croatia, Cyprus, Egypt, Estonia, Gabon, Georgia, Ghana, Hungary, Jordan, Kazakhstan, Kenya, Kuwait, Latvia, Lebanon, Lithuania, Mauritius, Montenegro, Morocco, Namibia, Nigeria, Oman, Poland, Qatar, Republic of Moldova, Romania, Russia, Saudi Arabia, Slovakia, South Africa, Tunisia, Turkiye, Ukraine, United Arab Emirates, and Uzbekistan

Latin America and Caribbean: Argentina, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Honduras, Jamaica, Mexico, Panama, Paraguay, Peru, Trinidad and Tobago, and Uruguay

Frontier markets in this study consist of the following subregions:

Asia-Pacific: Cambodia and Marshall Islands

EMEA: Liberia, Syria, and Togo

Latin America and Caribbean: Aruba, Bahamas, Curacao, Netherlands Antilles*, Turks and Caicos Islands, and Venezuela

*The Netherlands Antilles was dissolved in 2010.

Calculations

Static pool methodology. S&P Global Ratings Credit Research & Insights conducts its default studies on the basis of groupings called static pools. For the purposes of this study, we form static pools by grouping issuers (for example, by rating category) at the beginning of each year, quarter, or month that the database covers. Each static pool is followed from that point forward. All companies included in the study are assigned to one or more static pools. When an issuer defaults, we assign that default to all of the static pools to which the issuer belonged.

We use the static pool methodology to avoid certain pitfalls in estimating default rates, such as by ensuring that default rates account for rating migration and allowing for default rates to be calculated across multiperiod time horizons. Some methods for calculating default and rating transition rates might charge defaults against only the initial rating on the issuer, ignoring more recent rating changes that supply more current information. Other methods may calculate default rates using only the most recent year's default and rating data, which may yield comparatively low default rates during periods of high rating activity because they ignore previous years' default activity.

The pools are static in the sense that their membership remains constant over time. Each static pool can be interpreted as a buy-and-hold portfolio. Because errors, if any, are corrected by every new update and because the criteria for inclusion or exclusion of companies in the default study are subject to minor revisions as time goes by, it is not possible to compare static pools across different studies. Therefore, every update revises results back to the same starting date of Dec. 31, 1980, so as to avoid continuity problems.

Entities that have had ratings withdrawn--that is, revised to not rated (NR)--are surveilled with the aim of capturing a potential default. Because static pools include only entities with active ratings as of the beginning date of a given pool, we exclude companies with withdrawn ratings, as well as those that have defaulted, from subsequent static pools. If the rating on an entity is withdrawn after the start date of a particular static pool and the entity subsequently defaults, we will include the entity in that static pool as a defaulter and categorize it in the rating category of which it was a member at that time.

For instance, the 1981 static pool consists of all companies rated as of 12:00:01 a.m. on Jan. 1, 1981. Adding those companies first rated in 1981 to the surviving members (those still actively rated and not in default) of the 1981 static pool forms the 1982 static pool. All rating changes that took place are reflected in the newly formed 1982 static pool through the ratings on these entities as of 12:00:01 a.m. on Jan. 1, 1982. We used the same method to form static pools for 1983-2023. From Jan. 1, 1981-Dec. 31, 2023, a total of 23,288 first-time-rated organizations were added to form new static pools, while we excluded 3,409 defaulting companies and 13,065 companies that are no longer rated.

Consider the following example: An issuer is originally rated 'BB' in mid-1986 and is downgraded to 'B' in 1988. This is followed by a rating withdrawal in 1990 and a default in 1993. We would include this hypothetical company in the 1987 and 1988 pools with the 'BB' rating, which was the rating on the issuer at the beginning of those years. Likewise, it would be included in the 1989 and 1990 pools with the 'B' rating. It would not be part of the 1986 pool because it was not rated as of the first day of that year, and it would not be included in any pool after the last day of 1990 because the rating had been withdrawn by then. Yet each of the four pools in which this company was included (1987-1990) would record its 1993 default at the appropriate time horizon.

Default rate calculation. We calculated annual default rates for each static pool, first in units and later as percentages with respect to the number of issuers in each rating category. We combined these percentages to obtain cumulative default rates for the 43 years the study covers (see tables 24-26 and 30-32).

Issuer-weighted default rates. All default rates that appear in this study are based on the number of issuers rather than the dollar amounts affected by defaults or rating changes. Although dollar amounts provide information about the portion of the market that is affected by defaults or rating changes, issuer-weighted averages are more useful measures of the performance of ratings.

Average cumulative default rate calculation. The cumulative default rates in this study average the experience of all static pools by first calculating marginal default rates for each possible time horizon and for each static pool, weight-averaging the marginal default rates conditional on survival (survivors being nondefaulters) and accumulating the average conditional marginal default rates (see tables 24-26 and 30-32). We calculated conditional default rates by dividing the number of issuers in a static pool that default at a specific time horizon by the number of issuers that survived (did not default) to that point in time. Weights are based on the number of issuers in each static pool. Cumulative default rates are one minus the product of the proportion of survivors (nondefaulters).

For instance, in table 32, the weighted average first-year default rate for all speculative-grade-rated companies for all 43 pools was 3.5%, meaning that an average of 96.5% survived one year. Similarly, the second- and third-year conditional marginal averages--shown in the "Summary statistics" section at the bottom portion of the table--were 3.4% for the first 42 pools (96.6% of those companies that did not default in the first year survived the second year) and 3.0% for the first 41 pools (97.0% of those companies that did not default by the second year survived the third year), respectively. Multiplying 96.5% by 96.6% results in a 93.2% survival rate to the end of the second year, which leads to a two-year average cumulative default rate of 6.8%. Multiplying 93.2% by 97.0% results in a 90.4% survival rate to the end of the third year, which results in a three-year average cumulative default rate of 9.6%.

Transition analysis

Transition rates compare issuer credit ratings at the beginning of a period with ratings at the end of the period. To compute one-year rating transition rates by rating category, we compared the rating on each entity at the end of a particular year with the rating at the beginning of the same year. An issuer that remained rated for more than one year was counted as many times as the number of years it was rated.

For instance, an issuer continually rated from the middle of 1984 to the middle of 1991 would appear in the seven consecutive one-year transition matrices from 1985-1991. If the rating on the issuer was withdrawn in the middle of 1991, it would be included in the column representing transitions to NR in the 1991 transition matrix. Similarly, if it defaulted in the middle of 1991, it would be included in the column representing transitions to 'D' in the 1991 one-year transition matrix.

All 1981 static pool members still rated on Jan. 1, 2023, had 43 one-year transitions, while companies first rated on Jan. 1, 2023, had only one. Table 29 displays the summary of one-year transitions in the investment-grade and speculative-grade rating categories. Each one-year transition matrix displays all rating movements between letter categories from the beginning of the year through year-end. For each rating listed in the matrix's leftmost column, there are nine ratios listed in the rows, corresponding to the ratings from 'AAA' to 'D', plus an entry for NR (see table 22).

The only ratings considered in these calculations are those on entities at the beginning of each static pool and those at the end. All rating changes that occur in between are ignored. For example, if an entity was rated 'A' on Jan. 1, 2023, and was downgraded to 'BBB' in the middle of the year and then upgraded to 'A' later in the year (with no other subsequent rating changes), this entity would be included only in the percentage of issuers that began the year as 'A' that ended the year as 'A'. This also applies to transition matrices that span longer time horizons. If an issuer defaults or if the rating on the issuer is withdrawn in the middle of the year, then it would be considered rated 'D' or not rated as of Dec. 31 of that particular year.

Table 29

Summary of one-year global corporate rating transitions

Year	--Investment-grade rating distribution at year-end--					--Speculative-grade rating distribution at year-end--				
	Jan. 1 inv. grade	Inv. grade (%)	Spec. grade (%)*	Defaulted (%)§	Rating withdrawn (%)	Jan. 1 spec. grade	Inv. grade (%)†	Spec. grade (%)	Defaulted (%)	Rating withdrawn (%)
1981	1031	97.38	1.36	0.00	1.26	318	4.72	89.94	0.63	4.72
1982	1062	93.31	3.20	0.19	3.30	336	2.68	80.36	4.46	12.50
1983	1083	94.18	2.12	0.09	3.60	338	3.25	83.43	2.96	10.36
1984	1147	95.38	2.27	0.17	2.18	365	4.66	87.40	3.29	4.66
1985	1188	93.18	3.45	0.00	3.37	415	3.86	85.78	4.34	6.02
1986	1327	90.28	3.77	0.15	5.80	524	3.24	82.06	5.73	8.97
1987	1342	90.46	3.13	0.00	6.41	673	3.71	79.20	2.82	14.26
1988	1355	91.96	2.73	0.00	5.31	748	3.61	79.55	3.88	12.97
1989	1398	93.49	2.65	0.21	3.65	744	5.24	75.13	4.70	14.92

Table 29

Summary of one-year global corporate rating transitions (cont.)

