

**STANDARD
& POOR'S**

Setting the Standard

Ratings Performance 2002

Default, Transition, Recovery, and Spreads

**Research from
Standard & Poor's
Risk Solutions**

Global Corporate
Default Study

Ultimate Recovery and
Trading Price Research

Special Coverage: Default
Among Fallen Angels

Sovereign Default and
Transition



February 2003

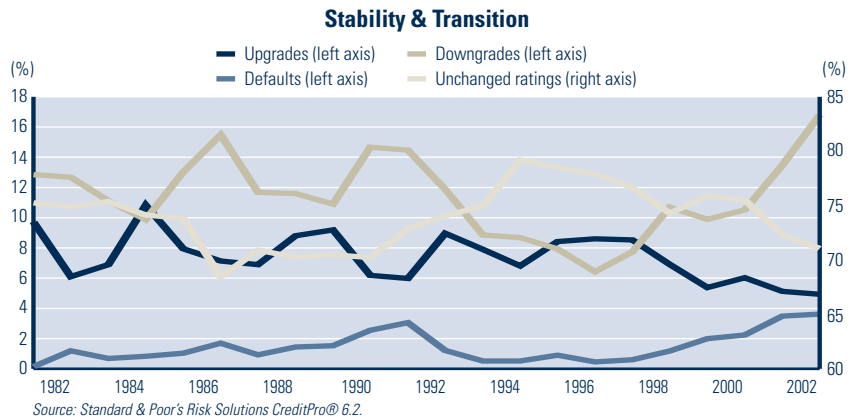


TABLE OF CONTENTS

A Letter From Roy Taub	3
Corporate Defaults Peak in 2002 Amid Record Amounts of Defaults and Declining Credit Quality — Hazards Remain	5
SPECIAL REPORT: Fallen Angels: To Rise No More?	50
Unsecured Bondholders Hit Hardest in 2002 Amid Declining Recovery Rates	55
Recoveries of Defaulted U. S. Structured Finance Securities: Inception to June 30, 2002	57
Initial Trading Price: Poor Indicator for Defaulted Debt	63
EU Default Rate Maintains Lead Over Its Global Counterparts	67
International Sub-Sovereign Ratings Study Update Highlights Sectoral Stability	70
2002 Defaults and Rating Transition Data Update for Rated Sovereigns	75
Sovereign Defaults: Moving Higher Again in 2003?	87

MORE ON OUR WEBSITE >>

Companies that defaulted in 2002 are profiled at www.risksolutions.standardandpoors.com. Click on Research from Risk Solutions and scroll to “2002 Defaults in Profile,” under Default Research.



RATINGS PERFORMANCE 2002

CONTACT LIST

RISK SOLUTIONS

Roy Taub, New York(1) 212-438-7200
Executive Managing Director

Stuart Braman, New York(1) 212-438-7438
Managing Director

William Chambers, New York(1) 212-438-7885
Managing Director

Asia/Pacific

Ken McLay, Melbourne(61) 3-9631-2090
Managing Director

Japan/Korea

Yoshiyuki Mitsugi, Tokyo(81) 3-3593-8721
Director

Europe

Aidan O'Mahony, London(44) 20-7826-3518
Managing Director

Custom Services

Shelly Harris, New York(1) 212-438-7204
Managing Director

Bernard O'Sullivan, London(44) 20-7826-3586
Director

Credit Modeling Services

Arnaud De Servigny, London(44) 207-826-3630
Managing Director

Gail Hessol, New York(1) 212-438-6606
Managing Director

Default Research

Brooks Brady, New York(1) 212-438-1503
Director

LossStats Recovery Research

David Keisman, New York(1) 212-438-5015
Managing Director

Risk Management Benchmarking

Karen VandeCastle, New York(1) 212-438-7891
Director

Risk Learning Institute

John Newcomb, New York(1) 212-438-1497
Director

GLOBAL FIXED INCOME RESEARCH

Diane Vazza, New York(1) 212-438-2760
Managing Director

David Cantor, New York(1) 212-438-6521
Associate Director

RATING SERVICES

North America

Cliff Griep, New York(1) 212-438-7432
Chief Credit Officer

Asia/Pacific

Cecile Saavedra, Singapore(65) 239-6388
Managing Director

Michael Naylor, Singapore(65) 239-6336
Chief Marketing Officer

Europe

Francois Veverka, Paris(33) 1-4420-6655
Executive Managing Director

Guy Hewitt, London(44) 20-7826-3604
Chief Marketing Officer

Latin America

Cathy Daicoff, New York(1) 212-438-6766
Managing Director

Henry Gabay, New York(1) 212-438-6771
Chief Marketing Officer

Japan/Korea

Thomas Schiller, Tokyo(81) 3-3593-8445
Managing Director

SOVEREIGN RATINGS

David Beers, London(44) 20-7847-7101
Managing Director

John Chambers, New York(1) 212-438-7344
Managing Director

Takahira Ogawa, Singapore(65) 239-6342
Director

A Letter from Roy Taub

Executive Managing Director, Risk Solutions

The events of the most recent year have highlighted, yet again, the need for sound credit risk management tools, data, and processes. Standard & Poor's Risk Solutions is pleased to provide you with Ratings Performance 2002 and we hope you will use it as one of your tools. In addition to what you read in this book, Risk Solutions allows you to draw upon years of Standard & Poor's experience that can be brought to bear on the challenges you face in the arena of credit risk.

2002 was another record year for defaults, with 234 companies defaulting on \$178 billion of debt worldwide. Not only was this the largest number of companies and the greatest dollar amount of defaulting debt ever, but also the highest percentage ever, with 3.63% of all rated companies defaulting. The downgrade to upgrade ratio of 3.41 is also the largest ever, demonstrating the substantial weakening in credit quality that took place during 2002. But in the middle of all of this, default rates turned a corner at mid-year and have been decreasing ever since.

This year, default rates are expected to decline further, although not as quickly as they declined in the early 1990s, and credit quality should not decline as much as it did during 2002. The global economy is expected to continue its slow recovery, which means that credit quality will continue to be under substantial pressure, although not to the extent of last year.

The following pages provide comprehensive analyses of the historical performance of the corporate, structured, sovereign, and sub-sovereign sectors. In the current environment, Ratings Performance is one of the key tools of credit risk management.

Risk Solutions provides more in-depth information on default and recovery, in addition to what is provided in this book, through its CreditPro® and LossStats™ databases rating transition and recovery information. In addition, Standard & Poor's provides clients with assistance in applying this data in sound credit risk practices, gathering and utilizing data internally or via a consortium of companies, establishing and improving credit risk management practices at veteran financial institutions as well as newcomers to the world of credit risk, and helping financial institutions prepare for Basel II.

I encourage you to analyze the Ratings Performance publication and to use it as one of the building blocks for your understanding and application of Standard & Poor's ratings. Please contact your account executive or the authors of these studies if you require more detailed information than that provided in this booklet or if you would like to benefit from Risk Solutions' vast supply of data, tools, and custom solutions.



Published by Standard & Poor's, a Division of The McGraw-Hill Companies, Inc. Executive offices: 1221 Avenue of the Americas, New York, NY 10020. Editorial offices: 55 Water Street, New York, NY 10041. Subscriber services: (1) 212-438-7280. Copyright 2003 by The McGraw-Hill Companies, Inc. Reproduction in whole or in part prohibited except by permission. All rights reserved. Information has been obtained by Standard & Poor's from sources believed to be reliable. However, because of the possibility of human or mechanical error by our sources, Standard & Poor's or others, Standard & Poor's does not guarantee the accuracy, adequacy, or completeness of any information and is not responsible for any errors or omissions or the result obtained from the use of such information. Ratings are statements of opinion, not statements of fact or recommendations to buy, hold, or sell any securities.

Standard & Poor's Credit Information Services uses billing and contact data collected from subscribers for billing and order fulfillment purposes, and occasionally to inform subscribers about products or services from Standard & Poor's and our parent, The McGraw-Hill Companies, that may be of interest to them. All subscriber billing and contact data collected is processed in the U.S. If you would prefer not to have your information used as outlined in this notice, or if you wish to review your information for accuracy, or for more information on our privacy practices, please call us at (1) 212-438-7280. For more information about The McGraw-Hill Companies Privacy Policy please visit www.mcgraw-hill.com/privacy.html.

Standard & Poor's receives compensation for rating obligations and other analytic activities. The fees generally vary from US \$5,000 to over US\$1,500,000. While Standard & Poor's reserves the right to disseminate the rating it receives no payment for doing so, except for subscriptions to its publications. The Standard & Poor's ratings and other analytic services are performed as entirely separate activities in order to preserve the independence and objectivity of each analytic process. Each analytic service, including ratings, may be based on information that is not available to other analytic areas.

The McGraw-Hill Companies

Corporate Defaults Peak in 2002 Amid Record Amounts of Defaults and Declining Credit Quality

Analytical Contacts: Brooks Brady, *New York (1) 212-438-1503*

Diane Vazza, *New York (1) 212-438-2760* Roger J. Bos, CFA, *New York (1) 212-438-1504*

Corporate defaults set records in 2002 for the fourth consecutive year, the result of a weak global economy, declining credit quality, a large amount of low quality issuance from the late 1990s, and corporate scandals. However, defaults began to decline mid-year.

Although it is hoped that defaults have reached their peak, any decline in defaults in 2003 will be painfully slow. Poor credit quality, a slow economic recovery, and global uncertainty about war may jeopardize any decline, and these factors have the potential to drive defaults to revisit the record levels of recent years.

The 234 companies and \$178 billion of debt that defaulted during 2002 is the largest number and amount ever, exceeding the previous records of 220 companies and \$119 billion in 2001 (*see table 1 and charts 1 and 2 for a comparison with other years*). Year over year, the global default rate increased gradually, with 3.63% of all companies rated by Standard & Poor's defaulting during 2002 compared with the previous record of 3.49% set in 2001. The percentage of speculative-grade companies that defaulted globally in 2002 was

9.20%, which exceeds the 8.94% that defaulted in 2001 but is below the record high of 1991, when 10.92% of speculative rated companies defaulted. Investment-grade companies defaulted in record numbers during 2002 with 0.50% defaulting compared with the previous record of 0.24% for 2001.

UPDATED DATA

Standard & Poor's has updated through 2002 its long-term corporate default and rating transition study. Utilizing the CreditPro® 6.2 database, the update involves 9,931 companies that were rated by Standard & Poor's as of Dec. 31, 1980 or that were first rated between that date and Dec. 31, 2002. These companies include industrials, utilities, financial institutions, and insurance companies around the world with long-term local currency ratings. The analysis excludes public information ("pi") ratings and ratings based on the guarantee of another company. Structured finance vehicles, public-sector issuers, and sovereign issuers, which are the subject of separate default and transition studies, are also excluded from this study.

Table 1

Global Corporate Default Summary

Year	Total defaults*	Investment grade defaults	Speculative grade defaults	Default rate (%)	Investment grade default rate (%)	Speculative grade default rate (%)	Total debt defaulting (Bil. \$)
1981	2	0	2	0.15	0.00	0.62	0.1
1982	18	2	15	1.19	0.18	4.40	0.9
1983	11	1	9	0.68	0.09	2.63	0.4
1984	13	2	11	0.83	0.17	2.96	0.4
1985	18	0	17	1.03	0.00	4.02	0.3
1986	32	2	30	1.69	0.15	5.62	0.5
1987	19	0	19	0.93	0.00	2.77	1.6
1988	31	0	31	1.44	0.00	4.09	3.3
1989	39	2	32	1.53	0.14	4.28	7.3
1990	66	2	55	2.56	0.13	7.90	21.2
1991	89	3	64	3.06	0.19	10.92	23.6
1992	33	0	28	1.22	0.00	5.38	5.4
1993	23	0	13	0.51	0.00	2.25	2.4
1994	18	1	14	0.52	0.05	1.87	2.3
1995	33	2	28	0.91	0.08	3.23	9.0
1996	20	0	16	0.45	0.00	1.69	2.7
1997	24	3	20	0.60	0.11	1.88	4.9
1998	56	4	48	1.18	0.13	3.44	11.3
1999	107	4	94	2.00	0.13	5.31	40.4
2000	132	5	110	2.24	0.16	5.70	44.0
2001	220	8	176	3.49	0.24	8.94	118.8
2002	234	17	177	3.63	0.50	9.20	177.8

*This column includes companies that were no longer rated at the time of default.

Standard & Poor's ongoing enhancement of the CreditPro® database used to generate this study (see "Corporate default data" under "Data and Calculations") has led to outcomes that differ to some degree from those reported in previous studies. However, this poses no continuity problems because each study reports data back to Dec. 31, 1980. Therefore, each annual default study is self-contained and effectively supersedes all previous versions.

CLEAR CORRELATION

All of Standard & Poor's default studies, the present update included, have found a

clear correlation between credit quality and default remoteness: the higher the rating, the lower the probability of default, and vice versa. Over each time span, lower ratings always correspond to higher default rates (see tables 2 and 3 and chart 5).

Furthermore, the lower the original rating on an obligor, the shorter the time it normally takes to default (see table 4). For instance, the mean lifetime of defaulting companies that were originally rated 'B' is 4.1 years for the period under study, while those companies originally rated 'AA' defaulted after an average of 12.8 years from initial rating (or from Dec. 31, 1980, the study's starting date).

The transition analysis portion of this study confirms earlier findings that higher ratings are more stable. 'AAA' rated issuers were still rated 'AAA' one year later 89.4% of the time, 'BBB' ratings remained 'BBB' 84.4% of the time, and 'CCC' ratings remained 'CCC' 49.7% of the time (see tables 7 and 13). The same pattern holds for the N.R.-adjusted transition calculations (see table 8).

LAST YEAR'S DEFAULTS

The global 12-month trailing speculative-grade default rate peaked in June (see chart 6), as predicted in last year's default study, and has continued to trend down since then. The first quarter was marked by the defaults of 38 Argentine companies, mostly as a direct result of restrictions of payments imposed by the

Table 2

Cumulative Average Default Rates (%)															
Jan. 1 rating	Years after static pool formation														
	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
AAA	0.00	0.00	0.03	0.06	0.10	0.17	0.25	0.38	0.43	0.48	0.48	0.48	0.48	0.56	0.67
AA	0.01	0.03	0.08	0.16	0.27	0.39	0.53	0.65	0.75	0.85	0.95	1.06	1.15	1.22	1.30
A	0.05	0.15	0.28	0.44	0.62	0.81	1.03	1.25	1.52	1.82	2.06	2.26	2.43	2.61	2.88
BBB	0.37	0.94	1.52	2.34	3.20	4.02	4.74	5.40	5.99	6.68	7.40	7.97	8.55	9.10	9.77
BB	1.38	4.07	7.16	9.96	12.34	14.65	16.46	18.02	19.60	20.82	21.98	22.79	23.58	23.99	24.51
B	6.20	13.27	19.07	23.45	26.59	29.08	31.41	33.27	34.58	35.87	36.98	37.97	38.95	39.96	41.09
CCC	27.87	36.02	41.79	46.26	50.46	52.17	53.60	54.36	56.16	57.21	58.15	58.95	59.59	60.70	60.70
Investment grade	0.13	0.34	0.57	0.87	1.20	1.52	1.83	2.13	2.41	2.72	3.02	3.26	3.50	3.73	4.03
Speculative grade	5.17	10.27	14.81	18.46	21.31	23.67	25.71	27.36	28.83	30.07	31.20	32.09	32.97	33.72	34.52
All ratings	1.67	3.36	4.86	6.12	7.14	8.02	8.80	9.47	10.07	10.64	11.17	11.60	12.02	12.40	12.85

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

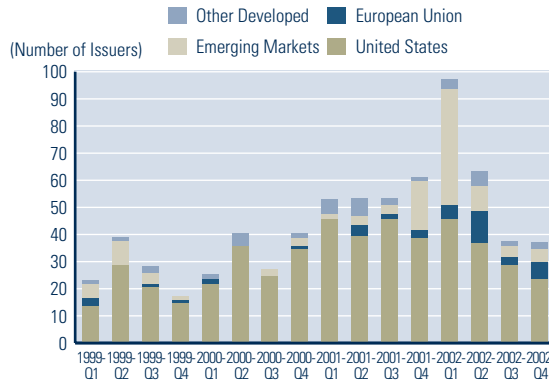
Table 3

N.R.-Adjusted Cumulative Average Default Rates (%)															
Jan. 1 rating	Years after static pool formation														
	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
AAA	0.00	0.00	0.03	0.07	0.11	0.20	0.30	0.47	0.54	0.61	0.61	0.61	0.61	0.75	0.92
AA	0.01	0.03	0.08	0.17	0.28	0.42	0.61	0.77	0.90	1.06	1.20	1.37	1.51	1.63	1.77
A	0.05	0.15	0.30	0.48	0.71	0.94	1.19	1.46	1.78	2.10	2.37	2.60	2.84	3.08	3.46
BBB	0.36	0.96	1.61	2.58	3.53	4.49	5.33	6.10	6.77	7.60	8.48	9.34	10.22	11.28	12.44
BB	1.47	4.49	8.18	11.69	14.77	17.99	20.43	22.63	24.85	26.61	28.47	29.76	30.98	31.70	32.56
B	6.72	14.99	22.19	27.83	31.99	35.37	38.56	41.25	42.90	44.59	45.84	46.92	47.71	48.68	49.57
CCC	30.95	40.35	46.43	51.25	56.77	58.74	59.46	59.85	61.57	62.92	63.41	63.41	63.41	64.25	64.25
Investment grade	0.13	0.34	0.59	0.93	1.29	1.65	1.99	2.33	2.64	2.99	3.32	3.63	3.95	4.30	4.75
Speculative grade	5.56	11.39	16.86	21.43	25.12	28.35	31.02	33.32	35.24	36.94	38.40	39.48	40.40	41.24	42.05
All ratings	1.73	3.51	5.12	6.48	7.57	8.52	9.33	10.04	10.66	11.27	11.81	12.28	12.71	13.17	13.69

N.R.—Rating withdrawn.

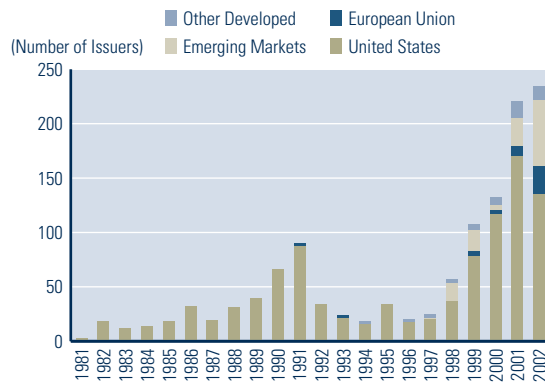
Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Chart 1
Quarterly Corporate Defaults by Number of Issuers



Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Chart 2
Annual Corporate Defaults by Number of Issuers



Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

government. This drove the global quarterly default rate to its peak (see chart 3). The second quarter saw seven European telecoms default, which increased the EU 12-month trailing default rate to exceed the U.S. and global 12-month trailing default rates. Worldwide default rates dropped in the third quarter. The U.S. quarterly default rate, which had plateaued near 2.5% for the previous six quarters, dropped to 1.56%, its lowest level since the third quarter of 2000. Default rates stabilized across the globe in the fourth quarter.

The U.S. and EU switched places in terms of default rates during 2002. During 2001, 6.92% of speculatively rated companies defaulted in the EU

compared with 9.71% in the U.S. (see table 10). This year, a whopping 13.48% defaulted in the EU compared with only 7.24% in the U.S.

Of the 234 defaults this year, 128 were in the U.S., followed by 43 in Argentina; 12 in the U.K.; eight each in Bermuda and Canada; six each in Brazil, Mexico, and the Netherlands; five in Germany; two each in Indonesia and Switzerland; and one each in Australia, Chile, China, Italy, Luxembourg, Russia, Spain, and Uruguay (see table 10 and charts 1, 2, 3, and 6 for default information by region).

The telecommunications industry was a major force driving default rates globally. In the EU, 62.5% of speculatively rated telecoms defaulted in 2002 compared with 25.8% in the U.S. Telecoms were by far the worst performing industry in terms of defaults during 2002, but other industries, such as transportation and leisure time & media, were also hit hard with more than 6% of companies defaulting in each industry (see table 9). The only sectors with less than 1% of rated companies defaulting were financial institutions, insurance companies, and real estate.

One of the most disturbing trends this year was the very high level of investment-grade defaults. (Investment-grade companies are those rated 'BBB-' or higher. A default is considered an investment-grade default if the defaulting company was rated investment grade as of Jan. 1 of the year in which it defaulted.) The rate of investment-grade defaults skyrocketed to a record 0.50% in 2002, dwarfing the previous record of 0.24% set during 2001. The high rate of 2002 investment-grade defaults is the result of volatile credit markets, an uncertain economy, parent companies removing support from subsidiaries, and alleged fraud. The investment-grade companies that defaulted during 2002 are AMERCO, AT&T Canada Inc., Covanta Energy Corp., Genuity Inc., MCI WorldCom Inc. and its subsidiary SkyTel Communications Inc., Mutual Risk Management Ltd. and its subsidiary Legion Insurance Co., NRG Energy Inc. and its subsidiaries NRG Northeast Generating LLC and NRG

South Central Generating LLC, PG&E National Energy Group Inc., Teleglobe Inc., Qwest Communications International Inc., and TXU Europe Ltd. and its subsidiaries The Energy Group Ltd. and TXU Europe Group PLC (*see table 17 for more details about defaulting companies*).

Coupled with the high rate of investment-grade defaults was the precipitous decline in credit quality during 2002, demonstrated by the large number of fallen angels produced during 2002 that survived past the end of the year. (Fallen angel survivors are the companies that were rated investment grade on Jan. 1 and speculative grade as of Dec. 31 of the same year. Together, investment-grade defaulters and fallen angel survivors comprise fallen angels.) In all, 4.09% of investment-grade companies were downgraded to speculative grade during 2002, the highest rate ever (*see table 11*). During 2002 the credit quality of issuers declined across the board, as exhibited by the record net downgrade to upgrade ratio of 3.4 (*see table 6*). This decline in credit quality does not bode well for default rates in the year to come.

A LOOK AHEAD

Standard & Poor's believes default rates peaked during 2002, but cautions that

most of the hazards that propelled defaults to record levels during recent years remain and have the potential to return default rates to record territory. There should be a gradual downward trend in default rates throughout 2003, but any reduction in default rates will be tempered by the one-two punch of poor credit quality and a sluggish economy. Default rates may even return to record levels if the economic recovery falters or if there is a prolonged war.

The decline in default rates over the short term will not be as swift as the decline in the early 1990s. At that time, speculative-grade default rates dropped from almost 11% to just above 2% within two years. Poor credit quality alone ensures that default rates will remain high even if the economy improves remarkably this year, and default rates will likely be near average levels in 2004.

Default rates will remain high in the telecommunications and media & entertainment sectors during 2003, which continue to be plagued by low credit quality and heavy debt burdens. The high technology, capital goods, and retailers/restaurants sectors also have many companies with a high risk of default.

Default rates will also continue to be high among the low quality issuers that came to

Table 4

Time to Default by Rating Category

Original rating	Defaults	Average years from original rating*	Last rating prior to 'D'	Defaults	Average years from prior rating
AAA	3	8.0	AAA	0	N.A.
AA	17	12.8	AA	0	N.A.
A	44	11.4	A	0	N.A.
BBB	105	7.7	BBB	10	1.0
BB	338	5.5	BB	28	1.6
B	675	4.1	B	297	1.3
CCC	56	3.2	CCC	711	0.4
N.R.	N.A.	N.A.	N.R.	192	3.4
Total	1,238	5.1	Total	1,238	1.1

*Or Dec. 31, 1980, whichever is later. N.A.—Not applicable. N.R.—Rating withdrawn.
Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 5

Rating Classification of New Issuers*

Year	First rating							Total	Investment grade (%)	Speculative grade (%)
	AAA	AA	A	BBB	BB	B	CCC			
1981	5	10	20	11	13	20	1	79	58.2	43.0
1982	27	21	33	15	15	17	1	129	74.4	25.6
1983	47	33	28	28	27	30	6	199	68.3	31.7
1984	15	22	33	16	30	36	3	155	55.5	44.5
1985	33	63	63	35	45	78	3	320	60.6	39.4
1986	30	25	42	27	54	124	11	314	39.5	60.2
1987	21	41	41	27	57	110	9	307	42.3	57.3
1988	23	51	45	38	30	70	5	262	59.9	40.1
1989	11	43	43	23	32	56	4	212	56.6	43.4
1990	17	42	36	22	11	12	7	147	79.6	20.4
1991	35	77	74	27	17	4	7	242	88.0	11.6
1992	22	63	70	54	60	59	6	334	62.6	37.4
1993	14	51	105	95	100	143	3	511	51.9	48.1
1994	20	55	188	102	84	108	3	560	65.2	34.8
1995	6	30	70	94	69	99	4	372	53.8	46.2
1996	9	45	94	131	127	124	2	533	52.3	47.5
1997	9	48	103	181	169	289	3	802	42.5	57.5
1998	6	54	105	135	195	309	7	811	37.0	63.0
1999	11	38	73	123	181	199	8	632	38.8	61.4
2000	8	30	81	124	111	139	13	506	48.0	52.0
2001	10	41	100	165	137	95	12	560	56.4	43.6
2002	6	24	75	126	169	146	22	568	40.7	59.3
Total	385	907	1,522	1,599	1,733	2,267	140	8,555	51.6	48.4

*Includes issuers that are assigned a new rating after default as well as those companies that are assigned a rating for the first time.
Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

market in the late 1990s. From 1996 to 2000, 33% of new issuers were rated 'B+' or lower. Already, 31% of those issues have defaulted, and, of those that remain, 61% continue to be rated 'B+' or lower, and 20% are rated 'B-' or lower.

Investment-grade default rates will likely remain high during 2003, although not as high as in 2002. In the near term, an unforgiving market and corporate scandals are expected to continue, causing the swift demise of companies that had recently been financially solid.

Credit quality is expected to continue to

deteriorate during 2003, although not at the record pace of 2002. The ratio of companies that were downgraded to those that were upgraded rose to 5.7 during the fourth quarter of 2002, which was the highest quarterly downgrade to upgrade ratio of the year.

Although default rates should trend slowly downward during 2003, the rate of decline will depend mainly on the speed of the economic recovery and the threat of prolonged war. An improvement in the economy will produce default rates that are lower than the recent records of

2002, but still above long-term averages, while a further economic slowdown combined with war could return default rates to record levels.

DATA AND CALCULATIONS

Corporate default data. This study utilizes the CreditPro® 6.2 database of long-term local currency issuer credit ratings. An issuer credit rating reflects Standard & Poor's opinion of a company's overall capacity to pay its obligations (that is, its fundamental creditworthiness). This opinion focuses on the obligor's ability and willingness to meet its financial commit-

ments on a timely basis, and it generally indicates the likelihood of default regarding all financial obligations of the firm. It is not necessary for a company to have rated debt in order to be assigned an issuer credit rating.

Although the rating on a company's very senior forms of secured debt, particularly ones with strong covenants, may occasionally be rated higher than the issuer credit rating on the company, specific issues are typically rated as high as or lower than these ratings, depending on their relative priority within the company's debt structure. If they are specula-

Table 6

Summary of Annual Rating Changes* (%)

Year	Issuers as of Jan. 1	Upgrades	Downgrades**	Defaults	Withdrawn ratings	Changed ratings	Unchanged ratings	Downgrades to upgrades
1981	1,378	9.72	12.84	0.15	2.03	24.75	75.25	1.32
1982	1,427	6.10	12.68	1.19	5.12	25.09	74.91	2.08
1983	1,466	6.89	11.12	0.68	5.93	24.62	75.38	1.61
1984	1,570	10.83	9.87	0.83	4.33	25.86	74.14	0.91
1985	1,650	7.94	13.03	1.03	4.18	26.18	73.82	1.64
1986	1,892	7.14	15.49	1.69	7.24	31.55	68.45	2.17
1987	2,046	6.89	11.68	0.93	9.58	29.08	70.92	1.70
1988	2,147	8.80	11.60	1.44	7.92	29.76	70.24	1.32
1989	2,219	9.19	10.91	1.53	7.89	29.52	70.48	1.19
1990	2,230	6.19	14.66	2.56	6.37	29.78	70.22	2.37
1991	2,190	5.98	14.47	3.06	3.61	27.12	72.88	2.42
1992	2,299	8.96	11.87	1.22	3.87	25.92	74.08	1.33
1993	2,542	7.91	8.85	0.51	7.79	25.06	74.94	1.12
1994	2,876	6.82	8.69	0.52	4.76	20.79	79.21	1.28
1995	3,303	8.42	7.93	0.91	4.24	21.50	78.50	0.94
1996	3,535	8.60	6.42	0.45	6.62	22.09	77.91	0.75
1997	3,856	8.53	7.75	0.60	6.46	23.34	76.66	0.91
1998	4,420	6.90	10.70	1.18	6.92	25.70	74.30	1.55
1999	4,911	5.38	9.90	2.00	6.84	24.11	75.89	1.84
2000	5,145	6.03	10.52	2.24	5.71	24.49	75.51	1.75
2001	5,270	5.12	13.47	3.49	5.62	27.70	72.30	2.63
2002	5,351	4.93	16.80	3.63	3.57	28.93	71.07	3.41
Annual average		7.04	11.30	1.67	5.80	25.82	74.18	1.74

*This table compares the differences in ratings between the first and last days of the year. All intermediate ratings are disregarded. **Excludes downgrades to 'D', shown separately in the default column. Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Chart 3
Quarterly Global Corporate Defaulting Debt Amount

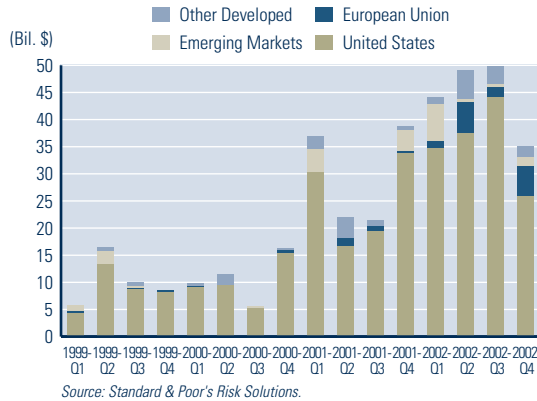


Chart 4
Annual Global Corporate Defaulting Debt Amount

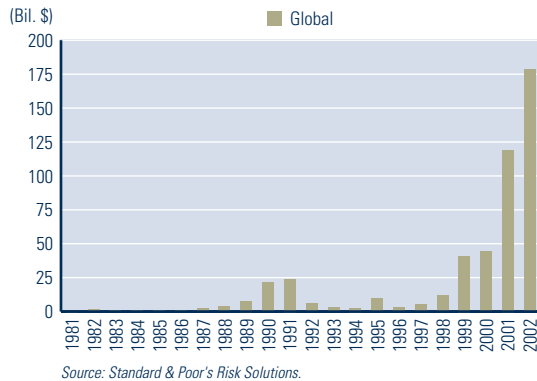
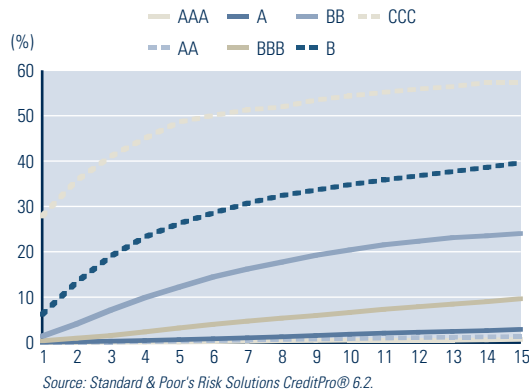


Chart 5
Cumulative Average Default Rates by Rating



tive grade, issuer credit ratings are generally two notches higher than subordinated debt ratings. Otherwise, they are generally one notch higher. Therefore, while a 'BB+' issuer credit rating is paired with a 'BB-' subordinated debt rating, an 'AA' issuer credit rating corresponds to an 'AA-' subordinated rating.

All in all, the study analyzed the rating histories of 9,931 long-term rated issuers from Dec. 31, 1980, to Dec. 31, 2002. These obligors include U.S. and non-U.S. industrials, utilities, insurance companies, banks, other financial institutions, and real estate companies. Although most of their obligations are sold in the U.S., many of these companies also access other financial markets.

Insurers that have been assigned only financial strength or short-term ratings were excluded. Subsidiaries whose debt is fully guaranteed by a parent or whose default risk is considered identical to their parents' have always been excluded. The latter are companies whose obligations are not legally guaranteed by a parent but whose operating or financing activities 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 child might have come to an end, or might not have begun. Such subsidiaries were included for the period during which they carried a distinct and separate risk of default.

Definition of default. A default is recorded upon the first occurrence of a payment default on any financial obligation, rated or unrated, other than a financial obligation subject to a bona fide commercial dispute; an exception occurs when an interest payment missed on the due date is made within the grace period. Preferred stock is not considered a financial obligation; thus, a missed preferred stock dividend is not normally equated with default. Distressed exchanges, on the other hand, are considered defaults whenever the debt holders are coerced

into accepting substitute instruments with lower coupons, longer maturities, or any other diminished financial terms.

Issue ratings are usually lowered to 'D' following a company's default on the corresponding obligation. In addition, the 'SD' (selective default) rating was introduced in 1999, for use whenever Standard & Poor's believes that an obligor that has selectively defaulted on a specific issue or class of obligations will continue to meet its payment obligations on other issues or classes of obligations in a timely manner. Both the 'D' and 'SD' issuer credit ratings are deemed defaults for purposes of this study. A default is assumed to take place on the

earliest of the date Standard & Poor's changed the rating to 'D' or 'SD', the date a debt payment was missed, the date a distressed exchange offer was announced, or the day the debtor filed or was forced into bankruptcy.

Static pool formation. Relatively few issuers default early in their rated history. Because of this, default rates obtained by dividing the number of defaults during a given period by all outstanding ratings will yield comparatively low default rates during periods of high rating activity. To avoid this misleading result, Standard & Poor's has conducted its default studies on the basis of groupings called static pools. A static pool is formed at the beginning of

Table 7

Average One-Year Transition Rates									
Rating	Rating at year-end (%)								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	89.37	6.04	0.44	0.14	0.05	0.00	0.00	0.00	3.97
AA	0.57	87.76	7.30	0.59	0.06	0.11	0.02	0.01	3.58
A	0.05	2.01	87.62	5.37	0.45	0.18	0.04	0.05	4.22
BBB	0.03	0.21	4.15	84.44	4.39	0.89	0.26	0.37	5.26
BB	0.03	0.08	0.40	5.50	76.44	7.14	1.11	1.38	7.92
B	0.00	0.07	0.26	0.36	4.74	74.12	4.37	6.20	9.87
CCC	0.09	0.00	0.28	0.56	1.39	8.80	49.72	27.87	11.30

N.R.—Rating withdrawn.
Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 8

Average One-Year N.R.-Adjusted Transition Rates									
Rating	Rating at year-end (%)								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	93.06	6.29	0.45	0.14	0.06	0.00	0.00	0.00	
AA	0.59	90.99	7.59	0.61	0.06	0.11	0.02	0.01	
A	0.05	2.11	91.43	5.63	0.47	0.19	0.04	0.05	
BBB	0.03	0.23	4.44	88.98	4.70	0.95	0.28	0.39	
BB	0.04	0.09	0.44	6.07	82.73	7.89	1.22	1.53	
B	0.00	0.08	0.29	0.41	5.32	82.06	4.90	6.95	
CCC	0.10	0.00	0.31	0.63	1.57	9.97	55.82	31.58	

N.R.—Rating withdrawn.
Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Chart 6

Speculative Grade Default Rate vs. Credit Quality

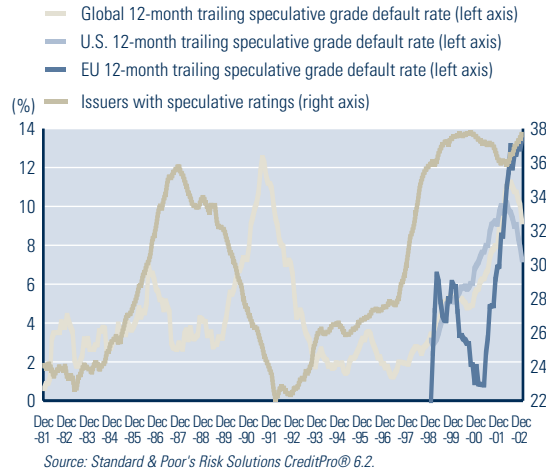


Chart 7

Investment Grade Spreads to U.S. Treasury

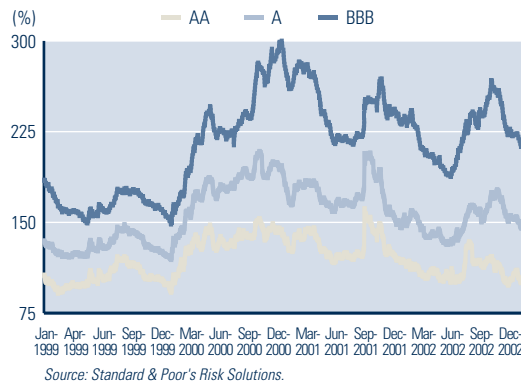
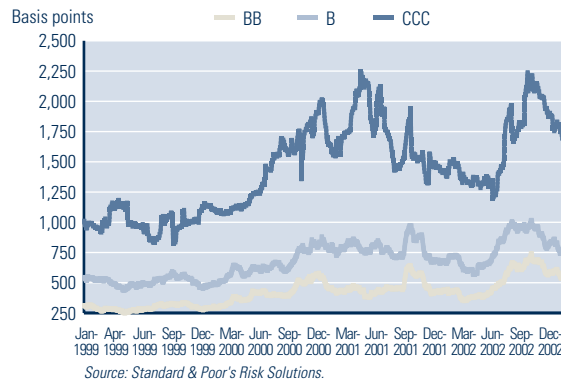


Chart 8

Speculative Grade Spreads to U.S. Treasury



each year covered by the study and followed from that point on. All companies included in the study are sorted into these pools. The pools are static in the sense that their membership remains constant over time and can be interpreted as a buy and hold portfolio. This rule, however, must be understood in the context of a single study. Because errors, if any, are corrected by every new update, and because the criteria for inclusion or exclusion of companies in the study are subject to minor revisions as time goes by, it is not possible to compare static pools across different studies. Therefore, every new update revises results back to the same starting date of Dec. 31, 1980 so as to avoid continuity problems.

All obligors are followed year to year within each pool. This annual tracking involves the comparison of the ratings on each member on the first and last days of each calendar year. Intermediate ratings, if any, are ignored. Entities whose ratings have been withdrawn—that is, changed to N.R.—are followed, with the aim of capturing a potential default. These companies, as well as those that have defaulted, are excluded from subsequent pools.

For instance, the 1981 static pool comprises all companies rated as of 12:01 a.m. Jan. 1, 1981. The 1982 static pool is formed by adding those companies first rated in 1981 to the surviving members of that year's static pool. All rating changes were updated to the beginning of 1982. This same method was used to form static pools for 1983 through 2002. From Jan. 1, 1981, to Dec. 31, 2001, a total of 8,555 first-time rated organizations were added to form new static pools (see table 5), while 1,238 defaulting companies and 3,163 companies classified as N.R. were excluded from them.

Consider the following illustration: An issuer is originally rated 'BB' in mid-1986 and is downgraded to 'B' in 1988. This is followed by a rating withdrawal (N.R.) in 1990, and a default ('D') in 1993. This hypothetical company would be included in the 1987 and 1988 pools with the 'BB' rating, which it had 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 to 1990, would record its 1993 default.

Ratings are withdrawn when an entity's entire debt is paid off or when the program or programs rated are terminated and the relevant debt extinguished. They may also occur as a result

of mergers and acquisitions. 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 surveil its ratings.

