Special Comment

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Contact	Phone
New York	
Praveen Varma	1.212.553.1653
Richard Cantor	
David Hamilton	
David Levey	
Sharon Ou	
Vincent Truglia	

Sovereign Bond Defaults, Rating Transitions, And Recoveries (1985-2002)

Summary

1. This *Special Comment* presents Moody's first in-depth analysis of sovereign bond rating transitions, defaults, and defaulted bond recoveries. The dynamics and performance of sovereign and corporate ratings are also compared; however, these comparisons should be interpreted cautiously given the very small sovereign sample size and relatively short rating histories of most sovereigns.
2. On average, the sovereign bond rating transition experience has been fairly similar to that of Moody's corporate bond ratings. During the time period of 1985-2002, 10% of sovereign issuers experienced broad letter rating category changes per year, compared to 11% of all corporate issuers. The frequencies of upgrades and downgrades were also fairly similar across the two sectors.
3. The average annual default rates for *speculative-grade* sovereigns and corporates have also been similar across rating categories, although the overall speculative-grade default rate for sovereigns has been lower because there have been relatively few Caa-, Ca- and C-rated sovereign issuers.
4. No sovereign that has ever carried an investment-grade since 1985 has subsequently defaulted; however, given the limited sovereign sample size, the difference between *investment-grade* sovereign and corporate default rates is not significant.
5. Recovery rates on defaulted sovereign bonds, as measured by trading prices observed shortly after the time of default, have averaged 34% overall, which is similar to the 35% average recovery rate for corporate bonds during the same period.
6. Based on a comparison of their one-year-ahead cumulative accuracy profiles, Moody's sovereign ratings have proven as accurate as Moody's corporate ratings in discriminating between defaulters and non-defaulters.

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Development Of The Modern Sovereign Bond Market

Growth is Slow Until the Early 1990s Moody's has been rating sovereign issuers since just before *World War I*, when John Moody assigned his symbol-based ratings to bonds issued by sovereign and sub-sovereign (provincial and local government) issuers in Europe, Latin America and Canada. Most of these bonds were issued in the US market and were called *Yankee Bonds*. The sovereign issuer universe expanded quickly during the 1930s and the early 1940s; however, by the end of the 1940s many of these issuers had defaulted following the trauma of the Great Depression and World War II and the sovereign debt market became dormant as the global bond market retrenched.

Between 1950 and 1980, stabilization and economic recovery took hold in most of Western Europe and Japan. Developed countries became active borrowers in the international bond markets, which provided capital to only the highest credit quality sovereign borrowers. Developing countries, effectively shut out of the public bond market, tended to borrow exclusively from banks and multilateral institutions. In 1980, only eleven countries had Moody's bond ratings on either domestic or foreign currency bonds and all of them were rated investment grade.

The sovereign bond market has seen explosive growth since the easing of the emerging market debt crisis in the 1980s. With more and more countries from the emerging markets accessing international capital markets, the number of Moody's-rated sovereign bond issuers has grown significantly. Exhibit 1 provides a list of sovereign issuers that have issued Moody's-rated debt in the past. Of these, 78 sovereigns currently have one or more rated bond issues outstanding.

Exhibit 1 – List Of Moody's-Rated Sovereign Bond Issuers

Year	New Ratings	Countries
1958 - 1980	11	Panama, Australia, New Zealand, Denmark, Canada, Venezuela, Austria, Finland, Sweden, Norway, United Kingdom
1986	5	Argentina, Brazil, Italy, Malaysia, Portugal
1987	1	Ireland
1988	4	Belgium, China, France, Spain
1989	2	Iceland, Thailand
1990	1	Mexico
1991	0	None
1992	1	Turkey
1993	7	Columbia, Germany, Japan, Philippines, Trinidad and Tobago, United States, Uruguay
1994	6	Barbados, Bermuda, Greece, Indonesia, Pakistan, South Africa
1995	2	Israel, Poland
1996	7	Bulgaria, Jordan, Kazakhstan, Lithuania, Mauritius, Russia, Slovenia
1997	9	Bahamas, Costa Rica, Croatia, Ecuador, Guatemala, Lebanon, Moldova, Oman, Romania
1998	16	Bolivia, Cyprus, Czech Republic, El Salvador, Honduras, Hungary, India, Jamaica, Korea, Netherlands, Nicaragua, Paraguay, Singapore, Slovakia, Switzerland, Taiwan
1999	14	Belize, Chile, Egypt, Fiji Islands, Iran, Kuwait, Latvia, Luxembourg, Malta, Morocco, Peru, Qatar, Saudi Arabia, Ukraine
2000	1	Isle of Man
2001	1	Dominican Republic
2002	1	Estonia
Total	**89**	

Data And Methodology

Defining Sovereign Rating Histories – Focus Is On Issuers, Not Individual Bond Issues

As is our practice with Moody's annual corporate bond default research, the unit of study in this special comment is the issuer's bond rating history rather than the history of individual bond issues. Although Moody's assigns a variety of sovereign ratings, this study focuses only on bond ratings. Moody's assigns two kinds of sovereign bond ratings: foreign currency ratings and domestic currency ratings.[1] Sovereigns are assigned these ratings only if they have domestic and foreign currency bonds outstanding. Therefore, different countries may have different "length" bond rating histories.

Moreover, some countries' rating histories begin with a foreign currency bond rating while others begin with a domestic currency bond rating. On occasion, when a sovereign retires all its outstanding domestic or foreign currency debt, its bond ratings are withdrawn. Since sovereigns rarely retire *all* their debt simultaneously, withdrawn ratings are rare for sovereigns, unlike the case for the corporates, where ratings withdrawals are more common for a variety of reasons. For example, unlike sovereigns, corporations often merge or go bankrupt and are liquidated. *Moody's sovereign bond rating histories are presented in their entirety in Appendix I.*

1. *Irrespective of whether or not a country has issued bonds, Moody's also assigns domestic and foreign currency deposit ratings and country ceilings ratings. These ratings can and do differ from foreign/domestic currency government bond ratings. The current study, however, is limited only to the behavior of Moody's sovereign bond ratings. For more detail on these ratings, see "Sovereign Rating History," Moody's Special Comment, January 2002. Overall, Moody's provides ratings for 113 sovereigns and includes country ceilings.*

Even within a narrowly defined rating class such as foreign currency bond ratings, Moody's occasionally assigns different ratings depending on the specific type of bond being considered.[2] Consistent with our study of corporate bond ratings, in this study we define a sovereign's rating history by tracking its lowest senior unsecured bond rating outstanding at any point in time.[3] For the purpose of calculating issuer-based default rates, we define a sovereign default to have occurred whenever a country defaults on any of its rated bonds. Additionally, we define the sovereign's rating history by changes in its *lowest* bond rating over time, regardless of whether the lowest rating is on a foreign currency or a domestic currency bond. [4] The lowest rating is selected because it is the most meaningful single indicator of a sovereign's likelihood of defaulting on any one of its bonds.

Definition Of Default

Moody's defines a sovereign issuer as in default when one or more of the following conditions are met:[5]

1. There is a missed or delayed disbursement of interest and/or principal, even if the delayed payment is made within the grace period, if any.
2. A distressed exchange occurs, where:
    1. The issuer offers bondholders a new security or package of securities that amount to a diminished financial obligation such as new debt instruments with lower coupon or par value.
    2. The exchange had the apparent purpose of helping the borrower avoid a "stronger" event of default (such as a missed interest or principal payment).

Data Set: All Sovereign Bond Ratings Since '85

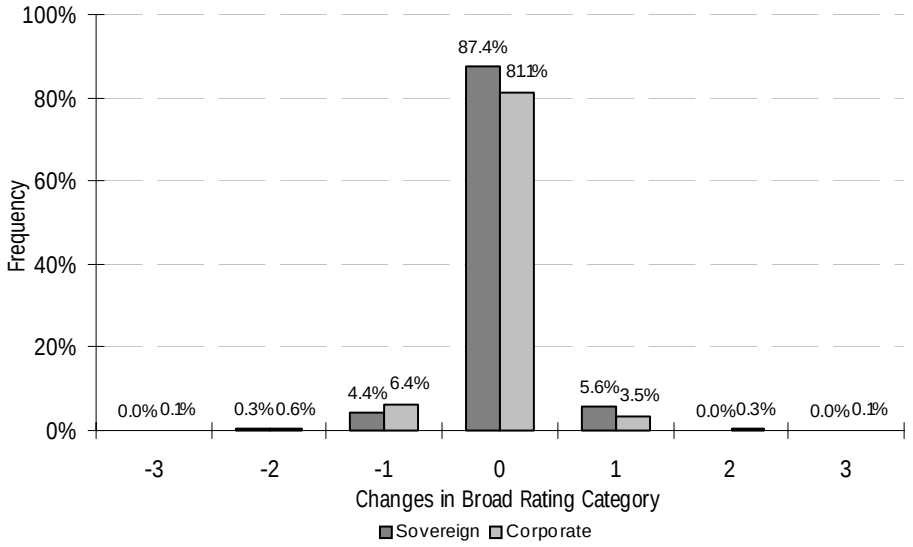
The data set for this study consists of all sovereign bond ratings outstanding from 1985 through 2002. Sovereigns that carry issuer ratings, but lack bond ratings, are not included. For example, Bahrain, which has a foreign currency issuer rating but no foreign currency debt outstanding, is excluded from our analysis. This reduces our sample size to the 88 sovereigns that have at one time or another been assigned a sovereign bond rating since 1985, which is substantially less than the total of 113 sovereigns that carried issuer ratings at the end of 2002.