Year	--Investment-grade rating distribution at year-end--					--Speculative-grade rating distribution at year-end--				
	Jan. 1 inv. grade	Inv. grade (%)	Spec. grade (%)*	Defaulted (%)§	Rating withdrawn (%)	Jan. 1 spec. grade	Inv. grade (%)†	Spec. grade (%)	Defaulted (%)	Rating withdrawn (%)
1990	1450	94.76	2.07	0.14	3.03	691	3.18	75.25	8.10	13.46
1991	1488	96.37	1.75	0.13	1.75	590	3.05	77.97	11.02	7.97
1992	1628	96.56	1.23	0.00	2.21	525	6.29	78.67	6.10	8.95
1993	1776	92.79	1.52	0.00	5.69	560	4.64	76.79	2.50	16.07
1994	1853	95.84	0.76	0.05	3.35	709	4.23	85.90	2.12	7.76
1995	2045	95.50	1.17	0.05	3.28	820	3.78	85.00	3.54	7.68
1996	2241	94.47	0.62	0.00	4.91	885	4.75	81.02	1.81	12.43
1997	2490	93.25	1.24	0.08	5.42	996	4.42	81.12	2.01	12.45
1998	2776	90.45	2.20	0.14	7.20	1309	3.06	83.58	3.74	9.63
1999	2891	90.73	1.63	0.17	7.47	1652	1.63	81.42	5.57	11.38
2000	2957	91.71	1.79	0.24	6.26	1756	2.16	83.43	6.21	8.20
2001	3063	90.89	2.61	0.23	6.27	1774	1.47	79.65	9.70	9.19
2002	3176	89.64	3.90	0.41	6.05	1702	1.76	79.91	9.34	8.99
2003	3096	92.54	2.45	0.10	4.91	1789	1.51	82.28	4.97	11.24
2004	3163	94.15	1.01	0.03	4.81	1880	2.18	84.63	2.02	11.17
2005	3269	92.99	1.56	0.03	5.41	2063	3.10	82.40	1.50	12.99
2006	3296	93.87	1.40	0.00	4.73	2198	2.18	82.17	1.18	14.47
2007	3371	90.09	1.75	0.00	8.16	2306	3.12	81.66	0.91	14.31
2008	3350	92.42	1.94	0.42	5.22	2401	2.12	83.34	3.71	10.83
2009	3382	89.59	3.34	0.33	6.74	2255	1.29	77.07	9.89	11.75
2010	3217	94.87	0.93	0.00	4.20	2120	2.26	85.00	3.02	9.72
2011	3269	93.51	1.74	0.03	4.71	2383	2.35	84.01	1.85	11.79
2012	3285	93.73	1.74	0.00	4.54	2550	1.92	85.69	2.59	9.80
2013	3290	94.95	1.37	0.00	3.68	2777	2.02	85.49	2.23	10.26
2014	3378	95.53	1.21	0.00	3.26	3132	1.44	85.57	1.44	11.56
2015	3518	92.95	2.59	0.00	4.46	3393	1.39	83.79	2.77	12.05
2016	3529	93.17	1.70	0.03	5.10	3379	1.15	82.95	4.23	11.66
2017	3517	94.06	1.48	0.00	4.46	3361	1.43	82.15	2.47	13.95
2018	3520	95.11	0.80	0.00	4.09	3428	1.60	84.16	2.07	12.16
2019	3581	95.03	0.67	0.06	4.24	3612	1.02	84.94	2.55	11.49
2020	3576	93.76	2.40	0.00	3.83	3581	0.31	84.19	5.53	9.97
2021	3498	95.45	0.91	0.00	3.63	3563	1.35	83.53	1.68	13.44
2022	3525	95.21	0.57	0.00	4.23	3677	1.28	84.12	1.93	12.67
2023	3515	96.05	0.80	0.06	3.10	3462	1.47	86.11	3.67	8.75

Table 29

Summary of one-year global corporate rating transitions (cont.)

Year	--Investment-grade rating distribution at year-end--					--Speculative-grade rating distribution at year-end--				
	Jan. 1 inv. grade	Inv. grade (%)	Spec. grade (%)*	Defaulted (%)§	Rating withdrawn (%)	Jan. 1 spec. grade	Inv. grade (%)†	Spec. grade (%)	Defaulted (%)	Rating withdrawn (%)
Weighted average		93.44	1.74	0.08	4.74		2.00	83.12	3.52	11.36
Median		93.73	1.74	0.03	4.46		2.26	83.34	3.02	11.38
Standard deviation		2.01	0.89	0.11	1.52		1.36	3.21	2.55	2.62
Minimum		89.59	0.57	0.00	1.26		0.31	75.13	0.63	4.66
Maximum		97.38	3.90	0.42	8.16		6.29	89.94	11.02	16.07

*Fallen angels that survived to Jan. 1 of the year after they were downgraded. §Investment-grade defaulters. †Rising stars. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Multiyear transitions. Multiyear transitions were also calculated for periods of two up to 20 years. In this case, we compared the rating at the beginning of the multiyear period with the rating at the end. For example, three-year transition matrices were the result of comparing ratings at the beginning of the years 1981-2021 with the ratings at the end of the years 1983-2023. Otherwise, the methodology was identical to that used for single-year transitions.

We calculated average transition matrices on the basis of the multiyear matrices just described. These average matrices are a true summary, the ratios of which represent the historical incidence of the ratings listed in the first column changing to the ones listed in the top row over the course of the multiyear period (see tables 33-40). Transition matrices that present averages over multiple time horizons are also calculated as issuer-weighted averages.

Rating modifiers

We use rating modifiers (plus and minus signs) to calculate upgrade and downgrade percentages, as well as the magnitude of rating changes, throughout this study. However, some transition tables may use full rating categories for practical reasons. In other words, the use of a rating category suggests that transitions, for example, to 'AA' from 'AA-' or to 'BBB+' from 'BBB-', are not considered to be rating transitions because the rating remained within the rating category.

Comparing transition rates with default rates

Rating transition rates may be compared with the marginal and cumulative default rates described in the previous sections. For example, the one-year default rate column of table 24 is equivalent to column 'D' of the average one-year transition matrix in table 21, as well as the cumulative average in the "Summary statistics" of the one-year column in table 32.

However, the two-year default rate column in table 24 is not the same as column 'D' of the average two-year transition matrix in table 34. This difference results from the different methods of calculating default rates. The default rates in table 34 are calculated as not conditional on survival, while those in table 24 are average default rates conditional on survival. The two-year

default rates in table 24 are calculated in the same way as those in the cumulative average section for the two-year column in table 32, while those in the 'D' column of table 34 are equivalent to adding up all the defaults behind the two-year column's annual default rates in table 32, divided by the sum of all the issuers in table 32 for the years 1981-2023.

The links between transition matrices and average cumulative default rates are best illustrated through tables 30-32. The default rates in the columns of these tables, associated with each static pool year, are calculated in the same way as they would be for individual years' one-year transition matrices. Tables 30, 31, and 32 are broken out by the broadest rating classifications (all rated, investment grade, and speculative grade). These tables can also be constructed for each rating category.

As an example, the two-year column of table 32 shows the two-year default rates (not conditional on survival) for each static pool. These are calculated in the same way as the default column in table 20, though table 20 shows the one-year default rates for each rating category for 2023 exclusively. In the summary section at the bottom of tables 30-32, the first row shows the issuer-weighted averages of the marginal default rates. These marginal averages are then used to calculate the cumulative average default rates in the row directly beneath them, as explained in the "Average cumulative default rate" section above. These default rates are the same that appear in table 24 and are average cumulative default rates conditional on survival.

Standard deviations

Many of the tables and charts in this study display averages of default rates, transition rates, and Gini ratios. Often these are issuer-weighted averages. Prior studies have shown that fluctuations within default rates and transitions can vary greatly depending on many circumstances specific to particular time frames, industries, and geographic regions. As a supplement to many of the averages and time series presented in this study, standard deviations are also shown to provide a gauge of the dispersion of data behind these averages.

For the transition matrices in tables 21-23 and 33-44, the standard deviation for each cell in a given matrix is a weighted standard deviation, calculated using the data from each of the underlying cohort years that contribute to the averages, weighted by that cohort year's issuer base for each rating level.

For the Gini ratios in tables 2, 27, and 28, the standard deviations are derived from the time series of Gini ratios for all of their constituent annual cohorts. As an example, the standard deviation applied to the seven-year weighted average global Gini ratio in table 2 (5.2%) was calculated from the time series of all available seven-year Gini ratios by cohort. In this case, these are the seven-year Gini ratios from the 1981 cohort through the 2017 seven-year cohort. We calculated standard deviations for Gini ratios in this study as the standard deviations of a sample, and not those of a population.

Time sample

This study limits the reporting of default rates to the 15-year time horizon. However, the data was gathered for 43 years, and all calculations are based on the rating experience of that period. In addition, average default statistics become less reliable at longer time horizons as the sample size becomes smaller and the cyclical nature of default rates has a bigger effect on averages.

Table 30

Static pool cumulative global corporate default rates among all ratings (1981 to 2023) (%)