Default rate calculation. The annual default rates were calculated for each static pool: first in units, and later as percentages with respect to the number of issuers in each rating category. Finally, these percentages were combined to obtain cumulative default rates for the 22 years covered by the study (see table 14). Since the maturities of most obligations

Table 9

Annual Default Rates by Industry (All Ratings)

Year	Aerospace/ automotive/ capital goods/ metal	Consumer/ service sector	Energy and natural resources	Financial institutions	Forest and building products/ homebuilders	Health care/ chemicals	High technology/ computers/ office equipment	Insurance	Leisure time/ media	Real estate	Telecoms	Transportation	Utilities
1981	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.98	0.00
1982	1.35	1.69	0.83	0.88	2.86	0.00	1.45	2.94	2.13	0.00	0.00	1.96	0.40
1983	0.47	1.24	1.72	0.00	0.00	0.00	0.00	4.44	0.00	0.00	0.00	1.92	0.00
1984	0.00	0.40	4.76	0.00	0.00	0.00	2.94	0.00	1.56	0.00	0.00	1.83	0.40
1985	1.28	1.17	3.94	0.00	0.00	2.25	0.00	1.67	2.56	0.00	0.00	0.93	0.00
1986	4.69	0.33	9.76	0.00	1.28	0.99	3.49	0.00	0.97	0.00	0.00	0.81	0.00
1987	1.84	0.96	5.22	0.00	1.14	0.84	0.00	0.00	0.74	0.00	1.28	0.00	0.37
1988	1.53	1.86	1.94	1.78	1.02	3.23	0.00	0.00	3.23	0.00	1.23	0.00	0.72
1989	2.41	1.21	0.00	1.86	0.00	0.00	1.02	0.64	7.38	6.25	0.00	1.56	0.00
1990	2.04	4.24	0.00	1.20	7.00	0.94	4.65	0.00	9.16	4.00	2.47	5.08	0.00
1991	2.20	6.89	2.91	1.60	7.87	2.68	2.70	0.98	6.90	5.56	0.00	4.76	0.95
1992	1.78	2.68	0.90	1.32	1.27	0.00	2.82	0.00	1.80	5.88	0.00	0.00	0.90
1993	1.67	0.94	1.57	0.20	0.00	0.00	2.60	0.00	0.81	0.00	0.00	0.00	0.00
1994	0.39	1.10	0.00	0.00	0.93	0.59	1.06	0.24	2.65	0.00	0.00	1.49	0.00
1995	0.00	3.57	0.61	0.26	2.40	1.09	0.99	0.22	1.70	0.00	0.00	2.11	0.00
1996	0.95	1.72	0.57	0.00	0.00	0.00	0.00	0.00	1.90	0.00	0.93	0.00	0.00
1997	0.88	2.31	0.00	0.34	0.00	0.46	0.88	0.21	0.43	0.00	1.63	0.63	0.00
1998	1.00	3.07	1.33	0.97	1.15	2.05	0.00	0.00	2.73	0.00	1.18	1.69	0.00
1999	3.85	3.09	3.94	0.20	2.03	2.94	1.86	0.85	4.84	0.00	1.79	4.46	0.18
2000	3.59	5.40	1.58	0.09	3.45	4.27	3.55	0.43	3.92	0.00	2.75	4.08	0.52
2001	8.64	5.57	1.56	1.25	4.64	3.86	4.68	0.00	4.67	0.00	10.85	2.96	0.65
2002	5.15	2.67	2.96	0.60	4.79	1.66	1.75	0.85	6.16	0.53	17.83	6.22	4.35

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 10

Annual Speculative Grade Default Rates by Geographic Region

Year	All countries	U.S. & tax havens*	European Union**	Emerging markets	Other developed***
1981	0.62	0.62	0.00	0.00	0.00
1982	4.40	4.41	0.00	0.00	0.00
1983	2.63	2.66	0.00	0.00	0.00
1984	2.96	3.01	0.00	0.00	0.00
1985	4.02	4.10	0.00	0.00	0.00
1986	5.62	5.70	0.00	0.00	0.00
1987	2.77	2.81	0.00	0.00	0.00
1988	4.09	4.14	0.00	0.00	0.00
1989	4.28	4.30	0.00	0.00	0.00
1990	7.90	7.95	0.00	0.00	0.00
1991	10.92	10.82	50.00	0.00	0.00
1992	5.38	5.50	0.00	0.00	0.00
1993	2.25	2.16	12.50	0.00	0.00
1994	1.87	1.97	0.00	0.00	0.00
1995	3.23	3.52	0.00	0.00	0.00
1996	1.69	1.75	0.00	0.00	2.44
1997	1.88	2.08	0.00	0.00	1.89
1998	3.44	3.13	0.00	6.53	1.37
1999	5.31	5.08	5.88	6.87	3.85
2000	5.70	6.98	1.77	1.64	4.63
2001	8.94	9.71	6.92	5.81	11.43
2002	9.20	7.24	13.48	15.16	6.50

*U.S., Bermuda, and Cayman Islands. **Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and United Kingdom. ***Australia, Canada, Iceland, Isle of Man, Japan, Liechtenstein, Malta, Monaco, New Zealand, Norway, and Switzerland.
Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

are much shorter than 15 years, this update limits the reporting of default and transition rates to this time frame. However, the data were gathered for 22 years, and all calculations are based on the rating experience of that period.

Default patterns share broad similarities across all pools, suggesting that Standard & Poor's rating standards have been consistent over time. Adverse business conditions tend to coincide with default upswings for all pools, with speculative-grade issuers being hit the hardest.

Cumulative average default rates involving all static pools were also estimated (see tables 2, 3, 12, and 14). This

was accomplished by weight-averaging the marginal default rates in all static pools, the weights being the numbers of issuers per rating per pool, and then accumulating results. For instance, the average first-year default rate on 'A'-rated companies for all 22 pools was 0.05%. Similarly, the second- and third-year averages were 0.10% for the first 21 pools and 0.13% for the first 20 pools. Accumulated, these percentages produced the first three entries on the 'A' row in table 2: 0.05, 0.15, and 0.28. As these cumulative average default rates are a distillation of default experiences across all pools, they could be used by an investor to assess the default expect-

tation associated with particular ratings over different time horizons.

The standard deviation calculated for each time horizon (see table 14) indicates the variability of default rates across economic cycles. As the time horizon increases, the ratio of the standard deviation to the cumulative average default rate decreases. This shows that cumulative default rates associated with Standard & Poor's ratings tend to converge over time and confirms that the ratings have a through-the-cycle view.

A slightly different method is used to obtain N.R.-adjusted default rates. These are obtained by omitting those obligors the ratings on which are withdrawn. In this case, the numerators and denominators of the default ratios decrease gradually as the pools age. These ratios are, in general, greater than they are in the conventional default rate calculation. The overall behavior of the ratios is, however, quite similar. That is, the higher the rating, the lower the default likelihood.

TRANSITION ANALYSIS

To compute one-year rating transition ratios by rating category, the rating on each entity at the end of a particular year was compared with the rating at the beginning of the same year. A company 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 six consecutive one-

Table 11

Summary of One-Year Rating Transitions

Investment-grade rating distribution at year-end						Speculative-grade rating distribution at year-end					
Year	Jan. 1 investment grade	Investment grade (%)	Speculative grade* (%)	Defaulted** (%)	Rating withdrawn (%)	Year	Jan. 1 speculative grade	Investment grade*** (%)	Speculative grade (%)	Defaulted (%)	Rating withdrawn (%)
1981	1,055	97.54	1.33	0.00	1.14	1981	323	4.02	90.40	0.62	4.95
1982	1,086	93.83	2.95	0.18	3.04	1982	341	2.64	81.23	4.40	11.73
1983	1,124	93.59	1.69	0.09	4.63	1983	342	2.92	84.21	2.63	10.23
1984	1,199	93.58	2.17	0.17	4.09	1984	371	4.58	87.33	2.96	5.12
1985	1,227	93.32	3.10	0.00	3.59	1985	423	3.31	86.76	4.02	5.91
1986	1,358	89.62	3.83	0.15	6.41	1986	534	3.18	81.84	5.62	9.36
1987	1,361	90.08	2.87	0.00	7.05	1987	685	3.36	79.27	2.77	14.60
1988	1,389	92.22	2.66	0.00	5.11	1988	758	3.69	79.16	4.09	13.06
1989	1,472	93.21	2.79	0.14	3.87	1989	747	5.22	74.70	4.28	15.80
1990	1,534	94.98	1.89	0.13	3.00	1990	696	3.74	74.57	7.90	13.79
1991	1,604	95.95	1.93	0.19	1.93	1991	586	3.58	77.30	10.92	8.19
1992	1,779	96.18	1.46	0.00	2.36	1992	520	6.35	79.23	5.38	9.04
1993	1,965	92.77	1.53	0.00	5.70	1993	577	5.03	77.82	2.25	14.90
1994	2,127	95.53	0.61	0.05	3.81	1994	749	3.47	87.18	1.87	7.48
1995	2,435	95.93	0.74	0.08	3.24	1995	868	3.92	85.83	3.23	7.03
1996	2,587	94.55	0.54	0.00	4.91	1996	948	4.43	82.59	1.69	11.29
1997	2,792	93.80	1.40	0.11	4.69	1997	1,064	5.08	81.95	1.88	11.09
1998	3,023	91.96	1.82	0.13	6.09	1998	1,397	3.15	84.68	3.44	8.73
1999	3,141	92.90	1.31	0.13	5.67	1999	1,770	1.69	84.07	5.31	8.93
2000	3,214	93.37	1.52	0.16	4.95	2000	1,931	1.86	85.45	5.70	6.99
2001	3,301	92.94	2.42	0.24	4.39	2001	1,969	1.68	81.72	8.94	7.67
2002	3,427	92.15	4.09	0.50	3.27	2002	1,924	2.08	84.62	9.20	4.11
Average		93.55	1.95	0.13	4.36	Average		3.17	82.62	5.17	9.05

*Fallen angel survivors are fallen angels that survived to Jan. 1 of the year after they were downgraded. **Investment grade defaulters are companies that were rated investment grade Jan. 1 of the year in which they defaulted. ***Rising stars.

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 12

Cumulative Average Default Rates by Rating Modifiers

Jan. 1 Rating	Years after static pool formation														
	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
AAA	0.00	0.00	0.03	0.06	0.10	0.17	0.25	0.38	0.43	0.48	0.48	0.48	0.48	0.56	0.67
AA+	0.00	0.00	0.00	0.08	0.17	0.27	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
AA	0.00	0.00	0.00	0.05	0.14	0.22	0.35	0.49	0.60	0.71	0.80	0.85	1.00	1.06	1.13
AA-	0.02	0.08	0.19	0.32	0.46	0.62	0.80	0.96	1.07	1.20	1.36	1.63	1.63	1.76	1.92
A+	0.06	0.12	0.25	0.45	0.58	0.74	0.90	1.09	1.35	1.60	1.82	2.01	2.15	2.39	2.58
A	0.05	0.14	0.21	0.33	0.51	0.68	0.85	1.06	1.32	1.67	2.03	2.24	2.48	2.60	2.89
A-	0.04	0.20	0.43	0.60	0.85	1.13	1.50	1.77	2.08	2.31	2.38	2.53	2.61	2.82	3.18
BBB+	0.35	0.81	1.31	1.84	2.33	2.93	3.37	3.77	4.22	4.66	5.07	5.43	5.95	6.53	7.21
BBB	0.34	0.74	1.03	1.61	2.24	2.82	3.43	4.16	4.77	5.46	6.34	6.80	7.44	7.76	8.39
BBB-	0.43	1.36	2.42	3.95	5.59	7.07	8.28	9.19	9.90	10.88	11.71	12.77	13.31	14.26	15.00
BB+	0.52	1.97	4.22	6.11	7.56	9.12	10.82	11.56	12.90	14.00	14.78	15.29	15.66	15.88	16.66
BB	1.16	3.54	6.35	8.70	10.86	13.04	14.49	16.12	17.67	18.73	20.12	21.07	21.60	21.75	21.75
BB-	2.07	5.74	9.54	13.20	16.30	19.16	21.31	23.28	25.03	26.45	27.65	28.49	29.73	30.42	31.21
B+	3.29	8.93	14.10	18.44	21.45	23.83	26.38	28.41	29.91	31.48	32.75	33.82	34.96	36.21	37.47
B	9.31	18.14	24.37	28.45	31.68	34.32	35.94	37.36	38.56	39.56	40.60	41.72	42.70	43.56	44.80
B-	13.15	23.28	31.31	36.62	40.18	42.86	45.79	47.83	48.50	49.23	49.74	50.01	50.32	50.65	51.03
CCC	27.87	36.02	41.79	46.26	50.46	52.17	53.60	54.36	56.16	57.21	58.15	58.95	59.59	60.70	60.70
Investment grade	0.13	0.34	0.57	0.87	1.20	1.52	1.83	2.13	2.41	2.72	3.02	3.26	3.50	3.73	4.03
Speculative grade	5.17	10.27	14.81	18.46	21.31	23.67	25.71	27.36	28.83	30.07	31.20	32.09	32.97	33.72	34.52
All ratings	1.67	3.36	4.86	6.12	7.14	8.02	8.80	9.47	10.07	10.64	11.17	11.60	12.02	12.40	12.85

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

year transition matrices from 1985 to 1990. All 1981 static pool members still rated on Dec. 31, 2002 had 22 one-year transitions, while companies first rated between Jan. 1, 2001 and Dec. 31, 2001 had only one.

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 left-most column, there are nine ratios listed in the rows, corresponding to ratings from 'AAA' to 'D', plus an entry for N.R. For instance, the first panel of table 15, which corresponds to the 1981 static pool, shows that of all 'A' rated companies at the beginning of that year, 87.84% were rated the same by year

end, while 4.54% had been upgraded to 'AA', 6.60% had been downgraded to 'BBB', 0.21% had been downgraded to 'BB', and so on.

Rating transition ratios are useful to investors and credit professionals for whom rating stability is important. For instance, investors restricted by law or inclination to holding top-grade bonds would want to assess the likelihood that Standard & Poor's analysts will continue to assign top ratings to their investments. Conversely, investors buying high-yield bonds in hopes of profiting from a rating upgrade would be able to gauge that expectation realistically. The credit community might also use rating transition information, in part, to determine maturity exposure limits or to measure credit

risk in the context of the value-at-risk models. Assuming that the rating transition rates are stable and follow a first-order Markov process, cumulative default rates could be projected for any number of years into the future. Rating transition matrices could also be constructed to produce stressed default rates. Such matrices are often used in the area of credit risk measurement. In addition, multi-year transition matrices are valuable tools that can be used to forecast future rating distributions and may be better suited for certain applications than are one-year transition matrices.

Tables 7, 8, 11, and 13 summarize the behavior of all one-year transition matrices. Tables 7, 8, and 13 average out all 22 annual transition matrices, and

table 11 traces annual changes to speculative grade from investment grade (fallen angel survivors) and vice versa (rising stars).

Here, again, the difference between tables 7 and 8 is that the latter is based on pools whose denominators have been gradually pared down by dropping those obligors the ratings on which have been withdrawn (N.R.). The number of withdrawn ratings grows particularly large in the case of the speculative-grade rating categories after just a few years. Little is known about obligors the ratings on which have been set to N.R., except that they have not defaulted. Indeed, default might be unlikely for those whose debt has been extinguished.

Multi-year transitions were also calculated for periods of two through 15 years. In this case, the rating at the beginning of the multi-year period was compared 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 to 2000 to ratings at the end of the years 1983 to 2002. Otherwise, the methodology was identical to the one used for single-year transitions.

Average transition matrices were calculated on the basis of the multi-year matrices just described. These average matrices are a true summary whose ratios represent the historical incidence of the ratings listed on the first column, changing to the ones listed on the top row over the course of the multi-year period (see table 16).

The longer the transition period, the smaller the number of observations. For example, 22 different one-year transition matrices were combined to obtain the average one-year transition matrix, whereas only 13 10-year transition

matrices were combined to obtain the average 10-year transition matrix.

Rating transition rates may be compared with the marginal and cumulative default rates described in the previous section. For example, note that the one-year default rate column of table 2 is equivalent to column 'D' of the average one-year transition matrix found in tables 7 and 16. However, the two-year default rate column of table 2 is not the same as column 'D' of the average two-year transition matrix found in table 16. This difference results from the different static pools used to calculate transition to default and cumulative average default rates. Cumulative average default rates are calculated using all static pools while the number of pools that can be used to calculate the average transition rate is limited by the transition's time horizon. **CW**

Table 13

Average One-Year Transition Rates by Rating Modifiers

Jan. 1 Rating	Rating at year-end (%)																			
	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC	D	N.R.	
AAA	89.37	3.24	2.34	0.46	0.14	0.16	0.14	0.05	0.08	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.97
AA+	1.94	80.46	9.37	3.01	0.33	0.80	0.20	0.07	0.20	0.07	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	3.48
AA	0.59	1.15	82.63	7.17	2.60	1.45	0.29	0.48	0.20	0.09	0.05	0.02	0.02	0.05	0.00	0.02	0.05	0.00	0.02	3.14
AA-	0.05	0.27	2.93	79.23	8.90	3.20	0.61	0.25	0.15	0.10	0.05	0.00	0.00	0.05	0.12	0.00	0.00	0.02	0.02	4.08
A+	0.00	0.06	0.59	3.80	80.02	7.54	2.58	0.61	0.34	0.11	0.06	0.15	0.02	0.10	0.06	0.02	0.02	0.06	0.06	3.87
A	0.05	0.09	0.44	0.71	4.57	78.79	5.69	3.03	1.12	0.36	0.17	0.19	0.12	0.15	0.03	0.01	0.03	0.05	0.05	4.41
A-	0.11	0.04	0.13	0.38	0.93	6.39	75.27	7.93	2.85	0.70	0.19	0.32	0.15	0.15	0.02	0.02	0.08	0.04	0.04	4.30
BBB+	0.02	0.02	0.05	0.14	0.44	1.64	6.44	73.44	8.38	2.79	0.53	0.58	0.18	0.44	0.21	0.02	0.16	0.35	0.35	4.18
BBB	0.02	0.02	0.10	0.08	0.38	0.72	1.60	5.97	75.49	5.35	1.82	1.06	0.48	0.38	0.22	0.04	0.12	0.34	0.34	5.81
BBB-	0.05	0.00	0.08	0.16	0.16	0.43	0.43	1.85	6.97	72.23	5.39	2.87	1.13	0.75	0.40	0.32	0.56	0.43	0.43	5.79
BB+	0.13	0.00	0.00	0.13	0.13	0.30	0.30	0.69	3.03	10.05	64.69	5.81	3.47	1.43	1.00	0.17	0.91	0.52	0.52	7.24
BB	0.00	0.00	0.07	0.03	0.00	0.21	0.14	0.17	1.09	3.21	6.12	66.76	7.11	2.84	1.37	0.62	1.09	1.16	1.16	8.00
BB-	0.00	0.00	0.00	0.03	0.05	0.03	0.16	0.21	0.31	0.73	2.62	7.06	65.54	7.66	2.81	1.21	1.23	2.07	2.07	8.27
B+	0.00	0.02	0.00	0.07	0.00	0.05	0.14	0.07	0.12	0.18	0.39	1.42	4.70	69.51	5.75	2.35	2.46	3.29	3.29	9.47
B	0.00	0.00	0.08	0.00	0.00	0.19	0.19	0.12	0.15	0.08	0.42	0.62	1.70	6.57	60.02	4.91	5.45	9.31	9.31	10.20
B-	0.00	0.00	0.00	0.00	0.08	0.08	0.08	0.17	0.08	0.08	0.17	0.25	0.34	3.02	5.86	54.52	11.06	13.15	13.15	11.06
CCC	0.09	0.00	0.00	0.00	0.09	0.00	0.19	0.37	0.19	0.00	0.19	0.37	0.83	1.67	2.69	4.44	49.72	27.87	27.87	11.30

N.R.—Not rated.

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 14

Static Pool Cumulative Default Rates 1981-2002 (%)

All ratings

Year	Issuers	—Years after static pool formation—														
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
1981	1378	0.15	1.38	2.10	2.83	3.41	4.72	5.22	5.95	6.53	7.47	9.07	9.51	9.94	9.94	10.09
1982	1427	1.19	1.89	2.66	3.29	4.63	5.05	5.75	6.24	7.22	8.90	9.32	9.74	9.74	9.88	9.88
1983	1466	0.68	1.43	2.18	3.62	4.02	4.98	5.46	6.41	8.25	8.80	9.28	9.28	9.41	9.41	9.48
1984	1570	0.83	1.78	3.44	3.89	4.97	5.67	6.69	8.34	8.92	9.43	9.43	9.55	9.55	9.68	9.68
1985	1650	1.03	2.79	3.33	4.67	5.45	6.61	8.42	8.97	9.39	9.39	9.64	9.64	9.76	9.76	10.06
1986	1892	1.69	2.27	3.54	4.33	5.60	7.40	8.03	8.56	8.67	8.93	9.04	9.30	9.41	9.62	10.04
1987	2046	0.93	2.39	3.76	5.47	7.97	8.90	9.63	9.82	10.17	10.31	10.56	10.70	10.95	11.44	12.56
1988	2147	1.44	2.98	5.08	8.10	8.99	9.73	9.97	10.43	10.57	10.90	11.13	11.41	12.11	13.13	14.11
1989	2219	1.53	4.01	7.35	8.29	9.06	9.33	9.73	9.87	10.18	10.59	10.86	11.49	12.53	13.43	
1990	2230	2.56	5.78	7.00	7.71	8.03	8.48	8.57	8.97	9.42	9.73	10.40	11.43	12.38		
1991	2190	3.06	4.34	4.79	5.11	5.66	5.75	6.12	6.53	6.85	7.40	8.45	9.45			
1992	2299	1.22	1.65	1.96	2.52	2.65	3.00	3.39	3.65	4.22	5.13	6.18				
1993	2542	0.51	0.94	1.77	1.97	2.40	2.79	3.19	3.86	4.80	5.82					
1994	2876	0.52	1.53	1.91	2.36	2.78	3.58	4.59	5.74	6.82						
1995	3303	0.91	1.33	1.79	2.30	3.18	4.03	5.54	6.78							
1996	3535	0.45	1.02	1.73	2.74	3.65	5.12	6.59								
1997	3856	0.60	1.53	2.75	3.92	5.65	7.31									
1998	4420	1.18	2.99	4.71	7.15	9.28										
1999	4911	2.00	4.26	7.43	10.28											
2000	5145	2.24	5.62	8.79												
2001	5270	3.49	7.02													
2002	5351	3.63														
2003	5529															

Summary statistics

	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
Marginal average	1.67	1.68	1.50	1.26	1.02	0.88	0.78	0.67	0.61	0.57	0.53	0.43	0.42	0.38	0.44
Cumulative average	1.67	3.36	4.86	6.12	7.14	8.02	8.80	9.47	10.07	10.64	11.17	11.60	12.02	12.40	12.85
Standard deviation	0.99	1.73	2.20	2.44	2.34	2.20	2.17	2.13	1.99	1.77	1.32	0.92	1.29	1.58	1.67

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 14

Static Pool Cumulative Default Rates 1981-2002 (%) (continued)

Rating: investment grade

Year	Issuers	—Years after static pool formation—														
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
1981	1055	0.00	0.38	0.38	0.47	0.66	1.04	1.33	2.09	2.27	2.84	3.89	4.17	4.36	4.36	4.45
1982	1086	0.18	0.28	0.37	0.55	0.92	1.20	1.93	2.12	2.76	3.87	4.14	4.33	4.33	4.42	4.42
1983	1124	0.09	0.36	0.44	0.71	0.89	1.42	1.51	2.14	3.20	3.56	3.74	3.74	3.83	3.83	3.83
1984	1199	0.17	0.25	0.42	0.58	1.08	1.25	1.83	2.75	3.09	3.25	3.25	3.34	3.34	3.42	3.42
1985	1227	0.00	0.16	0.24	0.81	0.98	1.63	2.61	2.93	3.10	3.10	3.26	3.26	3.42	3.42	3.59
1986	1358	0.15	0.15	0.59	0.74	1.18	2.06	2.43	2.58	2.58	2.80	2.80	3.02	3.09	3.17	3.46
1987	1361	0.00	0.15	0.37	0.73	1.62	1.98	2.13	2.20	2.35	2.35	2.57	2.72	2.79	2.94	3.82
1988	1389	0.00	0.22	0.36	0.94	1.22	1.37	1.44	1.58	1.58	1.80	1.87	1.94	2.09	2.81	3.60
1989	1472	0.14	0.27	0.54	0.88	1.02	1.09	1.22	1.22	1.29	1.29	1.43	1.56	2.31	3.06	
1990	1534	0.13	0.39	0.52	0.65	0.72	0.85	0.85	0.91	0.98	1.17	1.43	2.15	2.80		
1991	1604	0.19	0.19	0.25	0.31	0.50	0.50	0.56	0.62	0.87	1.12	1.81	2.43			
1992	1779	0.00	0.00	0.06	0.22	0.22	0.28	0.34	0.51	0.67	1.18	1.69				
1993	1965	0.00	0.05	0.20	0.20	0.31	0.46	0.76	1.02	1.42	1.98					
1994	2127	0.05	0.19	0.19	0.33	0.42	0.80	0.99	1.41	1.93						
1995	2435	0.08	0.08	0.16	0.25	0.62	0.78	1.23	1.68							
1996	2587	0.00	0.08	0.12	0.43	0.62	1.08	1.62								
1997	2792	0.11	0.18	0.43	0.64	1.07	1.72									
1998	3023	0.13	0.36	0.53	1.03	1.95										
1999	3141	0.13	0.25	0.64	1.59											
2000	3214	0.16	0.50	1.46												
2001	3301	0.24	1.24													
2002	3427	0.50														
2003	3433															

Summary statistics

	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
Marginal average	0.13	0.21	0.23	0.31	0.33	0.32	0.31	0.29	0.28	0.31	0.30	0.24	0.23	0.23	0.31
Cumulative average	0.13	0.34	0.57	0.87	1.20	1.52	1.83	2.13	2.41	2.72	3.02	3.26	3.50	3.73	4.03
Standard deviation	0.11	0.25	0.30	0.34	0.44	0.52	0.65	0.76	0.88	0.97	1.00	0.90	0.78	0.59	0.41

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 14

Static Pool Cumulative Default Rates 1981-2002 (%) (continued)

Rating: speculative grade

Jan. 1 Rating	Issuers	—Years after static pool formation—														
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
1981	323	0.62	4.64	7.74	10.53	12.38	16.72	17.96	18.58	20.43	22.60	26.01	26.93	28.17	28.17	28.48
1982	341	4.40	7.04	9.97	12.02	16.42	17.30	17.89	19.35	21.41	24.93	25.81	26.98	26.98	27.27	27.27
1983	342	2.63	4.97	7.89	13.16	14.33	16.67	18.42	20.47	24.85	26.02	27.49	27.49	27.78	27.78	28.07
1984	371	2.96	6.74	13.21	14.56	17.52	19.95	22.37	26.42	27.76	29.38	29.38	29.65	29.65	29.92	29.92
1985	423	4.02	10.40	12.29	15.84	18.44	21.04	25.30	26.48	27.66	27.66	28.13	28.13	28.13	28.13	28.84
1986	534	5.62	7.68	11.05	13.48	16.85	20.97	22.28	23.78	24.16	24.53	24.91	25.28	25.47	26.03	26.78
1987	685	2.77	6.86	10.51	14.89	20.58	22.63	24.53	24.96	25.69	26.13	26.42	26.57	27.15	28.32	29.93
1988	758	4.09	8.05	13.72	21.24	23.22	25.07	25.59	26.65	27.04	27.57	28.10	28.76	30.47	32.06	33.38
1989	747	4.28	11.38	20.75	22.89	24.90	25.57	26.51	26.91	27.71	28.92	29.45	31.06	32.66	33.87	
1990	696	7.90	17.67	21.26	23.28	24.14	25.29	25.57	26.72	28.02	28.59	30.17	31.90	33.48		
1991	586	10.92	15.70	17.24	18.26	19.80	20.14	21.33	22.70	23.21	24.57	26.62	28.67			
1992	520	5.38	7.31	8.46	10.38	10.96	12.31	13.85	14.42	16.35	18.65	21.54				
1993	577	2.25	3.99	7.11	7.97	9.53	10.75	11.44	13.52	16.29	18.89					
1994	749	1.87	5.34	6.81	8.14	9.48	11.48	14.82	18.02	20.69						
1995	868	3.23	4.84	6.34	8.06	10.37	13.13	17.63	21.08							
1996	948	1.69	3.59	6.12	9.07	11.92	16.14	20.15								
1997	1064	1.88	5.08	8.83	12.50	17.67	21.99									
1998	1397	3.44	8.66	13.74	20.40	25.13										
1999	1770	5.31	11.36	19.49	25.71											
2000	1931	5.70	14.14	20.97												
2001	1969	8.94	16.71													
2002	1924	9.20														
2003	2096															

Summary statistics

	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
Marginal Average	5.17	5.10	4.55	3.65	2.84	2.36	2.04	1.65	1.46	1.25	1.12	0.90	0.88	0.75	0.79
Cumulative Average	5.17	10.27	14.81	18.46	21.31	23.67	25.71	27.36	28.83	30.07	31.20	32.09	32.97	33.72	34.52
Standard Deviation	2.70	4.31	5.21	5.61	5.36	4.84	4.61	4.53	4.09	3.49	2.37	1.98	2.56	2.48	2.07

Source: Standard & Poor's Risk Solutions CreditPro® 6.2

Table 14

Static Pool Cumulative Default Rates 1981-2002 (%) (continued)

Rating: 'AAA'

Year	Issuers	—Years after static pool formation—														
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
1981	93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	1.08	2.15	2.15	2.15	2.15	2.15	2.15
1982	94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06	1.06	2.13	2.13	2.13	2.13	2.13	2.13
1983	116	0.00	0.00	0.00	0.00	0.00	0.86	0.86	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72
1984	138	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1985	103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1986	125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1987	145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
1988	159	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	1.26
1989	171	0.00	0.00	0.00	0.00	0.00	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	1.17	
1990	171	0.00	0.00	0.00	0.00	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58		
1991	183	0.00	0.00	0.00	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55			
1992	202	0.00	0.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50				
1993	208	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
1994	206	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
1995	210	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
1996	205	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
1997	199	0.00	0.00	0.00	0.00	0.00	0.00									
1998	203	0.00	0.00	0.00	0.00	0.00										
1999	193	0.00	0.00	0.00	0.00											
2000	188	0.00	0.00	0.00												
2001	181	0.00	0.00													
2002	184	0.00														
2003	164															

Summary statistics

	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
Marginal average	0.00	0.00	0.03	0.03	0.03	0.07	0.08	0.13	0.05	0.05	0.00	0.00	0.00	0.09	0.10
Cumulative average	0.00	0.00	0.03	0.06	0.10	0.17	0.25	0.38	0.43	0.48	0.48	0.48	0.48	0.56	0.67
Standard deviation	0.00	0.00	0.11	0.16	0.21	0.30	0.37	0.52	0.66	0.78	0.78	0.81	0.85	0.89	0.95

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 14

Static Pool Cumulative Default Rates 1981-2002 (%) (continued)

Rating: 'AA'

Year	Issuers	—Years after static pool formation—														
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
1981	204	0.00	0.00	0.00	0.00	0.00	0.00	0.49	1.47	1.47	1.47	1.96	2.45	2.45	2.45	2.45
1982	225	0.00	0.00	0.00	0.00	0.00	0.44	1.33	1.33	1.33	1.78	1.78	1.78	1.78	1.78	1.78
1983	247	0.00	0.00	0.00	0.00	0.40	1.62	1.62	1.62	2.02	2.43	2.43	2.43	2.43	2.43	2.43
1984	299	0.00	0.00	0.00	0.33	1.34	1.34	1.67	2.01	2.34	2.34	2.34	2.34	2.34	2.34	2.34
1985	341	0.00	0.00	0.29	0.88	0.88	1.17	1.47	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76
1986	371	0.00	0.00	0.27	0.27	0.54	0.81	1.08	1.08	1.08	1.08	1.08	1.35	1.35	1.35	1.62
1987	377	0.00	0.00	0.00	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.53	0.53	0.53	0.80	1.06
1988	384	0.00	0.00	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.52	0.52	0.52	0.78	1.04	1.04
1989	388	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.26	0.26	0.52	0.77	0.77	
1990	412	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.24	0.24	0.49	0.73	0.97		
1991	423	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.24	0.47	0.71	0.95	0.95			
1992	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.21	0.42	0.42				
1993	514	0.00	0.19	0.19	0.19	0.19	0.19	0.39	0.39	0.39	0.39					
1994	530	0.00	0.00	0.00	0.00	0.00	0.19	0.19	0.19	0.38						
1995	550	0.00	0.00	0.00	0.00	0.18	0.18	0.18	0.36							
1996	561	0.00	0.00	0.00	0.18	0.18	0.18	0.36								
1997	586	0.00	0.00	0.17	0.17	0.34	0.51									
1998	612	0.00	0.16	0.16	0.33	0.49										
1999	632	0.16	0.16	0.16	0.32											
2000	643	0.00	0.00	0.00												
2001	604	0.00	0.00													
2002	600	0.00														
2003	520															
Summary statistics																
Marginal average		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
Cumulative average		0.01	0.02	0.05	0.09	0.11	0.12	0.14	0.12	0.10	0.11	0.10	0.11	0.09	0.07	0.08
Standard deviation		0.01	0.03	0.08	0.16	0.27	0.39	0.53	0.65	0.75	0.85	0.95	1.06	1.15	1.22	1.30
		0.03	0.06	0.11	0.22	0.36	0.51	0.61	0.70	0.76	0.81	0.80	0.79	0.74	0.68	0.57

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 14

Static Pool Cumulative Default Rates 1981-2002 (%) (continued)

Rating: 'A'

Year	Issuers	—Years after static pool formation—														
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
1981	485	0.00	0.21	0.21	0.21	0.41	1.03	1.24	1.44	1.44	1.86	2.89	3.09	3.51	3.51	3.71
1982	477	0.21	0.21	0.21	0.42	0.84	0.84	0.84	0.84	1.26	2.73	3.14	3.56	3.56	3.77	3.77
1983	458	0.00	0.00	0.22	0.44	0.44	0.44	0.44	0.87	2.18	2.62	3.06	3.06	3.28	3.28	3.28
1984	462	0.00	0.22	0.43	0.43	0.65	0.87	1.30	2.60	3.03	3.46	3.46	3.68	3.68	3.68	3.68
1985	505	0.00	0.40	0.40	0.40	0.59	0.99	2.18	2.57	2.97	2.97	3.17	3.17	3.17	3.17	3.17
1986	560	0.18	0.18	0.36	0.54	0.89	1.43	1.79	1.79	1.79	2.14	2.14	2.14	2.14	2.14	2.50
1987	518	0.00	0.00	0.19	0.58	1.54	1.93	1.93	1.93	2.12	2.12	2.12	2.32	2.32	2.32	3.28
1988	515	0.00	0.19	0.19	1.17	1.36	1.36	1.36	1.55	1.55	1.55	1.75	1.94	1.94	2.72	3.30
1989	570	0.00	0.00	0.35	0.53	0.53	0.53	0.70	0.70	0.70	0.70	0.88	0.88	1.58	2.11	
1990	592	0.00	0.17	0.34	0.34	0.34	0.51	0.51	0.51	0.68	0.84	0.84	1.35	1.69		
1991	609	0.00	0.00	0.00	0.00	0.16	0.16	0.16	0.33	0.49	0.66	0.82	1.15			
1992	688	0.00	0.00	0.00	0.15	0.15	0.29	0.44	0.58	0.87	1.02	1.45				
1993	768	0.00	0.00	0.13	0.13	0.26	0.39	0.65	0.91	1.17	1.56					
1994	847	0.12	0.24	0.24	0.35	0.35	0.59	0.83	1.06	1.42						
1995	1025	0.00	0.00	0.10	0.10	0.20	0.29	0.49	0.68							
1996	1089	0.00	0.00	0.00	0.09	0.18	0.37	0.64								
1997	1161	0.00	0.00	0.09	0.17	0.43	0.69									
1998	1198	0.00	0.08	0.17	0.50	0.75										
1999	1227	0.08	0.16	0.49	0.65											
2000	1223	0.08	0.41	0.82												
2001	1234	0.24	0.49													
2002	1260	0.08														
2003	1282															

Summary statistics

	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
Marginal average	0.05	0.10	0.13	0.15	0.18	0.19	0.22	0.22	0.27	0.29	0.25	0.19	0.18	0.18	0.28
Cumulative average	0.05	0.15	0.28	0.44	0.62	0.81	1.03	1.25	1.52	1.82	2.06	2.26	2.43	2.61	2.88
Standard deviation	0.08	0.15	0.20	0.27	0.40	0.48	0.60	0.73	0.80	0.91	0.99	0.99	0.83	0.66	0.41

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 14

Static Pool Cumulative Default Rates 1981-2002 (%) (continued)

Rating: 'BBB'

Year	Issuers	—Years after static pool formation—														
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
1981	273	0.00	1.10	1.10	1.47	1.83	2.20	2.56	4.03	4.76	5.86	7.69	8.06	8.06	8.06	8.06
1982	290	0.34	0.69	1.03	1.38	2.07	2.76	4.48	5.17	6.55	7.93	8.28	8.28	8.28	8.28	8.28
1983	303	0.33	1.32	1.32	1.98	2.31	2.97	3.30	4.62	6.27	6.60	6.60	6.60	6.60	6.60	6.60
1984	300	0.67	0.67	1.00	1.33	2.00	2.33	3.67	5.00	5.33	5.33	5.33	5.33	5.33	5.67	5.67
1985	278	0.00	0.00	0.00	1.80	2.16	3.96	5.76	6.12	6.12	6.12	6.47	6.47	7.19	7.19	7.91
1986	302	0.33	0.33	1.66	1.99	2.98	5.63	6.29	6.95	6.95	7.28	7.28	7.95	8.28	8.61	8.94
1987	321	0.00	0.62	1.25	1.87	4.05	4.98	5.61	5.61	5.92	5.92	6.54	6.85	7.17	7.48	9.35
1988	331	0.00	0.60	0.91	1.81	2.72	3.32	3.32	3.63	3.63	4.23	4.23	4.23	4.53	6.04	8.16
1989	343	0.58	1.17	1.75	2.92	3.50	3.50	3.79	3.79	3.79	3.79	4.08	4.37	6.12	8.16	
1990	359	0.56	1.39	1.67	2.23	2.23	2.51	2.51	2.51	2.51	3.06	3.90	5.85	7.80		
1991	389	0.77	0.77	1.03	1.03	1.54	1.54	1.54	1.54	2.06	2.57	4.88	6.94			
1992	409	0.00	0.00	0.00	0.49	0.49	0.49	0.49	0.73	0.98	2.69	4.16				
1993	475	0.00	0.00	0.42	0.42	0.63	1.05	1.68	2.32	3.58	5.26					
1994	544	0.00	0.37	0.37	0.74	1.10	2.02	2.39	3.68	4.96						
1995	650	0.31	0.31	0.46	0.77	1.85	2.31	3.69	4.92							
1996	732	0.00	0.27	0.41	1.23	1.78	3.14	4.51								
1997	846	0.35	0.59	1.18	1.77	2.72	4.37									
1998	1010	0.40	0.89	1.29	2.28	4.65										
1999	1089	0.18	0.46	1.19	3.67											
2000	1160	0.34	0.95	3.19												
2001	1282	0.39	2.73													
2002	1383	1.16														
2003	1467															

Summary statistics

	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
Marginal average	0.37	0.57	0.58	0.82	0.86	0.83	0.71	0.66	0.59	0.69	0.72	0.57	0.58	0.55	0.67
Cumulative average	0.37	0.94	1.52	2.34	3.20	4.02	4.74	5.40	5.99	6.68	7.40	7.97	8.55	9.10	9.77
Standard deviation	0.31	0.62	0.72	0.82	1.08	1.34	1.61	1.72	1.83	1.74	1.55	1.39	1.28	1.05	1.20

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 14

Static Pool Cumulative Default Rates 1981-2002 (%) (continued)

Rating: 'BB'