Sovereign Rating Transitions

Ratings are periodically upgraded or downgraded to reflect changes in Moody's opinion of the credit quality of an issuer; however, Moody's ratings are generally stable and the most likely rating for an issuer one year from today is the same rating it holds today. Exhibit 2 illustrates this finding by examining the annual frequency of broad letter rating changes and compares the results for sovereign bond issuers and corporate issuers. We define broad letter rating changes as a change from one broad letter-rating category to the next one. For example, a rating change from Baa1 to Ba3 is counted in the same fashion as a rating change from Baa3 to Ba1: one letter grade change.

2. *For example, Moody's has generally rated US dollar bonds issued by the Russian government in Russia (the "MinFins") lower than its Eurodollar bonds, and, in fact, during the Russian debt crisis of 1998, there were defaults on the MinFins but not on the Eurobonds.*
3. *In most cases, domestic currency bond ratings are same or higher than the same sovereign's foreign currency bond ratings. This is due to the fact that a government could generally "print" money if necessary to service satisfy domestic currency debts and avoid default, but may find it very difficult, at times, to obtain sufficient foreign exchange to service foreign currency debt. In a few cases, however, such as Japan, a country's foreign currency bonds may be rated higher than its domestic currency bonds.*
4. *This paper does not attempt to provide any distinction between domestic currency ratings and foreign currency ratings or any material differences between the methodologies to arrive at such ratings for foreign or domestic currency debt issued by the sovereigns.*
5. *An obvious third condition in case of a corporate issuer, as opposed to a sovereign issuer, would be an announcement of filing for bankruptcy, administration, legal receivership, or some other legal procedure that would likely prevent future debt service payments.*

Exhibit 2 – Frequency Of Broad Letter Rating Transitions Within One Year (1985- 2002)



Sovereign Ratings Tend To Be Stable

Exhibit 2 shows that sovereign ratings are generally stable: 87% of sovereign ratings did not cross broad rating categories over a one-year horizon. For corporate issuers, the corresponding number is slightly above 81%. The exhibit also shows that large rating changes (more than one letter grade) within one year are extremely infrequent for both sovereign and corporate issuers. Moreover, the frequencies of upgrades and downgrades are similar across the two sectors.

Credit rating migration matrices present a more detailed picture of changes in credit quality over time. Exhibit 3 compares the annual broad letter rating transitions for sovereign and corporate issuers from 1985 to 2002. Each cell in the matrix is the weighted average fraction of issuers that held a particular row's rating at the beginning of the measurement period and the column rating at the end of the measurement period, including defaults and withdrawn (WR) ratings.[6] The weight corresponds to the size (number of issuers) of the annual cohort. *Appendix II presents more detailed rating migration data, documenting annual transition rates across the refined letter rating categories (i.e., incorporating the 1, 2, 3 rating modifiers).*

In A Given Year Most Issuers Don't See Any Rating Change

The largest values in the transition matrix presented in Exhibit 3 are, as expected, along the principal diagonal: most issuers do not experience a rating change in any given year. For example, 93.9% of all Aaa- rated sovereigns have experienced no rating change over the course of each year.

As evident from the exhibit, sovereign issuers have experienced slightly greater ratings stability than corporate issuers. However, within the Baa category, more sovereigns suffered downgrades to speculative grade (8.6%) compared to corporates (6.2%, including defaults).

6. *Ratings are withdrawn when all of an issuer's debt is retired. Moody's does not withdraw a rating due to default.*

Exhibit 3 - Rating Transition Tables (1985-2002)

Sovereign Ratings Transitions

Average 1 - Year(s) Rating Migration Rates 1985 - 2002

Rating From	Rating to: Aaa	Aa	A	Baa	Ba	B	Caa-C	Default	WR
Aaa	93.9%	6.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Aa	5.1%	92.5%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%
A	0.0%	2.7%	90.3%	6.2%	0.9%	0.0%	0.0%	0.0%	0.0%
Baa	0.0%	0.0%	4.8%	79.6%	8.3%	0.3%	0.0%	0.0%	7.0%
Ba	0.0%	0.0%	0.0%	3.7%	85.2%	10.0%	0.0%	0.7%	0.4%
B	0.0%	0.0%	0.0%	0.0%	2.2%	87.7%	2.2%	4.0%	3.9%
Caa, Ca, C	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%

Corporate Ratings Transitions

Average 1 - Year(s) Rating Migration Rates 1985 - 2002

Rating from:	Rating to: Aaa	Aa	A	Baa	Ba	B	Caa-C	Default	WR
Aaa	87.8%	7.9%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	4.1%
Aa	0.8%	86.1%	8.6%	0.3%	0.1%	0.0%	0.0%	0.0%	4.1%
A	0.0%	2.3%	87.0%	5.6%	0.7%	0.2%	0.0%	0.0%	4.3%
Baa	0.1%	0.3%	5.2%	82.9%	4.8%	1.1%	0.1%	0.2%	5.3%
Ba	0.0%	0.0%	0.5%	5.1%	75.1%	8.3%	0.6%	1.4%	8.8%
B	0.0%	0.1%	0.2%	0.6%	5.1%	74.1%	4.2%	6.8%	8.8%
Caa, Ca, C	0.0%	0.0%	0.0%	1.0%	1.6%	6.0%	59.7%	21.5%	10.2%

Sovereign Defaults

Because Sovereigns Don't Declare Bankruptcy, Most Defaults Begin As Payments Defaults

Since a sovereign issuer cannot file for bankruptcy,[7] most defaults by sovereign issuers begin as *payment defaults*, which may eventually be cured or may lead to distressed exchanges. Sovereign defaults can also be initiated by a *distressed exchange* where the debtor renegotiates the terms of the debt with its creditors and the result is a reduction in coupon, reduction in principal, or increase in term.

Exhibit 4 lists the rated sovereign bond issuers that have defaulted on their bonds since 1985.[8] The first bond default by a Moody's-rated sovereign issuer happened in 1998. One reason that there were no defaults prior to 1998 is that during most of the 1980s, most of the sovereigns accessing the international capital markets were highly creditworthy. Many of the less creditworthy sovereigns were in default on bank loans during the 1980s and only gradually obtained capital market access in the mid-1990s. During the last decade, many sovereigns from the emerging markets became active issuers in capital markets, many of which were rated below investment grade.

Most of these defaults listed in Exhibit 4 involve either *missed payment* or *distressed exchange* or both. Exceptions are listed under comments and are footnoted. *The circumstances surrounding these defaults and subsequent distressed exchanges are discussed in Appendix III.*

7. *There are some efforts underway by multilateral lending institutions to develop an international framework for "bankruptcy filing" by a sovereign entity. During the Annual Meetings (2002) of the World Bank and IMF in Washington DC, the IMF's International Monetary and Finance Committee (IMFC) agreed to continue work on an international bankruptcy plan or a so-called "sovereign debt Restructuring mechanism." For a detailed discussion on this issue, please see "Proposed Frameworks for Sovereign Debt Restructuring." Moody's Investors Service Special Comment September 2002.*

8. *Sovereigns which have defaulted on other rated obligations besides bonds during this period include South Korea (1998 - bank deposits), Indonesia (1999, 2001 - bank loans), and Uruguay (2002 - foreign currency loans and deposits).*

Exhibit 4 – Summary Of Sovereign Defaults

Year	Country	Total Defaulted Debt ($ millions)[1]	Comments
Nov 1998	Pakistan	$ 750	Pakistan had grace period default but cured the default subsequently within the grace period (within 4 days). Later, it defaulted again, and went through a distressed exchange in 1999.
Aug 1998	Russia	$ 73,336	Missed payments first on local currency Treasury obligations. Later the country also failed to service its foreign currency obligations that were issued locally but mostly held by foreign investors. Subsequently, it also failed to pay principal on MINFIN III foreign currency bonds. Debts were restructured in Aug 1999 and Feb 2000
Sep 1998	Ukraine	$ 1,422	Moratorium on debt service for bearer bonds owned by anonymous entities. Only those entities willing to identify themselves and convert to local currency accounts were eligible for debt repayments, which amounted to a distressed exchange.
Jul 1998	Venezuela	$ 270	Defaulted on domestic currency bonds in 1998, although the default was cured within a short period of time.
Aug 1999	Ecuador	$ 6,603	Missed payment was followed by a distressed exchange with over 90% of the bonds restructured. Ecuador also defaulted on its domestic debt by unilaterally changing the interest rates on its domestic bonds.
Sep 2000	Peru	$ 4,870	A payment default that was cured within the 30-day grace period. Peru missed payment on its Brady Bonds but subsequently paid approximately $80 million in interest payments to cure the default.
Jan 2000	Ukraine	$ 1,063	Defaulted on USD-denominated bonds in Jan 2000 and later defaulted on DM-denominated Eurobonds in Feb 2000. Offered to exchange bonds with longer term and lower coupon. The conversion was accepted by a majority of bondholders.
Nov 2001	Argentina	$ 82,268	Declared it would miss payment on foreign debt in November 2001. Actual payment missed on Jan 3, 2002. The largest rated sovereign default in history. Negotiations are at a very preliminary stage for a distressed exchange with the lenders.
Jun 2001	Moldova	$ 145	Missed payment on the bond in June 2001 but cured default shortly thereafter. Afterwards, it began gradually buying back its bonds, but in June 2002, after having bought back about 50% of its bonds, it defaulted again on the remaining $70 million of the outstanding issue.