Year	Issuers	--Time horizon (years)--														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1981	1,349	0.15	1.41	2.15	2.97	3.63	5.04	5.49	6.30	6.89	8.01	9.71	10.16	10.67	10.75	10.97
1982	1,398	1.22	1.93	2.79	3.51	4.94	5.29	6.08	6.58	7.73	9.59	10.09	10.66	10.73	10.94	10.94
1983	1,421	0.77	1.62	2.46	4.15	4.57	5.63	6.12	7.25	9.29	9.85	10.42	10.49	10.70	10.70	10.77
1984	1,512	0.93	1.98	3.90	4.37	5.42	6.15	7.34	9.06	9.66	10.25	10.32	10.52	10.52	10.65	10.65
1985	1,603	1.12	3.12	3.68	5.05	5.93	7.24	9.11	9.67	10.17	10.23	10.54	10.54	10.67	10.67	10.98
1986	1,851	1.73	2.32	3.62	4.48	5.89	7.78	8.43	8.97	9.13	9.40	9.51	9.72	9.83	10.10	10.48
1987	2,015	0.94	2.38	3.82	5.66	8.19	9.28	10.02	10.27	10.62	10.77	10.97	11.07	11.36	11.81	12.85
1988	2,103	1.38	3.00	5.14	8.18	9.27	10.03	10.27	10.75	10.89	11.17	11.36	11.70	12.36	13.27	14.27
1989	2,142	1.77	4.34	7.84	9.01	9.80	10.13	10.55	10.69	10.97	11.34	11.67	12.28	13.21	14.15	14.61
1990	2,141	2.71	6.07	7.47	8.27	8.59	9.06	9.15	9.53	10.00	10.42	11.16	12.10	13.12	13.64	13.78
1991	2,078	3.22	4.72	5.25	5.58	6.11	6.21	6.54	6.98	7.41	8.08	9.10	10.20	10.68	10.88	11.02
1992	2,153	1.49	2.00	2.32	2.93	3.07	3.39	3.81	4.18	4.88	5.85	6.97	7.39	7.57	7.71	7.85
1993	2,336	0.60	1.07	1.97	2.18	2.57	3.00	3.42	4.20	5.31	6.46	6.89	7.06	7.23	7.45	7.58
1994	2,562	0.62	1.76	2.15	2.62	3.08	3.94	4.96	6.28	7.49	8.00	8.24	8.39	8.67	8.78	9.37
1995	2,865	1.05	1.54	2.02	2.62	3.60	4.61	6.46	7.85	8.48	8.73	8.94	9.18	9.28	9.81	10.68
1996	3,126	0.51	1.09	1.86	3.01	4.03	5.79	7.33	8.03	8.32	8.54	8.77	8.89	9.44	10.30	10.43
1997	3,486	0.63	1.64	2.95	4.36	6.31	8.09	9.04	9.32	9.55	9.84	9.98	10.59	11.45	11.53	11.65
1998	4,085	1.30	3.26	5.24	7.86	10.04	11.29	11.77	12.09	12.41	12.56	13.19	14.15	14.25	14.37	14.49
1999	4,543	2.14	4.64	7.95	10.81	12.30	12.85	13.21	13.56	13.71	14.51	15.65	15.83	15.96	16.11	16.20
2000	4,713	2.46	6.00	9.17	10.86	11.56	12.01	12.37	12.58	13.45	14.83	15.00	15.17	15.32	15.47	15.53
2001	4,837	3.70	7.22	9.16	9.86	10.38	10.73	10.94	11.76	13.21	13.40	13.56	13.73	13.91	13.98	14.22
2002	4,878	3.53	5.51	6.31	6.77	7.11	7.32	8.24	9.82	10.02	10.19	10.37	10.62	10.68	10.93	11.19
2003	4,885	1.88	2.68	3.17	3.56	3.77	4.73	6.53	6.80	6.96	7.23	7.51	7.59	7.86	8.13	8.41
2004	5,043	0.77	1.31	1.71	1.94	2.97	4.96	5.29	5.51	5.81	6.09	6.17	6.44	6.72	7.00	7.14
2005	5,332	0.60	1.01	1.35	2.55	4.84	5.33	5.63	5.96	6.26	6.40	6.75	7.05	7.30	7.43	7.71
2006	5,494	0.47	0.87	2.31	5.01	5.62	6.04	6.53	6.90	7.04	7.43	7.81	8.05	8.19	8.46	8.79
2007	5,677	0.37	2.03	5.25	6.11	6.57	7.17	7.59	7.77	8.23	8.65	8.90	9.02	9.30	9.69	9.74
2008	5,751	1.79	5.55	6.62	7.08	7.81	8.21	8.47	8.99	9.46	9.72	9.95	10.22	10.75	10.82	10.97
2009	5,637	4.15	5.30	5.78	6.53	6.94	7.22	7.75	8.30	8.59	8.82	9.07	9.60	9.67	9.81	9.95
2010	5,337	1.20	1.89	2.74	3.20	3.60	4.16	4.91	5.27	5.51	5.83	6.48	6.54	6.67	6.80	
2011	5,652	0.80	1.91	2.60	3.08	3.86	4.79	5.18	5.43	5.73	6.49	6.58	6.74	6.92		
2012	5,835	1.13	2.06	2.55	3.44	4.54	5.07	5.43	5.78	6.58	6.68	6.84	7.04			
2013	6,067	1.02	1.62	2.79	4.15	4.83	5.22	5.59	6.48	6.61	6.84	7.07				
2014	6,510	0.69	1.97	3.55	4.41	4.96	5.45	6.54	6.68	6.99	7.33					
2015	6,911	1.36	3.28	4.25	4.92	5.61	7.00	7.21	7.55	7.87						
2016	6,908	2.08	3.11	3.89	4.60	6.17	6.44	6.80	7.19							

Table 30

Static pool cumulative global corporate default rates among all ratings (1981 to 2023) (%)
(cont.)

Year	Issuers	--Time horizon (years)--														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2017	6,878	1.21	2.11	3.01	4.87	5.22	5.64	6.11								
2018	6,948	1.02	2.13	4.29	4.76	5.37	6.00									
2019	7,193	1.31	3.80	4.38	5.00	5.85										
2020	7,157	2.77	3.47	4.18	5.11											
2021	7,061	0.85	1.70	2.96												
2022	7,202	0.99	2.51													
2023	6,977	1.85														
Summary statistics																
Marginal average		1.49	1.43	1.25	1.06	0.90	0.76	0.64	0.54	0.49	0.45	0.39	0.32	0.30	0.28	0.28
Cumulative average		1.49	2.89	4.11	5.13	5.99	6.70	7.30	7.80	8.25	8.66	9.01	9.31	9.58	9.84	10.08
Standard deviation		0.94	1.60	2.06	2.33	2.45	2.42	2.36	2.34	2.36	2.39	2.42	2.48	2.52	2.51	2.46
Median		1.20	2.12	3.62	4.68	5.61	6.10	6.80	7.66	8.32	8.77	9.51	10.18	10.67	10.68	10.94
Minimum		0.15	0.87	1.35	1.94	2.57	3.00	3.42	4.18	4.88	5.83	6.17	6.44	6.67	6.80	7.14
Maximum		4.15	7.22	9.17	10.86	12.30	12.85	13.21	13.56	13.71	14.83	15.65	15.83	15.96	16.11	16.20

Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 31

Static pool cumulative global corporate default rates among investment-grade ratings (1981 to 2023) (%)

Year	Issuers	--Time horizon (years)--														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1981	1,031	0.00	0.39	0.39	0.48	0.68	1.07	1.36	2.13	2.33	3.10	4.17	4.36	4.56	4.56	4.75
1982	1,062	0.19	0.28	0.38	0.56	1.04	1.32	2.07	2.26	3.11	4.24	4.52	4.80	4.80	4.99	4.99
1983	1,083	0.09	0.37	0.46	0.92	1.11	1.57	1.66	2.49	3.60	3.97	4.25	4.25	4.43	4.43	4.43
1984	1,147	0.17	0.26	0.61	0.78	1.13	1.31	2.01	2.96	3.31	3.57	3.57	3.75	3.75	3.84	3.84
1985	1,188	0.00	0.17	0.25	0.76	0.93	1.68	2.69	3.03	3.28	3.28	3.54	3.54	3.70	3.70	3.87
1986	1,327	0.15	0.15	0.53	0.68	1.21	2.11	2.49	2.64	2.64	2.86	2.86	3.01	3.09	3.24	3.54
1987	1,342	0.00	0.15	0.37	0.82	1.71	2.24	2.38	2.46	2.61	2.61	2.76	2.83	2.98	3.13	3.95
1988	1,355	0.00	0.22	0.37	0.96	1.48	1.62	1.70	1.85	1.85	1.99	1.99	2.14	2.29	2.95	3.76
1989	1,398	0.21	0.36	0.64	1.22	1.36	1.43	1.57	1.57	1.57	1.57	1.79	1.93	2.72	3.36	3.72
1990	1,450	0.14	0.34	0.76	0.97	1.03	1.17	1.17	1.17	1.24	1.59	1.93	2.62	3.17	3.52	3.59
1991	1,488	0.13	0.27	0.40	0.47	0.60	0.60	0.60	0.67	1.08	1.41	2.15	2.69	2.96	3.02	3.09

Table 31

Static pool cumulative global corporate default rates among investment-grade ratings (1981 to 2023) (%) (cont.)

Year	Issuers	--Time horizon (years)--														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1992	1,628	0.00	0.06	0.12	0.25	0.25	0.25	0.31	0.61	0.86	1.41	1.90	2.15	2.21	2.33	2.52
1993	1,776	0.00	0.06	0.17	0.17	0.23	0.39	0.73	1.07	1.69	2.31	2.53	2.53	2.65	2.76	2.82
1994	1,853	0.05	0.16	0.16	0.27	0.38	0.81	1.08	1.67	2.27	2.54	2.59	2.64	2.81	2.86	3.24
1995	2,045	0.05	0.05	0.10	0.24	0.73	0.98	1.71	2.30	2.54	2.59	2.64	2.79	2.84	3.23	3.57
1996	2,241	0.00	0.04	0.13	0.54	0.85	1.56	2.10	2.32	2.41	2.45	2.59	2.59	2.99	3.44	3.48
1997	2,490	0.08	0.20	0.52	0.84	1.41	2.13	2.49	2.57	2.61	2.73	2.73	3.13	3.53	3.57	3.69
1998	2,776	0.14	0.43	0.79	1.37	2.38	2.81	2.99	3.10	3.17	3.17	3.64	4.18	4.25	4.39	4.54
1999	2,891	0.17	0.48	0.90	1.87	2.32	2.46	2.56	2.70	2.70	3.22	3.87	3.94	4.08	4.25	4.29
2000	2,957	0.24	0.57	1.52	2.00	2.10	2.23	2.37	2.37	2.94	3.62	3.69	3.86	3.99	4.02	4.09
2001	3,063	0.23	1.21	1.63	1.80	1.96	2.09	2.09	2.61	3.33	3.36	3.53	3.69	3.75	3.79	3.98
2002	3,176	0.41	0.76	0.88	1.01	1.07	1.07	1.61	2.27	2.30	2.42	2.58	2.68	2.71	2.90	2.99
2003	3,096	0.10	0.19	0.29	0.32	0.32	0.84	1.58	1.61	1.71	1.78	1.87	1.91	2.13	2.23	2.29
2004	3,163	0.03	0.09	0.13	0.13	0.63	1.26	1.33	1.42	1.52	1.61	1.61	1.83	1.93	1.96	1.99
2005	3,269	0.03	0.06	0.06	0.61	1.19	1.28	1.38	1.47	1.56	1.56	1.77	1.87	1.87	1.90	1.96
2006	3,296	0.00	0.00	0.49	0.91	1.00	1.09	1.15	1.24	1.24	1.43	1.49	1.49	1.49	1.52	1.58
2007	3,371	0.00	0.47	0.92	1.10	1.19	1.28	1.33	1.33	1.48	1.54	1.54	1.54	1.57	1.66	1.69
2008	3,350	0.42	0.81	0.96	1.07	1.16	1.22	1.22	1.37	1.49	1.49	1.52	1.55	1.61	1.64	1.70
2009	3,382	0.33	0.44	0.53	0.59	0.62	0.62	0.77	0.89	0.89	0.92	0.95	1.01	1.03	1.09	1.18
2010	3,217	0.00	0.03	0.06	0.09	0.09	0.25	0.37	0.37	0.44	0.50	0.53	0.56	0.62	0.71	
2011	3,269	0.03	0.06	0.06	0.06	0.09	0.24	0.24	0.31	0.37	0.46	0.49	0.55	0.64		
2012	3,285	0.00	0.00	0.00	0.03	0.21	0.21	0.27	0.33	0.43	0.49	0.55	0.64			
2013	3,290	0.00	0.00	0.00	0.15	0.15	0.24	0.30	0.43	0.46	0.55	0.64				
2014	3,378	0.00	0.00	0.15	0.15	0.24	0.33	0.47	0.50	0.62	0.71					
2015	3,518	0.00	0.06	0.06	0.14	0.20	0.37	0.43	0.51	0.60						
2016	3,529	0.03	0.03	0.11	0.17	0.37	0.40	0.48	0.57							
2017	3,517	0.00	0.00	0.06	0.17	0.20	0.26	0.31								
2018	3,520	0.00	0.06	0.11	0.14	0.20	0.26									
2019	3,581	0.06	0.08	0.11	0.14	0.22										
2020	3,576	0.00	0.00	0.03	0.11											
2021	3,498	0.00	0.00	0.06												
2022	3,525	0.00	0.06													
2023	3,515	0.06														
Summary statistics																
Marginal average		0.08	0.14	0.16	0.20	0.21	0.21	0.20	0.18	0.18	0.18	0.16	0.14	0.13	0.13	0.14