Year	Issuers	—Years after static pool formation—														
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
1981	222	0.00	4.50	6.76	9.91	12.61	17.12	18.02	18.92	21.62	23.87	27.48	28.38	29.73	29.73	30.18
1982	167	4.19	5.39	8.38	9.58	15.57	16.17	17.37	19.76	20.96	23.95	24.55	25.75	25.75	25.75	25.75
1983	171	1.17	2.92	4.68	11.11	12.28	15.79	17.54	18.13	23.39	24.56	25.73	25.73	25.73	25.73	26.32
1984	172	1.16	2.33	8.72	9.30	11.63	14.53	15.70	20.93	22.09	22.67	22.67	22.67	22.67	23.26	23.26
1985	198	1.52	7.07	7.58	9.60	12.12	14.14	20.20	21.21	21.72	21.72	22.22	22.22	22.22	22.22	22.22
1986	224	1.34	1.79	3.57	6.25	8.04	14.29	15.18	16.07	16.07	16.52	17.41	18.30	18.30	18.30	18.30
1987	264	0.38	1.89	4.17	7.58	12.50	14.39	15.91	15.91	17.05	17.80	18.56	18.56	18.94	19.32	19.70
1988	285	1.05	2.81	6.67	12.28	13.33	15.09	15.09	16.14	16.84	17.54	17.89	18.60	19.65	20.00	22.11
1989	276	0.72	5.07	11.96	14.13	15.58	15.58	16.30	17.03	17.75	18.12	18.48	19.20	21.01	22.83	
1990	283	3.53	9.54	12.37	13.78	13.78	14.84	15.55	16.96	17.31	17.67	18.02	19.43	21.55		
1991	237	2.53	5.06	5.91	5.91	7.59	8.44	9.28	9.70	10.55	11.39	13.08	15.61			
1992	244	0.00	1.23	1.23	2.05	2.46	3.69	4.10	4.92	6.56	9.02	12.70				
1993	291	0.34	0.69	2.41	3.09	3.78	4.12	4.81	6.53	9.62	12.71					
1994	379	0.26	1.85	2.37	3.17	3.96	6.07	8.71	11.35	14.25						
1995	433	0.92	2.08	3.23	4.16	6.00	8.55	12.24	15.24							
1996	477	0.63	1.47	2.31	4.61	6.92	10.27	13.63								
1997	557	0.18	0.90	3.41	6.28	10.41	13.82									
1998	663	0.75	2.56	6.49	10.56	14.93										
1999	793	1.13	3.66	8.32	14.12											
2000	884	1.13	5.20	11.43												
2001	920	2.83	8.80													
2002	902	2.88														
2003	1025															

Summary statistics

	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
Marginal Average	1.38	2.69	3.09	2.79	2.38	2.32	1.80	1.56	1.58	1.22	1.17	0.80	0.80	0.40	0.53
Cumulative Average	1.38	4.07	7.16	9.96	12.34	14.65	16.46	18.02	19.60	20.82	21.98	22.79	23.58	23.99	24.51
Standard Deviation	1.17	2.52	3.37	3.88	4.23	4.38	4.69	4.98	5.11	5.02	4.69	3.95	3.57	3.63	3.83

Source: Standard & Poor's Risk Solutions CreditPro® 6.2

Table 14

Static Pool Cumulative Default Rates 1981-2002 (%) (continued)

Rating: 'B'

Year	Issuers	—Years after static pool formation—														
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
1981	90	2.22	4.44	10.00	12.22	12.22	15.56	17.78	17.78	17.78	18.89	22.22	23.33	24.44	24.44	24.44
1982	161	3.11	7.45	9.94	13.04	15.53	16.77	16.77	17.39	19.88	24.22	25.47	26.71	26.71	27.33	27.33
1983	156	4.49	6.41	10.90	14.74	15.38	16.67	18.59	21.79	25.00	26.28	28.21	28.21	28.85	28.85	28.85
1984	180	3.33	8.89	15.56	17.78	21.67	23.33	26.67	30.00	31.67	34.44	34.44	35.00	35.00	35.00	35.00
1985	207	5.80	13.04	16.43	21.74	24.15	27.05	29.95	31.40	33.33	33.33	33.82	33.82	33.82	33.82	35.27
1986	293	8.19	11.60	16.38	18.43	23.21	25.94	27.65	29.69	30.38	30.72	30.72	30.72	31.06	32.08	33.45
1987	358	3.35	8.10	11.73	17.32	22.35	24.58	26.54	27.37	27.65	27.93	27.93	28.21	29.05	30.45	33.24
1988	415	3.86	8.67	15.90	24.34	26.75	28.92	29.88	31.08	31.33	31.57	32.29	33.01	34.94	37.35	38.31
1989	416	3.37	12.74	23.80	25.72	27.64	28.85	30.05	30.29	31.25	33.17	33.89	35.82	37.50	38.46	
1990	367	8.45	20.98	24.25	26.16	27.79	29.16	29.16	30.25	32.43	33.24	35.42	37.60	38.96		
1991	289	13.49	19.38	21.11	22.49	23.88	23.88	25.26	27.68	27.68	29.07	31.49	33.22			
1992	226	7.08	9.29	11.06	14.16	14.16	15.93	19.03	19.47	21.24	23.45	25.66				
1993	237	2.53	5.49	10.55	10.97	13.50	15.19	16.03	18.14	20.25	22.78					
1994	344	2.62	7.85	9.88	11.92	13.66	15.70	19.48	23.55	25.87						
1995	406	4.19	5.91	7.88	10.34	13.05	16.01	21.43	25.37							
1996	442	2.71	5.66	9.73	13.35	16.74	21.72	26.47								
1997	479	3.34	8.98	13.78	17.95	24.22	29.65									
1998	701	4.56	12.98	19.26	28.39	33.52										
1999	903	6.87	15.84	27.13	33.67											
2000	960	7.71	19.38	26.67												
2001	933	10.72	20.36													
2002	838	8.47														
2003	877															

Summary statistics

	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
Marginal average	6.20	7.07	5.81	4.38	3.14	2.49	2.33	1.86	1.31	1.30	1.11	0.99	0.98	1.01	1.13
Cumulative average	6.20	13.27	19.07	23.45	26.59	29.08	31.41	33.27	34.58	35.87	36.98	37.97	38.95	39.96	41.09
Standard deviation	3.02	5.29	6.15	6.65	6.36	5.67	5.18	5.28	5.26	4.93	4.20	4.37	4.76	4.66	4.66

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 14

Static Pool Cumulative Default Rates 1981-2002 (%) (continued)

Rating: 'CCC'

Year	Issuers	—Years after static pool formation—														
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
1981	11	0.00	9.09	9.09	9.09	9.09	18.18	18.18	18.18	18.18	27.27	27.27	27.27	27.27	27.27	27.27
1982	13	23.08	23.08	30.77	30.77	38.46	38.46	38.46	38.46	46.15	46.15	46.15	46.15	46.15	46.15	46.15
1983	15	0.00	13.33	13.33	20.00	26.67	26.67	26.67	33.33	40.00	40.00	40.00	40.00	40.00	40.00	40.00
1984	19	15.79	26.32	31.58	31.58	31.58	36.84	42.11	42.11	42.11	42.11	42.11	42.11	42.11	42.11	42.11
1985	18	11.11	16.67	16.67	16.67	22.22	27.78	27.78	27.78	27.78	27.78	27.78	27.78	27.78	27.78	27.78
1986	17	17.65	17.65	17.65	23.53	23.53	23.53	23.53	23.53	23.53	23.53	23.53	23.53	23.53	23.53	23.53
1987	63	9.52	20.63	30.16	31.75	44.44	46.03	49.21	49.21	50.79	50.79	50.79	50.79	50.79	53.97	53.97
1988	58	20.69	29.31	32.76	43.10	46.55	46.55	46.55	46.55	46.55	48.28	48.28	48.28	51.72	53.45	53.45
1989	55	29.09	32.73	41.82	45.45	50.91	50.91	50.91	50.91	50.91	50.91	50.91	54.55	54.55	54.55	
1990	46	30.43	41.30	52.17	58.70	58.70	58.70	58.70	58.70	58.70	58.70	63.04	63.04	63.04		
1991	60	31.67	40.00	43.33	46.67	48.33	48.33	50.00	50.00	51.67	55.00	56.67	58.33			
1992	50	24.00	28.00	32.00	34.00	38.00	38.00	38.00	38.00	42.00	44.00	46.00				
1993	49	12.24	16.33	18.37	22.45	24.49	28.57	28.57	32.65	36.73	36.73					
1994	26	15.38	23.08	30.77	30.77	34.62	34.62	42.31	42.31	46.15						
1995	29	24.14	31.03	31.03	34.48	37.93	41.38	44.83	48.28							
1996	29	3.45	6.90	13.79	17.24	20.69	27.59	31.03								
1997	28	10.71	21.43	32.14	42.86	50.00	53.57									
1998	33	33.33	39.39	42.42	48.48	51.52										
1999	74	31.08	39.19	45.95	52.70											
2000	87	29.89	47.13	55.17												
2001	116	43.10	50.00													
2002	184	43.48														
2003	194															

Summary statistics

	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr. 8	Yr. 9	Yr. 10	Yr. 11	Yr. 12	Yr. 13	Yr. 14	Yr. 15
Marginal average	27.87	8.15	5.77	4.47	4.20	1.71	1.43	0.76	1.80	1.05	0.94	0.80	0.63	1.12	0.00
Cumulative average	27.87	36.02	41.79	46.26	50.46	52.17	53.60	54.36	56.16	57.21	58.15	58.95	59.59	60.70	60.70
Standard deviation	12.52	12.22	13.17	13.53	13.42	11.56	11.51	11.26	11.51	11.01	12.15	13.15	13.12	12.27	11.93

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 15

Static Pool One-Year Transition Matrices

1981 Static Pool

Jan. 1 rating	Issuers	—Rating at year-end—								
		AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	93	91.40	8.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AA	204	1.96	90.69	6.86	0.00	0.00	0.00	0.00	0.00	0.49
A	485	0.00	4.54	87.84	6.60	0.21	0.00	0.00	0.00	0.82
BBB	273	0.00	0.00	5.13	87.55	4.76	0.00	0.00	0.00	2.56
BB	222	0.00	0.00	0.90	4.50	60.81	30.18	0.45	0.00	3.15
B	90	0.00	0.00	1.11	0.00	4.44	81.11	2.22	2.22	8.89
CCC	11	0.00	0.00	0.00	0.00	0.00	9.09	81.82	0.00	9.09

1982 Static Pool

Jan. 1 rating	Issuers	—Rating at year-end—								
		AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	94	93.62	4.26	2.13	0.00	0.00	0.00	0.00	0.00	0.00
AA	225	0.44	88.89	6.67	0.44	1.33	0.00	0.00	0.00	2.22
A	477	0.00	4.19	84.07	9.22	0.63	0.00	0.00	0.21	1.68
BBB	290	0.34	0.00	2.07	81.38	8.62	0.34	0.00	0.34	6.90
BB	167	0.00	0.60	0.00	3.59	72.46	8.98	0.00	4.19	10.18
B	161	0.00	0.00	0.62	0.62	2.48	75.78	4.35	3.11	13.04
CCC	13	0.00	0.00	0.00	0.00	0.00	7.69	53.85	23.08	15.38

1983 Static Pool

Jan. 1 rating	Issuers	—Rating at year-end—								
		AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	116	75.00	15.52	0.86	0.00	0.00	0.00	0.00	0.00	8.62
AA	247	0.40	91.50	5.26	0.81	0.00	0.00	0.00	0.00	2.02
A	458	0.66	4.15	86.68	4.37	0.44	0.00	0.00	0.00	3.71
BBB	303	0.33	0.66	5.94	80.53	4.95	0.66	0.00	0.33	6.60
BB	171	0.00	0.58	1.17	2.92	72.51	11.70	0.00	1.17	9.94
B	156	0.00	0.00	0.64	0.64	2.56	79.49	0.64	4.49	11.54
CCC	15	0.00	0.00	0.00	0.00	0.00	13.33	86.67	0.00	0.00

1984 Static Pool

Jan. 1 rating	Issuers	—Rating at year-end—								
		AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	138	60.14	23.19	0.72	0.00	0.00	0.00	0.00	0.00	15.94
AA	299	1.67	91.30	4.35	1.00	0.00	0.00	0.00	0.00	1.67
A	462	0.00	2.81	90.91	3.25	0.43	0.00	0.00	0.00	2.60
BBB	300	0.00	0.33	11.67	76.00	6.00	2.00	0.00	0.67	3.33
BB	172	0.00	0.00	1.16	8.14	80.23	4.65	0.00	1.16	4.65
B	180	0.00	0.00	0.00	0.56	4.44	86.11	0.00	3.33	5.56
CCC	19	0.00	0.00	0.00	0.00	0.00	0.00	78.95	15.79	5.26

N.R.—Rating withdrawn.
Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 15

Static Pool One-Year Transition Matrices (continued)

1985 Static Pool		—Rating at year-end—								
Jan. 1 rating	Issuers	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	103	88.35	4.85	0.00	0.00	0.97	0.00	0.00	0.00	5.83
AA	341	0.29	85.04	8.21	1.76	0.00	1.17	0.29	0.00	3.23
A	505	0.00	2.18	86.73	6.73	0.99	0.00	0.00	0.00	3.37
BBB	278	0.00	0.72	8.63	77.34	5.40	4.32	0.00	0.00	3.60
BB	198	0.00	0.00	1.01	4.55	75.25	10.10	1.52	1.52	6.06
B	207	0.00	0.00	1.45	0.00	2.42	83.57	0.48	5.80	6.28
CCC	18	0.00	0.00	0.00	0.00	0.00	33.33	55.56	11.11	0.00
1986 Static Pool										
Jan. 1 rating	Issuers	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	125	87.20	6.40	0.00	0.00	0.00	0.00	0.00	0.00	6.40
AA	371	1.08	85.71	4.85	1.62	0.00	0.54	0.00	0.00	6.20
A	560	0.18	4.82	77.32	8.57	1.43	1.61	0.00	0.18	5.89
BBB	302	0.00	0.00	7.28	73.84	7.95	2.65	0.33	0.33	7.62
BB	224	0.00	0.00	0.45	6.70	74.55	5.80	1.34	1.34	9.82
B	293	0.00	0.00	0.00	0.34	3.75	67.92	10.58	8.19	9.22
CCC	17	0.00	0.00	0.00	0.00	0.00	0.00	76.47	17.65	5.88
1987 Static Pool										
Jan. 1 rating	Issuers	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	145	90.34	3.45	0.00	0.69	0.00	0.00	0.00	0.00	5.52
AA	377	1.59	87.00	4.77	0.53	0.00	0.00	0.00	0.00	6.10
A	518	0.00	1.54	83.40	5.41	0.39	1.16	0.00	0.00	8.11
BBB	321	0.00	0.62	5.30	77.26	6.54	3.12	0.00	0.00	7.17
BB	264	0.00	0.00	0.00	7.20	70.45	7.95	0.00	0.38	14.02
B	358	0.00	0.00	0.84	0.00	4.47	74.30	2.51	3.35	14.53
CCC	63	0.00	0.00	0.00	1.59	1.59	6.35	63.49	9.52	17.46
1988 Static Pool										
Jan. 1 rating	Issuers	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	159	89.31	3.77	1.89	0.00	0.63	0.00	0.00	0.00	4.40
AA	384	1.56	83.07	9.64	2.34	0.52	0.26	0.00	0.00	2.60
A	515	0.00	1.36	87.18	5.24	0.97	0.58	0.00	0.00	4.66
BBB	331	0.00	0.60	9.37	73.41	4.83	2.11	0.60	0.00	9.06
BB	285	0.00	0.00	1.05	7.37	70.18	7.72	1.75	1.05	10.88
B	415	0.00	0.24	0.00	0.24	4.58	73.49	2.89	3.86	14.70
CCC	58	0.00	0.00	0.00	3.45	3.45	8.62	51.72	20.69	12.07

N.R.—Rating withdrawn.

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 15

Static Pool One-Year Transition Matrices (continued)

1989 Static Pool

Jan. 1 rating	Issuers	—Rating at year-end—								
		AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	171	91.81	7.02	0.00	0.00	0.00	0.00	0.00	0.00	1.17
AA	388	0.77	89.95	6.96	0.00	0.00	0.00	0.00	0.00	2.32
A	570	0.00	1.23	85.96	5.96	2.63	0.18	0.00	0.00	4.04
BBB	343	0.00	0.00	7.58	77.84	6.12	0.58	0.58	0.58	6.71
BB	276	0.00	0.00	1.09	12.32	66.30	5.80	0.72	0.72	13.04
B	416	0.00	0.24	0.00	0.00	6.73	69.71	3.85	3.37	16.11
CCC	55	0.00	0.00	1.82	0.00	1.82	0.00	40.00	29.09	27.27

1990 Static Pool

Jan. 1 rating	Issuers	—Rating at year-end—								
		AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	171	95.32	2.92	0.00	0.00	0.00	0.00	0.00	0.00	1.75
AA	412	0.49	87.14	11.17	0.00	0.00	0.00	0.00	0.00	1.21
A	592	0.00	2.03	85.64	7.43	1.18	0.17	0.00	0.00	3.55
BBB	359	0.00	0.00	4.46	84.40	5.01	0.84	0.00	0.56	4.74
BB	283	0.00	0.00	0.35	6.36	65.02	9.54	3.18	3.53	12.01
B	367	0.00	0.82	0.27	0.54	3.00	66.21	4.90	8.45	15.80
CCC	46	2.17	0.00	0.00	0.00	2.17	4.35	52.17	30.43	8.70

1991 Static Pool

Jan. 1 rating	Issuers	—Rating at year-end—								
		AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	183	90.71	8.74	0.55	0.00	0.00	0.00	0.00	0.00	0.00
AA	423	0.00	89.60	8.51	0.00	0.00	0.00	0.00	0.00	1.89
A	609	0.16	0.49	91.30	6.57	0.33	0.00	0.00	0.00	1.15
BBB	389	0.00	0.77	4.63	82.26	6.17	0.77	0.51	0.77	4.11
BB	237	0.00	0.00	0.00	7.59	74.26	7.17	1.69	2.53	6.75
B	289	0.00	0.35	0.00	0.35	5.88	68.17	3.11	13.49	8.65
CCC	60	0.00	0.00	0.00	1.67	3.33	6.67	45.00	31.67	11.67

1992 Static Pool

Jan. 1 rating	Issuers	—Rating at year-end—								
		AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	202	89.11	8.91	0.00	0.00	0.00	0.00	0.00	0.00	1.98
AA	480	1.25	88.54	7.08	1.04	0.00	0.00	0.00	0.00	2.08
A	688	0.00	1.02	92.44	3.49	0.73	0.15	0.00	0.00	2.18
BBB	409	0.00	0.00	5.13	86.80	3.91	0.73	0.24	0.00	3.18
BB	244	0.00	0.00	0.41	11.89	72.95	4.92	2.46	0.00	7.38
B	226	0.00	0.00	0.44	0.88	9.73	66.37	4.42	7.08	11.06
CCC	50	0.00	0.00	0.00	0.00	4.00	12.00	52.00	24.00	8.00

N.R.—Rating withdrawn.
Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 15

Static Pool One-Year Transition Matrices (continued)

1993 Static Pool		—Rating at year-end—								
Jan. 1 rating	Issuers	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	208	90.87	3.37	1.44	0.00	0.00	0.00	0.00	0.00	4.33
AA	514	0.00	90.27	6.23	0.19	0.00	0.00	0.00	0.00	3.31
A	768	0.26	0.91	89.19	3.26	0.00	0.00	0.00	0.00	6.38
BBB	475	0.00	0.00	3.58	82.32	6.11	0.00	0.21	0.00	7.79
BB	291	0.00	0.69	0.34	7.56	69.76	7.90	0.34	0.34	13.06
B	237	0.00	0.00	0.42	1.27	13.08	65.40	1.69	2.53	15.61
CCC	49	0.00	0.00	0.00	0.00	2.04	30.61	32.65	12.24	22.45
1994 Static Pool										
Jan. 1 rating	Issuers	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	206	91.26	6.31	0.49	0.00	0.00	0.00	0.00	0.00	1.94
AA	530	0.19	88.11	7.74	0.00	0.00	0.00	0.19	0.00	3.77
A	847	0.00	1.18	91.50	3.78	0.00	0.12	0.12	0.12	3.19
BBB	544	0.00	0.18	3.31	89.15	1.65	0.18	0.00	0.00	5.51
BB	379	0.00	0.00	0.00	6.33	84.17	3.17	0.00	0.26	6.07
B	344	0.00	0.00	0.29	0.29	5.23	80.81	2.91	2.62	7.85
CCC	26	0.00	0.00	0.00	0.00	0.00	7.69	53.85	15.38	23.08
1995 Static Pool										
Jan. 1 rating	Issuers	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	210	94.29	3.81	0.00	0.00	0.00	0.00	0.00	0.00	1.90
AA	550	0.18	90.18	7.09	0.36	0.00	0.00	0.00	0.00	2.18
A	1025	0.00	2.15	91.41	3.32	0.00	0.00	0.00	0.00	3.12
BBB	650	0.00	0.46	4.92	86.77	2.77	0.00	0.00	0.31	4.77
BB	433	0.00	0.00	0.69	6.70	81.99	4.85	0.00	0.92	4.85
B	406	0.00	0.00	0.00	0.49	7.64	76.60	1.97	4.19	9.11
CCC	29	0.00	0.00	0.00	0.00	0.00	6.90	58.62	24.14	10.34
1996 Static Pool										
Jan. 1 rating	Issuers	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	205	90.73	4.39	0.49	0.00	0.00	0.00	0.00	0.00	4.39
AA	561	0.18	89.48	5.17	0.00	0.00	0.00	0.00	0.00	5.17
A	1089	0.00	2.75	90.08	1.74	0.09	0.00	0.00	0.00	5.33
BBB	732	0.14	0.00	5.74	88.11	1.64	0.14	0.00	0.00	4.23
BB	477	0.00	0.00	0.84	7.34	78.62	4.40	0.63	0.63	7.55
B	442	0.00	0.00	0.23	0.45	7.69	72.85	1.36	2.71	14.71
CCC	29	0.00	0.00	0.00	0.00	6.90	10.34	58.62	3.45	20.69

N.R.—Rating withdrawn.

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 15

Static Pool One-Year Transition Matrices (continued)

1997 Static Pool

Jan. 1 rating	Issuers	—Rating at year-end—								
		AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	199	94.47	4.02	0.00	0.00	0.00	0.00	0.00	0.00	1.51
AA	586	0.85	91.30	2.90	0.85	0.00	0.34	0.00	0.00	3.75
A	1161	0.00	1.64	89.15	3.70	0.17	0.43	0.00	0.00	4.91
BBB	846	0.00	0.35	3.66	86.29	2.72	0.71	0.12	0.35	5.79
BB	557	0.00	0.00	0.18	8.62	76.12	4.67	0.00	0.18	10.23
B	479	0.00	0.00	0.63	0.42	7.10	74.53	2.51	3.34	11.48
CCC	28	0.00	0.00	0.00	0.00	0.00	14.29	53.57	10.71	21.43

1998 Static Pool

Jan. 1 rating	Issuers	—Rating at year-end—								
		AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	203	91.13	5.42	0.00	0.49	0.00	0.00	0.00	0.00	2.96
AA	612	0.16	89.22	5.07	0.33	0.00	0.00	0.00	0.00	5.23
A	1198	0.08	1.42	87.56	4.92	0.17	0.00	0.00	0.00	5.84
BBB	1010	0.00	0.00	2.57	84.26	4.46	0.69	0.10	0.40	7.52
BB	663	0.30	0.15	0.15	4.83	75.41	5.88	2.71	0.75	9.80
B	701	0.00	0.14	0.14	0.71	5.71	76.46	4.56	4.56	7.70
CCC	33	0.00	0.00	3.03	0.00	0.00	21.21	33.33	33.33	9.09

1999 Static Pool

Jan. 1 rating	Issuers	—Rating at year-end—								
		AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	193	90.16	3.63	0.00	0.52	0.00	0.00	0.00	0.00	5.70
AA	632	0.16	89.56	5.70	0.32	0.00	0.00	0.00	0.16	4.11
A	1227	0.00	2.12	86.55	5.22	0.08	0.08	0.00	0.08	5.87
BBB	1089	0.00	0.37	3.67	85.86	3.58	0.00	0.00	0.18	6.34
BB	793	0.00	0.00	0.13	2.77	80.20	6.18	0.50	1.13	9.08
B	903	0.00	0.00	0.22	0.33	2.21	77.74	3.77	6.87	8.86
CCC	74	0.00	0.00	0.00	2.70	0.00	2.70	55.41	31.08	8.11

N.R.—Rating withdrawn.

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 15

Static Pool One-Year Transition Matrices (continued)

2000 Static Pool		—Rating at year-end—								
Jan. 1 rating	Issuers	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	188	90.43	2.66	1.06	0.00	0.00	0.00	0.00	0.00	5.85
AA	643	0.62	82.74	9.64	0.31	0.00	0.00	0.00	0.00	6.69
A	1223	0.00	2.45	86.26	6.46	0.33	0.08	0.00	0.08	4.33
BBB	1160	0.00	0.17	1.98	89.22	3.02	0.52	0.26	0.34	4.48
BB	884	0.00	0.00	0.11	3.39	83.03	5.54	1.13	1.13	5.66
B	960	0.00	0.00	0.31	0.21	3.33	76.25	4.17	7.71	8.02
CCC	87	0.00	0.00	0.00	0.00	1.15	5.75	54.02	29.89	9.20
2001 Static Pool										
Jan. 1 rating	Issuers	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	181	92.82	2.21	0.00	0.00	0.00	0.00	0.00	0.00	4.97
AA	604	0.50	87.25	8.77	0.00	0.00	0.00	0.00	0.00	3.48
A	1234	0.08	2.11	86.47	6.00	0.16	0.00	0.41	0.24	4.54
BBB	1282	0.08	0.16	2.81	86.27	4.13	0.62	0.94	0.39	4.60
BB	920	0.00	0.00	0.43	3.04	75.76	8.91	2.28	2.83	6.74
B	933	0.00	0.00	0.11	0.00	2.25	70.63	7.82	10.72	8.47
CCC	116	0.00	0.00	0.00	0.00	0.00	8.62	39.66	43.10	8.62
2002 Static Pool										
Jan. 1 rating	Issuers	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	184	85.87	7.07	0.54	1.09	0.00	0.00	0.00	0.00	5.43
AA	600	0.17	79.17	15.00	1.83	0.17	0.33	0.00	0.00	3.33
A	1260	0.00	0.71	85.48	9.44	0.79	0.24	0.08	0.08	3.17
BBB	1383	0.00	0.07	2.10	84.74	6.15	2.17	0.58	1.16	3.04
BB	902	0.11	0.22	0.33	3.22	80.71	7.32	1.11	2.88	4.10
B	838	0.00	0.00	0.00	0.48	4.30	73.87	9.07	8.47	3.82
CCC	184	0.00	0.00	0.54	0.00	1.09	7.61	41.85	43.48	5.43

N.R.—Rating withdrawn.

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 16

Average Multi-Year Transition Matrices

One-Year Transition Rates									
Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	89.37	6.04	0.44	0.14	0.05	0.00	0.00	0.00	3.97
AA	0.57	87.76	7.30	0.59	0.06	0.11	0.02	0.01	3.58
A	0.05	2.01	87.62	5.37	0.45	0.18	0.04	0.05	4.22
BBB	0.03	0.21	4.15	84.44	4.39	0.89	0.26	0.37	5.26
BB	0.03	0.08	0.40	5.50	76.44	7.14	1.11	1.38	7.92
B	0.00	0.07	0.26	0.36	4.74	74.12	4.37	6.20	9.87
CCC	0.09	0.00	0.28	0.56	1.39	8.80	49.72	27.87	11.30
Two-Year Transition Rates									
Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	81.08	10.56	1.17	0.26	0.11	0.03	0.00	0.00	6.78
AA	1.02	77.63	12.65	1.35	0.18	0.19	0.01	0.03	6.93
A	0.08	3.74	77.10	9.07	1.05	0.41	0.07	0.15	8.32
BBB	0.09	0.41	7.72	71.45	6.91	1.67	0.47	0.85	10.43
BB	0.02	0.15	0.87	9.78	57.62	10.47	1.76	3.91	15.43
B	0.01	0.11	0.47	0.84	8.16	54.12	4.73	13.04	18.52
CCC	0.11	0.00	0.45	1.34	2.01	12.05	30.36	32.81	20.87
Three-Year Transition Rates									
Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	73.40	14.34	2.02	0.42	0.09	0.03	0.00	0.03	9.66
AA	1.41	68.91	16.65	2.16	0.30	0.26	0.02	0.08	10.19
A	0.11	4.95	68.91	11.32	1.62	0.71	0.14	0.25	11.98
BBB	0.12	0.62	10.33	61.36	8.17	2.20	0.64	1.19	15.37
BB	0.03	0.21	1.29	12.62	44.25	11.48	1.84	6.37	21.91
B	0.04	0.10	0.69	1.55	10.05	39.34	4.30	17.96	25.96
CCC	0.13	0.00	0.51	1.28	3.08	13.72	18.72	36.03	26.54
Four-Year Transition Rates									
Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	66.93	16.81	2.85	0.74	0.10	0.06	0.00	0.06	12.45
AA	1.67	61.86	19.79	2.96	0.34	0.36	0.02	0.17	12.82
A	0.12	5.77	62.16	13.02	2.00	0.94	0.20	0.36	15.44
BBB	0.17	0.80	12.13	53.12	8.88	2.48	0.66	1.76	20.00
BB	0.02	0.28	1.78	14.27	34.23	11.06	1.77	8.46	28.13
B	0.07	0.09	0.70	2.17	10.96	29.33	3.34	21.08	32.25
CCC	0.14	0.00	0.43	1.59	3.32	12.12	12.55	38.10	31.75

N.R.—Rating withdrawn.

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 16

Average Multi-Year Transition Matrices (continued)

Five-Year Transition Rates

Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	61.55	18.22	3.82	1.06	0.14	0.14	0.00	0.10	14.98
AA	1.89	55.54	22.37	3.76	0.45	0.40	0.07	0.27	15.25
A	0.14	6.31	56.36	14.47	2.37	1.05	0.22	0.51	18.58
BBB	0.21	1.03	13.27	46.97	8.88	2.60	0.71	2.37	23.97
BB	0.04	0.31	2.16	14.65	27.30	10.17	1.62	10.03	33.72
B	0.10	0.12	0.80	2.79	10.96	22.02	2.62	22.25	38.34
CCC	0.16	0.00	0.32	1.94	3.23	8.08	8.08	40.55	37.64

Six-Year Transition Rates

Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	56.78	19.46	4.62	1.47	0.18	0.15	0.04	0.18	17.12
AA	2.07	49.96	24.29	4.53	0.62	0.38	0.07	0.36	17.72
A	0.18	6.64	51.70	15.36	2.67	1.15	0.22	0.68	21.41
BBB	0.24	1.26	14.00	41.86	8.65	2.45	0.71	2.87	27.96
BB	0.02	0.29	2.30	15.08	22.23	8.46	1.45	11.68	38.48
B	0.10	0.12	0.85	3.12	10.28	16.84	1.88	23.17	43.64
CCC	0.17	0.00	0.34	2.56	2.73	6.31	5.80	41.64	40.44

Seven-Year Transition Rates

Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	52.12	20.64	5.42	1.86	0.24	0.08	0.08	0.28	19.30
AA	2.11	45.04	25.90	4.98	0.68	0.35	0.08	0.49	20.38
A	0.22	6.72	47.96	15.87	3.06	1.11	0.21	0.89	23.96
BBB	0.24	1.46	14.34	37.97	8.19	2.29	0.56	3.38	31.58
BB	0.05	0.21	2.50	15.31	18.20	7.17	1.06	13.21	42.29
B	0.09	0.11	0.89	3.27	9.46	12.80	1.53	24.83	47.02
CCC	0.18	0.00	0.36	3.05	2.69	5.20	4.30	42.47	41.76

Eight-Year Transition Rates

Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	47.33	21.51	6.41	2.41	0.22	0.04	0.04	0.43	21.60
AA	2.11	40.64	26.95	5.69	0.73	0.30	0.10	0.63	22.85
A	0.24	6.54	44.78	16.28	3.30	1.15	0.18	1.15	26.38
BBB	0.25	1.58	14.69	34.70	7.99	1.94	0.45	3.90	34.49
BB	0.08	0.16	2.91	14.82	15.47	5.98	0.83	14.72	45.03
B	0.07	0.12	0.89	3.62	8.44	9.82	1.25	26.51	49.26
CCC	0.19	0.00	0.38	2.27	2.65	4.91	2.84	43.86	42.91

N.R.—Rating withdrawn.

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 16

Average Multi-Year Transition Matrices (continued)

Nine-Year Transition Rates

Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	42.62	22.61	7.43	2.93	0.19	0.00	0.05	0.52	23.65
AA	2.12	36.54	27.66	6.45	0.83	0.29	0.10	0.75	25.27
A	0.31	6.27	41.63	16.69	3.46	1.20	0.15	1.48	28.81
BBB	0.28	1.65	14.95	31.85	7.67	1.85	0.41	4.35	36.99
BB	0.12	0.15	3.14	14.18	13.04	4.98	0.53	16.23	47.64
B	0.08	0.11	0.96	4.15	7.19	7.57	1.10	27.95	50.90
CCC	0.20	0.00	0.20	1.40	3.20	3.40	1.80	45.40	44.40

10-Year Transition Rates

Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	38.52	22.96	8.49	3.41	0.10	0.00	0.00	0.63	25.89
AA	2.17	32.82	28.10	7.16	0.92	0.28	0.13	0.90	27.52
A	0.36	6.12	38.77	16.80	3.54	1.21	0.11	1.78	31.32
BBB	0.30	1.72	14.93	29.20	7.43	1.94	0.30	4.96	39.22
BB	0.13	0.16	3.26	13.18	10.71	4.22	0.56	17.70	50.07
B	0.09	0.09	0.97	4.54	6.33	5.98	0.68	29.46	51.87
CCC	0.21	0.00	0.21	0.84	4.22	2.53	1.27	46.41	44.30

11-Year Transition Rates

Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	34.82	22.88	9.82	3.65	0.12	0.06	0.00	0.71	27.94
AA	2.24	29.54	28.09	7.54	1.04	0.36	0.12	1.06	30.02
A	0.39	5.87	36.31	16.93	3.82	1.01	0.08	2.05	33.55
BBB	0.26	1.74	14.91	27.04	7.05	2.00	0.26	5.64	41.10
BB	0.18	0.18	3.28	12.36	9.33	3.57	0.40	19.39	51.29
B	0.09	0.03	1.01	4.75	5.48	5.19	0.44	31.06	51.93
CCC	0.24	0.00	0.24	0.47	5.18	1.41	0.94	48.47	43.06

12-Year Transition Rates

Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	31.44	22.83	11.28	3.47	0.13	0.20	0.00	0.73	29.91
AA	2.32	26.56	27.92	7.87	1.09	0.35	0.11	1.25	32.53
A	0.42	5.56	33.85	17.09	4.05	0.83	0.03	2.31	35.84
BBB	0.26	1.66	14.45	25.25	6.31	2.12	0.23	6.39	43.34
BB	0.16	0.20	3.32	11.28	8.32	3.20	0.40	20.85	52.26
B	0.10	0.00	0.92	4.54	5.08	4.37	0.44	32.47	52.08
CCC	0.27	0.00	0.27	0.53	5.33	1.07	0.53	49.60	42.40

N.R.—Rating withdrawn.

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 16

Average Multi-Year Transition Matrices (continued)

13-Year Transition Rates									
Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	28.59	22.43	12.24	3.50	0.15	0.30	0.00	0.76	32.02
AA	2.37	23.89	28.11	7.88	1.17	0.34	0.09	1.39	34.76
A	0.45	5.29	31.51	16.69	4.34	0.80	0.02	2.63	38.29
BBB	0.26	1.52	13.97	23.81	5.55	2.10	0.19	6.90	45.71
BB	0.13	0.22	3.32	10.65	7.56	2.65	0.40	22.19	52.87
B	0.11	0.00	0.95	4.09	4.43	3.75	0.49	33.37	52.82
CCC	0.32	0.00	0.32	0.32	5.71	1.27	0.32	48.57	43.17
14-Year Transition Rates									
Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	26.05	21.94	13.37	3.15	0.09	0.35	0.00	0.87	34.18
AA	2.57	21.47	27.86	8.04	1.27	0.39	0.07	1.52	36.81
A	0.48	5.05	29.58	16.68	4.31	0.73	0.02	2.92	40.22
BBB	0.26	1.46	13.28	22.18	5.03	1.97	0.22	7.33	48.27
BB	0.10	0.25	3.49	9.80	7.02	2.78	0.25	22.69	53.61
B	0.13	0.00	1.01	3.73	3.78	3.30	0.66	33.48	53.91
CCC	0.00	0.00	0.37	0.00	5.58	0.74	0.00	47.21	46.10
15-Year Transition Rates									
Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	23.43	20.66	14.39	2.67	0.00	0.41	0.00	0.92	37.51
AA	2.70	19.36	27.21	8.42	1.23	0.41	0.04	1.72	38.93
A	0.53	4.62	28.27	16.41	4.17	0.73	0.05	3.32	41.91
BBB	0.21	1.50	12.43	20.68	5.17	1.71	0.25	7.88	50.17
BB	0.12	0.29	3.76	8.75	6.69	2.52	0.23	23.19	54.43
B	0.16	0.00	1.02	3.39	3.17	3.01	0.70	33.49	55.05
CCC	0.00	0.00	0.47	0.00	4.67	1.40	0.00	45.33	48.13
16-Year Transition Rates									
Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	21.25	20.02	14.74	2.46	0.00	0.25	0.00	0.98	40.29
AA	2.76	17.25	26.94	9.21	1.16	0.29	0.00	1.94	40.46
A	0.58	4.24	26.64	16.33	3.98	0.72	0.06	3.61	43.84
BBB	0.15	1.64	12.05	19.16	5.37	1.50	0.34	8.47	51.33
BB	0.14	0.35	3.95	7.55	6.14	2.61	0.14	24.05	55.08
B	0.21	0.00	0.83	2.63	3.11	2.70	0.69	32.87	56.96
CCC	0.00	0.00	0.00	1.28	2.56	1.28	0.00	42.31	52.56

N.R.—Rating withdrawn.

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 16

Average Multi-Year Transition Matrices (continued)

17-Year Transition Rates

Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	19.13	19.58	14.95	2.84	0.00	0.00	0.00	0.90	42.60
AA	2.67	15.06	27.03	10.25	1.24	0.18	0.00	2.37	41.20
A	0.61	4.21	25.18	16.29	3.83	0.81	0.07	3.90	45.10
BBB	0.17	1.72	11.86	17.87	5.21	1.26	0.57	8.88	52.46
BB	0.09	0.35	3.64	6.93	5.89	2.43	0.17	25.13	55.37
B	0.28	0.00	0.46	2.02	2.94	2.12	0.74	33.30	58.14
CCC	0.00	0.00	0.00	4.30	1.08	0.00	0.00	34.41	60.22

18-Year Transition Rates

Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	17.10	18.93	14.89	3.49	0.00	0.00	0.00	1.10	44.49
AA	2.66	13.07	27.20	11.70	1.44	0.15	0.00	2.66	41.11
A	0.54	4.06	24.17	16.00	3.94	0.88	0.13	4.36	45.92
BBB	0.28	1.73	11.50	17.80	4.78	0.97	0.62	8.93	53.39
BB	0.00	0.32	3.33	5.81	5.16	2.69	0.22	26.88	55.59
B	0.25	0.00	0.38	1.89	2.64	1.64	0.88	33.63	58.69
CCC	0.00	0.00	0.00	3.95	2.63	0.00	0.00	36.84	56.58

19-Year Transition Rates

Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	15.42	18.82	14.29	4.08	0.00	0.00	0.00	1.36	46.03
AA	2.67	11.49	27.28	12.92	1.95	0.10	0.00	2.97	40.62
A	0.43	3.93	22.90	15.46	4.41	0.96	0.16	4.68	47.08
BBB	0.34	1.89	10.55	18.87	3.95	0.77	0.60	9.09	53.95
BB	0.00	0.14	3.28	4.37	4.51	2.87	0.41	28.69	55.74
B	0.17	0.00	0.34	2.04	2.39	1.53	0.68	32.88	59.97
CCC	0.00	0.00	0.00	1.72	3.45	0.00	0.00	39.66	55.17

N.R.—Rating withdrawn.