1 Total defaulted debt is the sum of defaulted local and foreign currency debt in millions of dollars using the prevailing exchange rate at or around the time of default.

Sovereign Default Rates

Issuer-Weighted Default Rates

Exhibit 5 presents multi-year cumulative default rates based on annual cohorts. The 10-year issuer-weighted average cumulative default rate for sovereign issuers is 9.34%. During the same time period, the comparable default rate for corporate issuers was 11.76%. For speculative-grade sovereign issuers, the 10-year default rate is higher: 45.39% compared to 37.77% for speculative-grade corporate issuers. No sovereign issuer that was ever rated investment grade during this time period has defaulted. However, given the relatively small size of the sovereign sample, the sovereign sector's 0% investment-grade default rate is statistically indistinguishable from the investment-grade 10-year cumulative default rate of 1.86% over the same period for the corporate sector.

Default rates within the speculative-grade rating categories have been similar for sovereign and corporate issuers. One- and five-year cumulative default rates have also been quite similar for Ba-rated sovereign and corporate issuers. The one-year default rate for the Ba-rated sovereign is 1.56%, which is comparable to 1.39% for the corporates. The five-year default rates for Ba-rated sovereigns and corporates are similarly situated: 12.62% for sovereigns and 12.99% for corporates. Default rates in the B rating category have also been roughly similar for sovereign and corporate issuers. The one-year default rate for sovereign issuers is 7.89%, while the comparable number for corporate issuers is 6.44%. While the 5-year default rate for B-rated sovereigns has been lower for sovereigns than for corporates (22.22% compared to 33.18%), the 10-year cumulative default rates are quite similar (53.38% vs. 51.14%). Unlike the corporate sector — where many issuers have been rated in the Caa, Ca, and C rating categories, and where many of these issuers have defaulted — very few sovereigns have been rated in this category and only one, Moldova (rated Caa1 in the beginning of 2000), subsequently defaulted in June 2001.

Exhibit 5 - Issuer-Weighted Average Cumulative Default Rates, January 1985 - December 2002

Issuer-Weighted Cumulative Sovereign Default Rate Distribution
January 1985 – December 2002

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Aaa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Aa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Baa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Ba	1.56%	3.37%	5.49%	10.86%	12.62%	14.98%	18.13%	22.23%	28.71%	40.59%
B	7.89%	14.25%	18.33%	18.33%	22.22%	27.08%	32.69%	38.81%	45.61%	53.38%
Caa, Ca, C	0.00%	50.00%	N.A*	N.A*	N.A*	N.A*	N.A*	N.A*	N.A*	N.A*
Investment Grade	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Speculative Grade	**3.87%**	**7.87%**	**10.62%**	**14.19%**	**16.59%**	**19.74%**	**23.75%**	**28.67%**	**35.47%**	**45.39%**
All Sovereigns	**1.19%**	**2.38%**	**3.17%**	**4.12%**	**4.68%**	**5.33%**	**6.10%**	**6.99%**	**8.06%**	**9.34%**

** Not meaningful. No issuer had a Caa, Ca or C rating more than two years prior to the end of the sample.*

Issuer-Weighted Corporate Default Rate Distribution
January 1985 – December 2002

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Aaa	0.00%	0.00%	0.00%	0.00%	0.00%	0.07%	0.07%	0.07%	0.07%	0.07%
Aa	0.02%	0.04%	0.09%	0.16%	0.20%	0.23%	0.26%	0.29%	0.33%	0.43%
A	0.03%	0.10%	0.27%	0.43%	0.56%	0.71%	0.84%	0.98%	1.10%	1.21%
Baa	0.19%	0.54%	0.97%	1.57%	2.16%	2.78%	3.32%	3.71%	4.15%	4.70%
Ba	1.39%	4.02%	6.97%	10.08%	12.99%	15.63%	17.73%	19.52%	21.32%	23.13%
B	6.44%	14.33%	21.32%	27.56%	33.18%	37.88%	42.35%	45.68%	48.66%	51.14%
Caa, Ca, C	22.82%	35.62%	45.95%	54.15%	59.44%	64.89%	68.70%	74.50%	78.14%	82.51%
Investment Grade	**0.07%**	**0.21%**	**0.41%**	**0.65%**	**0.87%**	**1.10%**	**1.30%**	**1.46%**	**1.63%**	**1.82%**
Speculative Grade	**5.45%**	**11.20%**	**16.38%**	**21.02%**	**25.06%**	**28.50%**	**31.42%**	**33.75%**	**35.83%**	**37.77%**
All Corporates	**1.86%**	**3.80%**	**5.53%**	**7.03%**	**8.25%**	**9.26%**	**10.07%**	**10.69%**	**11.24%**	**11.76%**

Dollar-Weighted And Issuer-Weighted Default Rates

Dollar-weighted annual default rates measure losses to investors that hold the sovereign market portfolio. We estimate dollar-weighted default rates as a ratio of total defaulted debt volume during a particular year divided by the total dollar volume of debt at the beginning of the year.

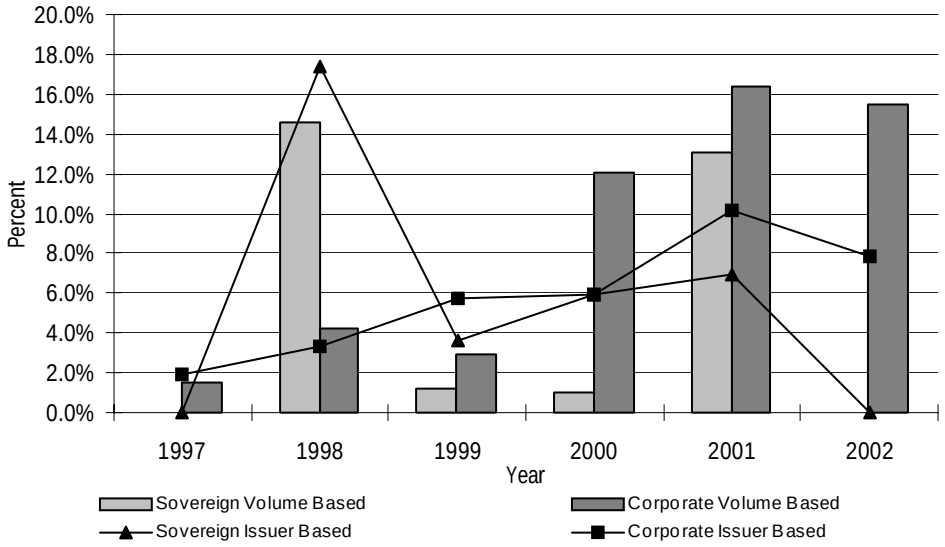
Since there were no investment-grade defaults[9] for sovereign issuers during our sample period, we estimate dollar-weighted, annual default rates for speculative-grade issuers only. We also estimate the comparable statistic for non-investment-grade corporate bond issuers. Additionally, we compute an issuer-based, annual one-year default rate for sovereign and corporate issuers.[10] This statistic is estimated as a ratio of *number* of issuers that defaulted in a given year divided by the number of issuers at the beginning of the year. Exhibit 6 presents the time series of these dollar-weighted and issuer-based, annual default rates.[11]

Because dollar-weighted statistics assign large relative weights to a few issuers, dollar-weighted statistics are normally more volatile than issuer-weighted statistics. For example, in 2001, only Argentina defaulted on its bond issues. Because Argentina's foreign currency debt is large, the dollar-weighted, annual default rate for 2001 is 13%. Though comparable to the dollar-weighted corporate default rates (16%), it is roughly twice that of the issuer–based, sovereign default rate (7%) for 2001.

Similarly, the dollar-weighted, 14.6% sovereign annual default rate for 1998 included defaults by Russia, Pakistan and Ukraine. This is comparable to the 13% default rate for 2001, which included only *one* default, Argentina. Again, this is due to the fact that, in 1998, Russian-defaulted debt comprised over 90% of the defaulted debt volume while, in 2001, Argentine-defaulted debt comprised 100% of defaulted debt. No Moody's-rated sovereign bond defaulted in 2002.