Table 31

Static pool cumulative global corporate default rates among investment-grade ratings (1981 to 2023) (%) (cont.)

Year	Issuers	--Time horizon (years)--														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Cumulative average		0.08	0.22	0.38	0.58	0.78	0.99	1.18	1.37	1.54	1.72	1.88	2.01	2.15	2.28	2.42
Standard deviation		0.11	0.26	0.39	0.52	0.64	0.73	0.81	0.88	0.98	1.07	1.14	1.15	1.13	1.08	1.03
Median		0.03	0.15	0.29	0.55	0.85	1.13	1.36	1.59	1.71	2.15	2.53	2.63	2.84	3.18	3.57
Minimum		0.00	0.00	0.00	0.03	0.09	0.21	0.24	0.31	0.37	0.46	0.49	0.55	0.62	0.71	1.18
Maximum		0.42	1.21	1.63	2.00	2.38	2.81	2.99	3.10	3.60	4.24	4.52	4.80	4.80	4.99	4.99

Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 32

Static pool cumulative global corporate default rates among speculative-grade ratings (1981 to 2023) (%)

Year	Issuers	--Time horizon (years)--														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1981	318	0.63	4.72	7.86	11.01	13.21	17.92	18.87	19.81	21.70	23.90	27.67	28.93	30.50	30.82	31.13
1982	336	4.46	7.14	10.42	12.80	17.26	17.86	18.75	20.24	22.32	26.49	27.68	29.17	29.46	29.76	29.76
1983	338	2.96	5.62	8.88	14.50	15.68	18.64	20.41	22.49	27.51	28.70	30.18	30.47	30.77	30.77	31.07
1984	365	3.29	7.40	14.25	15.62	18.90	21.37	24.11	28.22	29.59	31.23	31.51	31.78	31.78	32.05	32.05
1985	415	4.34	11.57	13.49	17.35	20.24	23.13	27.47	28.67	29.88	30.12	30.60	30.60	30.60	30.60	31.33
1986	524	5.73	7.82	11.45	14.12	17.75	22.14	23.47	25.00	25.57	25.95	26.34	26.72	26.91	27.48	28.05
1987	673	2.82	6.84	10.70	15.30	21.10	23.33	25.26	25.85	26.60	27.04	27.34	27.49	28.08	29.12	30.61
1988	748	3.88	8.02	13.77	21.26	23.40	25.27	25.80	26.87	27.27	27.81	28.34	29.01	30.61	31.95	33.29
1989	744	4.70	11.83	21.37	23.66	25.67	26.48	27.42	27.82	28.63	29.70	30.24	31.72	32.93	34.41	35.08
1990	691	8.10	18.09	21.56	23.59	24.46	25.62	25.90	27.06	28.36	28.94	30.54	31.98	34.01	34.88	35.17
1991	590	11.02	15.93	17.46	18.47	20.00	20.34	21.53	22.88	23.39	24.92	26.61	29.15	30.17	30.68	31.02
1992	525	6.10	8.00	9.14	11.24	11.81	13.14	14.67	15.24	17.33	19.62	22.67	23.62	24.19	24.38	24.38
1993	560	2.50	4.29	7.68	8.57	10.00	11.25	11.96	14.11	16.79	19.64	20.71	21.43	21.79	22.32	22.68
1994	709	2.12	5.92	7.33	8.74	10.16	12.13	15.09	18.34	21.16	22.28	22.99	23.41	23.98	24.26	25.39
1995	820	3.54	5.24	6.83	8.54	10.73	13.66	18.29	21.71	23.29	24.02	24.63	25.12	25.37	26.22	28.41
1996	885	1.81	3.73	6.21	9.27	12.09	16.50	20.56	22.49	23.28	23.95	24.41	24.86	25.76	27.68	28.02
1997	996	2.01	5.22	9.04	13.15	18.57	22.99	25.40	26.20	26.91	27.61	28.11	29.22	31.22	31.43	31.53
1998	1,309	3.74	9.24	14.67	21.62	26.28	29.26	30.40	31.17	32.01	32.47	33.46	35.29	35.45	35.52	35.60
1999	1,652	5.57	11.92	20.28	26.45	29.78	31.05	31.84	32.57	32.99	34.26	36.26	36.62	36.74	36.86	37.05
2000	1,756	6.21	15.15	22.04	25.80	27.51	28.47	29.21	29.78	31.15	33.71	34.05	34.23	34.40	34.74	34.79
2001	1,774	9.70	17.59	22.15	23.79	24.92	25.65	26.21	27.56	30.27	30.72	30.89	31.06	31.45	31.57	31.91
2002	1,702	9.34	14.39	16.45	17.51	18.39	18.98	20.62	23.91	24.44	24.68	24.91	25.44	25.56	25.91	26.50

Table 32

Static pool cumulative global corporate default rates among speculative-grade ratings (1981 to 2023) (%) (cont.)

Year	Issuers	--Time horizon (years)--														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2003	1,789	4.97	6.99	8.16	9.17	9.73	11.46	15.09	15.76	16.04	16.66	17.27	17.44	17.78	18.33	19.01
2004	1,880	2.02	3.35	4.36	5.00	6.91	11.17	11.97	12.39	13.03	13.62	13.83	14.20	14.79	15.48	15.80
2005	2,063	1.50	2.52	3.39	5.62	10.62	11.73	12.36	13.09	13.72	14.06	14.64	15.27	15.90	16.19	16.82
2006	2,198	1.18	2.18	5.05	11.15	12.56	13.47	14.60	15.38	15.74	16.42	17.29	17.88	18.24	18.88	19.61
2007	2,306	0.91	4.29	11.58	13.44	14.44	15.78	16.74	17.17	18.08	19.04	19.64	19.95	20.60	21.42	21.51
2008	2,401	3.71	12.16	14.54	15.45	17.08	17.95	18.58	19.62	20.57	21.20	21.70	22.32	23.49	23.62	23.91
2009	2,255	9.89	12.59	13.66	15.43	16.41	17.12	18.23	19.42	20.13	20.67	21.24	22.48	22.62	22.88	23.10
2010	2,120	3.02	4.72	6.79	7.92	8.92	10.09	11.79	12.69	13.21	13.92	15.52	15.61	15.85	16.04	
2011	2,383	1.85	4.45	6.08	7.22	9.02	11.04	11.96	12.46	13.09	14.77	14.94	15.23	15.53		
2012	2,550	2.59	4.71	5.84	7.84	10.12	11.33	12.08	12.78	14.51	14.67	14.94	15.29			
2013	2,777	2.23	3.53	6.09	8.89	10.37	11.13	11.85	13.65	13.90	14.30	14.69				
2014	3,132	1.44	4.09	7.22	9.00	10.06	10.98	13.09	13.35	13.86	14.46					
2015	3,393	2.77	6.63	8.61	9.87	11.23	13.88	14.24	14.85	15.41						
2016	3,379	4.23	6.33	7.84	9.23	12.22	12.76	13.41	14.12							
2017	3,361	2.47	4.31	6.10	9.79	10.47	11.28	12.17								
2018	3,428	2.07	4.26	8.58	9.51	10.68	11.90									
2019	3,612	2.55	7.48	8.61	9.83	11.43										
2020	3,581	5.53	6.93	8.32	10.11											
2021	3,563	1.68	3.37	5.81												
2022	3,677	1.93	4.87													
2023	3,462	3.67														
Summary statistics																
Marginal average		3.52	3.37	2.99	2.51	2.12	1.76	1.47	1.24	1.12	1.04	0.88	0.75	0.71	0.63	0.61
Cumulative average		3.52	6.77	9.56	11.83	13.70	15.22	16.46	17.50	18.42	19.27	19.98	20.58	21.14	21.64	22.12
Standard deviation		2.55	4.21	5.25	5.81	6.13	6.18	6.19	6.27	6.39	6.46	6.47	6.49	6.42	6.19	5.88
Median		3.02	6.48	8.61	11.19	13.21	16.81	18.58	20.02	22.32	23.99	24.91	26.08	26.91	28.40	29.76
Minimum		0.63	2.18	3.39	5.00	6.91	10.09	11.79	12.39	13.03	13.62	13.83	14.20	14.79	15.48	15.80
Maximum		11.02	18.09	22.15	26.45	29.78	31.05	31.84	32.57	32.99	34.26	36.26	36.62	36.74	36.86	37.05

Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 33

Average multiyear global corporate transition matrix (1981 to 2023) (%)

From/to	--One-year transition rates--								
	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
AAA	87.26	8.94	0.51	0.03	0.10	0.03	0.05	0.00	3.08
	(7.36)	(7.16)	(0.81)	(0.13)	(0.26)	(0.17)	(0.34)	(0.00)	(2.45)
AA	0.46	87.63	7.57	0.45	0.05	0.06	0.02	0.02	3.76
	(0.53)	(5.17)	(4.20)	(0.66)	(0.18)	(0.20)	(0.06)	(0.07)	(1.71)
A	0.02	1.50	89.21	4.72	0.24	0.10	0.01	0.05	4.14
	(0.08)	(1.06)	(3.98)	(2.21)	(0.37)	(0.23)	(0.06)	(0.10)	(1.67)
BBB	0.00	0.07	3.08	87.13	3.28	0.41	0.09	0.14	5.80
	(0.03)	(0.14)	(1.60)	(4.03)	(1.65)	(0.63)	(0.19)	(0.23)	(1.48)
BB	0.01	0.02	0.10	4.46	78.59	6.40	0.51	0.57	9.33
	(0.05)	(0.08)	(0.23)	(1.91)	(4.61)	(3.09)	(0.66)	(0.77)	(2.17)
B	0.00	0.02	0.06	0.15	4.46	75.03	4.85	2.98	12.46
	(0.00)	(0.07)	(0.18)	(0.19)	(2.03)	(3.81)	(2.63)	(2.92)	(2.30)
CCC/C	0.00	0.00	0.08	0.14	0.43	13.34	44.95	25.98	15.08
	(0.00)	(0.00)	(0.36)	(0.55)	(0.81)	(7.39)	(8.42)	(11.65)	(4.51)

Note: Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 34

Average multiyear global corporate transition matrix (1981 to 2023) (%)

From/to	--Two-year transition rates--								
	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
AAA	76.04	15.98	1.42	0.08	0.21	0.05	0.10	0.03	6.10
	(10.42)	(10.49)	(1.44)	(0.24)	(0.41)	(0.23)	(0.40)	(0.17)	(4.21)
AA	0.80	76.92	13.45	1.16	0.17	0.12	0.02	0.05	7.31
	(0.71)	(8.09)	(5.93)	(1.10)	(0.32)	(0.28)	(0.06)	(0.11)	(2.71)
A	0.04	2.69	79.73	8.31	0.61	0.22	0.04	0.12	8.25
	(0.07)	(1.73)	(6.33)	(3.00)	(0.75)	(0.38)	(0.10)	(0.18)	(2.69)
BBB	0.01	0.14	5.68	76.38	5.30	0.90	0.18	0.39	11.03
	(0.07)	(0.22)	(2.52)	(6.46)	(2.09)	(1.02)	(0.28)	(0.59)	(2.40)
BB	0.01	0.03	0.24	7.85	62.16	9.63	0.94	1.80	17.33
	(0.05)	(0.09)	(0.45)	(2.99)	(6.64)	(2.85)	(0.83)	(2.02)	(2.87)
B	0.00	0.02	0.10	0.34	7.39	56.38	5.81	7.07	22.89
	(0.00)	(0.10)	(0.27)	(0.40)	(3.17)	(4.67)	(2.36)	(5.30)	(3.62)
CCC/C	0.00	0.00	0.10	0.35	0.81	17.20	21.91	35.66	23.96
	(0.00)	(0.00)	(0.41)	(1.01)	(1.05)	(7.19)	(7.69)	(12.95)	(6.17)

Note: Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 35

Average multiyear global corporate transition matrix (1981 to 2023) (%)

From/to	--Three-year transition rates--								
	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
AAA	65.94	21.92	2.29	0.31	0.21	0.08	0.10	0.13	9.03
	(11.93)	(12.14)	(1.68)	(0.75)	(0.46)	(0.29)	(0.41)	(0.36)	(5.27)
AA	1.06	67.84	17.88	1.88	0.31	0.19	0.02	0.11	10.70
	(0.87)	(9.44)	(6.12)	(1.43)	(0.49)	(0.43)	(0.07)	(0.18)	(3.76)
A	0.05	3.52	71.72	10.84	1.01	0.36	0.07	0.20	12.23
	(0.09)	(2.18)	(7.66)	(3.01)	(1.01)	(0.57)	(0.13)	(0.26)	(3.48)
BBB	0.01	0.22	7.62	67.66	6.46	1.34	0.23	0.69	15.76
	(0.05)	(0.36)	(2.99)	(7.76)	(2.07)	(1.23)	(0.33)	(0.87)	(3.16)
BB	0.01	0.04	0.40	10.10	50.03	10.99	1.11	3.25	24.07
	(0.05)	(0.12)	(0.63)	(3.50)	(7.82)	(2.68)	(0.83)	(3.23)	(3.44)
B	0.00	0.02	0.15	0.60	8.79	42.81	5.40	10.82	31.41
	(0.04)	(0.09)	(0.39)	(0.71)	(3.56)	(4.97)	(2.01)	(6.69)	(4.60)
CCC/C	0.00	0.00	0.09	0.42	1.36	16.50	10.44	41.51	29.68
	(0.00)	(0.00)	(0.42)	(1.03)	(1.45)	(6.69)	(5.52)	(12.16)	(7.54)

Note: Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 36

Average multiyear global corporate transition matrix (1981 to 2023) (%)

From/to	--Five-year transition rates--								
	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
AAA	50.00	28.66	4.74	0.85	0.23	0.16	0.08	0.34	14.94
	(12.19)	(13.28)	(2.73)	(1.50)	(0.45)	(0.40)	(0.27)	(0.57)	(6.76)
AA	1.33	53.33	23.85	3.30	0.50	0.33	0.04	0.29	17.04
	(1.02)	(9.63)	(5.15)	(1.89)	(0.62)	(0.57)	(0.10)	(0.37)	(4.49)
A	0.07	4.52	59.11	14.02	1.66	0.56	0.12	0.43	19.52
	(0.09)	(2.44)	(8.83)	(2.75)	(1.22)	(0.80)	(0.17)	(0.44)	(4.08)
BBB	0.02	0.34	9.89	54.94	7.23	1.82	0.31	1.46	23.98
	(0.07)	(0.49)	(2.94)	(8.47)	(1.68)	(1.40)	(0.35)	(1.39)	(4.15)
BB	0.01	0.06	0.79	11.92	34.67	10.94	1.12	6.12	34.39
	(0.05)	(0.15)	(0.91)	(3.07)	(7.95)	(1.91)	(0.85)	(4.77)	(3.66)
B	0.01	0.02	0.18	1.16	9.08	26.15	3.46	16.71	43.24
	(0.09)	(0.07)	(0.47)	(1.14)	(3.05)	(4.57)	(1.24)	(7.57)	(5.70)
CCC/C	0.00	0.00	0.08	0.61	2.48	11.90	2.64	47.21	35.08
	(0.00)	(0.00)	(0.41)	(1.51)	(1.89)	(4.71)	(3.16)	(10.98)	(7.96)

Note: Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 37

Average multiyear global corporate transition matrix (1981 to 2023) (%)

From/to	--Seven-year transition rates--								
	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
AAA	38.44	32.72	6.79	1.51	0.23	0.18	0.10	0.49	19.53
	(11.18)	(13.66)	(3.04)	(1.85)	(0.46)	(0.42)	(0.30)	(0.70)	(7.21)
AA	1.40	42.47	27.15	4.38	0.66	0.33	0.03	0.48	23.10
	(1.03)	(8.35)	(4.16)	(1.97)	(0.62)	(0.49)	(0.08)	(0.53)	(4.53)
A	0.07	4.91	49.89	15.72	2.11	0.67	0.11	0.73	25.79
	(0.11)	(2.00)	(8.45)	(2.13)	(1.33)	(0.85)	(0.17)	(0.60)	(4.03)
BBB	0.03	0.44	10.90	46.09	7.16	2.00	0.31	2.23	30.84
	(0.10)	(0.55)	(2.52)	(7.90)	(0.87)	(1.18)	(0.31)	(1.74)	(4.38)
BB	0.00	0.07	1.11	12.31	25.55	9.82	0.91	8.78	41.45
	(0.00)	(0.15)	(1.00)	(2.87)	(6.98)	(1.90)	(0.61)	(5.63)	(3.35)
B	0.00	0.01	0.23	1.61	8.22	17.37	1.97	20.56	50.02
	(0.06)	(0.07)	(0.51)	(1.35)	(2.20)	(4.02)	(0.67)	(7.70)	(5.83)
CCC/C	0.00	0.00	0.21	0.86	3.13	7.10	2.16	48.40	38.14
	(0.00)	(0.00)	(0.51)	(1.77)	(2.03)	(3.70)	(2.58)	(10.43)	(8.27)

Note: Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 38

Average multiyear global corporate transition matrix (1981 to 2023) (%)