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 16

Average Multi-Year Transition Matrices (continued)

20-Year Transition Rates									
Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	16.50	18.15	15.84	5.28	0.00	0.00	0.00	1.98	42.24
AA	2.51	10.21	25.74	14.50	2.37	0.30	0.00	3.55	40.83
A	0.49	3.59	22.11	15.28	4.51	1.13	0.14	4.86	47.89
BBB	0.23	1.73	9.47	19.05	3.58	0.92	0.69	9.93	54.39
BB	0.00	0.00	3.57	3.75	3.39	2.86	0.36	31.61	54.46
B	0.00	0.00	0.49	1.97	2.21	1.23	0.49	30.22	63.39
CCC	0.00	0.00	0.00	0.00	2.56	0.00	0.00	38.46	58.97
21-Year Transition Rates									
Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	17.11	18.18	16.04	5.35	0.00	0.00	0.00	2.14	41.18
AA	2.56	9.09	24.01	15.62	2.80	0.70	0.00	4.43	40.79
A	0.62	3.12	21.41	15.18	4.78	1.14	0.21	5.51	48.02
BBB	0.00	1.42	8.17	18.47	3.20	1.07	0.71	11.19	55.77
BB	0.00	0.00	3.60	3.34	2.06	2.06	0.51	32.90	55.53
B	0.00	0.00	0.40	1.20	2.39	1.20	0.00	29.08	65.74
CCC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	37.50	62.50
22-Year Transition Rates									
Jan. 1 rating	—Rating at year-end—								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	16.13	18.28	17.20	5.38	0.00	0.00	0.00	2.15	40.86
AA	2.94	7.84	21.08	19.12	3.92	0.49	0.00	5.39	39.22
A	0.62	2.89	20.21	14.85	5.36	1.44	0.21	5.57	48.87
BBB	0.00	0.73	6.96	17.95	4.03	1.83	0.37	11.72	56.41
BB	0.00	0.00	3.15	2.25	1.80	1.80	0.00	35.14	55.86
B	0.00	0.00	0.00	1.11	2.22	1.11	0.00	26.67	68.89
CCC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.27	72.73

N.R.—Rating withdrawn.

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Table 17

List of 2002 Defaults

	Company name	Country	Industry	Debt amount (Mil. \$)	Default date	Next to last rating	Date of next to last rating	First rating	Date of first rating
1	Archibald Candy Corp.	U.S.	Candy & other confectionery products	170.0	01/01/2002	B-	07/13/2000	B	06/19/1997
2	McLeodUSA Inc.	U.S.	Communications services (NEC)	4,635.0	01/01/2002	CC	12/05/2001	B+	02/21/1997
3	Polymer Group Inc.	U.S.	Nonwoven fabrics	1,183.7	01/01/2002	CCC	12/26/2001	B+	07/05/1994
4	Simonds Industries Inc.	U.S.	Cutlery, handtools, & hardware	100.0	01/01/2002	CC	12/14/2001	B+	06/25/1998
5	Atlantic Telecom Group PLC	U.K.	Telephone communications	289.2	01/02/2002	CC	10/10/2001	CCC	08/31/2001
6	AAI.FosterGrant Inc.	U.S.	Optical instruments & lenses	51.9	01/15/2002	B-	08/19/1999	B+	07/09/1998
7	Doehler-Jarvis Inc.	U.S.	Aluminum die-castings	0.0	01/15/2002	NR	08/03/1995	B+	04/26/1994
8	Hartmarx Corp.	U.S.	Apparel & other textile products	34.7	01/15/2002	CC	12/17/2001	BB-	03/03/1994
9	Harvard Industries Inc.	U.S.	Products of purchased glass	0.0	01/15/2002	NR	03/27/2001	B+	11/09/1998
10	Millenium Seacarriers, Inc.	U.S.	Deep sea foreign transportation of freight	100.0	01/15/2002	CCC+	05/10/2000	B	07/01/1998
11	Nationwide Credit, Inc.	U.S.	Business consulting (NEC)	100.0	01/15/2002	NR	12/10/2001	B	01/22/1998
12	IT Group Inc.	U.S.	Refuse systems	646.9	01/16/2002	CCC-	12/27/2001	BB	06/18/1998
13	Pasminco Ltd.	Australia	Lead & zinc ores	800.0	01/17/2002	CC	09/19/2001	BBB-	04/24/1995
14	Alto Palermo S.A.	Argentina	Subdividers & developers	0.0	01/21/2002	CCC	12/05/2001	BB+	08/14/1998
15	Arte Grafico Editorial Argentino S.A.	Argentina	Newspapers	250.0	01/21/2002	CCC-	12/26/2001	BB+	01/11/2001
16	Camuzzi Gas del Sur S.A.	Argentina	Gas production & distribution	0.0	01/21/2002	B	11/01/2001	BBB-	07/27/1999
17	Empresa Distribuidora de Energia Norte S.A. (EDEN)	Argentina	Electric services	67.0	01/21/2002	CCC-	12/26/2001	BB+	06/08/2000
18	Empresa Distribuidora de Energia Sur S.A. (EDES)	Argentina	Electric services	23.0	01/21/2002	CCC-	12/26/2001	BB+	06/08/2000
19	Sodigas Sur S.A.	Argentina	Gas production & distribution	0.0	01/21/2002	B	11/01/2001	BB+	07/07/1999
20	BTI Telecom Corp.	U.S.	Telephone communications	250.0	01/22/2002	CC	10/16/2001	B+	09/04/1997
21	Kmart Corp.	U.S.	Variety stores	3,877.5	01/22/2002	CCC-	01/16/2002	AA	12/31/1980
22	Fujian International Trust & Investment Corp.	China	Business credit institutions	100.0	01/24/2002	NR	08/02/1999	BBB	08/08/1997
23	United Globalcom Inc.	U.S.	Holding companies (NEC)	6,268.5*	01/25/2002	CC	12/28/2001	B+	11/14/1995
24	ALC Communications Corp. - Global Crossing Ltd.	U.S.	Telephone communications, excluding radio	0.0	01/28/2002	NR	06/04/1992	CCC+	09/06/1990
25	Frontier Corp. - Global Crossing Ltd.	U.S.	Telephone communications	800.0	01/28/2002	CCC-	01/02/2002	AA	12/31/1980
26	Global Crossing BidCo. Ltd. - Global Crossing Ltd.	U.K.	Telephone communications	0.0	01/28/2002	NR	08/13/2001	BB+	12/22/1999
27	Global Crossing Holdings Ltd. - Global Crossing Ltd.	Bermuda	Communications equipment	4,800.0	01/28/2002	CCC-	12/14/2001	BB-	11/23/1998
28	Global Crossing Ltd.	Bermuda	Communications equipment	0.0	01/28/2002	CCC-	12/14/2001	BB-	12/23/1998
29	Transportadora de Gas del Norte S.A. (TGN)	Argentina	Natural gas distribution	213.2	01/29/2002	CCC-	01/21/2002	BBB-	08/01/1996
30	Glasstech Inc.	U.S.	Specialty industry machinery	70.0	01/30/2002	NR	10/08/1999	B+	06/24/1997
31	Sideco Americana S.A.	Argentina	Holding offices	125.0	01/31/2002	CC	12/05/2001	BB	08/01/1997

NEC—Not elsewhere classified. *Preliminary figure.

Table 17

List of 2002 Defaults (continued)

	Company name	Country	Industry	Debt amount (Mil. \$)	Default date	Next to last rating	Date of next to last rating	First rating	Date of first rating
32	Globix Corp.	U.S.	Computer related services (NEC)	583.5	02/01/2002	CC	12/27/2001	B-	04/27/2000
33	Kaiser Aluminum & Chemical Corp.	U.S.	Primary aluminum	802.0	02/01/2002	CCC	01/15/2002	B+	10/27/1989
34	Multicanal S.A.	Argentina	Cable & other pay television services	719.0	02/01/2002	CC	01/21/2002	BB	01/10/1997
35	NII Holdings Inc.	U.S.	Communications services (NEC)	2,331.5	02/01/2002	CCC-	12/14/2001	CCC+	07/01/1997
36	Orius Corp.	U.S.	Electrical work	558.5	02/01/2002	CC	01/22/2002	B+	12/09/1999
37	Barito Pacific Timber (P.T.)	Indonesia	Hardwood veneer & plywood	0.0	02/03/2002	NR	05/22/1998	BB+	04/04/1997
38	Telesystem International Wireless Inc.	Canada	Communications services (NEC)	0.0	02/04/2002	CC	12/06/2001	CCC+	10/29/2001
39	Carrier1 International S.A.	Switzerland	Telephone communications	234.5	02/12/2002	CC	01/08/2002	B-	01/27/1999
40	Kaiser Aluminum Corp.	U.S.	Primary aluminum	0.0	02/12/2002	NR	09/22/1997	B+	06/18/1992
41	Aguas Argentinas S.A.	Argentina	Water supply	248.0	02/13/2002	CCC-	01/02/2002	BB+	03/26/2001
42	CableVision S.A.	Argentina	Cable & other pay TV services	725.0	02/15/2002	CC	01/21/2002	BB	05/19/1998
43	CellStar Corp.	U.S.	Electronic parts & equipment	150.0	02/15/2002	CCC-	09/06/2001	BB-	02/23/1998
44	Central Puerto S.A.	Argentina	Electric services	0.0	02/15/2002	NR	07/02/1999	BB	05/20/1997
45	Evenflo Company Inc.	U.S.	Miscellaneous food & kindred products	110.0	02/15/2002	CC	02/01/2002	B+	08/06/1998
46	Insilco Holding Co.	U.S.	Stationery & office supplies	462.7	02/15/2002	CCC	12/21/2001	B+	08/06/1998
47	Galey & Lord Inc.	U.S.	Broadwoven fabric mills, cotton	683.0	02/19/2002	CC	02/13/2002	BB-	02/11/1998
48	Citra Marga Nusaphala Persada (P.T.)	Indonesia	Highway & street construction	125.0	02/20/2002	CC	09/24/1998	CC	09/24/1998
49	Equitable Life Assurance Society (The)	U.K.	Life insurance	0.0	02/28/2002	CC	02/21/2002	AA	09/27/1993
50	Adelphia Business Solutions Inc. - Adelphia Communications Corp.	U.S.	Telephone communications, excluding radio	879.0	03/01/2002	CCC+	11/14/2001	B+	10/10/1997
51	Covanta Energy Corp.	U.S.	Business services (NEC)	260.0	03/01/2002	B	01/16/2002	BBB	12/31/1980
52	Florsheim Shoe Co. (The)	U.S.	Footwear, except rubber (NEC)	18.5	03/01/2002	NR	10/07/1997	BB-	10/19/1994
53	SF Holdings Group Inc.	U.S.	Forest products	123.7	03/01/2002	B+	03/04/1998	B+	03/04/1998
54	Gaylord Container Corp.	U.S.	Forest products	675.0	03/04/2002	CC	03/01/2002	B+	11/03/1992
55	Mastellone Hermanos S.A.	Argentina	Dairy products	225.0	03/04/2002	CC	01/21/2002	B+	03/11/1998
56	Formica Corp.	U.S.	Laminated plastics plate & sheet	560.0	03/05/2002	CCC	01/10/2002	B+	06/24/1998
57	Granite City Steel Co. - National Steel Corp.	U.S.	Blast furnaces & steel mills	0.0	03/06/2002	NR	06/01/1994	BBB+	12/31/1980
58	National Steel Corp.	U.S.	Blast furnaces & steel mills	291.0	03/06/2002	CCC+	01/17/2002	A-	12/31/1980
59	CAPEX S.A.	Argentina	Electric services	0.0	03/11/2002	CC	01/21/2002	BB	10/01/1997
60	Guilford Mills Inc.	U.S.	Lace & warp knit fabric mills	0.0	03/13/2002	NR	11/10/1998	BBB	03/18/1987
61	Anchor Glass Container Corp.	U.S.	Glass containers	300.0	03/15/2002	CC	09/17/2001	B+	04/04/1997
62	Doe Run Resources Corp. (The)	U.S.	Lead & zinc ores	305.0	03/15/2002	CC	02/01/2002	B+	03/02/1998

NEC—Not elsewhere classified. *Preliminary figure.

Table 17

List of 2002 Defaults (continued)

	Company name	Country	Industry	Debt amount (Mil. \$)	Default date	Next to last rating	Date of next to last rating	First rating	Date of first rating
63	Energis PLC	U.K.	Communications services (NEC)	805.5	03/15/2002	CCC-	02/21/2002	BB-	05/25/1999
64	IFCO Systems N.V.	Netherlands	Metal barrels, drums, and pails	176.6	03/15/2002	CCC	02/27/2002	BB-	02/18/2000
65	Metromedia Fiber Network Inc.	U.S.	Telephone communications, excluding radio	1,630.4	03/15/2002	CCC	08/01/2001	B	11/18/1998
66	Pinnacle Holdings Inc.	U.S.	Real estate operators & lessors	744.1	03/15/2002	CC	02/07/2002	B+	09/27/1999
67	Inversora Electrica de Buenos Aires S.A.	Argentina	Electric services	230.0	03/16/2002	CC	12/05/2001	BB+	09/03/1997
68	Camuzzi Gas Pampeana S.A.	Argentina	Gas production & distribution	0.0	03/25/2002	CCC-	02/21/2002	BBB-	12/21/1998
69	Compania de Transporte de Energia Electrica en Alta Tension TRANSENER S.A.	Argentina	Combination utility services	250.0	03/25/2002	CC	02/21/2002	BBB-	12/01/1997
70	Compania Latinoamericana de Infraestructura & Servicios S.A. (CLISA)	Argentina	Heavy construction (NEC)	100.0	03/25/2002	CC	01/21/2002	BB-	05/15/1997
71	Disco S.A.	Argentina	Grocery stores	0.0	03/25/2002	CCC	01/21/2002	BB-	03/26/2001
72	Empresa Distribuidora Sur S.A. (EDESUR)	Argentina	Electric services	0.0	03/25/2002	CC	02/21/2002	BBB-	09/15/1995
73	Imagen Satelital S.A.	Argentina	Cable & other pay television services	80.0	03/25/2002	CC	01/21/2002	B+	04/23/1998
74	Metrogas S.A.	Argentina	Natural gas transmission	207.9	03/25/2002	CC	02/21/2002	BB+	01/11/2001
75	Sodigas Pampeana S.A.	Argentina	Gas production & distribution	0.0	03/25/2002	CCC-	02/21/2002	BB+	07/07/1999
76	Telecom Argentina STET-France Telecom S.A.	Argentina	Telephone communications	1,495.4	03/25/2002	CC	03/04/2002	BBB-	10/20/1995
77	Transportadora de Gas del Sur S.A. (TGS)	Argentina	Gas production & distribution	0.0	03/25/2002	CC	02/21/2002	BBB-	04/22/1996
78	Empresa Distribuidora Y Comercializadora Norte S.A. (EDENOR)	Argentina	Electric services	81.3	03/26/2002	CC	02/21/2002	BBB-	10/01/1997
79	Heafner Tire Group Inc.	U.S.	Tires & inner tubes	150.0	03/26/2002	B-	11/19/2001	BB-	05/07/1998
80	Budget Group Inc.	U.S.	Automotive rentals, no drivers	400.0	04/01/2002	CCC	03/22/2002	BB+	06/05/1998
81	Cablecom (Ostschweiz) AG - NTL Inc.	Switzerland	Communications services (NEC)	0.0	04/01/2002	CCC-	03/28/2002	B+	07/21/2000
82	Diamond Cable Communications PLC - NTL Inc.	U.K.	Cable & other pay television services	1,543.1	04/01/2002	CCC-	03/28/2002	B-	08/26/1994
83	FLAG Telecom Holdings Ltd.	Bermuda	Telephone communications, excluding radio	564.2	04/01/2002	CCC+	02/15/2002	BB-	03/10/2000
84	Legion Insurance Co. - Mutual Risk Management Ltd.	U.S.	Insurance carriers (NEC)	0.0	04/01/2002	BB	02/22/2002	A	10/17/1991
85	NTL Business Ltd. - NTL Inc.	U.K.	Communications services (NEC)	0.0	04/01/2002	CCC-	03/28/2002	B+	07/21/2000
86	NTL Communications Corp. - NTL Inc.	U.S.	Cable & other pay television services	8,059.8	04/01/2002	CCC-	03/28/2002	B+	04/10/1995
87	NTL Inc.	U.S.	Communications services (NEC)	1,200.0	04/01/2002	CCC-	03/28/2002	B	07/28/1999
88	NTL Triangle Ltd. - NTL Inc.	Bermuda	Cable & other pay television services	0.0	04/01/2002	CCC-	03/28/2002	B+	11/06/1995
89	Pentacon, Inc.	U.S.	Miscellaneous fabricated metal products	185.0	04/01/2002	CCC-	11/01/2001	B+	03/11/1999

NEC—Not elsewhere classified. *Preliminary figure.

Table 17

List of 2002 Defaults (continued)

	Company name	Country	Industry	Debt amount (Mil. \$)	Default date	Next to last rating	Date of next to last rating	First rating	Date of first rating
90	Williams Communications Group Inc.	U.S.	Communications services (NEC)	4,075.0	04/01/2002	CC	02/25/2002	BB	09/08/1999
91	Talk America Holdings Inc.	U.S.	Communications services (NEC)	450.0	04/03/2002	CC	02/19/2002	BB	09/04/1997
92	MPower Communications Inc.	U.S.	Communications services (NEC)	436.7	04/08/2002	CC	02/25/2002	B-	06/23/1999
93	Call-Net Enterprises Inc.	Canada	Telephone communications	1,783.8	04/10/2002	CC	02/25/2002	B+	04/06/2001
94	FLAG Ltd. - FLAG Telecom Holdings Ltd.	Bermuda	Communications equipment (NEC)	430.0	04/12/2002	CC	04/02/2002	BB-	01/14/1998
95	Exide Technologies	U.S.	Storage batteries	1,395.3	04/14/2002	CC	03/27/2002	B+	06/08/1987
96	Advantica Restaurant Group Inc.	U.S.	Eating places	529.6	04/15/2002	CC	01/04/2002	B	04/23/1998
97	Asia Global Crossing Ltd.	U.S.	Communications equipment	408.0	04/15/2002	CC	02/27/2002	BB-	09/20/2000
98	Contour Energy Corp.	U.S.	Crude petroleum & natural gas	255.0	04/15/2002	CCC	04/13/1999	B+	04/07/1994
99	Hudson Respiratory Care Inc.	U.S.	Medical instruments & supplies	187.0	04/15/2002	CCC+	12/21/2001	B+	03/23/1998
100	Grapes Communications N.V.	Italy	Communications services (NEC)	176.6	04/16/2002	CC	11/12/2001	CCC-	03/14/2001
101	JSC Investment Banking Corp.	Russia	Commercial banks	0.0	04/23/2002	CCC-	03/15/2001	CCC-	03/15/2001
102	R.A.B. Holdings, Inc.	U.S.	Groceries & related products	48.0	05/01/2002	NR	12/20/2000	B	04/20/1998
103	WKI Holding Company Inc.	U.S.	Household appliances	788.0	05/01/2002	CC	04/02/2002	BB-	04/24/1998
104	KirchPayTV GmbH & Co. KGaA	Germany	Radio & television broadcasting	0.0	05/08/2002	NR	07/28/2000	B	09/14/1999
105	Dominion Textile Inc. - Polymer Group Inc.	Canada	Broadwoven fabric mills, cotton	5.2	05/11/2002	NR	01/28/1998	BB	09/21/1993
106	Adelphia Communications Corp.	U.S.	Cable & other pay television services	9,498.4	05/15/2002	CCC+	04/22/2002	B	08/08/1986
107	Anker Coal Group Inc.	U.S.	Bituminous coal & lignite mining	148.3	05/15/2002	CCC	04/29/2002	CCC+	01/05/2000
108	ITC DeltaCom, Inc.	U.S.	Telephone communications	515.0	05/15/2002	CC	04/03/2002	B	05/15/1997
109	Olympus Communications L.P. - Adelphia Communications Corp.	U.S.	Communications services (NEC)	200.0	05/15/2002	CCC+	04/22/2002	BB-	10/30/1996
110	Radio e Televisao Bandeirantes Ltda.	Brazil	Radio & television broadcasting	100.0	05/15/2002	NR	04/03/2001	B-	05/06/1998
111	Teleglobe Inc.	Canada	Telephone communications	2,474.8	05/15/2002	CC	04/24/2002	B-	04/12/2002
112	Azurix Corp.	U.S.	Water supply	585.8	05/20/2002	CC	11/30/2001	BB+	01/28/2000
113	KPNQwest N.V.	Netherlands	Telephone communications	1,418.5	05/23/2002	CCC-	04/25/2002	BB	05/18/1999
114	Quality Distribution Inc.	U.S.	Trucking, except local	140.0	05/28/2002	CC	05/07/2002	B+	06/03/1998
115	CompleTel Europe N.V.	Netherlands	Telephone communications, excluding radio	509.3	05/29/2002	CC	03/07/2002	CCC	11/30/2001
116	CTI Holdings S.A.	Argentina	Telephone communications	262.8	05/30/2002	CC	12/26/2001	B+	03/23/1998
117	EKCO Group, Inc. - WKI Holding Company Inc.	U.S.	Cutlery	3.4	05/31/2002	NR	10/13/1999	BB	03/06/1996
118	Farmland Industries Inc.	U.S.	Petroleum refining	500.0	05/31/2002	B-	04/24/2002	BB+	08/29/1995

NEC—Not elsewhere classified. *Preliminary figure.

Table 17

List of 2002 Defaults (continued)

	Company name	Country	Industry	Debt amount (Mil. \$)	Default date	Next to last rating	Date of next to last rating	First rating	Date of first rating
119	Ispat International N.V.	Netherlands	Metal ores (NEC)	0.0	05/31/2002	CC	01/25/2002	BB	06/25/1998
120	Ispat Mexicana S.A. de C.V. - Ispat International N.V.	Mexico	Blast furnaces & basic steel products	63.1	05/31/2002	CC	01/25/2002	BB+	05/15/1996
121	CR Resorts Capital S. de R.L. de C.V. - Raintree Resorts International Inc.	Mexico	Hotels & motels	0.0	06/01/2002	B-	12/01/1997	B-	12/01/1997
122	Raintree Resorts International Inc.	Mexico	Hotels & motels	100.0	06/01/2002	B-	12/01/1997	B-	12/01/1997
123	Tri-Union Development Corp.	U.S.	Oil & gas exploration services	110.0	06/01/2002	CCC+	06/06/2001	CCC+	06/06/2001
124	Viasystems Group Inc.	U.S.	Printed circuit boards	1,128.1	06/01/2002	CC	04/02/2002	B+	05/28/1997
125	Weigh-Tronix LLC	U.S.	Analytical instruments	210.8	06/01/2002	CC	03/22/2002	B+	05/15/2000
126	A+ Network, Inc. - Metrocall, Inc.	U.S.	Radio-telephone communications	2.5	06/03/2002	NR	02/07/1997	B	10/04/1995
127	Birmingham Steel Corp.	U.S.	Blast furnaces & steel mills	0.0	06/03/2002	NR	05/31/1988	B+	05/20/1986
128	Compania de Radiocomunicaciones Moviles S.A.	Argentina	Radiotelephone communications	0.0	06/05/2002	CCC	04/12/2002	BB+	01/11/2001
129	Jazztel PLC	Spain	Communications services (NEC)	686.2	06/13/2002	CC	04/16/2002	B-	12/08/1999
130	Versatel Telecom International N.V.	Netherlands	Telephone communications, excluding radio	1,517.5	06/19/2002	CC	04/03/2002	B-	12/07/1999
131	FrontierVision Holdings L.P./FrontierVision Capital Corp. - Adelphia Communications Corp.	U.S.	Cable & other pay television services	237.7	06/25/2002	CC	05/20/2002	BB-	09/12/1997
132	FrontierVision Operating Partners, L.P. - Adelphia Communications Corp.	U.S.	Cable & other pay television services	1,000.0	06/25/2002	CC	05/20/2002	BB-	09/24/1996
133	Olympus Cable Holdings - Adelphia Communications Corp.	U.S.	Telegraph & other communications	2,500.0	06/25/2002	CC	05/20/2002	BB-	08/23/2001
134	US Airways Group Inc.	U.S.	Air transportation, scheduled	0.0	06/25/2002	CCC+	09/20/2001	BBB+	12/12/1983
135	US Airways Inc. - US Airways Group Inc.	U.S.	Air transportation, scheduled	1,272.1*	06/25/2002	CCC+	09/20/2001	BB+	12/31/1980
136	GT Group Telecom Inc.	Canada	Telephone communications	855.0	06/26/2002	CCC	06/21/2002	B	01/21/2000
137	Evercom, Inc.	U.S.	Communications services (NEC)	115.0	06/30/2002	CCC	04/08/2002	B+	06/17/1997
138	Advanced Glassfiber Yarns LLC	U.S.	Flat glass	381.0	07/15/2002	CCC	03/29/2002	BB-	10/21/1998
139	Intermedia Communications, Inc. - WorldCom Inc.	U.S.	Telephone communications, excluding radio	1,146.0	07/15/2002	CC	07/01/2002	B-	05/16/1995
140	Mattress Discounters Corp.	U.S.	Mattresses & bedsprings	160.0	07/15/2002	CC	11/15/2001	B+	07/15/1999
141	Piedmont Aviation Inc. - US Airways Group Inc.	U.S.	Air transportation, scheduled	83.2*	07/15/2002	NR	03/28/1997	BB-	12/31/1980
142	WorldCom Inc.	U.S.	Telephone communications, excluding radio	30,784.1	07/15/2002	CC	07/01/2002	BB	03/13/1995
143	Ziff Davis Media Inc.	U.S.	Periodicals	250.0*	07/15/2002	CCC-	01/17/2002	B+	03/17/2000

NEC—Not elsewhere classified. *Preliminary figure.

SPECIAL REPORT • RATINGS PERFORMANCE 2002

Table 17

List of 2002 Defaults (continued)

	Company name	Country	Industry	Debt amount (Mil. \$)	Default Date	Next to last rating	Date of next to last rating	First rating	Date of first rating
144	Panaco Inc	U.S.	Crude petroleum & natural gas	100.0	07/17/2002	NR	10/08/2001	B-	10/02/1997
145	Callahan Nordrhein-Westfalen GmbH	Germany	Cable & other pay television services	1256.1	07/19/2002	CCC	05/24/2002	B+	06/27/2000
146	CS Wireless Systems, Inc. - WorldCom Inc.	U.S.	Telephone communications	13.6	07/21/2002	NR	10/26/2001	B	02/09/1996
147	MFS Communications Co. Inc. - WorldCom Inc.	U.S.	Telephone communications, excluding radio	0.0	07/21/2002	NR	03/03/1997	B+	01/03/1994
148	SkyTel Communications Inc. - WorldCom Inc.	U.S.	Radiotelephone communications	0.0	07/21/2002	NR	06/03/2002	BB	05/15/1992
149	Ryder TRS, Inc. - Budget Group Inc.	U.S.	Truck rental & leasing, no drivers	0.0	07/29/2002	NR	07/28/1998	BB	11/18/1996
150	Atlantic Express Transportation Corp.	U.S.	School buses	120.0	08/01/2002	CC	07/24/2002	B	01/24/1997
151	GenTek Inc.	U.S.	Manufacturing industries (NEC)	989.0	08/01/2002	CCC	05/16/2002	BB	03/31/1999
152	Pueblo Xtra International Inc.	U.S.	Grocery stores	220.3	08/01/2002	CCC+	04/15/2002	B+	07/13/1993
153	Song Networks N.V.	Netherlands	Telephone communications	568.9	08/01/2002	CC	07/10/2002	B-	06/09/1999
154	Texon International PLC	U.K.	Footwear cut stock	123.3	08/01/2002	NR	02/01/2002	B+	01/26/1998
155	Banco Comercial S.A.	Uruguay	Commercial banks	200.0	08/05/2002	B	05/06/2002	BBB-	11/03/1997
156	Conseco Inc.	U.S.	Life insurance	2,660.1	08/09/2002	CCC+	08/02/2002	BB-	06/11/1987
157	Acterna Corp.	U.S.	Communications equipment	275.0	08/12/2002	CCC-	08/09/2002	B+	05/05/1998
158	Horsehead Industries Inc.	U.S.	Primary nonferrous metals	0.0	08/19/2002	NR	05/10/1996	BB-	04/03/1989
159	Grupo Minero Mexico S.A. de C.V.	Mexico	Lead & zinc ores	0.0	08/21/2002	CCC+	03/01/2002	BBB-	06/03/1994
160	Uniroyal Technology Corp.	U.S.	Plastics products (NEC)	0.0	08/25/2002	NR	08/18/1998	B	05/18/1993
161	Eletropaulo Metropolitana Eletricidade de São Paulo S.A.	Brazil	Electric services	0.0	08/26/2002	CC	08/23/2002	BB	06/02/2000
162	American Buildings Co.	U.S.	Roofing, siding & sheet metal work	375.8	09/10/2002	B+	01/18/2002	BB-	02/04/2000
163	Advanced Lighting Technologies Inc.	U.S.	Welding apparatus	100.0	09/15/2002	CCC+	02/12/2002	BB-	03/10/1998
164	AT&T Canada Inc.	Canada	Communications services (NEC)	2,960.8	09/15/2002	CC	06/14/2002	B	04/20/1998
165	NRG Energy Inc.	U.S.	Drilling oil & gas wells	1,940.0*	09/15/2002	CCC	08/29/2002	BBB-	01/17/1996
166	NRG South Central Generating LLC - NRG Energy Inc.	U.S.	Electric services	750.8	09/15/2002	CCC	08/29/2002	BBB-	03/16/2000
167	SpectraSite Holdings Inc.	U.S.	Communications services (NEC)	1,971.8	09/15/2002	CC	05/17/2002	B	03/09/2000
168	Windsor Woodmont Black Hawk Resort Corp.	U.S.	Amusement & recreation (NEC)	100.0	09/15/2002	CC	08/15/2002	CCC+	05/01/2000
169	Empresa Electrica del Norte Grande S.A.	Chile	Electric services	340.0	09/17/2002	CC	08/09/2001	BBB	03/06/1996
170	Superior Telecom Inc.	U.S.	Nonferrous wiredrawing & insulating	921.6	09/19/2002	CCC	08/28/2002	B+	11/30/1998

NEC—Not elsewhere classified. *Preliminary figure.

Table 17

List of 2002 Defaults (continued)

Company name	Country	Industry	Debt amount (Mil. \$)	Default date	Next to last rating	Date of next to last rating	First rating	Date of first rating
171 Mutual Risk Management Ltd.	Bermuda	Insurance carriers (NEC)	68.1	09/20/2002	CC	04/12/2002	BBB+	02/20/1996
172 Sirius Satellite Radio Inc.	U.S.	Radio & television communications equipment	16.5	09/29/2002	CCC	08/16/2002	CCC+	08/13/1998
173 EOTT Energy Partners L.P.	U.S.	Crude petroleum & natural gas	235.0	10/01/2002	CCC	08/16/2002	BB	09/10/1999
174 Telewest Communications Networks Ltd. - Telewest Communications PLC	U.K.	Cable & other pay television services	0*	10/01/2002	CC	08/06/2002	BB-	04/27/2001
175 Telewest Communications PLC	U.K.	Cable & other pay television services	2,186.4*	10/01/2002	CC	08/06/2002	BB	09/14/1995
176 Building One Services Corp. - Encompass Services Corp.	U.S.	Special trade contractors (NEC)	0.0	10/14/2002	NR	02/23/2000	BB-	04/13/1999
177 Encompass Services Corp.	U.S.	Plumbing, heating, air conditioning	1,035	10/14/2002	CCC-	10/01/2002	BB	02/23/2000
178 AMERCO	U.S.	Truck rental & leasing, no drivers	100.0	10/15/2002	BB-	10/10/2002	BBB-	12/22/1992
179 Energy Group Ltd. (The) - TXU Europe Ltd.	U.K.	Electric services	500.0	10/15/2002	B+	10/14/2002	A-	10/16/1997
180 TXU Europe Ltd.	U.K.	Electric services	2,848.3	10/15/2002	B+	10/14/2002	BBB+	10/09/1998
181 Outsourcing Solutions, Inc.	U.S.	Miscellaneous business credit institutions	100.0	11/01/2002	CC	10/18/2002	B+	10/23/1996
182 TV Globo Ltda.	Brazil	Radio & television broadcasting	850.0	11/01/2002	CC	10/28/2002	BBB-	12/20/1996
183 Doman Industries Ltd.	Canada	Forest products	673.0	11/08/2002	CC	09/11/2002	BB-	02/17/1994
184 ASARCO Inc.	U.S.	Primary nonferrous metals	450.0	11/12/2002	CC	08/21/2002	A-	12/31/1980
185 PG&E National Energy Group Inc. - PG&E Corp.	U.S.	Electric services	1,625.0	11/14/2002	B-	10/11/2002	BBB	01/18/2001
186 Alestra S. de R.L. de C.V.	Mexico	Telephone communications	570.0	11/15/2002	CC	07/31/2002	BB-	05/06/1999
187 Bayou Steel Corp.	U.S.	Blast furnaces & steel mills	120.0	11/15/2002	CCC+	09/12/2002	B	01/13/1994
188 Oakwood Homes Corp.	U.S.	Residential building construction	310.0	11/15/2002	B-	10/30/2000	BB-	03/24/1987
189 Seven Seas Petroleum Inc.	U.S.	Crude petroleum & natural gas	110.0	11/15/2002	NR	03/07/2000	CCC+	04/22/1998
190 TXU Europe Group PLC - TXU Europe Ltd.	U.K.	Electric services	0.0	11/19/2002	CC	10/16/2002	BBB+	10/09/1998
191 Genuity Inc.	U.S.	Computer related services (NEC)	2,000.0	11/27/2002	CC	08/19/2002	BBB+	10/30/2000

NEC—Not elsewhere classified. *Preliminary figure.

Table 17

List of 2002 Defaults (continued)

Company name	Country	Industry	Debt amount (Mil. \$)	Default Date	Next to last rating	Date of next to last rating	First rating	Date of first rating
192 Microcell Telecommunications Inc.	Canada	Communications services (NEC)	962.6	12/01/2002	CC	11/26/2002	B	10/02/1997
193 Net Servicos de Comunicacao S.A.	Brazil	Cable & other pay television services	97.7	12/01/2002	CC	10/28/2002	BB-	05/31/1996
194 Venture Holdings Co. LLC	U.S.	Motor vehicle parts & accessories	455.0	12/01/2002	CCC	06/03/2002	BB-	01/18/1994
195 UPC Polska Inc. - United Globalcom Inc.	U.S.	Cable & other pay television services	459.7	12/03/2002	CCC	11/30/2001	B+	06/15/1998
196 Conseco Finance Corp. - Conseco Inc.	U.S.	Mortgage bankers & correspondents	0.0	12/04/2002	CCC-	08/09/2002	BB+	06/07/1985
197 UAL Corp.	U.S.	Air transportation, scheduled	0.0	12/05/2002	CCC-	11/29/2002	BBB	12/31/1980
198 United Air Lines Inc. - UAL Corp.	U.S.	Air transportation, scheduled	1,759.2*	12/05/2002	CCC-	11/29/2002	BBB	12/31/1980
199 Air Wis Services Inc. - UAL Corp.	U.S.	Air transportation, scheduled	0.0	12/09/2002	NR	06/03/1993	BB	09/26/1985
200 FoxMeyer Health Corp.	U.S.	Drugs, proprietaries & sundries	0.0	12/11/2002	NR	01/13/1997	BB+	05/01/1986
201 SA Organizacion Coordinadora Argentina (OCA SA)	Argentina	Courier services, except by air	225.0	12/12/2002	NR	07/27/2001	B+	01/25/1999
202 Golden Northwest Aluminum Inc.	U.S.	Aluminum sheet, plate & foil	150.0*	12/15/2002	CC	06/26/2002	B+	08/17/1998
203 Key3Media Group Inc.	U.S.	Business services (NEC)	290.0*	12/15/2002	CCC-	11/14/2002	BB-	08/14/2000
204 NRG Northeast Generating LLC - NRG Energy Inc.	U.S.	Electric services	556.5*	12/15/2002	CC	09/16/2002	BBB-	02/28/2000
205 Focal Communications Corp.	U.S.	Telephone communications	684.5	12/19/2002	CC	11/22/2002	CCC	06/25/2002
206 Qwest Communications International Inc.	U.S.	Communications services (NEC)	15,500.0*	12/20/2002	CC	11/20/2002	BB-	03/13/1997
207 American Commercial Lines LLC	U.S.	Water transportation of freight (NEC)	134.7*	12/31/2002	CCC+	11/14/2002	B-	06/03/2002
208 Vantico Group S.A.	Luxembourg	Chemicals & allied products	0.0*	12/31/2002	CCC-	12/06/2002	B+	07/18/2000
26 companies were confidentially rated.			2,548.8					
Total			177,763.7*					

NEC—Not elsewhere classified. *Preliminary figure.

Fallen Angels: To Rise No More?

Analytical Contact: Brooks Brady, New York (1) 212-438-1503

The abundance of companies that have been downgraded from investment grade to speculative grade (known as fallen angels) and associated high profile investment grade defaults (*see table 1*) are among the most disturbing phenomena of the most recent credit trough. While the swift downgrades of prominent corporations such as WorldCom Inc. and Enron Corp. have captured headlines, not all fallen angels default as rapidly as these two. Indeed, some fallen angels, such as Kmart Corp. and Polaroid Corp., take years to default, while others such as USX Corp. and Kroger Co. have returned to investment grade status.

For the purpose of this study, a fallen angel is defined as a company that was once assigned an investment grade rating by Standard & Poor's ('BBB-' or higher) and is subsequently assigned a speculative grade rating ('BB+' or lower). Once a company is downgraded from investment to speculative grade, it remains a fallen angel until it defaults or until it is again rated investment grade. If a company was downgraded to speculative grade 10 years ago and continues to be rated speculative grade, it is considered a fallen angel for all 10 years. Although there are additional definitions of the term that are appropriate for various applications, this is the one that applies to this study.

Fallen angels may be divided into two categories: investment grade defaulters and fallen angel survivors. An investment grade defaulter is a company that was rated investment grade as of January 1 of the year in which it defaulted. WorldCom

Inc. and Enron Corp. are two examples of investment grade defaulters. A fallen angel survivor is a company that survived, without defaulting, past December 31 of the year in which it was downgraded to speculative grade. In other words, fallen angel survivors are those fallen angels that are not investment grade defaulters. Examples of fallen angel survivors include defaulters Kmart Corp. and Polaroid Corp. as well as rising stars USX Corp. and Kroger Co.

This study utilizes the CreditPro® 6.2 database (containing issuer-level rating histories for about 9,931 corporate issuers from Dec. 31, 1980 through Dec. 31, 2002) to compare, in terms of defaults and rating migration, the performance of fallen angels with the performance of companies that originally were rated speculative grade. In order to make the data set more homogenous, only issuers from the U.S. and Canada have been included.

As would be expected, fallen angels have been much more risky in the short term than other speculatively rated issuers, but fallen angels have been less risky over longer time horizons, although this assertion is tempered by recent data.

Obviously, fallen angels are not unique to this credit trough. In fact, on a percentage basis, there were more rated fallen angels during the early 1990s than there are now (*see chart 1*). What is new this time around is the large percentage of newly fallen angels that either defaulted (*see the investment grade default rate in chart 2*) or became fallen angel survivors (*see table 1*). Investment grade defaults and new fallen angels have

MORE ON OUR WEBSITE >>

For more information on defaults, visit www.risksolutions.standardandpoors.com. Click on Research from Risk Solutions and scroll to Default Research.

historically moved in line with speculative grade default rates, but this year they were out of proportion compared with historical averages.

RELATED THEORIES

Given recent headlines, one may assume that fallen angels are much more likely to default than are other speculatively rated issuers. In addition to anecdotal evidence, there are theories that back up such a claim.

One of these is the “seasoning effect” theory. The seasoning effect has been well-documented and states, in part, that a corporate issuer seldom defaults during the first couple of years after it accesses the public debt markets, no matter what initial rating it is assigned. Following this logic, fallen angels should be more likely to default than other issuers because they have had time to become seasoned and are riper for default than are younger issuers.