9. Investment-grade default is defined as default by entity that was rated investment grade some time prior to its default.
10. As opposed to issuer-based sample average one-year and multi-year default rates reported in the preceding sub-section.
11. The exhibit timeline begins at 1997, as the first Moody's-rated sovereign bond default occurred in 1998.

Exhibit 6 – Dollar- And Issuer-Based Annual Speculative-Grade Default Rates



Large And Small Issuer-Weighted Default Rates

While we do not have sufficient data to calculate dollar volume-weighted default rates by rating category, we can calculate distinct issuer-weighted default rates by rating category for small and large issuers. In the following table, we report speculative-grade default rates for "small" and "large" issuers, where we have split the speculative-grade sample in half, based on the size of each issuer's debt outstanding in 2002. While the significance of these comparisons is limited by the relatively small size of the two samples, it is interesting to note that the overall default rates for speculative-grade issuers as illustrated in the table below are similar for small and large issuers. Although the default rates on B-rated issuers are similar across the two samples, the default rate on large Ba-issuers is larger than for large issuers. This is due to Peru's default in 2000, a marginally "large" issuer whose default imposed nearly zero economic loss on investors.[12]

Exhibit 7 – Speculative-Grade Large And Small Issuer-Weighted Sovereign Cumulative Default Rates

Large Sovereign Issuers*

	Year 1	Year 2	Year 3	Year 4	Year 5
Ba	2.99%	6.33%	10.08%	14.52%	17.19%
B	8.08%	15.24%	15.24%	15.24%	19.28%
Caa-C	0.00%	0.00%	0.00%	0.00%	0.00%
Speculative-Grade	5.11%	9.97%	12.21%	14.89%	18.10%

Small Sovereign Issuers*

	Year 1	Year 2	Year 3	Year 4	Year 5
Ba	0.00%	0.00%	0.00%	6.56%	N.A
B	7.55%	11.85%	23.60%	23.60%	23.60%
Caa-C	0.00%	100.00%	N.A	N.A	N.A
Speculative-Grade	2.50%	5.31%	8.85%	13.71%	N.A

** Large and small issuers are distinguished by splitting the sample in half based on their 2002 debt volumes outstanding.*
N.A: Not meaningful. No issuer had that particular rating more than relevant years prior to the end of the sample.

12. See Appendix III for details on Peru default.

Recovery Rates On Defaulted Sovereign Bonds

As is our practice with regard to corporate bonds, as a proxy for realized recovery rates we define the recovery rates for sovereign bonds in default as the first available bid price 30-days after default. This allows time for most of the default-related information to be incorporated into bond prices. The price also reflects market expectations of the final recovery, both in terms of loss (if any) and length of the restructuring process. It also serves as the actual recovery rate for investors who liquidate their positions in the credit upon default.

Our available sample is small, with just 24 defaulted sovereign bonds, issued by seven[13] sovereigns.[14] We find, however, on average, bondholders experienced similar average recoveries on the defaulted sovereign debt as on the defaulted corporate debt. Exhibit 8 provides the recovery rates on sovereign defaults.

Calculated on an issue-weighted basis, bondholders recovered approximately 34% (or a loss of 66%) of the face value of sovereign bonds in default. Because of the large number of defaulted bonds attributable to Argentina, average sovereign recovery rates were a little higher, approximately 41%, when measured on an issuer basis. The comparable figures for corporate recoveries since 1998 are 35% and 28% on an issue and on an issuer basis, respectively.

When considering these results it is worth noting that we were unable to obtain bond-price data for Peru and Venezuela around the time of their defaults. Given that both defaults were cured within short periods of time (four weeks for Peru and several days for Venezuela), it is possible but not certain that the defaulted securities traded relatively close to par one month after their initial default dates. It is possible therefore that our estimated sovereign recovery rate may underestimate true average recovery rate. *In Appendix IV, we provide more detail on the sovereign bond prices used to estimate the recovery rates.*

Exhibit 8 – Recovery Rates For Sovereign Defaults

Average Defaulted Debt Recovery Rates for Sovereign Bonds (Percentage of Face Value)

Issuer	Average Recovery Rates	Observations
Argentina	28%	14
Ecuador	45%	2
Ivory Coast	18%	1
Moldova	65%	1
Pakistan	48%	2
Russia	18%	2
Ukraine	69%	2
Issue-Based Average Recovery Rates	**34%**	**24**
Issuer-Based Average Recovery Rates	**41%**	**7**

Accuracy Of Sovereign Ratings

Moody's Success In Predicting Sovereign Defaults Is Similar To That For Corporate Defaults

Rating transition rates and default rates are useful statistics for risk management and portfolio selection, as well as informative macroeconomic indicators in the aggregate. These statistics can also serve as important gauges of the accuracy and consistency of ratings. Default statistics are used to evaluate the effectiveness of credit ratings as predictors of default.

One method for evaluating the effectiveness of ratings at discriminating between future "defaulters" and future "non-defaulters" is to measure the proportion of rated defaulters as captured by low ratings at different horizons prior to default. Cumulative accuracy profiles (CAPs) can be used for making this kind of assessment of ratings performance.

A CAP curve is constructed by sorting the Moody's-rated universe of sovereign issuers from lowest (i.e. riskiest, Caa-C) rating to highest (default remote, Aaa) rating and calculating the percentage of defaulters whose ratings is equal to or lower than that rating. An effective rating system would catch relatively more defaults from the rated population in its lowest (high-default risk) categories. The farther the curve bows towards the northwest corner, the greater the fraction of defaults that carry low ratings. In contrast, the 45-degree line represents the CAP of a rating system that assigns ratings in totally random fashion (or assigns the same rating to all issuers) as that would lead to equal fraction of issuers and defaulters at each rating level and below. In essence, CAP plots show the extent to which the rank order of risk implied by the Moody's ratings at the beginning of the year successfully predicted the subsequent defaults within one year.

13. Prices were not available for the Peruvian and Venezuelan defaulted bonds.

14. As is our practice in the corporate bond default study, we include recoveries on unrated defaulted bonds as well as rated defaulted bonds. Ivory Coast's defaulted bonds are therefore included in our sample for this analysis.

Exhibit 9 shows the one-year-ahead CAP curves based on sovereign and US corporate ratings and defaults that occurred between January 1985 and December 2002. Each point along the horizontal axis shows the percentage of issuers that had a particular rating or lower in a particular year between 1985 and 2002. The vertical axis shows the percentage of issuers that subsequently defaulted within one year of holding that rating.

As evident from the CAP curve in Figure 1 of Exhibit 9, Moody's sovereign ratings successfully discriminated between subsequent defaulters and non-defaulters. All sovereign defaulters in this study that defaulted during the time period carried ratings of B1 or below within one year prior to default. Similarly, Figure 2 indicates that sovereign ratings were as effective as corporate ratings at discriminating between future defaulters and non-defaulters. For sovereign issuers, the lowest-rated 20% of issuers accounted for over 80% of defaulters, which is very similar to the accuracy profile of corporate ratings where 20% of the lowest rated issuers accounted for over 80% of the defaults.

Exhibit 9 – One-Year-Ahead Cumulative Accuracy Profiles For Sovereign And Corporate Issuers: 1985-2002

Figure 1 - Cumulative Accuracy Profiles- Sovereign Issuers

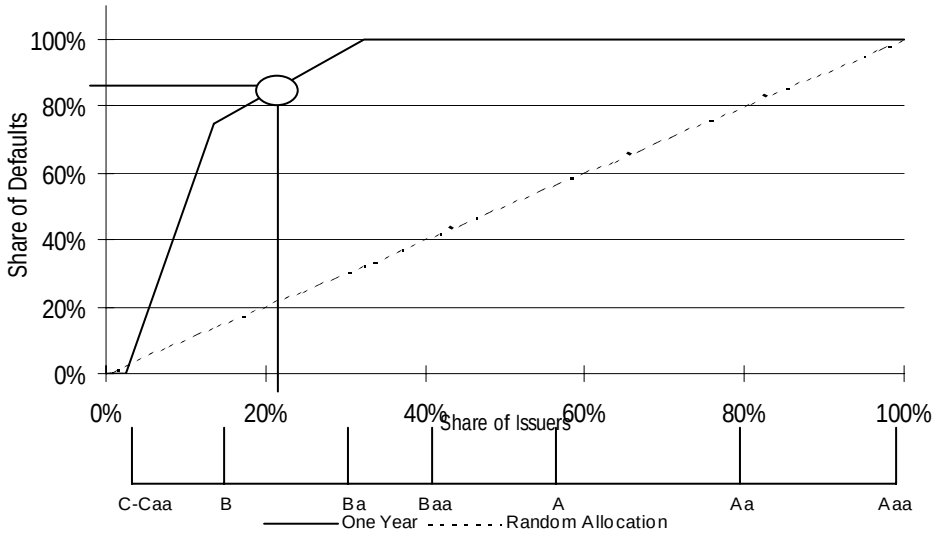
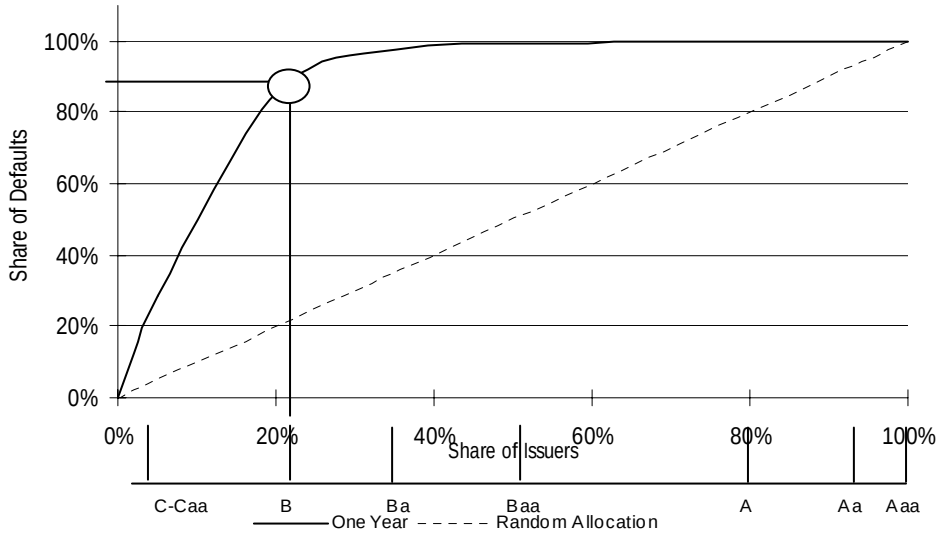