From/to	--10-year transition rates--								
	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
AAA	25.41	35.12	9.24	2.69	0.13	0.18	0.05	0.68	26.49
	(9.36)	(13.99)	(3.37)	(2.27)	(0.28)	(0.46)	(0.22)	(0.73)	(7.06)
AA	1.17	30.47	29.04	6.23	0.84	0.37	0.02	0.73	31.12
	(0.87)	(6.79)	(3.41)	(2.19)	(0.73)	(0.35)	(0.07)	(0.61)	(4.06)
A	0.10	5.01	39.64	16.74	2.39	0.78	0.11	1.22	34.01
	(0.16)	(1.51)	(7.41)	(2.20)	(0.96)	(0.66)	(0.15)	(0.89)	(4.34)
BBB	0.02	0.54	11.33	36.75	6.50	2.00	0.24	3.39	39.23
	(0.08)	(0.61)	(2.64)	(7.12)	(1.04)	(1.07)	(0.21)	(2.27)	(4.11)
BB	0.01	0.07	1.51	11.61	17.63	8.02	0.67	12.36	48.15
	(0.06)	(0.12)	(0.98)	(2.47)	(5.28)	(1.93)	(0.36)	(6.50)	(2.62)
B	0.00	0.02	0.28	2.12	6.94	10.27	1.08	24.87	54.42
	(0.00)	(0.06)	(0.53)	(1.53)	(1.68)	(2.97)	(0.55)	(8.36)	(5.72)
CCC/C	0.00	0.00	0.11	0.72	3.68	3.78	0.83	49.91	40.97
	(0.00)	(0.00)	(0.48)	(0.83)	(2.33)	(2.77)	(1.33)	(11.28)	(9.02)

Note: Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 39

Average multiyear global corporate transition matrix (1981 to 2023) (%)

From/to	--15-year transition rates--								
	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
AAA	12.64	33.90	13.50	2.90	0.53	0.36	0.06	0.91	35.20
	(6.94)	(11.72)	(3.67)	(1.25)	(0.43)	(0.55)	(0.20)	(0.74)	(4.26)
AA	0.75	18.02	28.31	8.45	1.00	0.51	0.02	1.11	41.83
	(0.80)	(3.45)	(3.26)	(2.32)	(0.79)	(0.47)	(0.09)	(0.55)	(2.67)
A	0.13	4.10	27.95	17.29	2.63	0.92	0.11	2.11	44.77
	(0.18)	(1.27)	(4.77)	(1.48)	(1.00)	(0.53)	(0.10)	(1.02)	(3.75)
BBB	0.00	0.60	10.20	26.52	5.21	1.88	0.19	5.45	49.94
	(0.00)	(0.46)	(2.85)	(4.40)	(0.68)	(1.03)	(0.19)	(2.64)	(2.61)
BB	0.00	0.13	1.81	9.50	10.56	5.31	0.46	17.32	54.91
	(0.00)	(0.16)	(0.94)	(2.19)	(3.14)	(1.53)	(0.30)	(6.21)	(3.17)
B	0.00	0.07	0.46	2.49	4.11	4.77	0.55	31.38	56.18
	(0.00)	(0.10)	(0.41)	(1.35)	(1.02)	(1.40)	(0.33)	(7.91)	(6.24)
CCC/C	0.00	0.00	0.46	0.92	2.47	1.54	0.15	54.55	39.91
	(0.00)	(0.00)	(1.20)	(1.12)	(2.11)	(1.35)	(0.65)	(12.00)	(10.67)

Note: Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 40

Average multiyear global corporate transition matrix (1981 to 2023) (%)

From/to	--20-year transition rates--								
	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
AAA	5.38	29.31	17.25	3.72	0.78	0.66	0.06	1.19	41.66
	(3.92)	(8.79)	(4.83)	(1.41)	(0.46)	(0.67)	(0.19)	(0.82)	(5.51)
AA	0.53	10.82	24.73	10.34	1.17	0.63	0.05	1.55	50.18
	(0.62)	(2.84)	(3.80)	(2.71)	(0.66)	(0.51)	(0.13)	(0.92)	(2.04)
A	0.12	2.69	20.66	16.32	2.66	1.10	0.15	3.30	53.00
	(0.20)	(0.92)	(3.49)	(1.50)	(0.87)	(0.72)	(0.14)	(1.42)	(3.13)
BBB	0.01	0.64	8.16	19.93	4.17	1.57	0.14	7.96	57.42
	(0.07)	(0.27)	(1.80)	(2.57)	(0.71)	(0.67)	(0.17)	(2.48)	(2.17)
BB	0.00	0.18	1.66	7.46	6.46	3.74	0.36	22.40	57.74
	(0.00)	(0.20)	(0.45)	(1.59)	(2.34)	(1.05)	(0.35)	(5.64)	(3.93)
B	0.00	0.14	0.47	2.40	2.63	2.64	0.25	36.24	55.24
	(0.00)	(0.18)	(0.24)	(1.14)	(0.82)	(0.91)	(0.23)	(8.00)	(6.67)
CCC/C	0.00	0.08	0.30	1.35	1.95	0.60	0.08	55.86	39.77
	(0.00)	(0.40)	(0.68)	(1.16)	(2.36)	(0.71)	(0.22)	(10.86)	(10.64)

Note: Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 41

**Average multiyear global corporate transition matrix--all financials (1981 to 2023)
(%)**

From/To	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
One-year									
AAA	87.38	9.29	0.32	0.04	0.08	0.04	0.08	0.00	2.76
	(10.05)	(9.52)	(0.96)	(0.22)	(0.36)	(0.23)	(0.47)	(0.00)	(2.63)
AA	0.42	87.93	7.57	0.32	0.02	0.02	0.03	0.03	3.67
	(0.55)	(6.20)	(5.51)	(0.60)	(0.07)	(0.07)	(0.15)	(0.11)	(1.76)
A	0.02	1.93	89.97	3.26	0.16	0.05	0.01	0.07	4.53
	(0.12)	(1.68)	(4.38)	(2.53)	(0.42)	(0.14)	(0.04)	(0.17)	(2.00)
BBB	0.00	0.17	4.05	85.52	2.86	0.35	0.10	0.21	6.76
	(0.00)	(0.47)	(2.87)	(5.03)	(2.39)	(0.81)	(0.24)	(0.47)	(1.92)
BB	0.00	0.07	0.16	5.39	78.14	4.48	0.58	0.58	10.61
	(0.00)	(0.25)	(0.62)	(3.96)	(7.31)	(3.12)	(1.47)	(1.16)	(4.50)
B	0.00	0.02	0.07	0.37	6.04	76.69	3.16	2.30	11.35
	(0.00)	(0.19)	(0.55)	(0.76)	(4.09)	(7.00)	(3.28)	(3.20)	(3.83)
CCC/C	0.00	0.00	0.00	0.00	1.09	15.85	47.91	16.94	18.21
	(0.00)	(0.00)	(0.00)	(0.00)	(3.73)	(12.62)	(19.88)	(15.84)	(11.29)
Three-year									
	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
AAA	65.64	23.55	1.59	0.33	0.12	0.08	0.16	0.20	8.34
	(16.60)	(16.30)	(2.14)	(1.10)	(0.43)	(0.34)	(0.57)	(0.52)	(5.86)
AA	0.98	68.66	17.70	1.54	0.15	0.13	0.03	0.17	10.63
	(1.00)	(10.98)	(8.24)	(1.62)	(0.31)	(0.33)	(0.09)	(0.28)	(3.88)
A	0.06	4.53	73.75	6.87	0.81	0.18	0.08	0.30	13.41
	(0.16)	(3.46)	(8.77)	(3.06)	(1.17)	(0.45)	(0.19)	(0.48)	(4.67)
BBB	0.00	0.46	10.00	64.44	4.76	0.83	0.25	0.93	18.33
	(0.00)	(1.02)	(5.87)	(8.84)	(2.74)	(0.93)	(0.58)	(1.30)	(4.27)
BB	0.00	0.10	0.62	12.13	49.35	7.28	0.75	2.29	27.49
	(0.00)	(0.34)	(1.38)	(6.44)	(11.18)	(3.77)	(1.38)	(3.53)	(6.49)
B	0.00	0.00	0.23	1.36	11.90	48.36	3.95	6.82	27.37
	(0.00)	(0.00)	(0.83)	(2.24)	(6.29)	(9.43)	(2.99)	(6.38)	(5.94)
CCC/C	0.00	0.00	0.20	0.40	1.39	25.40	11.31	25.00	36.31
	(0.00)	(0.00)	(3.19)	(2.58)	(3.52)	(15.63)	(12.02)	(16.73)	(14.83)
10-year									
	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
AAA	23.01	38.41	8.59	2.01	0.08	0.29	0.08	0.94	26.58
	(12.33)	(16.35)	(4.96)	(2.63)	(0.29)	(0.65)	(0.31)	(1.12)	(9.05)

Table 41

Average multiyear global corporate transition matrix--all financials (1981 to 2023) (%) (cont.)

AA	1.03	33.74	28.35	4.16	0.34	0.31	0.02	1.05	30.99
	(1.15)	(8.83)	(6.23)	(2.28)	(0.37)	(0.40)	(0.08)	(1.16)	(5.34)
A	0.14	6.82	43.14	8.76	1.56	0.42	0.11	1.39	37.67
	(0.37)	(3.06)	(7.96)	(2.67)	(1.22)	(0.43)	(0.21)	(1.19)	(5.58)
BBB	0.04	1.26	13.52	30.25	3.87	1.08	0.35	3.57	46.06
	(0.13)	(2.55)	(3.38)	(7.11)	(1.73)	(0.47)	(0.56)	(2.51)	(4.85)
BB	0.00	0.12	2.93	14.01	13.27	6.20	0.15	7.47	55.83
	(0.00)	(0.32)	(3.12)	(5.07)	(6.89)	(3.04)	(0.27)	(8.11)	(6.68)
B	0.00	0.00	1.01	4.55	8.92	14.99	1.38	14.90	54.25
	(0.00)	(0.00)	(2.45)	(4.88)	(3.87)	(6.88)	(2.13)	(9.00)	(9.15)
CCC/C	0.00	0.00	0.27	1.06	5.04	7.43	2.92	30.77	52.52
	(0.00)	(0.00)	(3.69)	(2.14)	(6.36)	(8.01)	(5.91)	(17.45)	(14.83)

Note: Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 42

Average multiyear global corporate transition matrix--insurance (1981-2023) (%)