Table 1

Summary of One-Year Rating Transitions

Investment grade rating distribution at year-end						Speculative grade rating distribution at year-end					
Year	Jan. 1 investment grade	Investment grade (%)	Speculative grade* (%)	Defaulted** (%)	Rating withdrawn (%)	Year	Jan. 1 speculative grade	Investment grade*** (%)	Speculative grade (%)	Defaulted (%)	Rating withdrawn (%)
1981	1,055	97.54	1.33	0.00	1.14	1981	323	4.02	90.40	0.62	4.95
1982	1,086	93.83	2.95	0.18	3.04	1982	341	2.64	81.23	4.40	11.73
1983	1,124	93.59	1.69	0.09	4.63	1983	342	2.92	84.21	2.63	10.23
1984	1,199	93.58	2.17	0.17	4.09	1984	371	4.58	87.33	2.96	5.12
1985	1,227	93.32	3.10	0.00	3.59	1985	423	3.31	86.76	4.02	5.91
1986	1,358	89.62	3.83	0.15	6.41	1986	534	3.18	81.84	5.62	9.36
1987	1,361	90.08	2.87	0.00	7.05	1987	685	3.36	79.27	2.77	14.60
1988	1,389	92.22	2.66	0.00	5.11	1988	758	3.69	79.16	4.09	13.06
1989	1,472	93.21	2.79	0.14	3.87	1989	747	5.22	74.70	4.28	15.80
1990	1,534	94.98	1.89	0.13	3.00	1990	696	3.74	74.57	7.90	13.79
1991	1,604	95.95	1.93	0.19	1.93	1991	586	3.58	77.30	10.92	8.19
1992	1,779	96.18	1.46	0.00	2.36	1992	520	6.35	79.23	5.38	9.04
1993	1,965	92.77	1.53	0.00	5.70	1993	577	5.03	77.82	2.25	14.90
1994	2,127	95.53	0.61	0.05	3.81	1994	749	3.47	87.18	1.87	7.48
1995	2,435	95.93	0.74	0.08	3.24	1995	868	3.92	85.83	3.23	7.03
1996	2,587	94.55	0.54	0.00	4.91	1996	948	4.43	82.59	1.69	11.29
1997	2,792	93.80	1.40	0.11	4.69	1997	1,064	5.08	81.95	1.88	11.09
1998	3,023	91.96	1.82	0.13	6.09	1998	1,397	3.15	84.68	3.44	8.73
1999	3,141	92.90	1.31	0.13	5.67	1999	1,770	1.69	84.07	5.31	8.93
2000	3,214	93.37	1.52	0.16	4.95	2000	1,931	1.86	85.45	5.70	6.99
2001	3,301	92.94	2.42	0.24	4.39	2001	1,969	1.68	81.72	8.94	7.67
2002	3,427	92.15	4.09	0.50	3.27	2002	1,924	2.08	84.62	9.20	4.11
Average		93.55	1.95	0.13	4.36	Average		3.17	82.62	5.17	9.05

*Fallen angel survivors are fallen angels that survived to Jan. 1 of the year after they were downgraded. **Investment grade defaulters are companies that were rated investment grade Jan. 1 of the year in which they defaulted. ***Rising stars.

Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Chart 1

Fallen Angel Share of Speculatively Rated Issuers

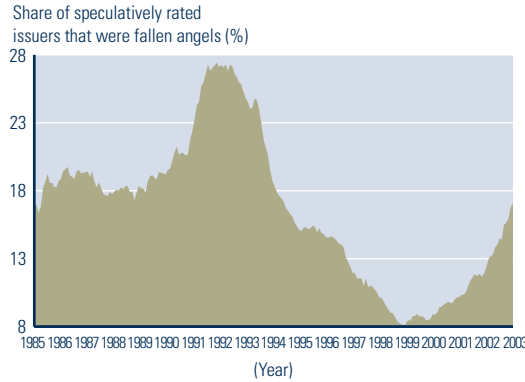


Chart 2

Investment Grade and Fallen Angel vs. All Speculative Grade Default Rates U.S. & Canada

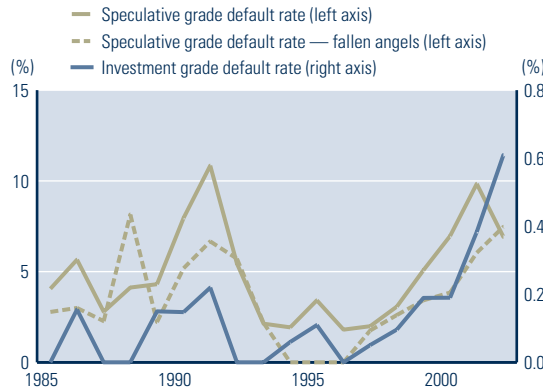


Chart 3

Fallen Angel vs. Originally Speculative Grade Issuers Quarterly Marginal Default Rate



Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Another theory that relates to fallen angels is the “momentum effect” theory. This theory states that recently upgraded or downgraded companies are likely to continue to transition in the same direction. (This is demonstrated in Bahar & Nagpal, “Dynamics of Rating Transition,” *AlgoResearch Quarterly*, March/June 2001, 71-91.) Following this logic, companies that have recently been downgraded have a greater likelihood of being downgraded again, and eventually defaulting, than companies that were upgraded or remained at the same rating level.

RESULTS

Many fallen angels default shortly after they are downgraded to speculative grade; however, the static pool methodology that Standard & Poor's uses to calculate its published default statistics cannot capture many of these fallen angels (namely, investment grade defaulters) in the time during which they are rated speculative grade. In order to address this issue, this study utilizes two types of analyses to compare the performance of fallen angels with that of other speculative grade companies. The first analysis uses a mortality rate calculation to compare fallen angel default rates with default rates for companies that were originally speculatively rated. The second analysis uses the static pool methodology to compare fallen angel survivor default rates and rating transition rates with those for all other speculative grade companies.

The mortality rate calculation described in Altman, “Measuring Corporate Bond Mortality and Performance,” *Journal of Finance*, Vol. XLIV, No. 4, Sept. 1989, estimates the cumulative rate of default for each rating category by tracking the default experience of issuers from the time when they were first assigned a rating. In order to accommodate fallen angels, the first downgrade to speculative grade is considered to be the first rating and all previous ratings are ignored. The mortality rate methodology does not take into account intermediate rating changes between the original rating (or the first fallen angel rating) and

default, but it does include investment grade defaulters, which are not captured by the static pool analysis described in the following section.

The results of the mortality rate analysis show clearly that fallen angels are more likely to default in the near term than are other speculatively rated issuers. In particular, chart 3 shows a spike the first quarter after companies become fallen angels. After a year or so, though, fallen angels become less prone to default than other speculatively rated issuers as the seasoning effect takes hold.

A cumulative mortality rate analysis, separating by rating (see chart 4), yields similar results. Historically, it has taken several years for cumulative mortality rates for companies that were originally rated speculative grade to catch up with cumulative mortality rates for fallen angels.

The mortality analysis provides convincing evidence in support of the theory

that fallen angels are more likely to default in the short term than are other issuers that were originally assigned a speculative rating. However, the mortality analysis also shows that, in the long run, fallen angels may actually have the same default rate as other similarly rated companies. This means that, as time progresses, fallen angels may in fact become less risky than their similarly rated cousins.

Fallen angel long-term default rates can be explained by the company's historical credit strength and by the economic conditions under which fallen angels exist. The fact that a fallen angel was once assigned an investment grade rating confirms that it was, at one time, quite solid. As time progresses, the characteristics of such a company may buoy it after the shock of being a fallen angel has passed.

In addition, economic conditions may help fallen angels to perform well. If fallen angels survive through a recession, they

would probably perform well through an expansion. There were a good number of fallen angels during the mid-1990s, when default rates were very low and upgrades outnumbered downgrades. These fallen angels, produced in the late 1980s and early 1990s, could have taken advantage of the expansion of the 1990s to repair their credit quality and merit return to the ranks of investment grade rated companies.

The second analysis utilizes the static pool methodology, which is described in Standard & Poor's annual corporate default study (see "Corporate Defaults Peak in 2002 Amid Record Amounts of Defaults and Declining Credit Quality—Hazards Remain"). The static pool methodology estimates the cumulative rate of default for each rating category by tracking the default experience of static pools of issuers defined on January 1 of each year. Static pools are essentially buy-and-hold portfolios, built each year, of cor-

Table 2

Average One-Year Transition Rates (U.S. & Canada, 1985-2002)

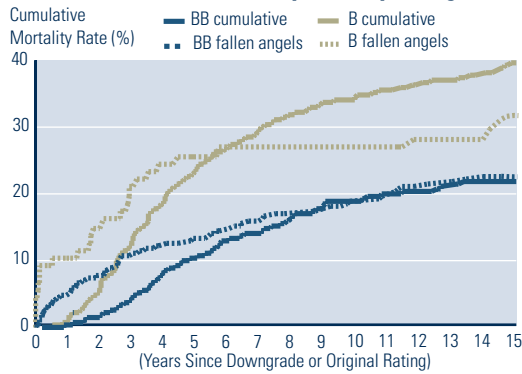
Jan. 1 rating	Rating at year-end (%)								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	91.59	4.13	0.32	0.09	0.09	0.00	0.00	0.00	3.77
AA	0.48	87.31	7.22	0.68	0.05	0.14	0.03	0.02	4.08
A	0.05	1.66	87.74	5.19	0.52	0.21	0.06	0.07	4.51
BBB	0.02	0.24	4.04	84.79	4.26	0.83	0.23	0.36	5.22
BB	0.04	0.07	0.38	5.90	76.86	6.60	0.86	1.25	8.04
B	0.00	0.09	0.23	0.33	4.83	74.24	4.36	6.18	9.74
CCC	0.12	0.00	0.35	0.71	1.77	8.83	49.35	27.09	11.78

Average One-Year Fallen Angel Survivor Transition Rates (U.S. & Canada, 1985-2002)

Jan. 1 rating	Rating at year-end (%)								
	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA*	92.50	0.00	0.00	2.50	0.00	0.00	0.00	0.00	5.00
AA*	5.56	77.78	5.56	11.11	0.00	0.00	0.00	0.00	0.00
A*	0.00	0.93	85.65	7.41	0.46	0.00	0.00	0.00	5.56
BBB*	0.00	0.19	3.26	84.67	5.56	1.15	0.10	0.38	4.69
BB	0.18	0.06	0.37	11.64	72.99	6.25	1.10	1.41	6.00
B	0.00	0.00	0.55	0.91	11.13	64.78	5.47	6.75	10.40
CCC	0.80	0.00	1.60	0.00	5.60	11.20	51.20	20.00	9.60

*Investment grade transition rates for fallen angel survivors are transition rates for fallen angels that became rising stars. N.R.—Not rated.
Source: Standard & Poor's Risk Solutions CreditPro® 6.2.

Chart 4
Fallen Angel vs. Original Rating
Cumulative Mortality Rates by Rating



Source: Standard & Poor's Risk Solutions CreditPro® 6.2

Chart 5
Fallen Angel vs. All Corporate Speculative Grade
Default Rates (U.S. & Canada, 1985-2002)

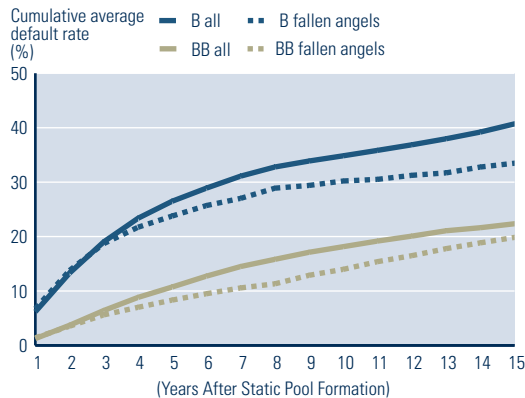
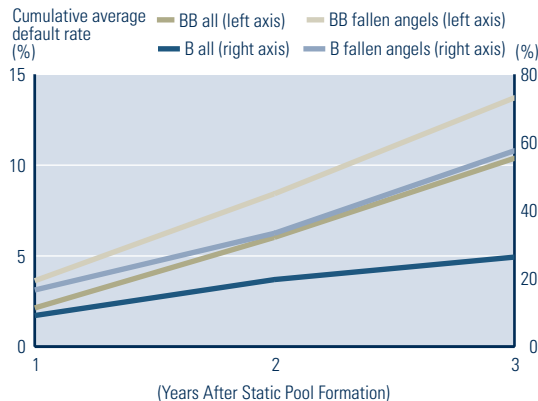


Chart 6
Fallen Angel vs. All Corporate Speculative Grade
Default Rates (U.S. & Canada, 2000-2002)



porate issuers rated the same. Investment grade defaulters are never assigned to a speculative grade static pool, so the static pool methodology allows only for a comparison of fallen angel survivors with other speculatively rated companies.

The results of the static pool analysis show that fallen angel survivors have a default rate very close to other speculatively rated issuers for the first couple of years, while fallen angels' performance is superior to other speculatively rated issuers over longer time horizons (see chart 5).

In addition to being less likely to default, fallen angel survivors have historically been more likely to be upgraded than issuers that were originally speculatively rated (see table 2). For example, 11.13% of 'B' rated fallen angel survivors have been upgraded to 'BB' from year to year while only 4.83% of other 'B' issuers have been upgraded over the same time horizon.

Contrary to average results since 1985, fallen angel survivors have not performed as well as other issuers during recent years. In fact, the cumulative default rate for fallen angel survivors has equaled or exceeded that of other speculatively rated issuers since 2000 (see chart 6). This suggests that fallen angel survivors may be more vulnerable to weakening economic conditions than other speculatively rated issuers.

CONCLUSIONS

This study provides confirmation of recent headlines reporting that fallen angels can be very risky, especially in the short run. The other side of the story, however, is that fallen angels may actually be less risky in the long run. The very characteristics that enabled fallen angel survivors to be rated investment grade in the first place may help them to avoid default and even return to their investment grade status if they survive the first couple of years after they become fallen angels. The recent market, however, has been unforgiving to fallen angel survivors, which are currently defaulting at a higher rate than are other speculatively rated issuers. However, when credit conditions improve, fallen angel survivors may outperform companies that were initially rated speculative grade. **CW**

Unsecured Bondholders Hit Hardest in 2002 Amid Declining Recovery Rates

Analytical Contacts: Roger J. Bos, CFA, *New York (1) 212-438-1504*

Another year of record defaults marks another year of declining recovery rates, both in terms of ultimate recovery (with bank loans achieving a 72% settlement value at time of emergence in 2002, compared with 73.6% in 2001 and an average 81.6% for 1988-2002) and in trading price recovery, based on an average price 30 days after default, according to Standard & Poor's LossStats™ Database. Although there are few signs of much improvement in recovery rates in 2003, the increasing pace at which companies are emerging from bankruptcy, as well as the bottoming out of the senior unsecured bond ultimate recovery rate, provides hope that 2003's results will not be significantly worse than today's numbers and that they should improve in 2004.

That the recent bank debt recovery results cited above are only 8%-10% below the 15-year mean is a result of banks continuing to structure debt better with higher quality collateral, more debt contractually subordinated to their position, the adjustment of covenants, and reduction of commitment levels earlier in the process.

Unsecured bondholders are not so lucky. The ability of secured debt holders to grab whatever collateral a company possesses has caused unsecured bond recovery rates for all other bondholders to fall through the floor. The ultimate recovery rate for senior

unsecured bonds was 28% for 2002, also much lower than the 1988-2002 average of 46%, but a bit of an improvement from the record low of 22.1% experienced in 2001. Senior unsecured recovery rates have varied widely over the past 10 years, rising to more than 75% in 1991 and 1995, and falling drastically in between. While the increase over the past year in senior unsecured ultimate recovery to 28% from 22.1% is promising, even a 28% recovery rate does not leave much room for recovery for all the senior subordinated, subordinated, and junior subordinated bonds that are contractually subordinated to senior unsecured debt.

For trading prices, the decline has been similar, if not even more dramatic. Bank loans had an average trading price of 53 cents on the dollar in 2002 versus 57 cents in 2001 and a 15-year average of more than 60 cents. Senior unsecured bonds had an average trading price of 21 cents on the dollar in 2002, slightly lower than the 24 cents of 2001 and well below the 38 cent average from 1988-2002.

Analyzing trading prices from default through emergence yields some interesting results. Trading prices for a particular class of instrument, such as senior unsecured bonds, tend to congregate around some average level, probably based on past recovery levels and recovery trends. Although there does not seem to be much

MORE ON OUR WEBSITE >>

For more information on defaults, visit www.risksolutions.standardandpoors.com. Click on Research from Risk Solutions and scroll to Default Research.

of a direct link between trading prices 30 days after default and the level of ultimate recovery, over time trading prices do usually converge with ultimate recovery rates. As more information becomes available through the disclosure filing and bankruptcy plan documents, the trading prices start to move to more informed levels, so the standard deviation of trading prices is usually much greater at emergence than it is 30 days after default.

Since 2001, however, the standard deviation of trading prices has been just as high 30 days after default as at emergence. There are a number of possible explanations for this. It may be that higher standard deviations among trading prices signify increased uncertainty, that increased supply of distressed debt allows buyers to be more discriminating, or that more information about possible recovery values is known earlier than in the past. Standard & Poor's will continue to investigate these possible explanations for reasons into why trading prices do not do a better job of predicting ultimate recovery. Whatever the reason, this is causing an across-the-board discount to be applied to all trading prices, causing trading prices to underestimate ultimate recovery.

Declining ultimate recovery rates for bank loans is a trend that Standard & Poor's has been observing for a number of years. On a five-year rolling basis, bank debt ultimate recovery rates have been declining since 1996. They have declined each year since 1995, with the exception of a small increase in 2000. The reduced ultimate recovery, however, does not seem to be the result of lower quality bank debt or any other type of questionable structuring, but rather the result of lower asset values for restructured assets. The amount of debt subordinated to bank debt—the debt cushion—has actually increased by a few percentage points over the last five years.

Collateral quality tells the same story. The percentage of bank debt collateralized by top-tier assets, such as all assets and current assets, has increased substantially. It appears as though banks have made a commitment to increasing the structural quality of their leveraged lending portfolio, in order

to offset dropping asset values and an increasing supply of restructured assets.

The same cannot be said for senior unsecured bonds, which are suffering from reduced structural quality in addition to the problems previously mentioned. Over the last five years senior unsecured bonds have experienced a decline in structural quality due to more bank debt being issued above them and less subordinated debt issued below them, providing them with much less of a debt cushion.

There does not seem to be much improvement on the horizon for trading price recovery rates in 2003. While Standard & Poor's expects defaults to decline this year, most bankruptcies take about 18 months to emerge, so there will continue to be a large supply of distressed assets, which will put downward pressure on their prices. The most notable industry in this respect is telecommunications services. As of the end of 2001, this segment constituted 29% of the dollar-weighted defaults waiting to emerge. By the middle of 2002 this number had fallen slightly, to 25%, but in the third quarter, with the filing of WorldCom, it rose to a record 35%. Excluding WorldCom, however, the number would fall to just under 16%. In addition, Qwest Communications is one of many telecom companies that are using distressed exchanges to extend maturities and reduce debt burdens in an attempt to avoid full-fledged bankruptcy. While distressed exchanges are still included in the LossStats™ Database as a default, they usually result in recovery rates that are above the average, and so are actually a positive sign. These trends, and the rapid pace at which telecom companies are emerging from bankruptcy, provide hope that as these assets work their way through the system there will be a return to somewhat higher recovery numbers.

Standard & Poor's Risk Solutions provides custom credit risk services, models, and data to assist financial institutions in measuring and managing risk. For more information about Risk Solutions or to be added to our mailing list, please write to us at riskolutions@standardandpoors.com and include full contact information. 

Recoveries of Defaulted U. S. Structured Finance Securities: Inception to June 30, 2002

Analytical Contact: **Joseph Hu**, *New York (1) 212-438-2491*

Robert B. Pollsen, *New York (1) 212-438-2577* **Roy Chun**, *New York (1) 212-438-2430*

Patrick Coyne, *New York (1) 212-438-2435*

Defaults of U. S. structured finance securities rated by Standard & Poor's proliferated during the 12-month period between July 1, 2001, and June 30, 2002. In last year's pioneer study of recoveries of defaulted structured finance securities, which covered a period between 1978 and June 30, 2001, only 114 credit classes had defaulted. These defaults were among the more than 15,000 credit classes rated during the study period (hereafter, the first study period). Over the ensuing 12 months (the second study period), however, when nearly 3,500 new credit classes were rated, an additional 64 credit classes were downgraded to 'D'. These incidences have brought the total number of defaulted U. S. structured finance securities rated by Standard & Poor's to 178.

This report updates last year's recovery study and examines recoveries of "newly defaulted" credit classes during the second study period. While the significant increase in new defaults was alarming, it is some consolation that these defaults so far show the potential for remarkably high recoveries. Also, as expected, the potential for recoveries of "old defaults" covered in the first study period had deteriorated during the economic recession of the second study

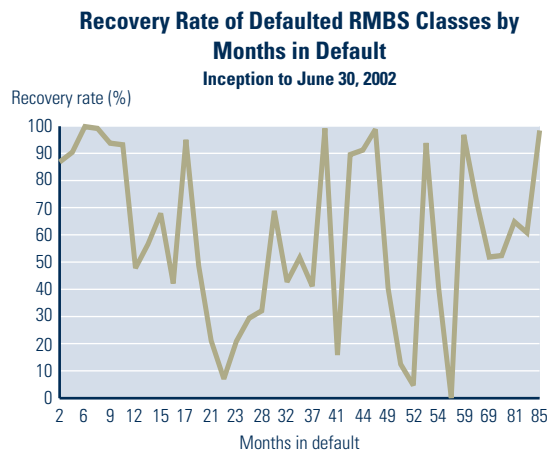
period. Despite anemic economic conditions, however, the deterioration for most defaults has been moderate.

A RECAP OF FINDINGS OF THE FIRST STUDY

As was pointed out in the report of the first study, Standard & Poor's definition of default is quite strict. A security (or, more accurately, "a credit class" of a structured finance transaction) is downgraded to a default rating, 'D', if it experiences an "interest shortfall," which is defined as missing a dollar of the scheduled interest payment. In addition, a credit class is downgraded to 'D' due to "erosion of principal," defined as "a loss at the transaction level that has fully eroded the credit protection for the credit class in question and caused it to experience principal loss."

The first study explained that, for structured securities, despite defaulted credit classes, surveillance still continues on the credit classes whose cash flow priority is senior to the defaulted credit classes. Because of this unique surveillance work, cash flow information is often available that can shed light on whether the defaulted credit class actually receives any cash flow of interest and/or principal.

The recovery rate (or simply recovery) of a defaulted credit class was defined in the



first study as the amount of principal that its certificateholders have received cumulatively since issuance plus the remaining unpaid principal balance, as a percent of the original principal at the end of the study period. Algebraically, this number is derived by subtracting from one the “cumulative loss as a percent of original principal.” This number is the single most important credit performance statistic for all credit classes of structured finance transactions. The first study emphasized that this definition “focuses on the percentage of original principal returned, ignoring the receipt of interest payment.” Further, the study noted that the recovery, as defined, reflects the most optimistic scenario as the “maximum possible recovery” because most defaulted credit classes have not yet reached their final maturity dates. Until then, additional principal losses are possible. However, since the definition does not consider interest cash flow, which is a part of the bond price, the recovery rate could be substantially lower than the liquidation price quoted in the secondary market for the defaulted class.

The first study grouped structured finance securities into three categories: RMBS, CMBS, and ABS. For RMBS, which were first rated back in 1978, total defaults during the first study period amounted to 83. Their recoveries averaged 61%. For CMBS, whose rating history dates back to 1985, total defaults for the first study period were only 14, with an

average recovery rate of a more significant 66%. ABS, also with an inception year of 1985, had the lowest recovery rate during the first study period with 17 defaults and an average recovery of 29%. The study found that, except for RMBS defaults, recoveries did not appear to have a positive relationship with the original credit ratings. Neither do they have, with any exception, any correlation with the duration of default, measured by “months in default.” The study did, however, expect recoveries to deteriorate through time.

PARAMETERS OF THE PRESENT STUDY

The present study analyzes recoveries of all defaulted structured finance securities as of June 30, 2002. This analysis, which retains all definitions and methodology of the first study, comprises three parts:

- First, it updates recoveries of defaulted credit classes that were identified in the first study by analyzing their cumulative losses and maximum possible principal paid to the defaulted classes, as of June 30, 2002.
- Second, it renews the search of documents (distribution reports provided by trustees or servicers) to broaden the availability of cash flow information for defaulted classes that was previously believed to be “not available.” The search actually went beyond distribution reports to include worldwide Web site reports (such as atedgar.com) that could provide cash flow information on issuers of structured finance securities that were special-purpose entity subsidiaries of bankrupted corporations.
- Third, it identifies and assesses recoveries of newly defaulted credit classes during the second study period, as of June 30, 2002.

In light of the strong recoveries identified in the first study, Standard & Poor’s has decided to resume surveillance on defaulted classes by monitoring their cash flow conditions. In fact, defaulted credit classes that resulted from interest shortfalls have been reviewed for possible upgrades if their shortfalls have been corrected. Although this aspect is not covered in the present study, it is important to point out that, going forward, a ‘D’ rated credit class could be upgraded. Consequently the total

number of defaults identified in the present study could decrease in future updates.

MODERATE DETERIORATION FOR RMBS RECOVERIES

During the second study period, July 1, 2001 to June 30, 2002, RMBS experienced 19 defaults. This significant increase brought the total number of defaulted credit classes to 102 for the period of 1978 to June 30, 2002 (see table 1). All these 19 newly defaulted classes in the second study period had the documentation of distribution reports from servicers or trustees indicating their receipts of principal or interest cash flows. They averaged an impressive recovery rate of 87%. Of the overall total of 102 defaults, 89 have cash flow documentation. As of June 30, 2002, those 89 defaults showed an average recovery rate of 60% (see table 2).

The original ratings of the 19 defaulted classes covered a full range from 'AA' to 'CCC'. Their recoveries were remarkable in that only one credit class, which had an original rating of 'B' and was backed by subprime mortgages, suffered a zero percent recovery (i.e., 100% loss) of principal. The other 18 recorded recoveries ranged between 56% and 100%, averaging 87%. One reason for this impressive recovery record is that these credit classes were defaulted for less than one year. The potential to recover a substantial amount of principal is high due to the large unpaid principal balances remaining on most of the newly defaulted classes.

For those classes that were already in default during the first study period, recoveries on average deteriorated by four percentage points (from 58% to 54%) during the second study period. As originally reported in the first study, the average recovery rate of these defaulted classes was 61%. However, through confirmation and update, this average was revised to 58% as of June 30, 2002. Specifically, the update of the first study consisted of the following steps:

- Reconfirming the 83 total defaults in the first study period.
- Discovering cash flow documents for 21 defaulted classes that previously were classified as "information not available"

and are now in the category of "showing losses." This discovery brought total defaulted classes with discovery information for the first period to 70. As of June 30, 2002, these 70 defaulted classes averaged a 52% recovery rate.

- Revising, as needed, recovery averages for the initial period. As of June 30, 2002, the 49 defaulted classes that had recovery data during the first period averaged a recovery rate of 54%, a drop of four percentage points from the (revised) average recorded for the first study period. While an average of a four-percentage-point deterioration seems significant, it should be noted that this average was increased by only a few defaults that experienced substantial decline in their recovery potential. Actually, 34 of the 49 defaults experienced no change and an additional eight had only a modest decline in their recoveries, ranging between 1% and 4.9% and averaging 3.4%. The remaining seven old defaults underwent a wide range of deterioration of between 5% and 46%, averaging 25%.

Consistent with the findings of the first study, recoveries appeared to have a positive relationship with the original credit ratings of the defaulted RMBS credit classes. Table 2 shows that the three classes that were originally rated 'AAA' had the highest recoveries. They were followed by defaulted classes that were originally rated 'AA', 'BBB', and 'A'. Classes that were originally rated 'BB' had the same average recovery rate as the 'BBB' rated classes, but substantially higher than 'B' rated classes. Although the only

Table 1

Summary Count of Defaults of Structured Finance Securities by Asset Type, Inception to June 30, 2002

Periods*	ABS	CMBS	RMBS	Total
First period: inception to June 30, 2001	17	14	83	114
Second period: July 1, 2001, to June 30, 2002	27	18	19	64
Total, inception to June 30, 2002	44	32	102	178

*The inception dates are: 1985 for ABS, 1985 for CMBS, and 1978 for RMBS.

Table 2

Recoveries of Defaulted RMBS Classes by Underlying Collateral and Original Credit Rating

As of June 30, 2002*

Original rating	—Prime—		—Subprime—		—Title I†—		—High LTV loans—§		—Defaults with recoveries—		—Total defaults—
	Count	Recovery rate (%)	Count	Recovery rate (%)	Count	Recovery rate (%)	Count	Recovery rate (%)	Count	Recovery rate (%)	Count
AAA	3	96							3	96	3
AA	19	75			1	73			20	75	26
A	2	55	1	87					3	66	9
BBB	9	66	6	61	1	98	1	77	17	67	18
BB	8	61	6	74			1	76	15	67	15
B	22	47	8	7					30	36	30
CCC	1	100							1	100	1
Total/Average	64	63	21	45	2	85	2	77	89	60	102

*Of the total 102 defaults, 89 have information available for the recovery computation. †Title I RMBS are backed by FHA-insured home improvement loans. §High LTV loans are those with LTV ratios exceeding 100%.

Table 3

Recoveries of Defaulted CMBS Classes by Original Credit Rating

As of June 30, 2002

Original rating	—Defaults with recovery—		Total defaults
	Count	Recovery rate (%)	Count
AA	1	89	3
A	1	0	3
BB	9	97	10
B	16	79	16
Total/average	27	83	32

‘CCC’ rated class that defaulted enjoyed a 100% recovery, it had only a six-month default history.

The measurement of “months in default,” however, does not necessarily indicate the magnitude of recovery. Months in default is measured by the length of time between the default date and the “as of” evaluation date. As revealed in the first study, recovery was not negatively affected by the age of default. For example, the accompanying chart demonstrates that a credit class that has defaulted for only 22 months had a 7.1% recovery rate, whereas another one with a 59-month default experience still enjoyed a 99.8% recovery. Nevertheless, against this background, it is

important to reiterate that the recovery performance of a specific defaulted class is likely to diminish through time.

IMPRESSIVE RECOVERIES FOR CMBS

Defaults among CMBS credit classes increased sharply to 18 during the second study period, exceeding the 14 defaults recorded during the 16 years between inception and June 30, 2001. While in terms of head count the incidences of default between July 1, 2001, and June 30, 2002, was alarming, it is consoling that they were all originally rated no higher than ‘BB’, i.e., noninvestment grade. Further, all but two—one rated ‘BB’ and the other ‘B’—were downgraded to ‘D’ due to

interest shortfall with zero loss of principal. At the end of the second period, the 18 defaulted classes had an average recovery rate of a whopping 98%.

The impressive recovery performance of the newly defaulted CMBS classes markedly improved the average recovery rate of all since-inception defaulted classes. As of June 30, 2002, there were an overall total of 32 defaulted credit classes among CMBS. Of these, only 27 had cash flow information for the recovery assessment, and they averaged a recovery rate of 83% (see table 3). This was by far the strongest recovery rate among all three sectors of structured finance securities (RMBS, CMBS, and ABS). However, there was still a significant deterioration of recovery among the “old defaults.” The update shows that recoveries of those defaulted classes, which averaged a 66% recovery rate at the end of the first period, dropped to an average of 52% at the end of the second period. This huge drop actually was the

result of recovery deterioration of two defaults: one went from 99% to total loss and the other suffered a 14-percentage-point decline. All other defaults experienced no deterioration in recovery.

For CMBS, the size of recovery had neither a positive nor a negative relationship with the original rating. Neither did it have any significant statistical relationship with months in default. The highest average recovery rate of defaulted classes had an original rating of ‘BB’, followed by ‘AA’ and ‘B’ original ratings. One default originally rated ‘A’ had no recovery. There is a random relationship between months in default and recoveries. For example, a class that has been in default for only 20 months had a recovery rate of 21%, whereas a class in default for 39 months had a recovery rate of 98%.

PROLIFERATION OF ABS DEFAULTS WITH MODEST RECOVERIES

During the 12 months of the second study period, defaulted ABS credit classes

Table 4

Recoveries of All Defaulted ABS Credit Classes by Initial Credit Rating and Collateral

Inception to June 30, 2002									
Original rating	—Subprime auto loans—		—Credit cards—		—CDOs—		—Franchise loans—		Total defaults
	Count	Recovery rate (%)	Count	Recovery rate (%)	Count	Recovery rate (%)	Count	Recovery rate (%)	
AAA			2	93					
A			2	0			6	98	
BBB							4	78	
BB	1	N.A.			1	N.A.	6	50	
B							5	60	
Total/average	1	N.A.	4	47	1	N.A.	21	71	
Original rating	—Manufactured housing loans—		—Synthetic securities—		—Nonperforming loans—		—Defaults with recoveries—		Total defaults
	Count	Recovery rate (%)	Count	Recovery rate (%)	Count	Recovery rate (%)	Count	Recovery rate (%)	
AAA							2	93	2
A			1	N.A.	9	6	17	38	18
BBB			6	10			10	37	10
BB	1	24					7	46	9
B							5	60	5
Total/average	1	24	7	10	9	6	41	45	44

N.A.—Not available.

soared to 27, far outpacing the 17 defaults experienced over the prior 16 years. Franchise loans alone accounted for 16 of the 27 new defaults. For the first time, credit classes backed by credit cards and manufactured housing loans also suffered defaults. Two of the credit card defaults were originally rated 'AAA', and two, 'A'. In addition, six credit classes of synthetic securities, which are in the form of credit default swaps indexed to corporate (Enron) bonds, were downgraded to 'D' during the second study period. Recoveries for the defaulted synthetic securities were estimated at an average of 10 cents on the dollar since that was the indication in the secondary market where the senior defaulted Enron bonds traded. (When the indexed bond for the credit default swap goes into default, the trust can either take the physical delivery of the defaulted bond or settle for cash to liquidate the bond. Either way, the recovery is approximately the liquidation price of the bond.) All told, these 27 new ABS defaults had a respectable average recovery rate of 62%.

The relatively strong recoveries of the newly defaulted credit classes lifted the average recovery rate of all since-inception defaults, but concealed the poor recovery performance of old defaults. As of June 30, 2002, recoveries of the overall total of 44 defaulted ABS credit classes, where 41 had recovery estimates, averaged 45% (see table 4). This was 34 percentage points better than the revised average recovery rate of 11% for the 14 old defaults covered in the first study.

The 14 old defaults primarily consisted of nonperforming loans and franchise loans. It should be noted here that the update discovered double counting of old defaults that there were actually only nine nonperforming defaults and five franchise loan defaults with an average recovery rate of 11%. Originally, 10 and seven of these defaults, respectively, were reported with an average recovery rate of 29%. During the 12 months of the second study period, the recovery rate of all defaulted nonperforming loans was continually estimated at 7%. These defaults were caused by fraud, and the update has retained

the original estimate of a 6% recovery rate indicated by the bankruptcy filing. Additionally, there was a 1% of principal paydown for the nonperforming defaults prior to the bankruptcy. However, the defaulted franchise loan classes suffered a marked deterioration of recovery as principal erosion progressed aggressively. The recovery rate averaged only 18%, compared with 45% in the first study period.

The update also detected that, for ABS, the deterioration of recoveries tends to be inversely associated with their original ratings. Among the franchise loans, the 'A' rated class experienced only an eight percentage point decline in the recovery rate from 100% to 92%, despite being downgraded to 'D' in 1996. Two 'BB' rated classes, both defaulted in 1998 and originally showing 72% and 52% recovery rates, by now are completely wiped out. Finally, two 'B' rated classes already had a 100% loss during the first period.

RESPECTABLE OUTLOOK FOR FUTURE RECOVERIES

In the midst of extensive press coverage on downgrades and defaults of fixed-income securities, it is important to point out the relative scarcity of defaults among structured finance securities. Among more than 18,500 U.S. structured finance credit classes rated by Standard & Poor's over the past nearly 25 years, cumulatively only 178 have defaulted. More significant, this report has confirmed the resiliency of structured securities in that most defaulted credit classes are still very much alive, with the potential of receiving respectable amounts of interest and principal cash flows.

Further, even during the economic recession that characterized most of last year, recoveries of most defaulted credit classes deteriorated only moderately. This recovery potential provides evidence that, going forward, with the credit performance of structured securities improving in stronger economic conditions, investors in defaulted credit classes can expect to recover a significant portion of their investment.

The authors gratefully acknowledge the assistance of Jay Elengal and Peter Salem. 

MORE ON OUR WEBSITE >>

For more information on defaults, visit www.risksolutions.standardandpoors.com. Click on Research from Risk Solutions and scroll to Default Research.

Initial Trading Price: Poor Recovery Indicator for Defaulted Debt

Analytical Contact: Roger J. Bos, CFA, New York (1) 212-438-1504

The initial trading price of defaulted debt is not a reliable indicator of ultimate recovery, according to data recently compiled by Standard & Poor's.

The data, covering the last 15 years, suggest that the widespread industry practice of using initial trading prices at default as an indicator of the money to be ultimately collected for defaulted debt is off the mark, and that trading prices may be more influenced by market mentality, supply and demand factors, and the volatility around returns than previously assumed.

Specifically, the findings show that initial trading prices for better-structured defaulted bank debt, obligations senior to at least 50% of an obligor's total debt, were subject to a deeper discount relative to ultimate recovery than the other, less well-structured, part of the portfolio, running counter to the conventional "risk/reward" wisdom.

Looking only at the subset of the LossStats™ Database for which Standard & Poor's has both trading price data and ultimate recovery, trading price data are ineffective in differentiating between bank loans that have significant debt cushions and those that do not, despite Standard & Poor's research showing that better structured debt, on average, has a significantly higher ultimate recovery rate than less well-structured debt. While better structured

bank loans in Standard & Poor's database traded for 60.9% of face value 30 days after default and were worth 71.9% at ultimate recovery, the less well-structured loans traded at 58.3% after default and 63.8% at recovery (table 1).

These two recovery methodologies serve distinctly different segments of the fixed income market. Those working in structured finance and derivatives focus primarily on trading prices while portfolio managers and distressed debt traders need the extra level of analysis provided by ultimate recovery. Portfolio managers for collateral debt obligations (CDOs) are often required to trade out of defaulted securities regardless of their recovery potential, thus leading to trading prices 30 days after default that reflect supply and demand forces rather than true ultimate recovery values. This provides an opportunity for distressed debt traders to purchase better structured instruments that may be underpriced due to their required disposal from CDOs. During the bankruptcy process, as more information is released, such as the reorganization plan, the trading prices eventually move fairly close to the level of ultimate recovery.

As table 1 shows, while the ultimate recovery on better structured debt was consistently significantly higher than the ultimate recovery for worse structured debt, the initial trading price at default of better

structured defaulted debt was not significantly higher than the initial trading price of less well-structured defaulted debt.

The last five years have been particularly bad for distressed securities. Comparing the results of table 3 with those of table 2 shows that for all instruments, the average ultimate recovery rate over the past five years has been significantly lower than over the past 15 years. While the declines have been across the board, the main trend is that the lower an instrument's seniority, the more its ultimate recovery rate has decreased.

The general decrease in recovery rates over the past five years is due to a combination of causes. High default rates, which have been pervasive in the last five years, cause a surplus of distressed assets to become available, thereby reducing liquidating values.

The second explanation for lower recovery rates is structure. The greater decrease in recovery rates experienced by lower seniority instruments is due to those instruments being more poorly structured than in the past. Bank loans have not fallen as much in relative terms over time. This is due to the fact that these instru-

ments are actually, on average, better structured than in the past.

Standard & Poor's measures structural quality by two characteristics: collateral and debt cushion. An instrument's debt cushion is the percentage of debt that is contractually subordinated to it, and thus acts as a buffer should default occur. Chart 1 shows that the average debt cushion for senior unsecured bonds from 1988 to 1997 was 20.8% and only 7.7% on average for the last five years. Similarly, the average percentage of debt above senior unsecured on the balance sheet rose from 17.5% in 1988-1997 to 22.9% in 1998 through the third quarter of 2002.

Similar data for bank loans (chart 2) tells a different, more encouraging story. The debt cushion of bank loans has increased to more than 49% in the past five years from a little more than 46% in the preceding 10 years. In addition, the percentage of bank loans that are collateralized by "highest quality" assets—such as all assets or current assets—has increased almost 15% to more than 75% on average for 1998 through the third quarter of 2002 from almost 61% on average from 1988 to 1997. Finally, the proportion of bank loans

Table 1

Bank Loan Recovery Rates		
	Debt cushion less than 50%	Greater than or equal to 50%
Nominal ultimate recovery (%)	63.8	71.9
Trading price (%)	58.3	60.9

Table 2

Discounted Ultimate Recovery (1988-Q3 2002)			
	Recovery	Standard deviation	Observations
Bank debt (%)	81.6	27.7	612
Senior secured notes (%)	67.0	32.8	216
Senior unsecured notes (%)	46.0	36.1	315
Senior subordinated notes (%)	32.4	33.3	310
Subordinated notes (%)	31.2	35.1	343
Junior subordinated notes (%)	18.7	29.9	40

that have both a debt cushion of more than 50% and are collateralized by highest quality assets rose to 40.1% from 37.9% from the earlier time period to the next. These data indicate that banks have made a concerted effort over the past five years to increase the quality of their loan portfolios and that the reduction in bank loan recovery rates is not due to more lenient lending standards.