Figure 2 - Cumulative Accuracy Profiles- Corporate Issuers



The Modern Era (1998-2002)

Since relatively few speculative-grade sovereign ratings were assigned until 1997, in may be useful to analyze rating transitions between 1998 and 2002 by treating it as a separate time period. This time period is also very interesting from the perspective of sovereign bond defaults as all the *rated* sovereign defaults happened during this time period.

Exhibit 10 shows the growth in the number of rated sovereign bond issuers and their changing rating distribution. In 1998, there were only 56 (33 investment grade, 23 spec grade) rated issuers that had any rated bonds outstanding. In 2002 the number had increased to 78 issuers (52 investment grade, 26 spec grade) leading to approximately 40% growth in number of rated sovereign issuers.

Exhibit 10 – Ratings Distribution Of Sovereign Issuers
[56 Issuers In 1998, 78 Issuers In 2002]

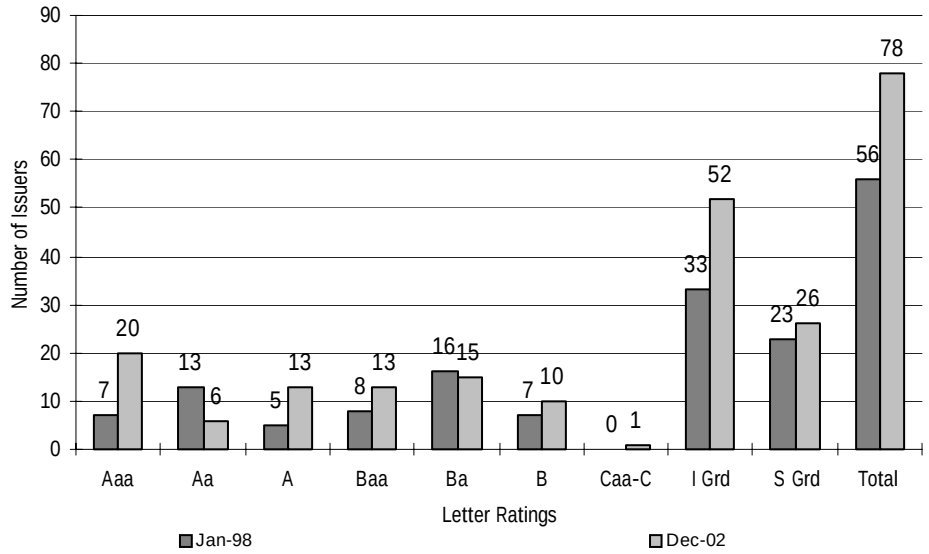
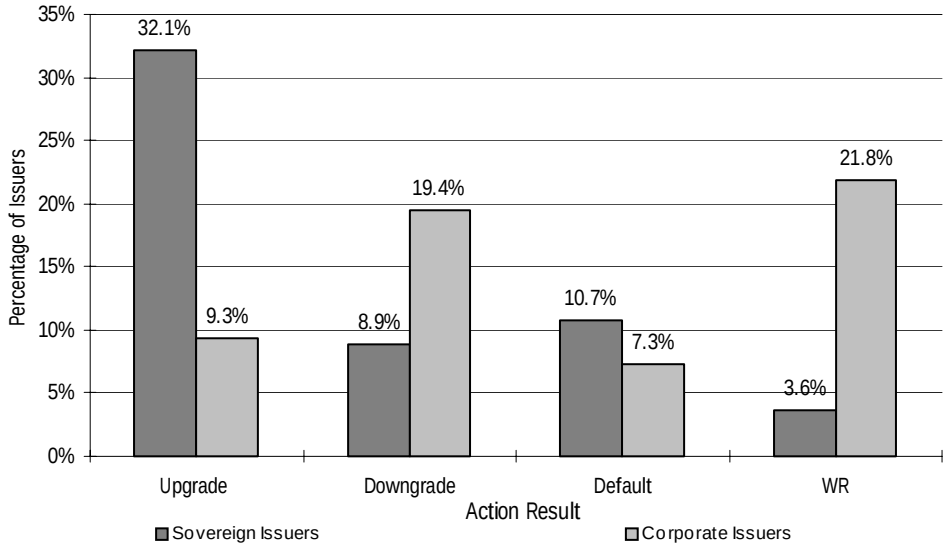


Exhibit 11 compares the longer-term broad rating category transitions of sovereign and corporate issuers by following the ratings of the cohorts formed January 1, 1998 until December 31, 2002. The frequency of sovereign and corporate rating transitions over this time period has been similar, although in recent years sovereign issuers have experienced relatively more upgrades and fewer downgrades than have corporate issuers.

Exhibit 11 – Transitions Across Broad Rating Categories Over Five Years, From January 1998 To December 2002



During this period, 32.1% of the sovereign issuers were upgraded, with most of the upgrades coming in the latter half of 2002. The number was only 9.3% for corporate issuers. Similarly, sovereign issuers experienced fewer downgrades (8.9%) compared to corporate issuers (19.4%). Sovereign issuers were also less likely to have their ratings withdrawn. Further, unlike corporates, sovereigns are not likely to be "acquired" by other rated entities or otherwise disappear from the capital markets.[15]

Exhibit 12 shows 5-year rating transition matrices for sovereign bond issuers and corporate bond issuers by broad letter rating category between 1998 and 2002. Each cell in the matrix is the fraction of issuers that held a given row's rating at the beginning of the measurement period and the column's rating at the end of the period, including defaults and withdrawn ratings (WRs). The frequency with which issuers maintained the same rating from the beginning to the end of the measurement period is present on the primary diagonal of each matrix. For example, 85.7% of sovereign issuers rated Aaa at the beginning of 1998 ended 2002 with the same letter rating. Conversely, 14.3% of Aaa issuers ended with a different rating.

Exhibit -12 Rating Transition Tables (1998-2002)

Sovereign Ratings Transitions Using Broad Letter Ratings
5 - Year(s) Average Rating Migration Rates Jan 1998 - Dec 2002

Rating	Rating to:								
From	Aaa	Aa	A	Baa	Ba	B	Caa-C	Default	WR
Aaa	85.7%	0.0%	14.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Aa	69.2%	30.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
A	0.0%	20.0%	60.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Baa	0.0%	0.0%	25.0%	37.5%	12.5%	12.5%	0.0%	0.0%	12.5%
Ba	0.0%	0.0%	0.0%	37.5%	31.3%	6.3%	0.0%	18.8%	6.3%
B	0.0%	0.0%	0.0%	0.0%	0.0%	57.1%	0.0%	42.9%	0.0%
Caa-C	-	-	-	-	-	-	-	-	-

Corporate Ratings Transitions Using Broad Letter Ratings
5 - Year(s) Average Rating Migration Rates Jan 1998 - Dec 2002

Rating	Rating to:								
From	Aaa	Aa	A	Baa	Ba	B	Caa-C	Default	WR
Aaa	58.6%	24.1%	5.2%	0.0%	0.0%	0.0%	0.0%	0.0%	12.1%
Aa	3.3%	54.9%	19.0%	3.2%	0.8%	1.0%	0.2%	0.0%	17.6%
A	0.3%	9.6%	50.4%	16.8%	3.6%	1.6%	0.4%	0.4%	16.8%
Baa	0.6%	1.3%	10.6%	48.4%	12.7%	4.5%	2.1%	2.9%	17.1%
Ba	0.0%	0.6%	3.9%	10.1%	19.7%	17.6%	5.1%	9.8%	33.2%
B	0.0%	0.0%	0.1%	1.3%	6.2%	20.9%	9.8%	28.7%	32.9%
Caa-C	0.0%	0.0%	0.0%	1.8%	0.9%	5.3%	7.9%	50.9%	33.3%

As shown in Exhibit 12, sovereigns display greater ratings stability compared to the corporates for the same time period. The large number of upgrades from Aa to Aaa is due to the fact that many European issuers were converted to the Eurozone rating of Aaa during that time period. As stated earlier, several of these upgrades happened in the second half of 2002. Another interesting point to note is a relatively large number of upgrades from Ba to Baa. Also, ratings dispersion for every rating category for sovereign issuers is less than the corresponding rating dispersion for corporate issuers. Empty cells for the C-Caa rating category for sovereign issuers simply indicate that none of the sovereign bond issuers that had C-Caa rating at the beginning (January 1998) or at the end (December 2002).