From/To	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
One-year									
AAA	88.09	9.77	0.27	0.00	0.07	0.07	0.13	0.00	1.61
	(11.88)	(11.27)	(1.28)	(0.00)	(0.29)	(0.42)	(0.84)	(0.00)	(2.34)
AA	0.50	88.29	6.98	0.33	0.04	0.04	0.06	0.04	3.73
	(0.96)	(6.46)	(5.55)	(0.87)	(0.14)	(0.13)	(0.45)	(0.14)	(2.11)
A	0.01	2.11	90.95	2.51	0.15	0.06	0.01	0.09	4.11
	(0.06)	(2.20)	(4.57)	(2.47)	(0.46)	(0.22)	(0.05)	(0.23)	(1.86)
BBB	0.00	0.14	5.21	84.21	2.34	0.29	0.24	0.17	7.39
	(0.00)	(0.66)	(3.47)	(5.26)	(2.50)	(0.93)	(0.69)	(0.63)	(3.00)
BB	0.00	0.09	0.52	7.69	74.94	3.46	1.04	0.52	11.75
	(0.00)	(0.79)	(1.97)	(8.42)	(11.99)	(4.24)	(2.89)	(1.98)	(6.97)
B	0.00	0.12	0.23	0.58	5.81	76.54	1.86	1.63	13.24
	(0.00)	(0.95)	(2.20)	(2.45)	(7.17)	(11.30)	(3.68)	(4.26)	(6.24)
CCC/C	0.00	0.00	0.00	0.00	3.49	12.79	40.70	23.26	19.77
	(0.00)	(0.00)	(0.00)	(0.00)	(11.47)	(21.95)	(32.52)	(27.74)	(29.69)
Three-year									
AAA	66.62	25.28	1.81	0.07	0.13	0.13	0.27	0.33	5.35
	(18.44)	(17.17)	(2.62)	(0.42)	(0.52)	(0.60)	(1.00)	(0.83)	(5.70)
AA	1.15	69.93	15.97	1.57	0.16	0.20	0.06	0.24	10.73

Table 42

Average multiyear global corporate transition matrix--insurance (1981-2023)
(%) (cont.)

From/To	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
	(1.94)	(10.77)	(7.10)	(2.12)	(0.47)	(0.54)	(0.18)	(0.41)	(3.78)
A	0.04	4.80	76.43	4.85	0.54	0.11	0.10	0.37	12.76
	(0.14)	(4.47)	(9.21)	(3.29)	(1.16)	(0.59)	(0.22)	(0.86)	(4.09)
BBB	0.00	0.49	12.68	62.44	3.55	0.73	0.34	0.86	18.91
	(0.00)	(1.41)	(6.04)	(8.72)	(2.81)	(0.92)	(1.04)	(1.65)	(4.62)
BB	0.00	0.09	1.78	15.61	44.58	4.86	1.12	1.96	30.00
	(0.00)	(0.82)	(3.85)	(10.85)	(14.78)	(4.30)	(3.75)	(4.56)	(10.47)
B	0.00	0.00	1.17	2.48	10.97	46.74	1.44	5.22	31.98
	(0.00)	(0.00)	(4.31)	(6.91)	(9.97)	(11.74)	(2.19)	(7.64)	(10.78)
CCC/C	0.00	0.00	1.18	2.35	4.71	17.65	14.12	30.59	29.41
	(0.00)	(0.00)	(10.97)	(10.77)	(10.34)	(23.37)	(18.52)	(29.75)	(31.17)
10-year									
AAA	24.08	41.14	9.43	1.74	0.13	0.47	0.13	1.54	21.34
	(14.66)	(15.25)	(6.40)	(2.60)	(0.46)	(1.13)	(0.53)	(1.62)	(10.67)
AA	1.33	36.39	26.69	3.19	0.49	0.49	0.05	1.60	29.78
	(2.18)	(8.68)	(6.73)	(2.49)	(0.69)	(0.70)	(0.14)	(1.24)	(5.19)
A	0.15	6.97	48.69	5.61	1.06	0.28	0.23	1.55	35.47
	(1.05)	(4.44)	(10.11)	(3.00)	(1.63)	(0.37)	(0.44)	(1.77)	(5.84)
BBB	0.00	1.39	18.47	31.11	1.80	0.51	0.15	2.75	43.83
	(0.00)	(3.63)	(5.58)	(4.24)	(2.02)	(0.38)	(0.58)	(3.95)	(3.92)
BB	0.00	0.54	4.71	16.02	11.04	3.63	0.00	9.15	54.91
	(0.00)	(1.41)	(6.51)	(7.15)	(6.30)	(3.30)	(0.00)	(14.20)	(16.47)
B	0.00	0.00	4.18	10.44	8.88	11.75	0.52	13.05	51.17
	(0.00)	(0.00)	(10.36)	(14.65)	(9.86)	(8.30)	(4.46)	(11.36)	(18.12)
CCC/C	0.00	0.00	1.27	0.00	8.86	0.00	0.00	40.51	49.37
	(0.00)	(0.00)	(11.41)	(0.00)	(16.20)	(0.00)	(0.00)	(31.41)	(28.42)

Note: Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 43

Average multiyear global corporate transition matrix--financial institutions
(1981-2023) (%)

From/to	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
One-year									
AAA	86.29	8.56	0.41	0.10	0.10	0.00	0.00	0.00	4.54
	(13.70)	(12.61)	(1.27)	(0.72)	(0.78)	(0.00)	(0.00)	(0.00)	(4.52)

Table 43

**Average multiyear global corporate transition matrix--financial institutions
(1981-2023) (%) (cont.)**

From/to	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
AA	0.33	87.54	8.19	0.31	0.00	0.00	0.00	0.02	3.62
	(0.61)	(7.46)	(7.05)	(0.68)	(0.00)	(0.00)	(0.00)	(0.09)	(2.25)
A	0.04	1.76	89.08	3.94	0.17	0.04	0.01	0.05	4.91
	(0.20)	(1.97)	(5.56)	(3.52)	(0.60)	(0.13)	(0.06)	(0.21)	(2.86)
BBB	0.00	0.18	3.52	86.11	3.09	0.37	0.03	0.23	6.47
	(0.00)	(0.60)	(3.20)	(5.93)	(3.04)	(1.04)	(0.18)	(0.63)	(2.19)
BB	0.00	0.07	0.07	4.81	78.95	4.74	0.46	0.59	10.32
	(0.00)	(0.26)	(0.58)	(3.94)	(7.42)	(3.80)	(1.37)	(1.27)	(5.09)
B	0.00	0.00	0.03	0.32	6.09	76.73	3.48	2.47	10.88
	(0.00)	(0.00)	(0.46)	(0.82)	(4.31)	(7.40)	(3.96)	(3.87)	(4.08)
CCC/C	0.00	0.00	0.00	0.00	0.65	16.41	49.24	15.77	17.93
	(0.00)	(0.00)	(0.00)	(0.00)	(3.37)	(13.16)	(20.27)	(14.69)	(11.11)
Three-year									
AAA	64.11	20.85	1.24	0.73	0.10	0.00	0.00	0.00	12.97
	(19.31)	(19.10)	(2.97)	(2.08)	(0.66)	(0.00)	(0.00)	(0.00)	(7.58)
AA	0.81	67.32	19.54	1.51	0.15	0.06	0.00	0.08	10.53
	(0.92)	(13.02)	(10.30)	(1.92)	(0.49)	(0.35)	(0.00)	(0.23)	(5.03)
A	0.08	4.29	71.37	8.66	1.05	0.25	0.07	0.25	13.99
	(0.25)	(3.90)	(9.81)	(4.00)	(1.82)	(0.54)	(0.23)	(0.54)	(6.05)
BBB	0.00	0.45	8.75	65.38	5.32	0.87	0.21	0.97	18.06
	(0.00)	(1.10)	(6.36)	(9.91)	(3.97)	(1.25)	(0.69)	(1.73)	(5.17)
BB	0.00	0.10	0.32	11.23	50.58	7.90	0.65	2.38	26.84
	(0.00)	(0.43)	(1.08)	(6.32)	(11.27)	(4.30)	(1.51)	(3.82)	(7.45)
B	0.00	0.00	0.00	1.09	12.13	48.75	4.57	7.22	26.25
	(0.00)	(0.00)	(0.00)	(1.77)	(7.04)	(10.09)	(3.90)	(7.56)	(6.71)
CCC/C	0.00	0.00	0.00	0.00	0.72	26.97	10.74	23.87	37.71
	(0.00)	(0.00)	(0.00)	(0.00)	(3.54)	(16.52)	(14.24)	(16.04)	(15.90)
10-year									
AAA	21.30	34.08	7.24	2.45	0.00	0.00	0.00	0.00	34.93
	(13.80)	(20.28)	(5.66)	(4.72)	(0.00)	(0.00)	(0.00)	(0.00)	(11.76)
AA	0.73	31.02	30.06	5.17	0.18	0.13	0.00	0.48	32.24
	(0.90)	(10.82)	(7.57)	(3.34)	(0.47)	(0.28)	(0.00)	(1.67)	(7.33)
A	0.13	6.71	38.87	11.19	1.95	0.53	0.01	1.26	39.36
	(0.31)	(3.76)	(8.05)	(5.06)	(2.08)	(0.61)	(0.07)	(1.29)	(6.76)
BBB	0.06	1.19	11.02	29.82	4.92	1.37	0.45	3.99	47.19
	(0.19)	(2.48)	(4.59)	(9.75)	(3.01)	(0.73)	(0.82)	(2.75)	(7.04)

Table 43

**Average multiyear global corporate transition matrix--financial institutions
(1981-2023) (%) (cont.)**

From/to	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
BB	0.00	0.00	2.40	13.42	13.94	6.97	0.20	6.97	56.11
	(0.00)	(0.00)	(2.68)	(5.66)	(8.66)	(3.74)	(0.34)	(7.10)	(8.76)
B	0.00	0.00	0.33	3.29	8.93	15.68	1.56	15.29	54.91
	(0.00)	(0.00)	(1.28)	(3.47)	(4.33)	(7.63)	(2.08)	(11.26)	(9.37)
CCC/C	0.00	0.00	0.00	1.34	4.03	9.40	3.69	28.19	53.36
	(0.00)	(0.00)	(0.00)	(2.75)	(6.60)	(9.67)	(6.72)	(17.30)	(13.97)