Lastly, recovery should not be viewed as just a number. Recovery is the timing and behavior of settlement as well. Standard & Poor's will soon be releasing a study detailing its analysis of new instruments received in settlement and how long it takes for these instruments to be converted to cash. At emergence, holders of defaulted debt can receive instruments of the same quality, higher quality, or lower quality. For example, if a senior unsecured bondholder received a new senior secured bond in settlement, this would constitute a higher quality instrument. Table 4 summarizes the quality of instruments received in settlement from 1988 through the third quarter of 2002. Bank loan settlements are fairly evenly distributed in all three categories, whereas senior secured and senior unsecured bonds have a much greater chance of receiving a lower-quality instrument in settlement. (An instrument that would represent an improvement over a bank loan is cash.)

It is only through an analysis of ultimate recovery that these trends emerge. Therefore Standard & Poor's LossStats™ Database provides an extra level of analysis for holders of defaulted instruments to draw upon when developing their trading decisions. Furthermore, ultimate recovery provides a measure of true economic loss, while recovery based on trading prices is only a measure of paper loss at a point in time.

The LossStats™ Database provides this new information on pricing to supplement the extensive tracking of ultimate recovery Standard & Poor's has been conducting for 15 years. The database tracks trading prices of 758 bank loans and corporate bonds. The database, which spans 1988 through the third quarter of 2002, tracks

Chart 1
Declining Structural Quality of Senior Unsecured Bonds

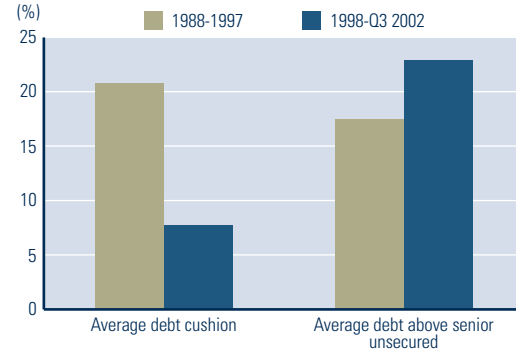


Chart 2
Improving Structural Quality of Bank Loans

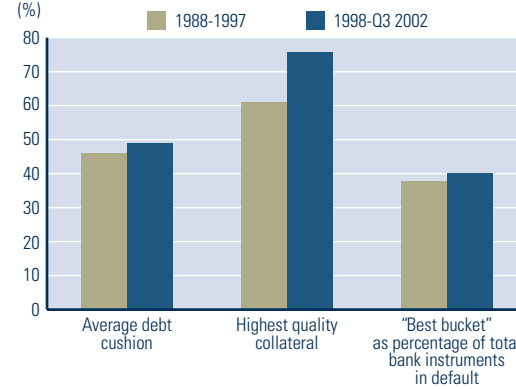
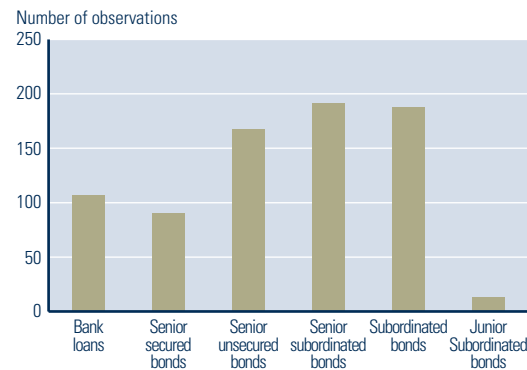


Chart 3
Breakdown of Trading Price Data by Instrument Type



trading prices on a periodic basis during the months between the onset of default and the final determination of recovery. Some 107 bank loans are included, as are 651 bonds with levels of subordination ranging from senior secured through junior subordinated (*chart 3*).

Standard & Poor's LossStats™ Database is primarily a database of ultimate recovery, which measures the actual value of cash and/or instruments received at settlement when a company emerges from default. In addition, Standard & Poor's has collected the trading price histories from default to emergence for a large subset of this database in order to better understand the relationship between the recovery rate indicated by the trading prices 30 days after default and the ultimate recovery received at emergence. The Standard & Poor's LossStats™ Database has more than 1,900 debt instruments issued by about 500 U.S. companies that have defaulted and emerged since 1988. The database presents detailed information on the type of debt, its seniority on the balance sheet, its collateral, industry, coupon, and maturity, and its nominal and discounted ultimate recovery value.

Nominal ultimate recovery is determined from one of three methods:

- Emergence price: the trading price of pre-petition instruments at the time of their emergence.
- Settlement price: the earliest available public trading price of new instruments received as a result of settlement.
- Liquidity event price: the value received as a result of an acquisition, refinancing, further bankruptcy, distressed exchange, or other event that converts a settlement instrument to cash.

The discounted ultimate recovery is calculated by discounting the nominal ultimate recovery by the instruments' pre-petition interest rate. The discounting time frame is from emergence back to the last date on which a cash payment was made. All the recovery statistics mentioned in this article are discounted ultimate recovery.


Looking beyond instrument seniority, Standard & Poor's concludes that debt cushion and collateral quality provide significant additional detail that allows users of the LossStats™ Database to derive better estimates of expected recovery rates and their associated standard deviations. 

Table 3

Discounted Ultimate Recovery 1998-03 2002			
	Recovery	Standard deviation	Observations
Bank debt (%)	74.3	31.4	272
Senior secured notes (%)	47.2	36.9	40
Senior unsecured notes (%)	31.8	33.7	167
Senior subordinated notes (%)	16.1	26.7	99
Subordinated notes (%)	15.0	24.7	55
Junior subordinated notes (%)	2.5	4.1	4

Table 4

Quality of Instruments Received in Settlement (1988-03 2002)			
	Improved	Remained the same	Declined
Bank loan (%)	35	34	31
Senior secured bond (%)	24	31	45
Senior unsecured bond (%)	21	9	70

EU Default Rate Maintains Lead Over Its Global Counterparts

Analytical Contacts: Diane Vazza, New York (1) 212-438-2760

Devi Aurora, New York (1) 212-438-1359 Brooks Brady, New York (1) 212-438-1503

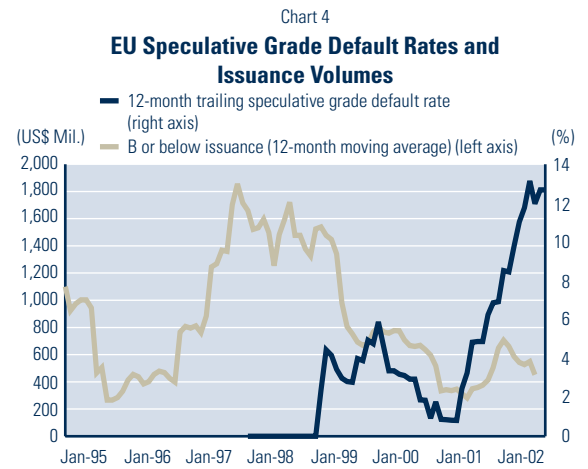
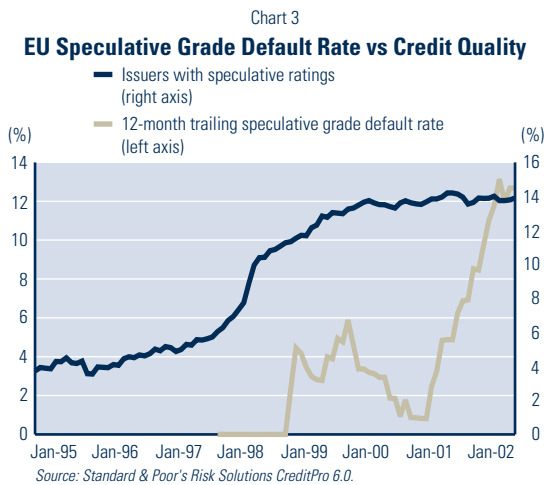
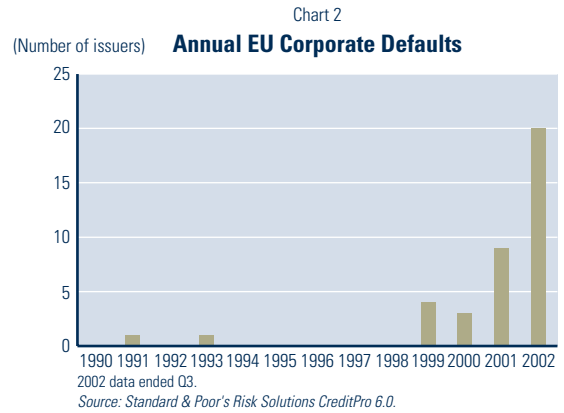
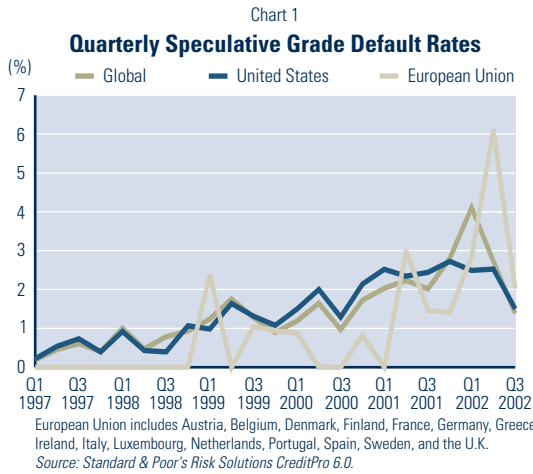
Agnes de Petigny, Paris (33) 1-4420-6670 Barbara Ridpath, London (44) 20-7826-3585

The speculative-grade default rate in the European Union (EU) continued to outpace its global and U.S. counterparts during the third quarter. The EU recorded a quarterly default rate of 2.03% in the third quarter compared with a rate of 1.50% in the U.S. and a global rate of 1.39% (see chart 1). A quarter earlier, the EU default rate came in at 6.12% compared with 2.52% for the U.S. and 2.73% globally. A spurt of speculative-grade issuance in previous years combined with continued challenging conditions for telecommunications issuers kept EU default rates high. The creditworthiness of European firms remains under pressure from increased liquidity risk, since bond markets are inaccessible for many issuers at a time when banks are increasingly selective in their lending decisions. Continued pressure on credit quality in the third quarter suggests that EU default rates will likely remain high for the remainder of the year, but moderate next year, after many of the weaker companies have defaulted. Moreover, the typical three-year lag between issuance and defaults suggests that the tapering of speculative-grade issuance since 1999 will lead to reduced default volume next year. An improvement in corporate credit quality will be constrained if balance sheet repairs, exacer-

bated by uncertain cash flows and highly volatile equity markets, take longer than expected.

Year-to-date, a total of 20 rated EU entities (including issuers with confidential ratings and those not rated at the time of default) have defaulted on rated obligations worth US\$8.7 billion, already exceeding the total number of companies that have defaulted in the entire prior history maintained by Standard & Poor's (see chart 2). The record volume this year is attributable both to the high volume of lower rated companies that came to market in recent years and to deteriorating economic conditions. In particular, liberalization of the European telecommunications sector spawned the formation of many of the telecommunications companies that appear on the list of defaults. The three defaults occurring in the third quarter were German cable operator Callahan Nordrhein-Westfalen GmbH, Netherlands-based telecommunications operator Song Networks N.V., and U.K.-based consumer products company Texon International PLC. Each of the three defaulting issuers was initially rated speculative grade. Table 1 shows a list of all the defaulting EU companies year to date.

Nineteen of the 20 issuers defaulting this year were initially rated speculative grade. Forty-five percent were rated 'B'



or below at their initial rating and only one—the U.K.-based Equitable Life Assurance Society—received an initial investment-grade rating of ‘AA’. This default was related to Equitable Life’s restructuring of its liabilities in a way that led to selective default on some of its contractual obligations, notably to its guaranteed annuity rate policyholders. Of the EU companies defaulting year to date, the proportion of defaulted issuers with initial ratings of ‘B-’ or below was 35%. Meanwhile, 24% of all global defaults received an initial rating of ‘B’ or below (13% received ‘B-’ or below).

Among the total defaults recorded this year, the average number of years elapsed between the initial rating date and the default was 3.1 years; however, all but five firms had an elapsed period of three years or less to default.


Meanwhile, the trailing 12-month EU speculative-grade default rate—which captures the proportion of firms that defaulted over the previous 12-month period among the universe of companies rated speculative-grade by Standard & Poor’s 12 months earlier—was recorded at 12.7% at the end of September, still close to its record highs (see chart 3).

List of EU 2002 Defaults

Company name	Country	Industry	Rated debt amount (US\$ Mil.)	Default date	Next to last rating	Next to last rating date
Atlantic Telecom Group PLC	U.K.	Telecommunications	289.2	01/02/2002	CC	10/10/2001
Global Crossing Ltd.-Global Crossing BidCo. Ltd.	U.K.	Telecommunications	0.0	01/28/2002	N.R.	08/13/2001
Equitable Life Assurance Society (The)	U.K.	Insurance	0.0	02/28/2002	CC	02/21/2002
IFCO Systems N.V.	Netherlands	Aerospace/automotive/ capital goods/metals	176.6	03/15/2002	CCC	02/27/2002
Energis PLC	U.K.	Telecommunications	805.5	03/15/2002	CCC-	02/21/2002
NTL Inc.-NTL Business Ltd.	U.K.	Leisure time/media	0.0	04/01/2002	CCC-	03/28/2002
NTL Inc.-Diamond Cable Communications PLC	U.K.	Leisure time/media	1543.1	04/01/2002	CCC-	03/28/2002
Company name omitted (confidential ratings)			0.0	04/08/2002	N.R.	07/28/2000
Grapes Communications N.V.	Italy	Telecommunications	176.6	04/16/2002	CC	11/12/2001
Company name omitted (confidential ratings)			0.0	04/19/2002	N.R.	07/28/2000
Kirch Group-KirchPayTV GmbH & Co. KGaA	Germany	Leisure time/media	0.0	05/08/2002	N.R.	07/28/2000
Company name omitted (confidential ratings)			0.0	05/17/2002	B+	11/10/2000
KPNQwest N.V.	Netherlands	Telecommunications	1418.5	05/23/2002	CCC-	04/25/2002
CompeTel Europe N.V.	Netherlands	Telecommunications	509.3	05/29/2002	CC	03/07/2002
Ispat International N.V.	Netherlands	Aerospace/automotive/ capital goods/metals	0.0	05/31/2002	CC	01/25/2002
Jazztel PLC	Spain	Telecommunications	686.2	06/13/2002	CC	04/16/2002
Versatel Telecom International N.V.	Netherlands	Telecommunications	1517.5	06/19/2002	CC	04/03/2002
Callahan Nordrhein-Westfalen GmbH	Germany	Leisure time/media	1256.1	07/19/2002	CCC	05/24/2002
Song Networks N.V.	Netherlands	Telecommunications	172.3	08/01/2002	CC	07/10/2002
Texon International PLC	U.K.	Consumer/service sector	123.3	08/01/2002	N.R.	02/01/2002
	Total		8674.1			

Total is preliminary. NTL Inc.-NTL Business Ltd. has missed interest payment but may make payment within grace period. NTL Business Ltd. is a U.K.-based subsidiary of U.S.-based NTL Inc. NTL Inc.'s operations are mostly in Europe but the defaulting amount of US\$10.8 billion is attributed to the U.S. because of the parent company's incorporation. NR—Not rated.

The current rise in default rates is attributable both to the visible spike in lower rated issuance volume (particularly at rating designation 'B' and below) beginning in 1997 and ending in 1999, as well as the tangible increase in the number of EU issuers with speculative-grade ratings (see charts 3 and 4). Since a peak in defaults typically occurs three years after the peak in speculative-grade issuance, the increased volume in defaults today can be traced back to the burst of speculative-grade issuance in the late 1990s. This year, credit quality concerns among investors and weak demand for capital spending has led to

a noteworthy deceleration of issuance at these lower rated levels. Still, the proportion of speculative-grade ratings in the total rated universe remains high, due to the presence of a record number of "fallen angels"—issuers that move from investment to speculative grade. In the third quarter alone, seven "fallen angels" were recorded in the EU, setting a historical record. Chart 3 shows that the proportion of EU issuers with speculative-grade ratings experienced a spectacular increase to 14.2% in September 2001 from 3.7% in December 1995, before falling to 13.9% in September 2002. 

International Sub-Sovereign Ratings Study Update Highlights Sectoral Stability

Analytical Contacts: Susan Riska, London (44) 20-7826-3526
Carol Sirou, Paris (33) 1-4420-6662

Standard & Poor's has updated its data for international, local, and regional governments' (ILRG) rating performance and for ILRG defaults through the end of 2002.

In general, the data continues to support the conclusions that:

- ILRG ratings are robust predictors of default;
- ILRG ratings are progressively stable at higher rating levels, where upgrades and downgrades are balanced;
- ILRG ratings are comparable with other credit ratings, such as sovereign and corporate ratings; and
- As ILRG ratings at the lower end of the ratings scale increase, the rating transition study becomes more robust.

In 2001, Standard & Poor's published its first rating transition study for foreign currency ILRG ratings ("Non-US Local and Regional Government Ratings Akin to Corporates' and Sovereigns", published on RatingsDirect on June 5, 2001). The study has been enhanced, expanded, and updated annually since then. It follows the same methodology as that used for Standard & Poor's corporate default study ("Corporate Defaults: Another Record Year," published on RatingsDirect on Feb. 6, 2002). This methodology tracks rating changes over time, including changes to 'D' for default (or more commonly for ILRG as well as for sovereign issuers, 'SD'

for selective default, as ILRGs/sovereigns often continue to service some of their debt, for example to preferred creditors, while defaulting on commercial obligations). This study also continues to track a defaulting ILRG until it remedies the default and is assigned a new rating. For example, the study shows the rating transition and default of the Russian Region of Sverdlovsk over a three-year period from an initial rating of 'BB-' to 'CCC-', 'SD', and back to 'CCC'.

The study is based on issuers, in this case local and regional governments, as opposed to debt issues. The data is compiled using static pools; therefore the grouping of ILRGs remains constant and the pools are then aggregated and weighted by the number of issuers by rating category. Thus, static pools from earlier years, when there were fewer ILRG ratings, count less in the study than do pools from more recent years, when there are many more ILRG ratings.

The sample size for this study is represented by the dynamics of the growth of ILRG ratings over the period of observation since 1975. The 2002 study has become more robust with the inclusion of confidential ILRG ratings. Chart 1 shows the growth in the number of ILRGs rated by Standard & Poor's. The average ILRG rating has fallen from 'AA' in the 1970s. The first non-investment-grade rating was assigned in 1995 and while the number of ratings below 'BB' has been progressively

MORE ON OUR WEBSITE >>

For more information on defaults, visit www.risksolutions.standardandpoors.com. Click on Research from Risk Solutions and scroll to Default Research.

growing, the sample size is still relatively small (less than 70 ratings). The distribution of foreign currency ILRG ratings from 1975 through 2002 can be seen in Chart 2.

Rating change data is shown in Table 1, which highlights the weighted average one-year transition matrix for foreign currency ratings by rating category during the 28-year period beginning 1975. The vertical axis shows the rating at the beginning of the year, while the horizontal axis shows the rating at the end of the year. If the ratings remained constant, 100% would appear along the diagonal. In Table 1, 'AAA', 'AA', and 'A' ratings are the most stable: on average 92.89% of

'AAA' ratings, 95.98% of 'AA' ratings, and 94.93% of 'A' ratings ended the year at the same level. At lower rating levels, credit quality is somewhat less stable, with 84.04% of 'BBB' ratings ending the year at that level, while due to the smaller and younger sample size (i.e. shorter history), there is even less stability lower down the rating scale; 67.92%, 56%, and 54.55% at the 'BB', 'B', and 'CCC'/CC' levels, respectively.

The number of upgrades is balanced by downgrades in the 'A' and 'AA' rating categories. For example, on average 2.54% of 'A' rated ILRGs in Table 1 were lowered to 'BBB' or 'B' or no longer rated,

'NR', during the year, while 2.54% were raised to 'AA'.

The transition matrix also records default rates, which are shown in the 'SD' column. For example, in Table 1, no investment-grade ILRGs defaulted in a single year. On the other hand, 5.66% in the 'BB' category defaulted in a single year, although none defaulted in the 'B' category, and 13.64% defaulted from the 'CCC'/CC' categories. The 'NR' column records the percentage of ILRGs that have had ratings withdrawn by Standard & Poor's either at the entity's explicit request (provided there was no outstanding publicly rated debt) or due to lack of cooperation in providing the

Table 1

ILRG Foreign-Currency Average One-Year Transition Rates (1975–2002)

Initial rating	Rating at end of first year (%)								
	AAA	AA	A	BBB	BB	B	CCC/CC	S.D.	N.R.
AAA	92.89	7.11	0.00	0.00	0.00	0.00	0.00	0.00	0.0
AA	2.13	95.98	0.75	0.00	0.00	0.00	0.00	0.00	1.13
A	0.00	2.54	94.93	1.09	0.00	0.36	0.00	0.00	1.09
BBB	0.00	0.00	11.70	84.04	1.06	1.06	0.00	0.00	2.13
BB	0.00	0.00	0.00	5.66	67.92	5.66	9.43	5.66	5.66
B	0.00	0.00	0.00	0.00	28.00	56.00	0.00	0.00	16.00
CCC/CC	0.00	0.00	0.00	0.00	0.00	27.27	54.55	13.64	4.55
S.D.	0.00	0.00	0.00	0.00	0.00	0.00	15.38	84.61	0.00

S.D.—Selective default. N.R.—Rating withdrawn. Software: CreditPro® 6.01.

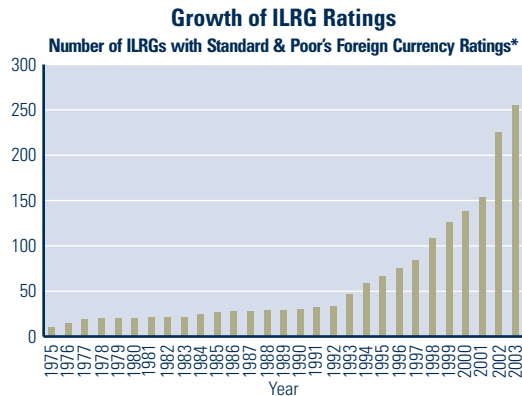
Table 2

ILRG Foreign Currency Average Three-Year Transition Rates (1975–2002)

Initial rating	Rating at end of third year (%)								
	AAA	AA	A	BBB	BB	B	CCC/CC	S.D.	N.R.
AAA	76.28	23.26	0.00	0.00	0.00	0.00	0.00	0.00	0.47
AA	4.45	91.60	2.31	0.16	0.00	0.00	0.00	0.00	1.48
A	0.00	7.46	84.08	3.48	0.5	0.5	0.00	0.00	3.98
BBB	0.00	0.00	38.60	52.63	5.26	3.51	0.00	0.00	0.00
BB	0.00	0.00	0.00	12.50	29.17	12.50	4.17	29.17	12.50
B	0.00	0.00	0.00	15.38	15.38	15.38	0.00	0.00	53.85
CCC/CC	0.00	0.00	0.00	0.00	15.38	46.15	15.38	7.69	15.38
S.D.	0.00	0.00	0.00	0.00	0.00	12.50	37.50	50.00	0.00

S.D.—Selective default. N.R.—Rating withdrawn. *Software: CreditPro® 6.01

Chart 1



*Includes public and confidential long-term foreign currency ratings as of Jan. 1, 2003.

Chart 2

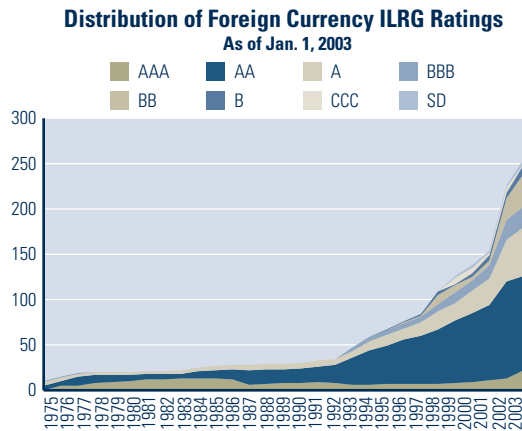
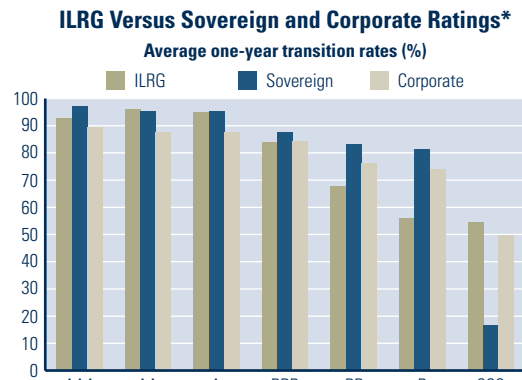


Chart 3



*ILRG and sovereign foreign currency ratings for 1975-2002. Corporate local currency ratings for 1981-2002.

complete information needed to survey the entity. Ratings that have been withdrawn continue to be tracked to ensure subsequent defaults are recorded in the transition history.

Tables 2 and 3 record the weighted average rating transitions for longer periods for foreign currency ILRG ratings by rating category since 1975. Table 2 records the three-year transition matrix and Table 3 the five-year matrix. To be included in the matrix, the ILRG needs to be in at least one static pool; in other words it needs to have been rated by the start of the last period. In the case of the three-year matrix, the ILRG would have to have been rated by Jan. 1, 2000, or in the case of the five-year matrix, by Jan. 1, 1998. As a result, the longer the transition period, the fewer the number of rating counts, owing to the growth of ILRG ratings and given that there will be one less static pool for each additional year in the matrix.

Tables 2 and 3 demonstrate that many of the conclusions for a one-year rating transition also apply for longer periods. Generally, ratings are more stable at higher levels and upgrades and downgrades are balanced. No ILRG in the 'BBB' category or above has defaulted. On the other hand, the three tables show that the longer the period, the greater the percentage of defaulting ILRGs that will have cured their default. Table 1 shows that after one year of default, 84.61% of ILRGs remained in default, but by the end of the third year (see table 2) only 50% remained in default.

ILRG MULTI-YEAR TRANSITION RESULT COMPARABILITY WITH SOVEREIGN AND CORPORATE RESULTS

Charts 3, 4, and 5 compare the ILRG results with the corporate and sovereign results for a one-year, three-year, and five-year period. At the investment-grade level, both ILRG and sovereign ratings have demonstrated similarly high stability, which has been greater than that for corporate ratings. As the observation period increases to five years, there is less rating stability in all three sectors, but the gap between the sovereign and ILRG ratings to the corporate ratings is more pronounced.

The somewhat lower stability at the 'AAA' level for ILRG versus sovereigns is explained by the larger number of ILRGs

affected by a downgrade of a single sovereign. For example, several Canadian and Australian IIRG ratings, which dominate the 'AAA' rated IIRG pool, were downgraded versus only one sovereign.

At the low investment-grade level, in the 'BBB' category, and for longer observation periods, the IIRG results show less stability than for both sovereign and corporate ratings due to a smaller IIRG sample pool (fewer than 60 counts at the 'BBB' level in the three-year matrix). The IIRG rating migration from the 'BBB' category is predominantly to higher rating categories, a trend that is more noticeable than in either the sovereign or corporate sector.

In the 'BB' category and below, the IIRG rating transition results diverge still further from the corporate and sovereign results due to a much smaller sample size and a shorter ratings history. In addition, IIRG ratings at this speculative-grade level are concentrated in Russia and Argentina where the rating change of the sovereign has affected numerous IIRGs.

2002 OVERVIEW

In 2002, the number of IIRG upgrades significantly exceeded the number of downgrades, such that the credit ratio of downgrades per upgrade fell to a record low of 0.08 for the period of observation since 1975. This positive dynamic is in contrast to the volatility and negative trends in the corporate sector where downgrades far outnumbered

upgrades. Even sovereign rating activity in 2002 was more muted with a balance between upgrades and downgrades. Depending on the structure of intergovernmental aid and dependence on transfer payments from other levels of government, IIRGs tend to be more protected from the vagaries of the global economic business cycle and in some cases may lag the economic cycle.

The 2002 positive result was driven predominantly by the foreign currency upgrades on the Russian Federation to 'BB'/Stable/'B' and on Canada to 'AAA'/Stable/'A-1+'. In both cases, the improving economic environment also contributed to the foreign currency rating upgrades on seven Russian and 13 Canadian IIRGs. Conversely, in Argentina, which remained in default the entire year, the City of Buenos Aires finally defaulted on its foreign currency debt in early 2002, joining the Provinces of Buenos Aires and Mendoza, which defaulted late 2001 when the central government undertook a program to restructure provincial debt under terms that were less favorable to bondholders. However, while defaulting on its commercial bank loans—included in the provincial debt restructuring—the Province of Mendoza remains current on its debt issued in the international capital markets.

Geographically, there were 13 upgrades in Europe (seven of which were on Russian IIRGs) and no downgrades, while Canada had 13 upgrades and no downgrades (this

refers to long-term foreign currency credit ratings only). Several of the Canadian upgrades reflected the raising of the foreign currency sovereign rating to 'AAA' in July 2002 due to improved economic resilience and stronger external accounts following several years of public and private sector restructuring. The European IIRG upgrades outside of Russia occurred in a wide spread of countries and were attributable to improving credit fundamentals (such as lower debt levels and improving financial balances) of the individual IIRG. At the same time however, in Europe, Standard & Poor's revised the outlook on seven IIRGs to negative, including the City of Istanbul; the outlook was later revised back to stable in line with the rating action on Turkey. Of these outlook changes, three were on German states as a result of falling tax revenues and increasing deficits. Outlook revisions to negative outnumbered those to positive in Europe.

Standard & Poor's assigned 22 new IIRG ratings in 2002: 16 in Europe, three in Canada, two in New Zealand, and one in Australia. In addition, Standard & Poor's assigned 12 new IIRG ratings on the CAVAL or national scale in Mexico as well as one new IIRG on the Russian national scale. The majority of the new ratings were in the investment-grade category of 'A' and above, except for four speculative-grade ratings in the 'B' category (one

Table 3

IIRG Foreign Currency Average Five-Year Transition Rates (1975–2002)*

Initial rating	Rating at end of fifth year (%)								
	AAA	AA	A	BBB	BB	B	CCC/CC	S.D.	N.R.
AAA	62.63	36.87	0.00	0.00	0.00	0.00	0.00	0.00	0.51
AA	6.06	87.23	4.11	0.65	0.00	0.00	0.00	0.00	1.95
A	0.00	11.46	77.07	5.73	0.64	0.64	0.00	0.00	4.46
BBB	0.00	5.88	64.71	17.65	5.88	2.94	0.00	0.00	2.94
BB	0.00	0.00	0.00	8.33	25.00	0.00	0.00	50.00	16.67
B	0.00	0.00	12.50	12.50	12.50	0.00	0.00	0.00	62.50
CCC/CC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S.D.	0.00	0.00	0.00	0.00	0.00	0.00	50.00	50.00	0.00

*Data includes public and confidential ratings as of Jan. 1, 1998. S.D.—Selective default. N.R.—Rating withdrawn. Software: CreditPro® 6.01.

Chart 4
ILRG Versus Sovereign and Corporate Ratings*
 Average three-year transition rates (%)

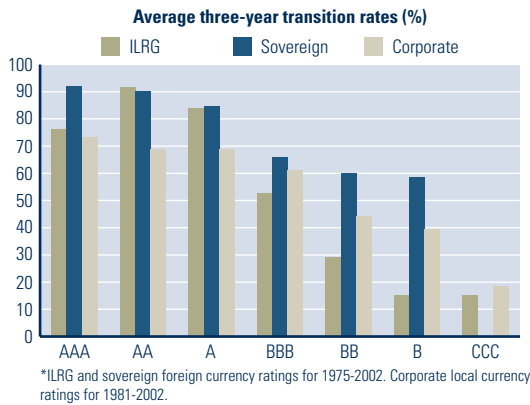
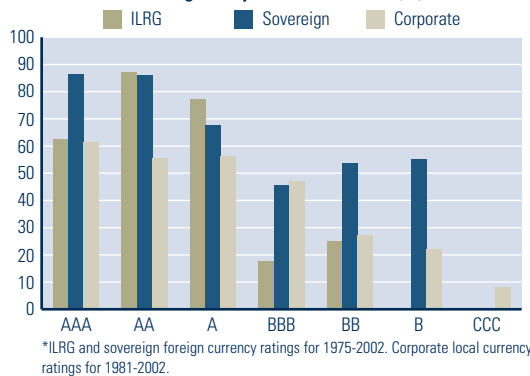


Chart 5
ILRG Versus Sovereign and Corporate Ratings*
 Average five-year transition rates (%)



a negative tone was set in Italy when the outlook on four cities was revised to negative following the outlook revision on the Republic of Italy to ‘AA/Negative.

Although the ILRG sector is expected to continue to display relative stability, there will be several global pressure points in 2003: in Germany where three of the 11 rated states (Länder) have a negative outlook; in Italy where the stable outlook on five Italian regions may be revised if the expected strengthening of Italian regional fiscal autonomy and taxing powers does not occur; and in Canada where provincial finances face ongoing spending pressures from publicly funded health care and social services and from near-term sluggish economic growth.

Furthermore, in the emerging markets of Central and Eastern Europe, Polish ILRGs may face pressure from additional educational responsibilities, while in Croatia, Bulgaria, and the Czech Republic, intergovernmental reforms may have a negative financial effect on the ILRGs. In Turkey, the City of Istanbul’s rating is dependent on how the Turkish national and political environment develops in 2003.

Finally, it remains to be seen how the rated Argentinean ILRGs will emerge from default. The City of Buenos Aires was the first public entity in Argentina to initiate negotiations on new terms on its outstanding debt; while some procedural matters remain to be completed, Standard & Poor’s expects the assignment of a new rating to Buenos Aires that reflects its emergence from default over the near term. Elsewhere in Argentina, no additional restructurings of provincial debt are expected until a new president assumes power in May. The uncertain global socio-economic environment will clearly have an effect at the subnational level, especially as the number of rated ILRGs increases.

ANALYST E-MAIL ADDRESSES

susan_riska@standardandpoors.com
 carol_sirou@standardandpoors.com
 PublicFinanceEurope@standardandpoors.com

in the Ukraine: the City of Kyiv; and three in Russia) and one in the low investment-grade category (the City of Vilnius). For a full list of all ILRGs publicly rated by Standard & Poor’s since 1975, see “International Local and Regional Governments Since 1975” (published on RatingsDirect). Alternatively, please access Standard & Poor’s Web page at www.standardandpoors.com and go to “Fixed Income”, then “Regional and Local Governments”, then “Commentary & News”. The addition of these ratings at the lower end of the scale has already increased the sample size of the ‘B’ rating category in the 2002 study. Any rating changes will be included in future updates, which will enhance the robustness of the results.

2003 FORECAST FOR ILRG RATINGS

In late December 2002 and early January 2003, Standard & Poor’s revised several ILRG ratings. Positive trends were signaled with three upgrades (the Russian Autonomous Okrug of Khanty Mansik to ‘BB-’/Stable from ‘B+’/Stable; the French Region of Nord Pas de Calais to ‘AA-’/Stable from ‘A+’/Stable and the Canadian City of Winnipeg to ‘AA’/Stable/— from ‘AA-’/Watch Pos/—) and two outlook changes (the outlook on two Canadian ILRGs were revised to positive reflecting improving financial positions in both cases). In Russia, the positive trend in intergovernmental relations and transparency set in 2002 with four new ILRG ratings as well as seven ILRG upgrades is expected to continue. In contrast,

2002 Defaults and Rating Transition Data Update for Rated Sovereigns

Analytical Contacts: John Chambers, CFA, *New York (1) 212-438-7344*
Daria Alexeeva, *New York (1) 212-438-7346*

Standard & Poor's has updated its data for sovereign rating performance and for sovereign defaults through the end of 2002. In general, the data continue to support the conclusions that:

- Sovereign ratings are robust predictors of default;
- Sovereign ratings are progressively more stable at higher rating levels;
- Upgrades and downgrades of sovereign ratings are balanced; and
- Sovereign ratings are no more volatile than other credit ratings.

On March 31, 1999, Standard & Poor's published its first sovereign rating transition study for foreign currency ratings ("Sovereign Ratings Display Stability Over Two Decades," *CreditWeek*, April 7, 1999). The study has since been enhanced, expanded, and updated annually following the same methodology used for Standard & Poor's corporate default study ("Corporate Defaults: Another Record Year," *CreditWeek*, Feb. 13, 2002). This methodology tracks rating changes over time, including changes to 'D' for default (or, more commonly for sovereign issuers, 'SD' for selective default, as sovereigns often continue to service some of their debt to both commercial and preferred creditors). The study is based on issuer ratings (in this

case central government), not issue ratings. Issuers are not adjusted for size (i.e., they are not dollar weighted), so a default by the Republic of Argentina counts the same for the purposes of this study as a default by the Republic of Suriname. Both public and confidential ratings are used. The data are compiled using static pools. A static pool is a portfolio of issuers defined on Jan. 1 of each year. Rating migrations and defaults for each static pool are tracked going forward from that point, and the results for each static pool are averaged in order to estimate average default rates and rating migrations for each rating category over specific time horizons. In other words, the grouping of obligors in a specific static pool remains constant, and the pools are aggregated and weighted by the number of issuers by rating category. Thus, static pools from earlier years, when there were fewer sovereign ratings, count less in the study than do pools from more recent years, when there have been many more sovereign ratings.

Before looking at the data for rating changes, a few words need to be said about the dynamics of the sample size. Chart 1 shows the growth in the number of sovereigns rated by Standard & Poor's. As described in the sidebar, "Sovereign Ratings Before the Interest Equal-

Chart 1
Growth of Standard & Poor's Sovereign Ratings
 Number of national governments with Standard & Poor's foreign currency ratings

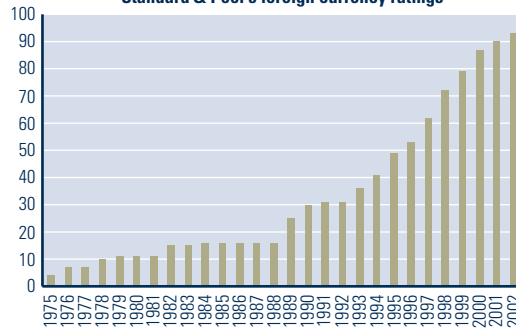


Chart 2
Distribution of Foreign Currency Sovereign Ratings
 As of Jan. 1, 2003

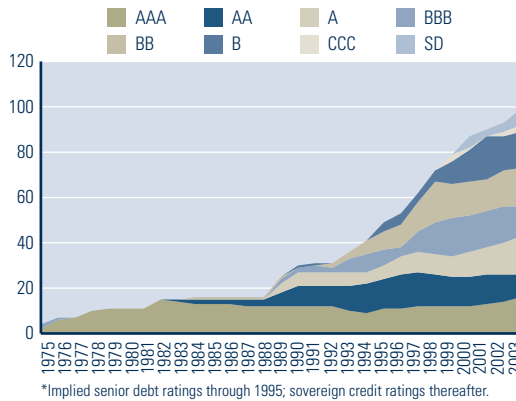
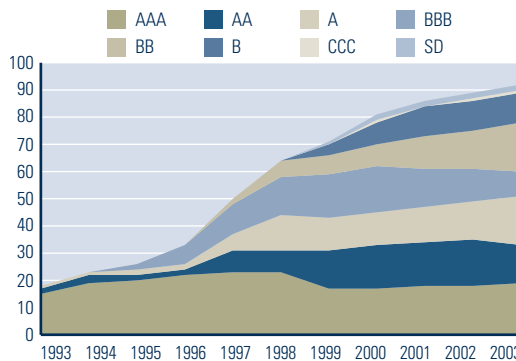


Chart 3
Distribution of Local Currency Sovereign Ratings
 As of Jan. 1, 2003



ization Tax,” Standard & Poor’s predecessor institutions started rating sovereign governments in the 1920s. After the Great Depression, World War II, and the imposition of the Interest Equalization Tax (IET) in 1963, ratings on all but the U.S. and Canada lapsed. The Yankee bond market again became attractive for foreign governments with the repeal of IET in 1974, and demand for sovereign ratings resumed from American investors (Standard & Poor’s original base of demand). By 1980, the number of rated sovereigns had risen to 11 from two at the time of IET’s repeal, all rated ‘AAA’. By 1990, the figure had almost tripled, to 30, with all but one sovereign rated investment grade. From that point on, there was a marked increase in the number of ratings and an expansion into lower rating categories. The increase derived from the successful restructuring of Mexico’s defaulted bank debt into Brady bonds, thus opening up speculative-grade sovereigns as an attractive asset class. Thus, the growth in speculative-grade issuers is not a function of rating downgrades, but rather a result of less-creditworthy issuers seeking ratings to enhance access to private capital flows. The distribution of foreign currency sovereign ratings through time can be seen in chart 2.