15. Please note that this exhibit provides distribution for upgrades and downgrades at two points in time, in 1998 and 2002, as opposed to annual upgrade-downgrade distribution.

Appendix I: Rating Histories

Sovereign issuer	FCR date	FC rating	Sovereign issuer	DCR date	DC rating
Argentina	11/18/86	Ba3	Argentina	01/28/97	B1
	12/04/87	B2		10/02/97	Ba3
	05/26/89	B3		10/06/99	B1
	08/15/90	WR		03/28/01	B2
	09/10/91	B3		07/13/01	B3
	07/13/92	B1		07/26/01	Caa1
	10/02/97	Ba3		10/12/01	Caa3
	10/06/99	B1		12/20/01	Ca
	03/28/01	B2			
	07/13/01	B3			
	07/26/01	Caa1			
	10/12/01	Caa3			
	12/20/01	Ca			
Australia	01/15/62	A	Australia	07/29/99	Aaa
	10/17/74	Aaa			
	09/10/86	Aa1			
	08/28/89	Aa2			
	10/20/02	Aaa			
Austria	06/26/77	Aaa	Austria	10/27/86	Aaa
Bahamas	04/08/97	A3	Bahamas	11/12/98	A1
Barbados	12/05/94	Ba2	Barbados	11/10/98	Baa2
	04/18/97	Ba1		02/08/00	A3
	02/08/00	Baa2			
Belgium	03/27/88	Aa1	Belgium	01/27/97	Aa1
Belize	01/21/99	Ba2	Belize	01/21/99	Ba1
Bermuda	06/10/94	Aa1	Bermuda	-	
Bolivia	05/29/98	B1	Bolivia	-	
Brazil	11/18/86	Ba1	Brazil	06/19/98	B2
	12/04/87	B1		09/03/98	Caa1
	10/15/89	B2		12/16/99	B3
	11/30/94	B1		10/16/00	B1
	09/03/98	B2		08/12/02	B2
	10/16/00	B1			
	08/12/02	B2			
Bulgaria	09/27/96	B3	Bulgaria	02/18/99	B1
	12/16/97	B2			
	12/19/01	B1			
Canada	05/22/68	Aa	Canada	05/03/93	Aaa
	04/12/74	Aaa		04/12/95	Aa1
	06/02/94	Aa1		05/03/02	Aaa
	04/12/95	Aa2			
	06/21/00	Aa1			
	05/03/02	Aaa			
Chile	05/25/99	Baa1	Chile	07/29/99	A1
				10/01/02	WR
				11/08/02	A1
China	05/23/88	A3	China	-	
	11/08/89	Baa1			
	10/21/92	WR			
	09/10/93	A3			
Colombia	08/04/93	Ba1	Colombia	06/19/98	Baa2
	09/19/95	Baa3		01/21/99	WR
	08/11/99	Ba2		05/25/99	Baa2
Costa Rica	05/08/97	Ba1	Costa Rica	10/02/98	Ba1
				12/01/00	WR
Croatia	01/27/97	Baa3	Croatia	03/02/99	Baa1
Cyprus	01/29/98	A2	Cyprus	07/19/99	A2
Czech Republic	08/26/99	Baa1	Czech Republic	06/22/98	A1

Sovereign issuer	FCR date	FC rating	Sovereign issuer	DCR date	DC rating
Czech Republic	11/12/02	A1	Czech Republic	08/15/02	WR
				09/18/02	A1
Denmark	09/06/67	Aa	Denmark	07/08/86	Aa
	08/15/86	Aa1		08/15/86	Aa1
	08/23/99	Aaa		02/03/87	Aaa
				09/01/92	WR
				09/27/95	Aaa
Dominican Republic	05/23/01	B1	Dominican Republic	09/13/02	Ba2
	08/29/01	Ba2			
Ecuador	07/24/97	B1	Ecuador	10/02/98	B3
	09/14/98	B3		10/05/99	Caa1
	09/01/99	Caa1			
	10/05/99	Caa3			
	11/07/00	Caa2			
Egypt	07/06/01	Ba1	Egypt	03/04/99	Baa1
El Salvador	02/08/02	Baa3	El Salvador	11/09/98	Baa2
Estonia	06/20/02	Baa1	Estonia	-	
	11/12/02	A1			
Fiji Islands	-		Fiji Islands	03/31/99	Ba1
				07/19/00	Ba2
Finland	10/19/77	Aa	Finland	01/15/97	Aaa
	02/07/86	Aaa			
	10/22/90	Aa1			
	01/13/92	Aa2			
	01/15/97	Aa1			
	05/04/98	Aaa			
France	02/25/92	Aaa	France	09/28/88	Aaa
	01/01/99	WR			
Germany	-		Germany	04/29/93	Aaa
Guatemala	08/01/97	Ba2	Guatemala	11/09/98	Ba1
				10/24/01	WR
Greece	05/24/94	Baa3	Greece	01/28/97	A2
	12/23/96	Baa1		11/04/02	A1
	07/14/99	A2			
	11/04/02	A1			
Honduras	-		Honduras	09/29/98	B2
Hungary	02/08/99	Baa2	Hungary	06/22/98	A1
Hungary	06/25/99	Baa1			
	11/14/00	A3			
	11/12/02	A1			
Iceland	05/24/89	A2	Iceland	07/30/97	Aaa
	06/24/96	A1			
	07/30/97	Aa3			
	10/20/02	Aaa			
India	-		India	06/19/98	Ba2
Indonesia	03/14/94	Baa3	Indonesia	-	
	12/21/97	Ba1			
	01/09/98	B2			
	03/20/98	B3			
Iran	-		Iran	06/10/99	Ba2
				12/31/01	WR
Ireland	07/15/87	Aa3	Ireland	09/04/92	Aaa
	08/31/94	Aa2			
	02/13/97	Aa1			
	05/04/98	Aaa			
Isle of Man	-		Isle of Man	10/03/00	Aaa
Israel	12/12/95	A3	Israel	12/15/98	A2
	07/06/00	A2			
Italy	10/10/86	Aaa	Italy	11/02/93	A1
	07/01/91	Aa1		07/03/96	Aa3

Sovereign issuer	FCR date	FC rating	Sovereign issuer	DCR date	DC rating
Italy	08/13/92	Aa3	Italy	05/15/02	Aa2
	05/05/93	A1			
	07/03/96	Aa3			
	05/05/02	Aa2			
Jamaica	03/30/98	Ba3	Jamaica	03/30/98	Baa3
Japan	11/02/98	Aaa	Japan	05/07/93	Aaa
	11/16/98	Aa1		11/16/98	Aa1
				09/08/00	Aa2
				12/04/01	Aa3
				05/30/02	A2
Jordan	01/22/96	Ba3	Jordan	11/24/99	Ba2
				10/17/02	WR
Kazakhstan	12/09/96	Ba3	Kazakhstan	06/25/99	B1
	02/18/99	B1		06/18/01	Ba1
	06/18/01	Ba2		09/19/02	Baa1
	09/19/02	Baa3			
Korea	04/09/98	Ba1	Korea	12/04/98	Baa1
	02/12/99	Baa3		03/28/02	A3
	12/16/99	Baa2			
	03/28/02	A3			
Kuwait	-		Kuwait	01/21/99	Baa1
				04/19/00	WR
Latvia	08/24/99	Baa2	Latvia	03/02/99	A2
	11/12/02	A2		04/26/01	WR
Lebanon	02/26/97	B1	Lebanon	08/26/99	B1
	07/30/01	B2	Lebanon	05/24/01	WR
				12/13/02	B3
Lithuania	09/04/96	Ba2	Lithuania	02/18/99	Baa1
	12/16/97	Ba1			
	11/12/02	Baa1			
Luxembourg	-		Luxembourg	07/13/99	Aaa
Malaysia	11/18/86	Baa1	Malaysia	09/04/98	A3
	03/12/90	A3			
	03/15/93	A2			
	03/15/95	A1			
	12/29/97	A2			
	07/23/98	Baa2			
	09/14/98	Baa3			
	10/17/00	Baa2			
	09/24/02	Baa1			
Malta	-		Malta	03/04/99	Baa1
Mauritius	03/28/96	Baa2	Mauritius	-	
	10/05/00	WR			
Mexico	12/18/90	Ba3	Mexico	05/20/93	Baa1
	01/22/96	Ba2		01/06/95	Baa3
	08/10/99	Ba1		03/16/95	WR
	03/07/00	Baa3		04/11/96	Baa3
	02/06/02	Baa2		04/02/98	WR
				05/07/98	Baa3
				03/31/99	WR
				06/09/99	Baa2
				03/07/00	Baa1
Moldova	01/14/97	Ba2	Moldova	07/13/99	Caa1
	07/14/98	B2		07/02/00	WR
	04/19/00	B3			
	07/03/01	Caa1			
	06/13/02	WR			
Morocco	07/22/99	Ba1	Morocco	12/03/01	Ba1
Netherlands	-		Netherlands	05/05/98	Aaa
	07/01/65	Baa	New Zealand	09/14/91	Aaa