Note: Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Table 44

**Average multiyear global corporate transition matrix--nonfinancials (1981 to 2023)
(%)**

From/to	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
One-year									
AAA	87.04	8.33	0.84	0.00	0.14	0.00	0.00	0.00	3.64
	(8.83)	(7.93)	(1.68)	(0.00)	(0.47)	(0.00)	(0.00)	(0.00)	(4.19)
AA	0.52	87.19	7.57	0.64	0.09	0.11	0.00	0.00	3.88
	(0.75)	(5.73)	(3.92)	(1.00)	(0.30)	(0.35)	(0.00)	(0.00)	(2.51)
A	0.03	1.11	88.51	6.09	0.31	0.14	0.02	0.03	3.78
	(0.09)	(1.20)	(4.32)	(2.52)	(0.48)	(0.34)	(0.08)	(0.07)	(2.15)
BBB	0.01	0.04	2.69	87.77	3.45	0.43	0.09	0.11	5.41
	(0.04)	(0.11)	(1.66)	(4.44)	(1.83)	(0.67)	(0.21)	(0.24)	(1.73)
BB	0.01	0.01	0.09	4.25	78.69	6.82	0.50	0.57	9.04
	(0.06)	(0.08)	(0.23)	(1.86)	(4.70)	(3.37)	(0.59)	(0.81)	(2.19)
B	0.00	0.02	0.06	0.12	4.27	74.83	5.05	3.06	12.59
	(0.00)	(0.08)	(0.18)	(0.19)	(2.01)	(3.74)	(2.82)	(3.03)	(2.45)
CCC/C	0.00	0.00	0.09	0.15	0.35	13.04	44.60	27.07	14.70
	(0.00)	(0.00)	(0.40)	(0.61)	(0.73)	(7.78)	(8.42)	(12.05)	(4.54)
Three-year									
AAA	66.46	19.10	3.52	0.28	0.35	0.07	0.00	0.00	10.22
	(12.32)	(11.29)	(3.25)	(1.30)	(0.86)	(0.32)	(0.00)	(0.00)	(7.41)
AA	1.17	66.69	18.14	2.35	0.53	0.28	0.01	0.03	10.80
	(1.09)	(9.92)	(5.64)	(2.00)	(0.78)	(0.58)	(0.08)	(0.10)	(4.86)
A	0.05	2.60	69.88	14.43	1.19	0.51	0.07	0.11	11.15
	(0.10)	(2.41)	(7.20)	(3.54)	(1.14)	(0.75)	(0.15)	(0.18)	(3.96)
BBB	0.02	0.12	6.69	68.92	7.13	1.54	0.23	0.59	14.75

Table 44

**Average multiyear global corporate transition matrix--nonfinancials (1981 to 2023)
(%) (cont.)**

From/to	AAA	AA	A	BBB	BB	B	CCC/C	D	NR
	(0.07)	(0.26)	(3.16)	(8.38)	(2.23)	(1.44)	(0.32)	(0.95)	(3.60)
BB	0.01	0.03	0.35	9.66	50.18	11.80	1.19	3.46	23.32
	(0.06)	(0.13)	(0.61)	(3.49)	(7.82)	(3.05)	(0.83)	(3.37)	(3.70)
B	0.00	0.02	0.14	0.51	8.43	42.15	5.57	11.29	31.89
	(0.05)	(0.10)	(0.41)	(0.67)	(3.51)	(4.71)	(2.17)	(6.89)	(4.97)
CCC/C	0.00	0.00	0.08	0.43	1.36	15.37	10.33	43.60	28.84
	(0.00)	(0.00)	(0.33)	(1.01)	(1.56)	(6.56)	(5.72)	(12.54)	(7.63)
10-year									
AAA	29.69	29.25	10.41	3.89	0.22	0.00	0.00	0.22	26.32
	(9.84)	(11.29)	(5.14)	(3.61)	(0.60)	(0.00)	(0.00)	(0.54)	(9.71)
AA	1.36	26.23	29.94	8.91	1.50	0.44	0.02	0.32	31.28
	(1.06)	(8.53)	(3.75)	(3.96)	(1.18)	(0.52)	(0.10)	(0.52)	(5.82)
A	0.07	3.56	36.86	23.09	3.05	1.07	0.11	1.10	31.10
	(0.14)	(2.26)	(6.61)	(3.63)	(1.15)	(0.86)	(0.17)	(0.93)	(4.93)
BBB	0.02	0.27	10.53	39.13	7.47	2.34	0.20	3.32	36.73
	(0.10)	(0.30)	(3.56)	(8.11)	(1.33)	(1.42)	(0.20)	(2.43)	(5.02)
BB	0.01	0.06	1.23	11.14	18.46	8.36	0.76	13.29	46.67
	(0.07)	(0.13)	(0.93)	(3.07)	(5.48)	(2.25)	(0.40)	(6.53)	(3.00)
B	0.00	0.02	0.21	1.87	6.74	9.79	1.05	25.89	54.44
	(0.00)	(0.06)	(0.53)	(1.42)	(1.70)	(2.68)	(0.54)	(8.49)	(6.01)
CCC/C	0.00	0.00	0.08	0.67	3.46	3.21	0.50	52.92	39.16
	(0.00)	(0.00)	(0.33)	(0.93)	(2.43)	(2.44)	(0.69)	(11.25)	(9.55)

Note: Numbers in parentheses are weighted standard deviations, weighted by the issuer base. Sources: S&P Global Ratings Credit Research & Insights. S&P Global Market Intelligence's CreditPro®.

Appendix II: Gini Methodology

We utilize the Lorenz curve, a graphical representation of the proportionality of a distribution, as one measure of ratings performance, and we summarize this via the Gini coefficient. For this study, the Lorenz curve is plotted with the x-axis showing the cumulative share of issuers, arranged by rating, while the y-axis represents the cumulative share of defaulters, also arranged by rating. For both axes of the Lorenz curve, the observations are ordered from the low end of the ratings scale ('CCC'/'C') to the high end ('AAA').

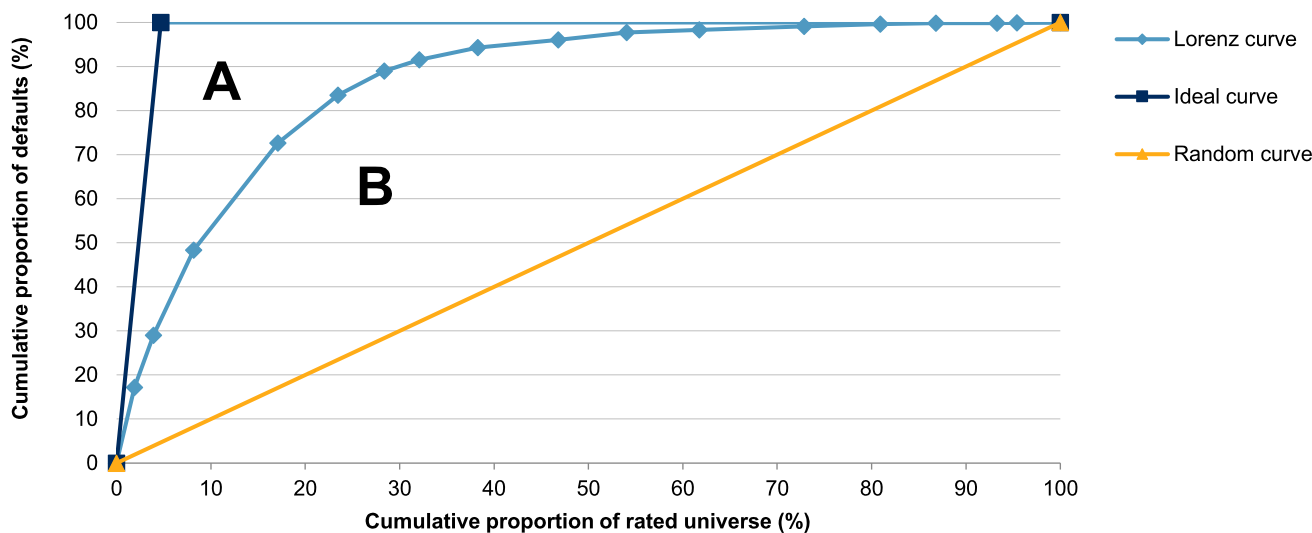
As an example, if 'CCC'/'C' rated entities made up 10% of the total population of issuers at the start of the time frame examined (x-axis) and 50% of the defaulters (y-axis), then the coordinate (10, 50) would be the first point on the curve. If S&P Global Ratings' issuer credit ratings only randomly approximated default risk, the Lorenz curve would fall along the diagonal. Its Gini

coefficient--which is a summary statistic of the Lorenz curve--would thus be zero. If issuer credit ratings were perfectly rank ordered so that all defaults occurred only among the lowest-rated entities, the curve would capture all of the area above the diagonal on the graph (the ideal curve), and its Gini coefficient would be 1 (see chart 31).

The procedure for calculating the Gini coefficients is illustrated in chart 31: Area B is bounded by the random curve and the Lorenz curve, while area A is bounded by the Lorenz curve and the ideal curve. The Gini coefficient is defined as area B divided by the total of area A plus area B. In other words, the Gini coefficient captures the extent to which actual ratings accuracy diverges from the random scenario and aspires to the ideal scenario.

Chart 31

Sample Lorenz Curve



Source: S&P Global Ratings Credit Research & Insights.
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Related Research

- U.S. Recovery Study: Loan Recoveries Persist Below Their Trend, Dec. 15, 2023
- S&P Global Ratings Definitions, June 8, 2023

The use of the term "methodology" in this article refers to data aggregation and calculation methods used in conducting the research. It does not relate to S&P Global Ratings' methodologies, which are publicly available criteria used to determine credit ratings.

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