Standard & Poor’s began to assign local currency debt ratings in 1992. Today, all sovereigns with foreign currency ratings assigned by Standard & Poor’s except The People’s Republic of China and The Bolivarian Republic of Venezuela. (These two governments have not requested local currency ratings from Standard & Poor’s.) The distribution of these local currency sovereign ratings is seen in chart 3. A local currency sovereign rating may be higher (usually no more than four notches) than a foreign currency sovereign rating based on the unique powers a sovereign enjoys within its own borders, particularly in its control of domestic financial and monetary systems.

Turning to the data for rating changes, table 1 shows the weighted average one-

Table 1

Sovereign Foreign Currency Average One-Year Transition Rates (1975–2002)*

Initial rating	No. of issuers	Rating at end of first year (%)							
		AAA	AA	A	BBB	BB	B	CCC/CC	SD
AAA	304	97.37	2.63	0.00	0.00	0.00	0.00	0.00	0.00
AA	179	2.79	95.53	0.56	0.00	0.56	0.56	0.00	0.00
A	111	0.00	2.70	95.50	1.80	0.00	0.00	0.00	0.00
BBB	123	0.00	0.00	6.50	87.80	4.07	1.63	0.00	0.00
BB	130	0.00	0.00	0.00	6.92	83.08	7.69	1.54	0.77
B	75	0.00	0.00	0.00	0.00	12.00	81.33	5.33	1.33
CCC/CC	6	0.00	0.00	0.00	0.00	0.00	0.00	16.67	83.33
SD	20	0.00	0.00	0.00	0.00	0.00	20.00	10.00	70.00

*Implied senior debt ratings through 1995; sovereign credit ratings thereafter. Software: CreditPro® 6.01.

Table 2

Sovereign Foreign Currency Average Three-Year Transition Rates (1975–2002)*

Initial Rating	Rating at end of third year (%)							
	AAA	AA	A	BBB	BB	B	CCC/CC	SD
AAA	92.06	7.22	0.00	0.00	0.72	0.00	0.00	0.00
AA	5.84	90.26	1.95	0.65	1.30	0.00	0.00	0.00
A	0.00	7.06	84.71	7.06	0.00	1.18	0.00	0.00
BBB	0.00	0.00	19.78	65.93	8.79	3.30	1.10	1.10
BB	0.00	0.00	0.00	18.00	60.00	17.00	0.00	5.00
B	0.00	0.00	0.00	2.44	26.83	58.54	4.88	7.32
CCC/CC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
SD	0.00	0.00	0.00	0.00	12.50	25.00	0.00	62.50

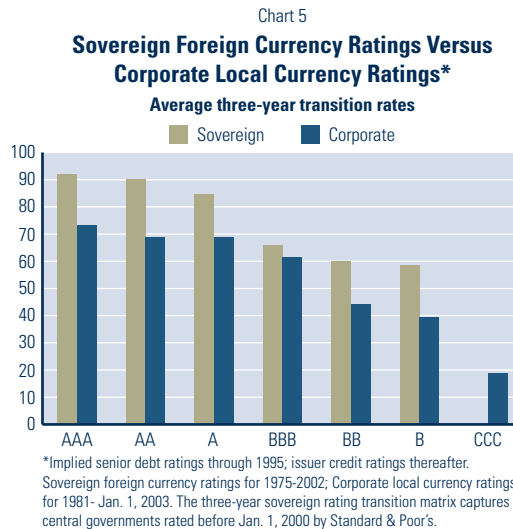
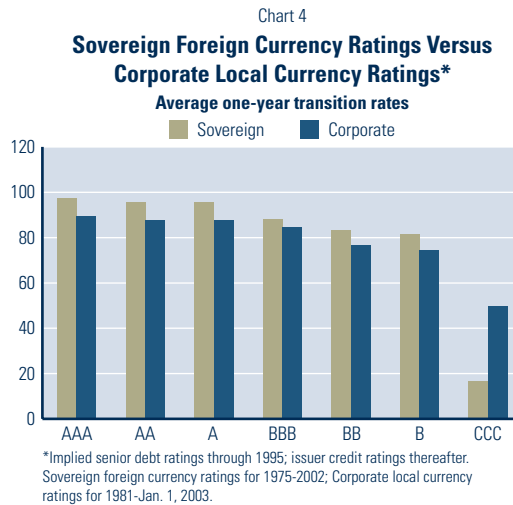
*Implied senior debt ratings through 1995; sovereign credit ratings thereafter. Software: CreditPro® 6.01.

Table 3

Sovereign Foreign Currency Average Five -Year Transition Rates (1975–2002)*

Initial Rating	Rating at end of fifth year (%)							
	AAA	AA	A	BBB	BB	B	CCC/CC	SD
AAA	86.56	11.86	0.00	0.00	1.58	0.00	0.00	0.00
AA	8.59	85.94	3.13	1.56	0.78	0.00	0.00	0.00
A	0.00	12.31	67.69	16.92	1.54	1.54	0.00	0.00
BBB	0.00	0.00	30.51	45.76	11.86	5.08	1.69	5.08
BB	0.00	0.00	1.49	19.40	53.73	17.91	0.00	7.46
B	0.00	0.00	5.00	0.00	15.00	55.00	5.00	20.00

*Implied senior debt ratings through 1995; sovereign credit ratings thereafter. Note: No 'CCC', 'CC', or 'SD' ratings at the beginning of the five-year static pools. Software: CreditPro® 6.01.



year transition matrix for foreign currency ratings by rating category during the 28-year period beginning in 1975. The vertical axis shows the rating at the beginning of the year, the horizontal axis the rating at the end of the year. If ratings never changed, 100% would appear along the diagonal. In table 1, 'AAA' ratings are the most stable; on average, 97.37% of the 'AAA' ratings began and ended the year at that level. Credit quality became slightly less stable at lower rating levels, with 95.53% of the 'AA' ratings beginning and ending the year at that level; 95.50% at the 'A' level; 87.80% at the

'BBB' level; 83.08% at the 'BB' level; 81.33% at the 'B' level; and 16.67% at the 'CCC' or 'CC' level.

Upgrades and downgrades by rating category are balanced. For example, in table 1, on average, 1.80% of 'A' rated sovereigns were lowered to 'BBB' during the year, while, on average, 2.70% were raised to 'AA'.

The transition matrix also records default rates, contained in the 'SD' column at the extreme right. In table 1, for example, no sovereigns rated in the investment-grade categories defaulted within a single year. On the other hand, 0.77% defaulted on average from the 'BB' category in a single year; 1.33% from the 'B' category; and 83.33% from the 'CCC' and 'CC' categories.

Tables 2, 3, and 4 record the weighted average rating transitions for longer periods for foreign currency sovereign ratings by rating category since 1975. Table 2 records the three-year transition matrix; table 3, the five-year matrix; and table 4, the seven-year matrix. To be in the matrix, the issuer needs to be included in at least one static pool, in other words, needs to have been rated by the start of the last period. In the case of the three-year matrix, the sovereign would have to have been rated by Jan. 1, 2000; in the case of the seven-year matrix, by Jan. 1, 1996. Thus, there are progressively fewer counts (or observations) the longer the transition period, given the growth of sovereign ratings and, of course, given that there will be one fewer static pool for each added year in the matrix.

In tables 2, 3, and 4, one can see that many of the conclusions from examining the one-year rating transition hold for the longer periods. Ratings are mostly more stable the higher the rating level, and upgrades and downgrades are broadly balanced. No sovereign ever rated in the 'A' category or higher has defaulted. One sovereign that was once rated in the 'BBB' category (the Republic of Indonesia) has defaulted. This single (albeit repeating) defaulter from an initial investment-grade rating accounts for the 1.10% 'BBB' default rate in the three-

Table 4

Sovereign Foreign Currency Average Seven-Year Transition Rates (1975–2002)*

Initial rating	Rating at end of seventh year (%)							
	AAA	AA	A	BBB	BB	B	CCC/CC	SD
AAA	80.79	17.03	0.00	0.00	2.18	0.00	0.00	0.00
AA	12.12	83.84	3.03	0.00	0.00	1.01	0.00	0.00
A	0.00	17.02	48.94	29.79	2.13	2.13	0.00	0.00
BBB	0.00	0.00	47.06	23.53	11.76	5.88	0.00	11.76
BB	0.00	0.00	8.33	22.22	41.67	22.22	0.00	5.56
B	0.00	0.00	0.00	0.00	18.18	54.55	9.09	18.18

*Implied senior debt ratings through 1995; sovereign credit ratings thereafter. Note: No 'CCC', 'CC', or 'SD' ratings at the beginning of the seven-year static pools. Software: CreditPro® 6.01.

Table 5

Sovereign Foreign Currency Average One-Year Transition Rates (1975-2002)*/**

Initial rating	Number of issuers	Rating at end of first year (%)									
		AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-
AAA	304	97.37	1.97	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AA+	89	5.62	87.64	5.62	1.12	0.00	0.00	0.00	0.00	0.00	0.00
AA	67	0.00	11.94	82.09	4.48	0.00	0.00	0.00	0.00	0.00	0.00
AA-	23	0.00	0.00	17.39	73.91	4.35	0.00	0.00	0.00	0.00	0.00
A+	27	0.00	0.00	0.00	11.11	70.37	18.52	0.00	0.00	0.00	0.00
A	51	0.00	0.00	0.00	0.00	13.73	80.39	1.96	0.00	1.96	1.96
A-	33	0.00	0.00	0.00	0.00	0.00	9.09	90.91	0.00	0.00	0.00
BBB+	15	0.00	0.00	0.00	0.00	0.00	6.67	33.33	53.33	6.67	0.00
BBB	40	0.00	0.00	0.00	0.00	0.00	0.00	5.00	20.00	62.50	5.00
BBB-	68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47	11.76	80.88
BB+	46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17	15.22
BB	44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.27
BB-	40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B+	35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B	25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CCC**	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SD	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

*Implied senior debt ratings through 1995; sovereign credit ratings thereafter. **'CCC' comprises 'CCC+', 'CCC', 'CCC-', and 'CC'. Software: CreditPro® 6.01.

Table 5

Sovereign Foreign Currency Average One-Year Transition Rates (1975-2002)*/ (continued)**

Initial rating	No. of issuers	Rating at end of first year (%)							
		BB+	BB	BB-	B+	B	B-	CCC**	SD
AAA	304	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AA+	89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AA	67	0.00	1.49	0.00	0.00	0.00	0.00	0.00	0.00
AA-	23	0.00	0.00	0.00	4.35	0.00	0.00	0.00	0.00
A+	27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A	51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-	33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BBB+	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BBB	40	5.00	0.00	0.00	2.50	0.00	0.00	0.00	0.00
BBB-	68	4.41	0.00	0.00	0.00	0.00	1.47	0.00	0.00
BB+	46	71.74	8.70	0.00	0.00	0.00	0.00	2.17	0.00
BB	44	6.82	79.55	6.82	4.55	0.00	0.00	0.00	0.00
BB-	40	5.00	7.50	62.50	15.00	2.50	2.50	2.50	2.50
B+	35	2.86	5.71	17.14	54.29	14.29	2.86	2.86	0.00
B	25	0.00	0.00	0.00	24.00	64.00	8.00	4.00	0.00
B-	15	0.00	0.00	0.00	6.67	20.00	53.33	13.33	6.67
CCC**	6	0.00	0.00	0.00	0.00	0.00	0.00	16.67	83.33
SD	20	0.00	0.00	0.00	0.00	0.00	20.00	10.00	70.00

*Implied senior debt ratings through 1995; sovereign credit ratings thereafter. **'CCC' comprises 'CCC+', 'CCC', 'CCC-', and 'CC'. Software: CreditPro® 6.01.

Table 6

Sovereign Local Currency Average One-Year Transition Rates (1993-2002)*

Initial rating	No. of issuers	Rating at end of first year (%)							
		AAA	AA	A	BBB	BB	B	CCC/CC	SD
AAA	192	96.35	3.65	—	—	—	—	—	—
AA	88	2.27	90.91	6.82	—	—	—	—	—
A	76	—	2.63	88.16	9.21	—	—	—	—
BBB	93	—	—	6.45	84.95	5.38	3.23	—	—
BB	51	—	—	—	—	88.24	5.88	—	5.88
B	37	—	—	—	—	13.51	81.08	5.41	—
CCC/CC	2	—	—	—	—	—	50.00	50.00	—
SD	13	—	—	—	—	7.69	—	7.69	84.62

*Implied senior debt ratings through 1995; sovereign credit ratings thereafter. Software: CreditPro® 6.01.

year transition matrix, the 5.08% 'BBB' default rate in the five-year transition matrix, and the 11.76% 'BBB' default rate in the seven-year transition matrix. The varying rates reflect the progressively smaller number of counts and fewer static pools.

Given the smaller sample size and the growth of the number of sovereign foreign currency ratings (particularly in the lower rating categories), one has to treat some of the default rates for the longer periods with caution. For the seven-year foreign currency sovereign credit rating matrix, for example, there are only 37 counts at the 'BB' rating level, nine counts at the 'B' rating level, and no counts at the 'CCC' or 'CC' rating level.

Standard & Poor's has also updated its weighted average one-year rating matrix for foreign currency sovereign ratings with rating modifiers (i.e., pluses and minuses). These data are contained in table 5. Again, ratings are broadly more stable at the higher rating levels, although there are some interesting anomalies. For example, the rating stability at the 'BBB-' level, reaching 81%, is higher than one might expect. Only 5.9% of sovereigns rated 'BBB-' at the beginning of the year ended that year in speculative grade. Another example is that while upgrades and downgrades are broadly balanced, there appears to be some tendency toward upgrades in the 'BBB' to 'A' range, which reflects the credit trajectory of several European Union (EU) candidate countries, and there appears some downward tendency in the 'BB' to 'BB-' range.

Tables 6, 7, 8, and 9 contain weighted average one-, three-, five-, and seven-year transition matrices for local currency sovereign ratings. Table 10 contains a weighted average one-year transition matrix for local currency sovereign ratings with rating modifiers. Although there are fewer counts for the local currency sovereign ratings than for the foreign currency sovereign ratings, many of the trends are similar. Local currency sovereign ratings are generally more stable at the higher rating levels than at lower

Chart 6
Sovereign Foreign Currency Ratings vs. Corporate Local Currency Ratings*

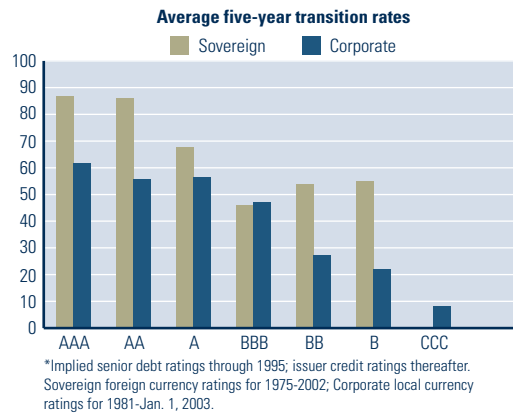
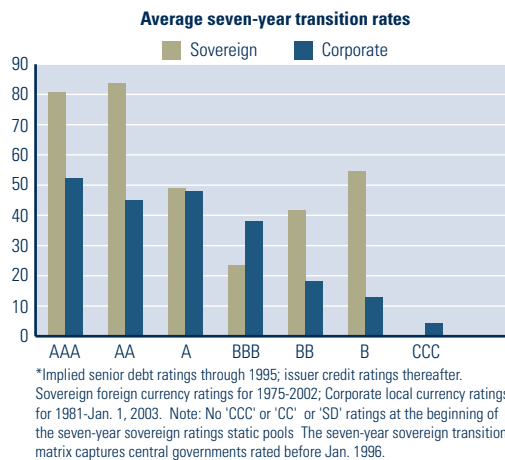


Chart 7
Sovereign Foreign Currency Ratings vs. Corporate Local Currency Ratings*



levels. The absolute level of stability of local currency sovereign ratings is comparable, but slightly less at most levels than for foreign currency ratings. Rating actions, however, appear more skewed toward downgrades. Also, Standard & Poor's has raised no local currency sovereign rating into investment grade.

Table 11 compares the one-, three-, and five-year weighted average default rates for sovereigns with those of corporate ratings. The data span Jan. 1, 1981 to Dec. 31, 2002 for the corporate ratings, whereas the sovereign data extends from

Table 7

Sovereign Local Currency Average Three-Year Transition Rates (1993–2002)*

Initial rating	Rating at end of third year (%)							
	AAA	AA	A	BBB	BB	B	CCC/CC	SD
AAA	87.18	12.82	0.00	0.00	0.00	0.00	0.00	0.00
AA	5.45	78.18	12.73	3.64	0.00	0.00	0.00	0.00
A	0.00	6.12	71.43	20.41	0.00	2.04	0.00	0.00
BBB	0.00	0.00	14.93	61.19	14.93	5.97	0.00	2.99
BB	0.00	0.00	0.00	0.00	68.00	16.00	0.00	16.00
B	0.00	0.00	0.00	0.00	38.46	53.85	7.69	0.00
CCC/CC	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
SD	0.00	0.00	0.00	0.00	28.57	28.57	0.00	42.86

*Implied senior debt ratings through 1995; sovereign credit ratings thereafter. Software: CreditPro® 6.01.

Table 8

Sovereign Local Currency Average Five-Year Transition Rates (1993–2002)*

Initial rating	Rating at end of fifth year (%)							
	AAA	AA	A	BBB	BB	B	CCC/CC	SD
AAA	77.87	22.13	0.00	0.00	0.00	0.00	0.00	0.00
AA	0.00	64.00	28.00	8.00	0.00	0.00	0.00	0.00
A	0.00	8.00	60.00	28.00	0.00	4.00	0.00	0.00
BBB	0.00	0.00	14.71	44.12	23.53	11.76	0.00	5.88
BB	0.00	0.00	0.00	0.00	60.00	10.00	0.00	30.00
SD	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00

*Implied senior debt ratings through 1995; sovereign credit ratings thereafter. Note: No 'B', 'CCC', or 'CC' ratings at the beginning of the five-year static pools. Software: CreditPro® 6.01.

Table 9

Sovereign Local Currency Average Seven-Year Transition Rates (1993–2002)*

Initial rating	Rating at end of seventh year (%)							
	AAA	AA	A	BBB	BB	B	CCC/CC	SD
AAA	76.32	23.68	0.00	0.00	0.00	0.00	0.00	0.00
AA	0.00	44.44	33.33	22.22	0.00	0.00	0.00	0.00
A	0.00	33.33	33.33	33.33	0.00	0.00	0.00	0.00
BBB	0.00	0.00	22.22	33.33	0.00	22.22	0.00	22.22

*Implied senior debt ratings through 1995; sovereign credit ratings thereafter. Note: No 'BB', 'B', 'CCC', 'CC', or 'SD' ratings at the beginning of the five-year static pools. Software: CreditPro® 6.01.

Table 10

Sovereign Local Currency Rating Average One-Year Transition Rates (1993-2002)*/**

Initial rating	Number of issuers	Rating at end of first year (%)									
		AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-
AAA	192	96.35	1.04	2.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AA+	31	6.45	80.65	9.68	3.23	0.00	0.00	0.00	0.00	0.00	0.00
AA	34	0.00	5.88	79.41	8.82	0.00	2.94	2.94	0.00	0.00	0.00
AA-	23	0.00	0.00	0.00	82.61	17.39	0.00	0.00	0.00	0.00	0.00
A+	24	0.00	0.00	0.00	8.33	70.83	12.50	0.00	8.33	0.00	0.00
A	18	0.00	0.00	0.00	0.00	22.22	61.11	5.56	11.11	0.00	0.00
A-	34	0.00	0.00	0.00	0.00	0.00	14.71	76.47	8.82	0.00	0.00
BBB+	55	0.00	0.00	0.00	0.00	0.00	1.82	9.09	78.18	5.45	0.00
BBB	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.43	71.43	7.14
BBB-	24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.17	0.00	75.00
BB+	23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BB	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BB-	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B+	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CCC**	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SD	13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

*Implied senior debt ratings through 1995; sovereign credit ratings thereafter. **'CCC' comprises 'CCC+', 'CCC', 'CCC-', and 'CC'. Software: CreditPro® 6.01.

Jan. 1, 1975 to Dec. 31, 2002. The corporate default data represent only local currency ratings of private sector entities, whereas both local and foreign default rates are shown for the sovereign set. (Only a sovereign-imposed limitation on foreign exchange would account for a corporation that defaults on its foreign currency debt without similarly defaulting on its local currency debt.) At most rating levels, the default experience for sovereigns is lower than that for corporates, although Standard & Poor's expects the rates to converge over time; there are many fewer counts for the sovereign ratings, and both corporate and sovereign analysts use the same scale and rating definitions. Sovereign default rates for local currency ratings are generally higher than those for foreign currency ratings, although drawing any conclu-

sions must be tempered by the small number of counts in the lower rating categories for the local currency ratings. Table 12 compares the one-, three-, five-, and seven-year weighted average default rates for sovereign foreign currency debt with those of local and regional governments. Standard & Poor's has a concentration of ratings for local and regional governments in The Russian Federation and Argentina, which accounts for the higher default experience of that sector at the 'BB' level.

Charts 4 through 7 compare the stability of sovereign and corporate ratings by rating category. Again, sovereign ratings have been more stable. Although the default experience should be similar, there is no reason to expect the performance of other rating changes for sovereign and corporate ratings to be the same. Differ-

Table 10

Sovereign Local Currency Rating Average One-Year Transition Rates (1993-2002)*/ (continued)**

Initial rating	Number of issuers	Rating at end of first year (%)							
		BB+	BB	BB-	B+	B	B-	CCC**	SD
AAA	192	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AA+	31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AA	34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AA-	23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A+	24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-	34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BBB+	55	1.82	0.00	0.00	0.00	0.00	3.64	0.00	0.00
BBB	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BBB-	24	8.33	4.17	4.17	4.17	0.00	0.00	0.00	0.00
BB+	23	69.57	17.39	13.04	0.00	0.00	0.00	0.00	0.00
BB	16	25.00	37.50	18.75	6.25	0.00	0.00	0.00	12.50
BB-	12	0.00	25.00	50.00	0.00	16.67	0.00	0.00	8.33
B+	11	9.09	0.00	27.27	45.45	9.09	9.09	0.00	0.00
B	15	0.00	0.00	6.67	6.67	73.33	13.33	0.00	0.00
B-	11	0.00	0.00	0.00	9.09	18.18	54.55	18.18	0.00
CCC**	2	0.00	0.00	0.00	0.00	0.00	50.00	50.00	0.00
SD	13	0.00	0.00	7.69	0.00	0.00	0.00	7.69	84.62

*Implied senior debt ratings through 1995; sovereign credit ratings thereafter. **'CCC' comprises 'CCC+', 'CCC', 'CCC-', and 'CC' Software: CreditPro® 6.01.

Table 11

Sovereign vs. Corporate Ratings Default Rates (%)*

	One-Year			Three-Year			Five-Year			Seven-Year		
	Sovereign	Sovereign	Corporate	Sovereign	Sovereign	Corporate	Sovereign	Sovereign	Corporate	Sovereign	Sovereign	Corporate
	FC	LC		FC	LC		FC	LC		FC	LC	
AAA	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.10	0.00	0.00	0.25
AA	0.00	0.00	0.01	0.00	0.00	0.08	0.00	0.00	0.27	0.00	0.00	0.53
A	0.00	0.00	0.05	0.00	0.00	0.28	0.00	0.00	0.62	0.00	0.00	1.04
BBB	0.00	0.00	0.37	1.10	2.99	1.54	5.08	5.88	3.24	11.76	22.22	4.79
BB	0.77	4.08	1.38	5.00	8.70	7.17	7.46	12.50	12.37	5.56	0.00	16.51
B	1.33	0.00	6.17	7.32	0.00	19.07	20.00	0.00	26.63	18.18	0.00	31.48
CCC/CC	83.33	0.00	27.99	100.00	0.00	42.03	0.00	0.00	50.72	0.00	0.00	53.87

*Implied senior debt ratings through 1995; issuer credit ratings thereafter. Sovereign foreign currency ratings for 1975-2002; Corporate local currency ratings for 1981- 2002 (year-end). FC—Foreign Currency. LC—Local Currency. Software: CreditPro® 6.01.

Table 12

Sovereign vs. Local and Regional Governments (LRG) Foreign Currency Rating Default Rates (%)*/**

	One-year		Three-year		Five-year		Seven-year	
	Sovereign	LRG	Sovereign	LRG	Sovereign	LRG	Sovereign	LRG
AAA	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
A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BBB	0.00	0.00	1.10	0.00	5.08	0.00	11.76	0.00
BB	0.77	10.71	5.00	33.33	7.46	54.55	5.56	100.00
B	1.33	0.00	7.32	0.00	20.00	0.00	18.18	0.00
CCC/CC	83.33	10.53	100.00	9.09	0.00	0.00	0.00	0.00
SD	70.00	0.00	62.50	14.29	0.00	0.00	0.00	0.00


*Implied senior debt ratings through 1995; issuer credit ratings thereafter. **Local and Regional Government (LRG) data comprises only public ratings. Software: CreditPro® 6.01.

Table 13

History of Ratings Prior to IET

	Poor's Publishing	Standard Statistics		Standard & Poor's
	1929	1935	1939	1960
Argentina	A	A	A	—
Australia	AA	A	A	BBB
Austria	BBB	BBB	CCC	BBB
Belgium	A	AA	BB	BBB
Canada	AAA	AA	AA	AAA
Chile	BB	D	C	—
China	B	C	C	—
Colombia	BB	CCC	D	—
Denmark	AA	A	BB	BBB
Finland	BB	A	A	—
France	BBB	AA	BB	—
Germany	BBB	CCC	D	—
Great Britain	AA	AA	AA	—
Greece	B	CC	CC	—
Hungary	BB	CCC	CCC	—
Italy	BB	BB	B	—
Japan	BBB	B	B	BBB
Norway	AA	A	BB	BBB
Peru	BB	D	D	—
Uruguay	BB	CCC	CCC	—

ences in rating performance could derive from the different factors that influence public versus private finance or from the composition of the corporate sample, which consists heavily of U.S. firms, which are subject to a U.S. economic cycle, versus the sovereign sample, which by its nature is global in scope.

This sovereign transition study focuses on rated sovereign issuers. Standard & Poor's has also published companion pieces on sovereign defaults of rated and unrated sovereign issuers (see "Sovereign Defaults: Moving Higher Again in 2003".) For a complete sovereign ratings history on which this study is based, please access Standard & Poor's Web page at www.standardandpoors.com and go to "Fixed Income," then "Sovereigns," then enter "Sovereign Ratings History Since 1975" in the search box. For a qualitative assessment of sovereign rating changes in 2002, see "Looking Back, Looking Forward, a January View of Sovereign Credit Trends," *CreditWeek*, Jan. 1, 2003. 

Sovereign Ratings Before the Interest Equalization Tax

(First published in *Standard & Poor's CreditWeek International* May 25, 1987.)

Standard & Poor's has rated sovereign debt issues since the 1920s. However, prior to the imposition of the Interest Equalization Tax (IET) in 1963, the system of analysis was less rigorous than that used today. During this period, Standard & Poor's had to rely strictly on public information. Indeed, the lack of timely and comprehensive information compelled Standard & Poor's to place an asterisk beside the ratings of sovereign debt issues to indicate that they were not directly comparable to domestic corporate and municipal ratings. No such qualifications are needed today, as Standard & Poor's information requirements are met through frequent discussions with senior government officials in each of the rated countries.

During the 1920s, a large number of foreign borrowers tapped the expanding U.S. capital market. Standard Statistics Co. and Poor's Publishing Co., which merged in 1941 to form Standard & Poor's Corp., began rating foreign government financings in the U.S. in the late 1920s. Table 13 shows the ratings covered most major European nations, several Latin American republics, Australia, Canada, Japan, and China. In 1929, Poor's Publishing's sovereign ratings ranged from A*** for Canada (roughly equivalent to a current 'AAA') to B* for China and Greece (equivalent to a 'BB'). Every Latin American rating was speculative grade except Argentina, which was rated A* ('A'). An interesting aspect of the

rating system at that time was the special ratings of A**** ('AAAAA') for the U.S. government and A**** ('AAAA') for agencies of the U.S. government, categories that no longer exist.

Most sovereign ratings were lowered during the 1930s depression. The ratings on Germany and Japan fell into the speculative-grade categories. With the approach of World War II, ratings on European nations fell rapidly. By 1939 all ratings in the region were speculative grade, except Great Britain, which was still rated 'A-1' ('AA') by Standard Statistics. Germany's rating moved to 'D' in October 1939. As all of Europe (except neutral Sweden and Switzerland) became engulfed in war in June 1940, Standard Statistics suspended most of its sovereign debt ratings. The few exceptions were the 'A-1' ('AA') ratings on Canada's Yankee bond issues and several speculative-grade ratings on bonds of a few Latin American nations.

After the war, Standard & Poor's again began to rate Yankee bond issues by several major industrialized nations. Ratings included Australia, Austria, Belgium, Denmark, Japan, and Norway. Except for Canada's existing 'AA' rating, all sovereign bond issues during this period were rated 'BBB'. In 1951, Canada's rating was raised to 'AAA'. As investor interest in the Yankee market waned following imposition of IET, Standard & Poor's suspended all remaining sovereign ratings in 1968 except for that of Canada, which was exempt from IET. ■

John Chambers, CFA, *New York* (1) 212-438-7344 Daria Alexeeva, *New York* (1) 212-438-7346

Defining Sovereign Defaults

Standard & Poor's generally defines default as the failure of an obligor to meet a principal or interest payment on the due date (or within the specified grace period) contained in the original terms of the debt issue. Questions can arise, however, when applying this definition to different types of sovereign obligations. In the sovereign rating transition study, each issuer's debt is considered in default under any of the following circumstances:

- For local and foreign currency bonds, notes, and bills, either when scheduled debt service is not paid on the due date or when an exchange offer of new debt contains less favorable terms than the original issue;
- For central bank currency, when notes are converted into new currency of less-than-equivalent face value; and
- For bank loans, when either scheduled debt service is not paid on the due date or a rescheduling of principal and/or interest is agreed to by creditors at less-favorable terms than the original loan. Such rescheduling agreements covering short- and long-term bank debt, are considered defaults even where, for legal or regulatory reasons, creditors deem forced rollover of principal to be voluntary.

In addition, many rescheduled sovereign bank loans are ultimately extinguished at a discount from their original face value. Typical deals have included exchange offers (such as those linked to the issuance of Brady bonds), debt/equity swaps related to government privatization programs, and/or buybacks for cash. Standard & Poor's considers such transactions as defaults because they contain terms less favorable than the original obligation. ■

John Chambers, CFA, *New York* (1) 212-438-7344 Daria Alexeeva, *New York* (1) 212-438-7346

Sovereign Defaults: Moving Higher Again in 2003?

Analytical Contacts: David T. Beers, *London (44) 20-7847-7101*

John Chambers, CFA, *New York (1) 212-438-7344*

Defaults by sovereign governments are rising again—and not just due to Argentina's highly publicized collapse beginning in late 2001. So far in 2002, Standard & Poor's Ratings Services has identified six new governments that have defaulted, compared with just one (Argentina) in 2001. Five sovereigns have emerged from default and resumed normal debt service.

Overall, Standard & Poor's estimates that the number of sovereigns in default on bonds and bank loans reached 28 through the third quarter of 2002, up from 27 at the end of 2001 (*see chart 1*).

The issuer default rate, at 13.9%, has increased slightly, but remains well below its peak of nearly 31% in 1990 (*see chart 2*). The value of sovereign debt in default, at almost US\$133 billion, is nearly double the 2001 total and is now at its highest level since 1994 (*see chart 3*).

Looking ahead to 2003, Standard & Poor's expects the number of sovereign issuers in default, and the value of defaulted debt, to edge higher, reflecting the following factors:

- An uncertain global environment. War with Iraq, if it comes, could upset the sluggish pace of global output growth and cause private cross-border capital flows, already low, to contract further. This could negatively tip the balance of credit fundamentals for a number of lowly rated and unrated emerging market sovereigns.
- Social and economic pressures facing sov-

ereigns like Ecuador and Nigeria already are such that these countries are especially vulnerable to default.

- Completions of debt workouts in the pipeline are unlikely to offset fully the impact on the numbers of new sovereign defaults that occur.
- Argentina's sovereign default—the world's largest at about US\$95 billion—should persist. The new administration taking office in 2003 is likely to be preoccupied initially with securing domestic social stability. The debt work-out process could be protracted as a result.

Standard & Poor's expects the default rate in the sovereign sector to continue to rise over the remainder of the decade. The speculative-grade credit quality of most newly rated issuers, and the low credit standing of the majority of unrated governments, underscores this point. Defaults on foreign currency bonds, still less common than defaults on bank loans, are increasing. Also, defaults on local currency debt, while rare, remain close to an historical high.

Efforts by official creditors to impose "burden sharing" on private creditors will continue to affect the timing of defaults, although economic and political fundamentals more so. Proposals by the IMF to create a formalized framework for managing sovereign defaults are unlikely to affect their frequency or duration much. Even so, for some years to come, the default rate in the sovereign sector should be more muted than in the 1980s and early 1990s. This, combined with less investor uncertainty about

Chart 1
Sovereign Debt in Default by Number of Issuers

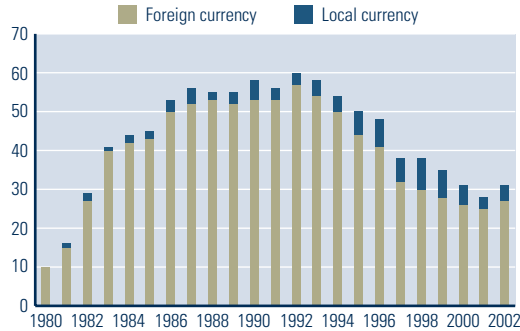
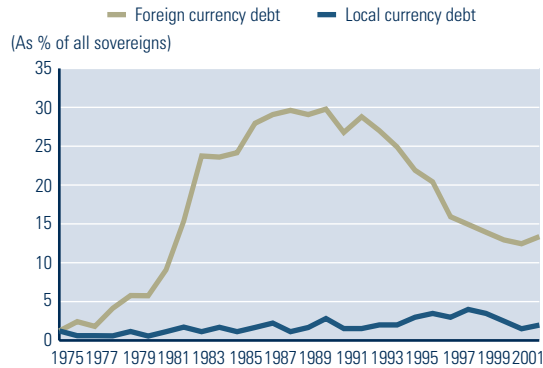


Chart 2
Sovereign Default Rates, 1975-2002



how defaults are resolved, should make for less volatile financial conditions in emerging markets than seen so far.

SOVEREIGN DEFAULT SURVEY COMPLEMENTS CORPORATE DEFAULT SURVEY

This report updates Standard & Poor’s survey of sovereign governments with debt in default (see sidebar, p. 41). The survey, launched in 1994 and last updated in 2000, tracks the default frequency of 202 rated and unrated sovereign issuers between 1975 and 2002. This year’s survey is similar to earlier surveys in terms of coverage, and includes comprehensive data on foreign currency bond defaults between 1824 and 2002.

Ongoing improvements in Standard & Poor’s proprietary database, on which the survey is based, have led to revisions in the historical data. Consequently, the outcomes shown in the 2002 survey differ from those published in previous years. The underlying

trends are much the same, however, and each survey is self-contained, effectively superseding previous versions.

The survey complements Standard & Poor’s annual study of corporate defaults, which covers more than 9,800 rated obligors, excluding sovereigns, that sell debt in the U.S., Europe, Japan, and other markets.

The sovereign default survey differs from the corporate default study in a number of ways. First, it covers both rated and unrated issuers. The survey tracks defaults on unrated governments because they have been so numerous over the past three decades. Defaults by rated governments, by contrast, have been relatively rare. However, judging from the volume of bond issuance by emerging market sovereigns, a growing proportion of which are rated in the speculative-grade category (see chart 4), Standard & Poor’s believes sovereign defaults will become more commonplace.

Table 1 compares default rates of rated sovereign and corporate issuers over one-, three-, and five-year periods through year-end 2001. The data show some differences in sovereign and corporate default rates, but Standard & Poor’s does not view these as significant because of the small number of rated sovereigns that have ever defaulted. As more rated sovereigns default, the default rate should, over time, broadly parallel the default rates for similarly rated corporate issuers.

DEFAULT HISTORY

Defaults on foreign currency bonds took place repeatedly, and on a substantial scale, throughout the 19th century and as recently as the 1940s. Sovereign defaults fell to low levels only in the first four decades after the World War II (see chart 5), when cross-border bond issuance was also minimal.

Past defaults reflected a variety of factors, including wars, revolutions, lax fiscal and monetary policies, and external economic shocks.

Today, fiscal discipline, debt management, and the contingent liabilities arising from weak banking systems repre-

sent significant policy challenges for many sovereigns. The associated credit risks, which for a time might seem manageable, can mushroom quickly—as events in a number of emerging market countries illustrated in the second half of the 1990s. Given these factors, it would be surprising if a new sovereign bond default cycle did not become firmly established during this decade.

This survey also differs from the corporate default study because it covers sovereign defaults on unrated short- and long-term bank loans and privately placed debt issues, in addition to unrated public bonds. Sovereign defaults on foreign currency bonds were rare in the 1970s and 1980s mainly because bond issuance by governments of lower credit quality was itself rare. Defaults on bank loans happened more frequently because, starting in the 1970s, many governments relied on them for the lion's share of their cross-border borrowing. For speculative-grade-rated sovereigns in particular, foreign currency bond issuance only took off after 1990, when the United Mexican States issued the first Brady bonds in exchange for defaulted bank debt.

Although the incentives for timely payment of bank loans were less potent than for bonds over the past three decades, defaults on bank debt have predictive value in an era dominated increasingly by concern over the default risk on bonds. Consequently, Standard & Poor's includes bank loans, as well as local and foreign currency bonds, in the default survey to gauge historical sovereign default trends more accurately.

One other difference between the sovereign default survey and the corporate default study is that they cover different time periods. Standard & Poor's corporate default study includes detailed statistics on the number of rated issuers and the value of debt in default for 1981-2002. The sovereign default survey tracks the far smaller number of rated and unrated government issuers that have defaulted on foreign currency bonds back to 1824—when sizable cross-border sovereign bond issuance began—and the annual U.S. dollar value of

local and foreign currency debt in default back to 1975 (see table 2).

Standard & Poor's gathers its historical sovereign default data from many sources and, not infrequently, information on some aspects, especially the value of affected debt, is sketchy. Further research should ensure that accurate statistics on the amount of debt in default over a longer time frame, as well as default rates measured in relation to the U.S. dollar value of all sovereign debt outstanding, can be included in future surveys.

Finally, the sovereign default survey departs from the corporate default study in its focus on both local and foreign currency debt. Local currency debt is debt denominated in the legal tender of an issuer's country of domicile. Compared with foreign currency debt, the frequency of default on local currency sovereign debt is low. Thanks to their taxation powers and control of the domestic financial system, sovereign governments generally have a stronger capacity and willingness to service local currency than foreign currency debt.

For this reason, Standard & Poor's assigns ratings to sovereigns' local currency debt that in many instances are higher than for their foreign currency debt. In the survey, therefore, defaults on local currency debt are tracked independently from defaults on foreign currency

Table 1

(%)	Sovereign Versus Corporate Default Rates					
	—One-year—		—Three-year—		—Five-year—	
	Sovereign	Corporate	Sovereign	Corporate	Sovereign	Corporate
AAA	0.0	0.0	0.0	0.0	0.0	0.1
AA	0.0	0.0	0.0	0.1	0.0	0.3
A	0.0	0.1	0.0	0.2	0.0	0.6
BBB	0.0	0.3	2.7	1.1	9.3	2.4
BB	2.6	1.3	6.0	7.1	4.2	13.8
B	3.3	6.7	11.1	22.4	13.3	33.1
CCC	100.0	28.3	100.0	45.8	0.0	61.9
SD	0.0	0.0	0.0	0.0	0.0	0.0

SD—Selective default.