Sovereign issuer	FCR date	FC rating	Sovereign issuer	DCR date	DC rating
New Zealand	07/10/75	Aa			
	06/29/77	Aaa			
	10/17/84	Aa			
	08/15/86	Aa3			
	03/16/94	Aa2			
	02/26/96	Aa1			
	09/23/98	Aa2			
	10/20/02	Aaa			
Nicaragua	-		Nicaragua	03/27/98	B2
Norway	01/12/78	Aaa	Norway	08/11/95	Aaa
	01/15/83	WR			
	07/15/86	Aaa			
	07/13/87	Aa1			
	09/30/97	Aaa			
Oman	04/01/97	Baa2	Oman	07/15/99	Baa2
Pakistan	11/23/94	Ba3	Pakistan	06/25/99	Caa1
	07/11/95	B1		02/13/02	B3
	11/06/96	B2			
	05/28/98	B3			
	10/23/98	Caa1			
	02/13/02	B3			
Panama	06/30/58	A	Panama	-	
	10/14/77	WR			
	06/27/78	Aa			
	11/11/85	WR			
	01/22/97	Ba1			
Paraguay	-		Paraguay	07/13/98	B1
				12/20/98	WR
Peru	07/20/99	Ba3	Peru	-	
	09/19/00	B1			
	10/05/00	Ba3			
Philippines	07/01/93	Ba3	Philippines	09/04/98	Baa3
	05/12/95	Ba2			
	05/18/97	Ba1			
Poland	06/01/95	Baa3	Poland	06/22/98	A2
	09/02/99	Baa1		02/06/02	WR
	11/12/02	A2		09/18/02	A2
Portugal	11/18/86	A1	Portugal	02/10/97	Aa2
	02/10/97	Aa3			
	05/04/98	Aa2			
Qatar	09/22/99	Baa2	Qatar	12/15/99	Baa2
	08/15/02	A3		06/30/02	WR
Romania	06/04/97	Ba3	Romania	-	
	09/14/98	B1			
	11/06/98	B3			
	12/19/01	B2			
	06/17/02	WR			
Russia	11/22/96	Ba2	Russia	05/29/98	B2
	03/11/98	Ba3		08/13/98	Caa1
	05/29/98	B1		08/21/98	Ca
	08/13/98	B2		01/05/00	Caa2
	08/21/98	Caa1		09/12/01	B3
	09/14/98	Ca		10/11/01	B1
	12/04/00	Caa3		11/29/01	Ba2
	11/29/01	B3			
	12/17/02	B1			
Saudi Arabia	-		Saudi Arabia	01/12/99	Ba1
Singapore	-		Singapore	09/04/98	Aaa
Slovakia	05/18/98	Ba1	Slovakia	06/22/98	Baa2
	11/13/01	Baa3		11/13/01	A3

Sovereign issuer	FCR date	FC rating	Sovereign issuer	DCR date	DC rating
Slovakia	11/12/02	A3	Slovakia	07/01/02	WR
				07/22/02	A3
Slovenia	05/08/96	A3	Slovenia	01/06/99	Aa3
	11/14/00	A2			
	11/12/02	Aa3			
South Africa	10/03/94	Baa3	South Africa	11/20/95	Baa1
	11/29/01	Baa2		11/29/01	A2
Spain	02/03/88	Aa2	Spain	09/19/01	Aa2
	12/13/01	Aaa		12/13/01	Aaa
Sweden	11/10/77	Aaa	Sweden	01/18/95	Aa1
	01/17/91	Aa1		08/23/99	Aaa
	02/01/93	Aa2			
	01/05/95	Aa3			
	06/04/98	Aa2			
	08/23/99	Aa1			
	04/04/02	Aaa			
Switzerland	-		Switzerland	11/10/98	Aaa
Taiwan	-		Taiwan	12/04/98	Aa3
Thailand	08/01/89	A2	Thailand	09/04/98	Baa1
	04/08/97	A3			
	10/01/97	Baa1			
	11/27/97	Baa3			
	12/21/97	Ba1			
	06/22/00	Baa3			
Trinidad & Tobago	02/08/93	Ba2	Trinidad & Tobago	11/09/98	Baa3
	10/10/95	Ba1		04/06/00	Baa1
	04/06/00	Baa3			
Turkey	05/05/92	Baa3	Turkey	09/09/02	B3
	01/13/94	Ba1			
	06/02/94	Ba3			
	03/13/97	B1			
Ukraine	02/19/98	B2	Ukraine	11/20/01	Caa1
	09/09/98	B3		01/24/02	B2
	01/05/00	Caa1			
	01/24/02	B2			
United Kingdom	03/31/78	Aaa	United Kingdom	04/27/93	Aaa
United States of America	-		United States of America	05/06/93	Aaa
Uruguay	10/15/93	Ba1	Uruguay	-	
	06/10/97	Baa3			
	05/03/02	Ba2			
	07/10/02	B1			
	07/31/02	B3			
Venezuela	12/29/76	Aaa	Venezuela	07/22/98	B3
	02/04/83	Aa		09/03/98	Caa1
	03/25/83	WR		12/20/99	B3
	06/03/87	Ba2		09/20/02	Caa1
	12/04/87	Ba3			
	08/07/91	Ba2			
	04/08/94	Ba3			
	01/22/96	Ba2			
	07/22/98	B1			
	09/03/98	B2			
	09/20/02	B3			

FCR: Foreign Currency Rating Date
DCR: Domestic Currency Rating Date
FC: Foreign Currency
DC: Domestic Currency

Appendix II: Rating Transitions For Categories With Numeric Modifiers

Sovereign Ratings Transitions Including Numeric Modifiers

One Year Average Rating Migration Rates For 1985 - 2002

Rating From	Rating To Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa-C	Default	WR
Aaa	93.86%	6.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Aa1	8.02%	82.92%	8.02%	1.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Aa2	7.50%	7.92%	78.65%	4.38%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.56%
Aa3	1.67%	0.00%	11.67%	82.78%	2.22%	1.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A1	0.00%	0.00%	0.00%	8.33%	80.56%	2.78%	0.00%	8.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A2	0.00%	0.00%	0.00%	1.92%	8.33%	74.36%	0.00%	0.00%	0.00%	7.69%	7.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A3	0.00%	0.00%	0.00%	0.00%	2.56%	11.54%	78.21%	7.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Baa1	0.00%	0.00%	0.00%	0.00%	2.08%	10.42%	5.36%	70.95%	0.00%	0.00%	1.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.52%
Baa2	0.00%	0.00%	0.00%	0.00%	0.00%	2.08%	4.17%	2.08%	86.81%	2.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.78%
Baa3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.67%	3.67%	5.83%	73.00%	2.50%	1.67%	10.00%	0.00%	0.00%	1.67%	0.00%	0.00%	0.00%
Ba1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.43%	1.94%	13.93%	70.62%	0.83%	0.00%	10.00%	0.00%	1.25%	0.00%	0.00%	0.00%
Ba2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.30%	12.12%	74.46%	4.55%	0.00%	2.27%	1.52%	0.00%	2.27%	1.52%
Ba3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.54%	75.10%	6.46%	6.25%	1.56%	0.00%	2.08%	0.00%
B1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.39%	4.17%	72.22%	14.58%	4.17%	2.08%	1.39%	0.00%
B2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.26%	72.44%	9.62%	1.92%	3.85%	1.92%
B3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	19.17%	15.63%	27.29%	4.17%	21.25%	12.50%
Caa, Ca, C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%