Table 2

Sovereign Debt in Default

Number of issuers	All issuers	New issuers	Local currency debt	Foreign currency debt*	Foreign currency bonds	Total debt (Bil. US\$)	Average debt per issuer (Bil. US\$)
1975	4	2	2	2	1	2.4	0.8
1976	4	1	1	4	1	1.5	0.5
1977	4	0	1	3	1	1.6	0.5
1978	8	4	1	7	1	4.5	0.6
1979	11	4	2	10	1	6.9	0.7
1980	11	3	1	10	1	5.1	0.5
1981	18	11	2	16	0	9.4	0.5
1982	28	10	3	27	0	41.1	1.4
1983	44	18	2	42	0	93.0	2.1
1984	45	2	3	42	1	90.7	2.0
1985	44	5	2	43	1	120.5	2.7
1986	51	10	3	50	1	198.8	3.8
1987	55	6	4	52	2	287.6	5.1
1988	54	3	2	53	2	228.3	4.2
1989	54	3	3	52	4	243.7	4.4
1990	55	4	5	53	2	334.6	5.8
1991	54	6	3	53	2	225.2	4.0
1992	58	7	3	57	4	219.8	3.7
1993	55	2	4	54	3	187.2	3.2
1994	51	1	4	50	3	160.4	3.0
1995	47	3	6	44	3	100.5	2.0
1996	45	2	7	41	3	82.2	1.7
1997	36	2	6	32	3	75.6	2.0
1998	35	5	8	30	5	102.6	2.7
1999	31	3	7	28	5	103.2	2.9
2000	30	4	5	26	5	70.6	2.3
2001	27	1	3	25	3	74.2	2.7
2002¶	28	6	4	27	4	132.6	4.3

*Bank debt and bonds. ¶Through third quarter.

Source: Standard & Poor's.

debt and are counted as separate events in the annual totals.

SURVEY HIGHLIGHTS

Through the third quarter of 2002, Standard & Poor's identified 28 sovereign issuers in default on various types of bond and bank debt, up from 27 in 2001. Since

then, six sovereigns: Argentina, Gabon, Indonesia, Madagascar, Moldova, and Nauru, have defaulted. By contrast, the Dominican Republic, Suriname, and Yemen resumed normal debt service. Defaults by 24 sovereigns originated in earlier years and were carried over into 2002; in Argentina's and Madagascar's

cases these carry-overs affected additional categories of debt. As a result, the total value of defaulted debt jumped sharply, to nearly US\$133 billion, from US\$74 billion in 2001.

In January, Argentina defaulted on about US\$2.2 billion in local currency debt and formalized its default on about US\$95 bil-

lion of foreign currency bonds. These actions followed a distressed debt exchange, which counts as a default under Standard & Poor's methodology, in November 2001, and affected US\$41 billion of foreign currency debt.

Prospects for an early agreement to restructure Argentina's obligations are

not encouraging. Despite discussions on a new IMF program, the Duhalde government has shown little interest in negotiating with bondholders. The next administration, which is scheduled to take office after elections in March 2003, might also have little incentive to negotiate a quick debt workout, given the

country's fragile social stability and deep-seated economic problems, including the insolvent banking system. As a result, the debt restructuring process in Argentina is likely to be protracted.

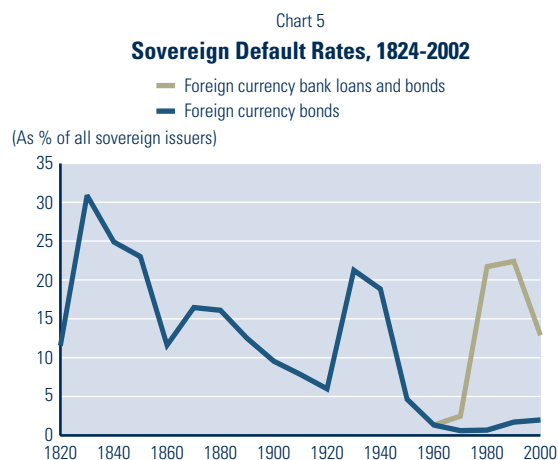
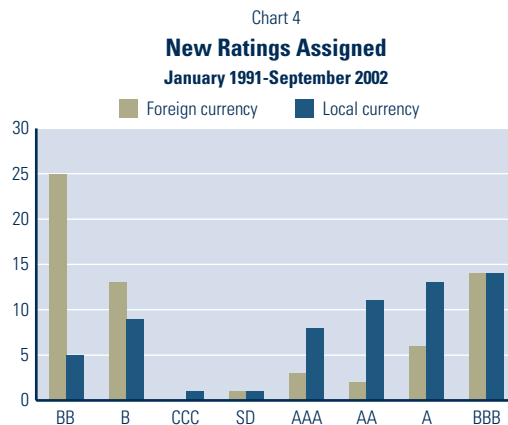
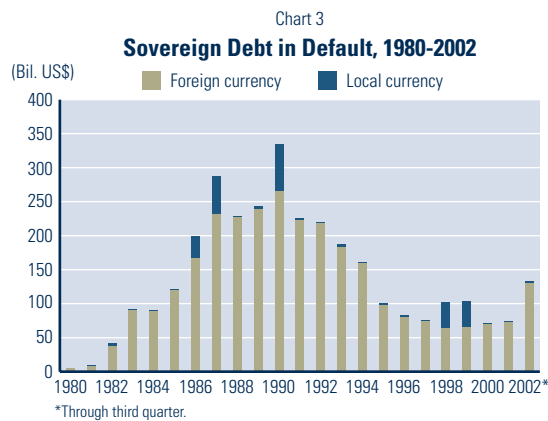
Unrated Madagascar also defaulted on its local currency debt in early 2002. This default, on obligations totaling

Table 3

Sovereign Default Rates						
(% of all sovereign issuers)	Number of issuers	All issuers in default	New issuers in default	All foreign currency debt*	Foreign currency bonds	Local currency
1975	164	2.4	1.2	1.2	0.6	1.2
1976	165	2.4	0.6	2.4	0.6	0.6
1977	166	2.4	0.0	1.8	0.6	0.6
1978	169	4.7	2.3	4.1	0.6	0.6
1979	173	6.4	2.3	5.8	0.6	1.2
1980	174	6.3	1.7	5.7	0.6	0.6
1981	176	10.2	6.3	9.1	0.0	1.1
1982	176	15.9	5.7	15.3	0.0	1.7
1983	177	24.9	10.2	23.7	0.0	1.1
1984	178	25.3	1.1	23.6	0.6	1.7
1985	178	24.7	2.8	24.2	0.6	1.1
1986	179	28.5	5.6	27.9	0.6	1.7
1987	179	30.7	3.3	29.1	1.1	2.2
1988	179	30.2	1.7	29.6	1.1	1.1
1989	179	30.2	1.7	29.1	2.2	1.7
1990	178	30.9	2.2	29.8	1.1	2.8
1991	198	27.3	3.0	26.8	1.0	1.5
1992	198	29.3	3.5	28.8	2.0	1.5
1993	200	27.5	1.0	27.0	1.5	2.0
1994	201	25.4	0.5	24.9	1.5	2.0
1995	201	23.4	1.5	21.9	1.5	3.0
1996	201	22.4	1.0	20.4	1.5	3.5
1997	201	17.9	1.0	15.9	1.5	3.0
1998	201	17.4	2.5	14.9	2.5	4.0
1999	201	15.4	1.5	13.9	2.5	3.5
2000	201	14.9	2.0	12.9	2.5	2.5
2001	201	13.4	0.5	12.4	1.5	1.5
2002†	202	13.9	3.0	13.4	2.0	2.0

*Bank debt and bonds. †Through third quarter.

Source: Standard & Poor's.



about US\$200 million, stemmed from political turmoil linked to disputed presidential elections in December 2001. Normal debt service resumed in July, however, after the new president, Marc Ravalomanana, took power. Madagascar remains in default on its foreign currency commercial bank loans, which should ultimately be restructured after an agreement with Paris Club creditors in 2001 on official debt relief under the terms of the enhanced Heavily Indebted Poor Countries initiative.

Nauru, another unrated sovereign, went into arrears with its bank creditors (as well as multilateral and official creditors) in early 2002. The default reflects chronic fiscal deficits linked to the depletion of phosphate deposits, on which the small Pacific Island economy depends.

Unrated Moldova, which defaulted on a US\$75 million privately placed bond in 1998, defaulted again in June 2002, when the bond (the outstanding amount of which had fallen to US\$40 million) was set to mature. In August, following negotiations with creditors, it was restructured and is now scheduled to mature in 2009.

In April, unrated Gabon also defaulted for the second time on the equivalent of US\$30 million of bank loans originally restructured with the London Club of commercial creditors in 1994. The default reflects declining oil revenues and the country's high total external debt burden. With the termination of its standby agreement with the IMF in April 2002 because of the slow pace of fiscal and structural reforms, Gabon's debt servicing problems are likely to widen through 2003.

In September 2002, Indonesia completed the restructuring of syndicated bank credits totaling US\$1.5 billion, as required under the terms of its April rescheduling agreement with the Paris Club of official creditors in April 2002. The newly restructured bank loans were subsequently rated 'CCC+' on Sept. 5, 2002, in line with the sovereign's Yankee bond, which has continued to be serviced in full.

Defaults by three other unrated sovereigns have also been resolved so far in 2002. The most noteworthy case is

Table 4

Rated Sovereigns: Years in Default, 1975-2002

Issuer	LC/FC ratings	Local currency debt 1990-1991	Foreign currency bond debt	Foreign currency bank debt
Kuwait	A+/A+	1990-1991		
Slovenia	AA/A			1992-1996
Chile	AA/A-			1983-1990
Poland	A/BBB+			1981-1994
Mexico	A-/BBB-			1982-1990
South Africa	A-/BBB-			1985-1987, 1989, 1993
Croatia	BBB+/BBB-	1993-1996		1992-1996
Trinidad & Tobago	BBB+/BBB-			1988-1989
Philippines	BBB+/BB+			1983-1992
Egypt	BBB/BB+			1984
El Salvador	BB+/BB+	1981-1996		
Morocco	BBB/BB			1983, 1986-1990
Costa Rica	BB+/BB		1984-1985	1981-1990
Guatemala	BB+/BB		1989	1986
Panama	BB/BB		1987-1994	1983-1996
Jordan	BBB-/BB-			1989-1993
Peru	BB+/BB-			1976, 1978, 1980, 1983-1997
Bulgaria	BB/BB-			1990-1994
Vietnam	BB/BB-	1975		1985-1998
Dominican Republic	BB-/BB-	1981-2001		1982-1994
Russia	BB-/BB-	1998-1999	1998-2000	1991-1997
Bolivia	BB/B+		1989-1997	1980-1984, 1986-1993
Brazil	BB/B+	1986-1987, 1990		1983-1994
Romania	BB-/B+			1981-1983, 1986
Jamaica	BB-/B+			1978-1979, 1981-1985, 1987-1993
Senegal	B+/B+			1981-1985, 1990, 1992-1996
Paraguay	BB-/B			1986-1992
Cook Islands	B/B			1995-1998
Mongolia	B/B	1997-2000		
Ukraine	B/B	1998-2000		1998-2000
Uruguay	B/B			1983-1985, 1987, 1990-1991
Venezuela	N.R./B	1995-1997, 1998	1995-1997	1983-1988, 1990
Pakistan	B+/B-		1999	1998-1999
Turkey	B-/B-			1978-1979, 1982
Indonesia	B-/CCC+			1998-1999, 2000, 2002
Ecuador	CCC+/CCC+	1999	1999-2000	1982-1995
Argentina	SD/SD	1982, 1989-1990, 2002	1989, 2001-2002	1982-1993

Ratings as of Sept. 19, 2002. LC—Local currency, FC—Foreign currency, N.R.—Not rated. SD—Selective default.
Source: Standard & Poor's.

Table 5

Unrated Issuers: Years in Default, 1975-2002

Issuer	Local currency debt	Foreign currency bond debt	Foreign currency bank debt	Issuer	Local currency debt	Foreign currency bond debt	Foreign currency bank debt
Albania			1991-1995	Macedonia			1992-97
Algeria			1991-1996	Madagascar	2002		1981-1984, 1986-2002
Angola	1992-2002		1985-2002	Malawi			1982, 1988
Antigua & Barbuda			1996-2002	Mauritania			1992-1996
Bosnia & Herzegovina			1992-1997	Moldova		1998, 2002	
Burkina Faso			1983-1996	Mozambique			1983-1992
Cameroon			1985-2002	Myanmar (Burma)	1984		1998-2002
Cape Verde			1981-1996	Nauru			2002
Central African Republic			1981, 1983-2002	Nicaragua			1979-2002
Congo (Brazzaville)			1983-2002	Niger			1983-1991
Congo (Kinshasa)			1976-2002	Nigeria		1986-1988, 1992	1982-1992
Cuba			1982-2002	Sao Tome & Principe			1987-1994
Ethiopia			1991-1999	Serbia & Montenegro			1992-2002
Gabon			1986-1994, 1999, 2002	Seychelles			2000-2002
Gambia			1986-1990	Sierra Leone	1997-1998		1983-1984, 1986-1995
Ghana	1979		1987	Solomon Islands	1995-2002		
Guinea			1986-1988, 1991-1998	Sri Lanka	1996		
Guinea-Bissau			1983-1996	Sudan			1979-2002
Guyana			1979, 1982-1999	Tanzania			1984-2002
Haiti			1982-1994	Togo		1979-1980, 1982-1984, 1988, 1991-1997	
Honduras			1981-2002	Uganda			1980-1993
Iran			1978-1995	Yemen			1985-2001
Iraq			1987-2002	Former Yugoslavia		1992-2002	1983-1991
Ivory Coast		2000-2002	1983-1998	Zambia			1983-1994
Kenya			1994-2002	Zimbabwe		1975-1980¶	2000-2002
North Korea			1975-2002*				
Liberia			1987-2002				

*Debt initially defaulted on in 1974. ¶Bonds initially defaulted in 1965.
Source: Standard & Poor's.

Cameroon, which has been in arrears to its commercial bank creditors since 1985. In May, the government reached agreement with the London Club to buy back eligible debt (estimated at about US\$600 million, including interest arrears) at a price equal to 14.5% of principal. The deal is set to close on Dec. 31. Suriname ('B-') cured its arrears on about US\$36 million principal owed to commercial banks at the end of 2001, as did Seychelles in August 2002, when it cleared arrears on about US\$70

million in commercial bank loans with proceeds from a new syndicated credit. The government of Serbia and Montenegro also looks set to complete the restructuring of its US\$2.5 billion London Club debt later in 2002.

Looking ahead to 2003, the number of sovereigns in default, and the aggregate value of affected debt, could edge higher. Currently, Standard & Poor's views Ecuador ('CCC+'), Indonesia ('CCC+'), Moldova, and Nigeria as the sovereigns at

the highest risk of default. Also, Argentina's default looks set to linger, with the next administration probably giving precedence to domestic social stability over negotiations with bondholders. Military action against Iraq, if taken, could adversely affect the credit fundamentals of a number of lowly rated and unrated emerging market sovereigns by further depressing the sluggish pace of the global economic growth and the volume of cross-border capital flows to emerging markets.

On the other hand, Cameroon, Serbia, and Seychelles should drop out of the default totals in 2003, assuming that normal debt service is maintained. Ivory Coast could also emerge from default, although the policy challenges it faces make a speedy conclusion of negotiations with bondholders less certain. Workouts of bank loan defaults by some other sovereigns in sub-Saharan Africa benefiting from the Heavily Indebted Poor Countries initiative could also positively affect the default totals beginning in 2003. However, these cases may not offset fully the impact on the numbers of the new sovereign defaults that occur.

LONG-TERM TRENDS

Except for 2002, sovereign credit quality at the bottom end of the credit spectrum has improved steadily, judging from the number of rated and unrated issuers that have cured bond and bank debt defaults in recent years. Beginning in the late 1970s, the issuer default rate rose steadily, from about 2%, even before the Latin American bank debt

crisis began in 1982. As sovereigns from other regions (mainly in sub-Saharan Africa and Eastern Europe) became involved, the default rate rose sharply and peaked at 31% in 1990. Since then, however, the issuer default rate has trended downward to 13.4% in 2001 before ticking up slightly, to 13.9%, through the third quarter of 2002 (see chart 2).

The total value of debt in default in 2002 was about US\$133 billion, up from US\$74 billion in 2001, but still about 60% below the peak of US\$335 billion in default in 1990. A related indicator, the average amount of debt in default per issuer (see table 2), shows a smaller decline of 26%, to US\$4.3 billion in 2002 from US\$5.8 billion in 1990. This reflects the impact of Argentina's default, the largest by a single issuer since Brazil's in 1990.

Apart from more conservative economic policy making by many sovereigns, two factors largely explain developments over the past decade. Settlements between bank creditors and a number of the largest sovereign borrowers since the beginning of the decade

were important because they cured some of the most substantial individual defaults and set the pattern for the debt restructuring agreements with other sovereigns that followed. Another factor, with echoes from the more distant past, is the recurring nature of defaults by individual issuers. Ecuador and Ivory Coast, to take two examples, completed Brady-style deals on their bank debt, in 1995 and 1997, only to default again in 1999 and 2000, respectively. In the sovereign sector, successful debt restructurings do not necessarily signal lasting improvements in creditworthiness.

DEFAULT RATES SINCE 1824

Seen from an even longer historical perspective, however, the past decade was a period of high sovereign default rates. By Standard & Poor's estimates, the average issuer default rate on foreign currency bond and bank debt during the period—about 19% of all sovereigns—is one of the highest on record for nearly 180 years. Only in the 1830s did a greater proportion of governments, 31% of the total, default on their foreign currency

Defining Sovereign Defaults

Standard & Poor's generally defines default as the failure to meet a principal or interest payment on the due date (or within the specified grace period) contained in the original terms of the debt issue. Questions can arise, however, when applying this definition to different types of sovereign obligations. In the sovereign default survey, each issuer's debt is considered in default in any of the following circumstances:

- For local and foreign currency bonds, notes, and bills, when either scheduled debt service is not paid on the due date, or an exchange offer of new debt contains terms less favorable than the original issue;
- For central bank currency, when notes are converted into new currency of less than equivalent face value; and
- For bank loans, when either scheduled debt service is not paid on the due date, or a rescheduling of principal and/or interest is agreed to by creditors at less favorable terms than the original loan. Such rescheduling agreements covering short- and long-term bank debt are considered defaults even where, for

legal or regulatory reasons, creditors deem forced rollover of principal to be voluntary.

In addition, many rescheduled sovereign bank loans are ultimately extinguished at a discount from their original face value. Typical deals have included exchange offers (such as those linked to the issuance of Brady bonds), debt/equity swaps related to government privatization programs, and/or buybacks for cash. Standard & Poor's considers such transactions as defaults because they contain terms less favorable than the original obligation.

Each sovereign in default at any point during the year is included (along with the U.S. dollar equivalent of its debt then in default) in the annual issuer totals. For example, in June 2002, Moldova failed to repay an outstanding foreign currency bond at maturity. Subsequently, in August, investors exchanged the defaulted bond for a new seven-year bond. As a result, Moldova is counted in the 2002 issuer default totals, but—assuming the government maintains normal debt service going forward—it will not be counted among sovereign issuers in default in 2003. ■

David T. Beers, London (44) 20-7847-7101

Table 6

Rated Sovereigns, Foreign Currency Debt in Default, 1824-2002

Issuer	LC/FC ratings	Foreign currency bond debt	Foreign currency bank debt	Issuer	LC/FC ratings	Foreign currency bond debt	Foreign currency bank debt
Austria	AAA/AAA	1868-1870, 1914-1915, 1932-1933, 1938, 1940-1952		Costa Rica	BB+/BB	1962, 1984-1985	1981, 1983-1990
Germany	AAA/AAA	1932-1938, 1939-1953		Guatemala	BB+/BB	1828-56, 1876-88, 1894, 1899-1913, 1933-36, 1989	
Spain	AA+/AA+	1824-1834, 1837-1867, 1827-1882		Panama	BB/BB	1932-1946, 1987-1994	1983-1996
Italy	AA/AA	1940-1946		Jordan	BBB-/BB-		1989-1993
Portugal	AA/AA	1837-1841, 1850-1856, 1892-1901		Peru	BB+/BB-	1826-1848, 1876-1889, 1931-1951	1976, 1978, 1980, 1984-1997
Japan	AA-/AA-	1942-1952		Bulgaria	BB/BB-	1916-1920, 1932	1990-1994
Slovenia	AA/A		1992-1996	Vietnam	BB/BB-		1985-1998
Chile	AA/A-	1826-1842, 1880-1883, 1931-1947	1983-1990	Dominican Republic	BB-/BB-	1872-1888, 1892-93, 1897, 1899-1907, 1931-1934	1982-1994
Czech Republic*	AA-/A-	1938-1946, 1959-1960		Russia/USSR	BB-/BB-	1918, 1998-2000	1991-1797
Greece	A/A	1826-1978, 1894-1897, 1932-1964		Bolivia	BB/B+	1875-1879, 1931-1948, 1989-1997	1980-1984, 1986-1993
Hungary	A+/A-	1932-1937, 1941-1967		Brazil	BB/B+	1826-1829, 1898-1901, 1902-1910, 1914-1919, 1931-1933, 1937-1943	1983-1994
Poland	A/BBB+	1936-1937, 1940-1952	1981-1994	Romania	BB-/B+	1933-1958	1981-1983, 1986
Tunisia	A/BBB	1867-1870		Paraguay	BB-/B	1874-1885, 1892-1895, 1920-1924, 1932-1944	1985-1992
China	N.R./BBB	1921-1936, 1939-1949		Cook Islands	B/B		1995-1997
Mexico	A-/BBB-	1828-1830, 1833-1841, 1844-1850, 1854-1864, 1866-1885, 1914-1922, 1928-1942	1982-1990	Ukraine	B/B	1998-2000	
South Africa	A-/BBB-		1985-1887, 1889, 1893	Uruguay	B/B	1876-1878, 1891, 1915-1921, 1933-1938	1983-1985, 1987, 1990-1991
Croatia	BBB+/BBB-		1992-1996	Venezuela	N.R./B	1826-1840, 1848-1859, 1860-1862, 1865-1881, 1892, 1898-1905, 1995-1997	1983-1988, 1990
Trinidad & Tobago	BBB+/BBB-		1988-1989	Turkey/Ottoman Empire	B-/B-	1876-1881, 1915-1928, 1931-1932, 1940-1943	1978-1979, 1982
Philippines	BBB+/BB+		1983-1992	Ecuador	CCC+/CCC+	1826-1855, 1868-1890, 1894-1898, 1906-1908, 1909-1911, 1914-1924, 1929-1954, 1999-2000	1982-1995
Colombia	BBB/BB	1826-1845, 1850-1861, 1873, 1880-1896, 1900-1904, 1932-1934, 1935-1944		Argentina	SD/SD	1828-1857, 1890-1893, 1989	1982-1993
Egypt	BBB/BB+	1876-1880	1984				
El Salvador	BB+/BB+	1828-1860, 1898, 1921-22, 1932-1935, 1938-46					
Morocco	BBB/BB	1903-1904	1983, 1986-1990				
		1828-1840, 1874-1885, 1895-1897, 1901-1911, 1932-1952,					

Ratings as of Sept 19, 2002. SD—Selective default. N.R.—Not rated. *Former Czechoslovakia. Sources: Standard & Poor's and Debt Cycles in the World Economy, Westview Press, 1992.

obligations. By comparison, default rates in the 1980s and, more surprisingly still, during the worldwide depression of the 1930s, were similar, at 22% and 21%, respectively (see chart 5).

Two caveats are worth bearing in mind. One is that the rate of issuer defaults in the 1990s mainly reflected defaults on bank

loans, not bonds. The latter, while increasing since the 1970s, so far have reached just 2.5%, compared with previous periods of high sovereign default activity. The other concerns the economic importance of such defaults. Those in the 1930s and 1940s—featuring sovereigns like Germany, Italy, and Japan, alongside other issuers—clearly had

greater financial impact than the defaults of the 1980s and of today.

Although comprehensive data on the value of sovereign bonds outstanding are not available for the whole of 1824-2002, it is certain that the share of debt in default has not only varied substantially, but also has been less than issuer default rates over time. This

reflects the dominant share of the global bond market long held by 'AAA' sovereign issuers—the U.K. in the 19th century and, more recently, the U.S. and a number of European issuers. The value of their outstanding bonds, together with those of other investment-grade sovereigns, is such that the amount of debt in default in U.S. dollar terms is less than 1% of the sector as a whole. Nonetheless, as in the past, a key driver of default rates is the rapid growth in the number of sovereign governments, albeit ones of lesser credit quality and of comparatively limited global financial importance. By Standard & Poor's count, the number of sovereign issuers has doubled since 1950, to 202, and has risen fivefold since the early part of the 19th century.

BANK DEBT DEFAULT

As already noted, the tide of sovereign defaults recorded over the past 30 years is mainly one of default on foreign currency bank debt. Until recently, sovereigns have been less prone to default on their foreign currency bonds. A total of 82 sovereigns have defaulted on bank debt since 1975—the vast majority since 1982—including 20 issuers with bonds outstanding during the period their bank loans were in default. Yet, only nine sovereigns in this category defaulted on their bonds, while the others serviced them in full.

Why did this happen? In most cases the value of bonds outstanding was small relative to bank debt. The majority of governments treated them as being effectively senior, and they did so with the tacit consent of bank creditors. Standard & Poor's does not expect this behavior to continue. Repayment of large amounts of bank debt through Brady bond exchanges and buybacks, the low volume of new cross-border bank lending to governments, and increasing new bond issuance by sovereigns of lesser credit quality, strongly suggest that the default rates of bank and bond debt tend to converge.

Looking at the current decade, Standard & Poor's expects sovereign default rates to gradually rise again. The growing number of speculative-grade ratings assigned since 1991, together with the below-average credit quality of most unrated sovereigns, points clearly in

this direction. Efforts by the Paris Club to "bail in" private creditors, and by the IMF to build a formal debt-restructuring framework, are other contributory factors, but ones that some market participants are prone to exaggerate. They overlook the fact that financial distress is a fundamental precondition for rescheduling both official and commercial debt, and that the capacity of defaulting governments to negotiate with creditors, more than the framework in which negotiations occur, is key to the time it takes to resolve defaults. The key change is that foreign currency bonds will figure more prominently than bank debt in future defaults.

Even so, for a number of years still, the number of issuers and the total amount of debt in default is likely to be lower than in the past decade. Since the early 1990s, international bond markets have been receptive to issuance by speculative-grade rated sovereigns, but barriers to entry by sovereigns of lesser credit quality, notably in sub-Saharan Africa, remain strong. The number of foreign currency bond issuers, while growing, is still smaller than the number of governments that had access to cross-border bank finance in the run-up to the 1980's debt crisis. Moreover, the market appetite for speculative-grade debt, shaken by the turmoil in emerging markets over the past several years, will continue to be tested, as sovereign bond defaults gather momentum. Continued global economic growth, a still relatively benign interest rate environment, and, in some cases, timely IMF financial support, should together make the current round of defaults more muted than the last one.

As sovereign defaults increase, how will investors react? Standard & Poor's believes that markets over time should become less volatile. The experience since 1998, which has featured bond defaults by a number of sovereigns, is suggestive. A key reason that market expectations about emerging market sovereigns have fluctuated sharply in recent years is investor uncertainty about credit risk and the process of resolving defaulted debt. The time it takes to resolve defaults, as well as recovery values, is pertinent information in the pricing of securities in any market. Until recently, however, such information was

MORE ON OUR WEBSITE >>

For more information on defaults, visit www.risksolutions.standardandpoors.com. Click on Research from Risk Solutions and scroll to Default Research.

Table 7

Unrated Sovereigns: Foreign Currency Debt In Default, 1824-2002

Issuer	Foreign currency bond debt	Foreign currency bank debt	Issuer	Foreign currency bond debt	Foreign currency bank debt
Albania		1991-1995	Liberia	1875-1898, 1912, 1914-1915, 1917-1918, 1919-1923, 1932-1935	1987-2002
Algeria		1991-1996	Macedonia		1992-1997
Angola		1985-2002	Madagascar		1981-1984, 1986-2002
Antigua & Barbuda		1996-2002	Malawi		1982, 1988
Bosnia & Herzegovina		1992-1997	Mauritania		1992-1996
Burkina Faso		1983-1996	Moldova	1998, 2002	
Cameroon		1985-2002	Mozambique		1983-1992
Cape Verde		1981-1996	Myanmar		1998-2002
Central African Republic		1981, 1983-2002	Nauru		2002
Congo (Brazzaville)		1983-2002	Nicaragua	1828-1874, 1894-1895, 1911-1912, 1915-1917, 1932-1937	1979-2002
Congo (Kinshasa)		1976-2002	Niger		1983-1991
Cuba	1933-1934, 1960	1982-2002	Nigeria	1986-1988, 1992	1982-1992
Ethiopia		1991-1999	Sao Tome & Principe		1987-1994
Gabon		1986-1994, 1999, 2002	Serbia & Montenegro		1992-2002
Gambia		1986-1990	Seychelles		2000-2002
Ghana		1987	Sierra Leone		1983-1984, 1986-1995
Guinea		1986-1988, 1991-1998	Sudan		1979-2002
Guinea-Bissau		1983-1996	Tanzania		1984-2002
Guyana		1979, 1982-1999	Togo		1979-1980, 1982-1984, 1988, 1991-1997
Haiti		1982-1994	Uganda		1980-1993
Honduras	1828-1867, 1873-1925	1981-2002	Yemen		1985-2001
Iran		1978-1995	Former Yugoslavia	1895, 1933-1950, 1992-2002	1983-1991
Iraq		1987-2002	Zambia		1983-1994
Ivory Coast	2000-2002	1983-1998	Zimbabwe	1965-80	2000-2002
Kenya		1994-2003			
North Korea		1974-2002			

Sources: Standard & Poor's and *Debt Cycles in the World Economy*, Westview Press, 1992.

absent in emerging markets because the bonds of sovereigns and other issuers were still performing. Despite the unprecedented nature of defaults on Brady and Eurobonds by Argentina and others, the market-risk premium on emerging market sovereign bonds has tended to be lower than in earlier periods of financial stress. This is an encouraging development, in Standard & Poor's view, suggesting less investor uncertainty about how defaults will be resolved in the future. Financial conditions in emerging markets could be less volatile than in the 1990s as a result.

LOCAL CURRENCY DEBT

Of the 202 sovereigns covered in the survey, Standard & Poor's has identified 19 issuers, 9.4% of the total that have defaulted on their local currency obligations since 1975 (see tables 4 and 5). Recent defaulters include Argentina (2002), Dominican Republic (1981-2001), Ecuador (1999), Madagascar (2002), Mongolia (1997-2000), the Russian Federation (1998-1999), and Ukraine (1998-2000). Russia's default on US\$39 billion of Russian ruble debt stands out because of its size: it was the largest local currency default by a sover-

eign since Brazil's default on about the equivalent of US\$62 billion in 1990. Long-standing defaults that continued in 2002 include those by Angola (1992-2002) and the Solomon Islands (1995-2002). Brazil and Venezuela defaulted at least twice on their local currency debt over the survey period; and Argentina three times.

As in previous years, the 2002 survey illustrates clearly the lower frequency of sovereign default on local currency than on for-

eign currency debt. The number of issuer defaults on local currency debt has been relatively high in recent years, reaching a peak of eight in 1998 before declining to four in 2002. Nevertheless, in the past decade, the issuer default rate on local currency debt has averaged 2.7% per year, compared with an average of 19.2% for issuers of foreign currency debt. For the whole of the survey period, the ratio of issuer defaults on the two types of debt is 1 to 10.

Default on central bank notes took the form of partial conversion into new currency (as in Ghana in 1979). In the case of bonds, default usually reflected the unilateral extension of maturities (as in Russia and Ukraine) and/or the abrogation of inflation-linked indexes embedded in the terms of the issues (as in Brazil in 1986-1987 and 1990).

Of the 19 sovereigns defaulting on their local currency debt, eight (Angola, Argentina,

Table 8

Standard & Poor's Sovereign Credit Ratings

Issuer	Local currency	Foreign currency	Issuer	Local currency	Foreign currency	Issuer	Local currency	Foreign currency	Issuer	Local currency	Foreign currency
Austria	AAA	AAA	Oman	BBB+	BBB	Japan	AA-	AA-	Dominican Republic	BB-	BB-
Canada	AAA	AAA	Lithuania	BBB+	BBB				Grenada	BB-	BB-
Denmark	AAA	AAA	China	N.R.	BBB	Iceland	AA+	A+	Russia	BB-	BB-
Finland	AAA	AAA				Hong Kong	AA-	A+			
France	AAA	AAA	Mexico	A-	BBB-	Kuwait	A+	A+	Bolivia	BB	B+
Germany	AAA	AAA	Slovak Republic	A-	BBB-				Brazil	BB	B+
Ireland	AAA	AAA	South Africa	A-	BBB-	Slovenia	AA	A	Jamaica	BB-	B+
Isle of Man	AAA	AAA	Thailand	A-	BBB-	Cyprus	AA-	A	Romania	BB-	B+
Liechtenstein	AAA	AAA	Croatia	BBB+	BBB-	Malta	AA-	A	Senegal	B+	B+
Luxembourg	AAA	AAA	Trinidad & Tobago	BBB+	BBB-	Botswana	A+	A			
Netherlands	AAA	AAA				Greece	A	A	Papua New Guinea	BB-	B
Norway	AAA	AAA	Philippines	BBB+	BB+				Paraguay	BB-	B
Singapore	AAA	AAA	Egypt	BBB	BB+	Chile	AA	A-	Cook Islands	B	B
Switzerland	AAA	AAA	El Salvador	BB+	BB+	Barbados	AA-	A-	Mongolia	B	B
U.K.	AAA	AAA				Czech Republic	AA-	A-	Ukraine	B	B
U.S.	AAA	AAA	Colombia	BBB	BB	Israel	AA-	A-	Uruguay	B	B
			Morocco	BBB	BB	Hungary	A+	A-	Venezuela	N.R.	B
Australia	AAA	AA+	India	BB+	BB	Korea	A+	A-			
New Zealand	AAA	AA+	Costa Rica	BB+	BB	Bahrain	A	A-	Pakistan	B+	B-
Sweden	AAA	AA+	Kazakhstan	BB+	BB	Qatar	A	A-	Suriname	B	B-
Belgium	AA+	AA+	Guatemala	BB+	BB	Estonia	A-	A-	Lebanon	B-	B-
Spain	AA+	AA+	Panama	BB	BB				Turkey	B-	B-
Bermuda	AA	AA	Jordan	BBB-	BB-	Malaysia	A+	BBB+			
Italy	AA	AA	Peru	BB+	BB-	Poland	A	BBB+	Indonesia	B-	CCC+
Portugal	AA	AA	Belize	BB	BB-	Latvia	A-	BBB+	Ecuador	CCC+	CCC+
Taiwan	AA	AA	Bulgaria	BB	BB-	Tunisia	A	BBB	Argentina	SD	SD
			Vietnam	BB	BB-						

Ratings as of Sept. 19, 2002. N.R.—Not rated. SD—Selective default.

Brazil, Croatia, Ecuador, Madagascar, Sierra Leone, and Venezuela) previously defaulted on their foreign currency debt. On the other hand, a substantial majority (76) of sovereigns continued servicing local currency debt without interruption after defaulting on foreign currency debt.

FOREIGN CURRENCY DEBT

Standard & Poor's has identified 84 issuers, 41.6% of all sovereigns, which have defaulted on their foreign currency bond and bank debt since 1975 (see tables 4 and 5). Most defaulted more than once during the period. Default usually took the form of late payments of principal and/or interest on bank debt. Such arrears featured in 82 cases. In many instances, subsequent exchange offers (such as by the majority of the 22 sovereigns that have issued Brady-type securities) or debt buybacks cured the defaults, but impaired the value of the original debt.

By contrast, 14 issuers defaulted on foreign currency bonds, while issuers defaulting on both bank debt and bonds featured in 13 cases. Among the relatively few sovereigns that have defaulted on foreign currency bonds so far, Zimbabwe, Panama, and Bolivia stand out because their defaults lasted for relatively long periods. Zimbabwe's occurred initially in 1965, when Southern Rhodesia (as the state was then known) unilaterally ended its colonial links with the U.K. After its independence was legally recognized, Zimbabwe's new government settled with its creditors in 1980. Bolivia defaulted on its bonds in 1989 and settled with its creditors in 1997. Panama's bond default began in 1987, a few years after its bank debt went into default, and was cured through an exchange offer in 1994. By contrast, a number of recent bond defaults (Ecuador, Moldova, Pakistan, and Russia) have been cured relatively quickly. In Standard & Poor's view, this demonstrates the capacity of financial markets to adapt to sovereign defaults, even without a more formalized framework for managing debt workouts.

RATED AND UNRATED ISSUERS

Six sovereigns rated by Standard & Poor's: Argentina, Indonesia, Pakistan, the Russian

Federation, Suriname, and Venezuela, defaulted on part of their local and/or foreign currency debt after ratings were initially assigned. In 2001-2002, Argentina defaulted on both its local and foreign currency debt. Indonesia restructured syndicated bank credit in 1998-1999 and again in 2002, while maintaining debt service on its foreign currency bonds, which were rated 'CCC+' at the time of the first bank loan restructuring. Pakistan defaulted on its commercial bank debt in 1998, and in 1999 completed an exchange offer for three Eurobonds. In 1999, Russia restructured the ruble debt it defaulted on in 1998, and in 2000 restructured some categories of foreign currency debt, while remaining current on its then 'CCC-' rated Eurobonds. Similarly, Venezuela defaulted on portions of local and foreign currency debt in 1995-1998, while maintaining debt service on its 'B' rated Eurobonds. Suriname ran arrears on two separate loans extended by commercial banks. Throughout most of 1983-1990, Venezuela was in default on its bank debt, but maintained timely debt service on its rated foreign currency bonds.

Since 1992, Standard & Poor's has assigned credit ratings to 33 sovereign issuers that defaulted in previous years (see table 6). Four sovereigns, the Dominican Republic, El Salvador, Mongolia, and Kuwait, had previously defaulted on part of their local currency debt. Five issuers (Argentina, Brazil, Croatia, Ukraine, and Vietnam) defaulted on both their local and foreign currency debt, while 28 others had defaulted on their foreign currency debt between 1975 and 2000. Altogether, 43 of the sovereigns currently rated by Standard & Poor's had defaulted on foreign currency bonds and bank loans at some time between 1824 and 2002 (see table 6).

The remaining local and foreign currency debt defaults identified between 1975 and 2002 were by 52 sovereigns not rated by Standard & Poor's (see table 5). This group includes five issuers that defaulted on foreign currency bonds, 49 that defaulted on foreign currency bank loans, and seven that defaulted on local currency debt. Between 1824-2002, a total of 50 unrated sovereigns defaulted on foreign currency bonds and bank loans (see table 7).

SCOPE OF THE SURVEY

Standard & Poor's based its survey on proprietary data compiled from a variety of sources believed to be reliable. The 2002 survey covers rated and unrated local and foreign currency debt issued by sovereign governments and territories between 1975 and 2002, and for foreign currency bonds between 1824 and 2002. The number of sovereign governments increased to 202 in 2002 from 39 in 1824.

Local currency obligations include government and central bank securities, as well as bank loans and central bank currency. Foreign currency debt includes bank loans and all capital market issues sold in cross-border and local markets.

The 93 rated sovereigns include all issuers with public foreign currency credit ratings as of Sept. 19, 2002, (see table 8). Within this group, 91 also have public local currency credit ratings. The 109 unrated issuers include 52 sovereigns with default histories identified since 1975.

Defaults by sovereigns on loans from other governments and their agencies are not tracked in the survey. Such obligations typically are made on concessional terms and are restructured more frequently than either bonds or commercial bank loans. Sovereign loans in arrears from multilateral lending institutions (such as the World Bank) are also not included in the survey. The default rate on loans by multilateral institutions is significantly lower than that for either bonds or bank loans, reflecting their "preferred creditor" status. Willingness to pay is an issue distinguishing sovereigns from most types of issuers and is reflected in the different default rates observed on various classes of rated and unrated sovereign debt. Partly because creditors have limited legal redress, governments can (and sometimes do) default selectively on their obligations, even when they possess the financial capacity for timely debt service.

With the possible exception of foreign currency bonds, this compilation of sovereign defaults might not be exhaustive. Local and foreign currency debt defaults in a few countries and territories may have passed unnoticed (except by creditors). Additional information on such defaults, as it becomes available, will be incorporated into future surveys. 