Corporate Ratings Transitions Including Numeric Modifiers

One Year Average Rating Migration Rates For 1985 - 2002

Rating From	Rating To Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa-C	Default	WR
Aaa	87.30%	5.55%	2.29%	0.24%	0.22%	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.35%
Aa1	2.19%	77.55%	8.04%	6.37%	1.61%	0.30%	0.05%	0.18%	0.00%	0.00%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.63%
Aa2	0.80%	2.92%	77.66%	8.62%	3.52%	1.44%	0.59%	0.09%	0.07%	0.00%	0.00%	0.00%	0.05%	0.08%	0.00%	0.00%	0.00%	0.00%	4.15%
Aa3	0.10%	0.47%	3.15%	77.40%	9.52%	3.37%	0.80%	0.25%	0.16%	0.17%	0.01%	0.04%	0.09%	0.00%	0.00%	0.00%	0.00%	0.08%	4.40%
A1	0.03%	0.13%	0.44%	4.92%	77.64%	7.62%	3.06%	0.74%	0.24%	0.14%	0.38%	0.26%	0.06%	0.13%	0.03%	0.00%	0.00%	0.00%	4.19%
A2	0.05%	0.03%	0.26%	0.75%	4.87%	77.13%	7.54%	3.04%	0.90%	0.45%	0.25%	0.11%	0.16%	0.09%	0.09%	0.00%	0.03%	0.02%	4.25%
A3	0.06%	0.07%	0.05%	0.26%	0.97%	7.72%	72.79%	6.81%	3.80%	1.43%	0.53%	0.18%	0.19%	0.29%	0.05%	0.04%	0.02%	0.02%	4.71%
Baa1	0.06%	0.03%	0.14%	0.19%	0.17%	2.13%	7.38%	71.12%	7.63%	3.29%	1.10%	0.47%	0.32%	0.67%	0.09%	0.05%	0.10%	0.14%	4.92%
Baa2	0.04%	0.13%	0.09%	0.18%	0.16%	0.71%	3.02%	6.32%	72.08%	7.34%	1.83%	0.51%	0.70%	0.47%	0.44%	0.24%	0.17%	0.13%	5.45%
Baa3	0.05%	0.00%	0.03%	0.07%	0.17%	0.57%	0.55%	2.77%	9.17%	67.23%	6.26%	2.82%	2.16%	0.93%	0.27%	0.20%	0.33%	0.44%	5.97%
Ba1	0.04%	0.00%	0.00%	0.03%	0.23%	0.15%	0.58%	0.76%	2.98%	7.99%	64.92%	4.87%	4.31%	1.40%	1.17%	0.99%	0.42%	0.71%	8.46%
Ba2	0.00%	0.00%	0.04%	0.03%	0.04%	0.19%	0.14%	0.36%	0.76%	2.13%	7.92%	62.97%	7.31%	2.29%	3.46%	1.05%	0.66%	0.66%	10.00%
Ba3	0.00%	0.02%	0.00%	0.00%	0.05%	0.19%	0.12%	0.18%	0.20%	0.51%	2.63%	5.52%	65.32%	5.87%	5.23%	2.21%	0.98%	2.30%	8.68%
B1	0.02%	0.00%	0.03%	0.00%	0.06%	0.10%	0.16%	0.07%	0.33%	0.32%	0.40%	2.28%	5.38%	66.21%	6.17%	4.25%	2.16%	3.65%	8.43%
B2	0.00%	0.00%	0.07%	0.03%	0.11%	0.00%	0.09%	0.22%	0.12%	0.20%	0.30%	1.18%	2.58%	6.11%	60.36%	8.01%	4.38%	7.27%	8.99%
B3	0.00%	0.00%	0.07%	0.00%	0.02%	0.05%	0.06%	0.12%	0.15%	0.21%	0.18%	0.39%	0.77%	4.14%	3.94%	59.83%	8.14%	12.37%	9.55%
Caa, Ca, C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.51%	0.51%	0.65%	0.00%	0.91%	1.39%	1.29%	3.33%	59.48%	21.64%	10.30%

Appendix III: Circumstances Surrounding Individual Sovereign Bond Defaults

Argentina 2001

Argentina defaulted in 2002 by missing a payment on January 3, 2002. While the actual default happened in 2002, Moody's had already downgraded the long- term foreign currency sovereign credit rating to **Ca** on December 20, 2001, which reflected a very high probability of default.

Three factors led to the default. In 1989, then President Menem agreed to peg the Argentine peso to the dollar on a parity basis by establishing a currency board. However, when Brazil devalued its *real* in 1999, foreign investors and buyers found their dollars could buy more in Brazil than in Argentina. As a result, Argentina's foreign investment and exports dried up — buyers of Argentine products could get more for the same price in other countries, particularly in neighboring Brazil.

Secondly, the Menem government acquired a significant amount of debt, both domestic and foreign, sending domestic interest rates up. This led to the squeezing of private investments out of the market, forcing many companies to close and increasing unemployment. Many of the privatized companies were utilities, which increased the prices for such basic services as electricity and phones. Argentina's recession grew steadily worse.

Thirdly, the IMF declined to bail Argentina out by making an advance payment on a previously agreed loan.

These three factors converged to the point that, in December 2001 and early January 2002, people started believing that their pesos would be devalued and rushed to the banks to convert them to dollars at the one-to-one rate. Argentina, subsequently, defaulted on foreign debt.

Argentina is in discussions with its lenders and multilateral institutions to restructure the debt.

Ecuador 1999

Ecuador's rating was lowered to **Caa1** in September 1999, indicating imminent default. On 1 October 1999, Ecuador officially suspended payment on almost half of the interest due on its Brady bonds. The rating was lowered two notches to **Caa3** later that month to indicate further deterioration of credit quality and deepening fiscal crisis. The US and the IMF publicly backed Ecuador's efforts to restructure its $13bn in foreign debt. About half of this debt was in the form of Brady Bonds. With the support of the US, Ecuador renegotiated its US$1bn of debt outstanding with the Paris Club of creditor nations and was able to restructure over 98% of the bonds into new bonds. Ecuador also defaulted on its domestic debt by unilaterally changing the interest rates on its domestic bonds.

Ivory Coast 2000

Ivory Coast defaulted on its Brady Bonds obligation in March 2000. Moody's does not rate Ivory Coast.

General Guei, after proclaiming himself the new leader, suspended payment of the country's external debt (estimated in 1997 at $15.6bn). When the IMF stressed the severity of the consequences of this unilateral moratorium, he resumed payments on Jan 8. But his administration nevertheless had to go into technical default on CI Brady Bonds in April 2000 and into arrears, yet again, on debt in September 2000.

Ivory Coast has been successful at obtaining restructuring of its Paris Club debts. The restructuring means that debt-servicing requirements would be reduced to around 23% of exports, as compared to 28% before the default. With the restructuring, the short-term debt component has been reduced, but it is still at well over 100% as a ratio to foreign exchange reserves.

Moldova 2001, 2002

In 1990, the Moldavian parliament voted to issue a declaration of sovereignty and secession from the USSR, establishing the supremacy of the Moldavan constitution and legislation throughout the country.

In 1998, Moldova was especially affected by the Russian economic crisis in 1998 as exports in hard currency and in rubles almost dried up. The country faced a significant shortfall in its foreign reserves, which made servicing of foreign currency-denominated debt extremely difficult. However, it avoided default until June 2001 when it missed a payment on a foreign currency bond. It subsequently cured the default in July.

Moldova started buying back its bonds some time after July 2001 and was successful in buying back approximately 50% of the outstanding amount. However, on 13 June 2002, it defaulted on the same bond, which matured that day. It was not able to cure the default within the grace period, which expired on June 27, 2002.

The country successfully negotiated with its bondholders to restructure and roll over the matured bond into a new debt instrument with a new maturity date of 2009 and face value of $39.6 million. The annual coupon is 6.8% with the first payment due by the end of 2002.

Pakistan 1999

A serious balance of payments crisis in 1998 was exacerbated as international sanctions were tightened following a military coup. Pakistan sought a new IMF agreement and then a restructuring of its bilateral debt obligations with the Paris Club of bilateral lenders, but even in the midst of these negotiations, the government was intermittently late in making payments on commercial, bilateral, and some multilateral debt. In this situation, the possibility increased that payments would eventually be missed on the country's eurobonds and euronotes.

In an attempt to "bail in" private lenders, Pakistan's official bilateral creditors imposed unprecedented conditions on the country before they would grant a Paris Club restructuring. Namely, they required that Pakistan obtain a multi-year debt refinancing from private creditors, including bondholders. Upon agreeing to these conditions, the Paris Club rescheduled $3.25bn of Pakistan's bilateral obligations (including arrears) over 18 years with 3 years' grace in March 1999. In December, bondholders received a new eurobond, with a coupon of 10%, over six years with three years' grace, in exchange for $608 million in existing bonds and notes carrying coupons of 6%, 11.5%, and LIBOR plus 3.95% with original maturity dates between December 1999 and February 2002.

The 1999 Paris Club agreement was not fully implemented because Pakistan failed to comply with the terms of its concurrent IMF agreement. However, subsequent IMF programs — a stand-by agreement and the current Poverty Reduction and Growth Facility — have achieved better results. A new Paris Club agreement was reached in January 2001 that restructured $1.75bn in debt and payment arrears on extremely favorable ("Houston") terms.

Peru 2000

On September 7, 2000, Peru decided not to pay $80 million in interest payments on four of its Brady Bonds. Peru had been trying to renegotiate its commercial loans with Elliott and Associates ("Elliott"), a fund specializing in sovereign and distressed debt. Peru had offered to restructure the commercial debt into Brady Bonds, which the lender had refused. Additionally, Elliott filed a lawsuit against the government of President Alberto Fujimori and a US judge granted an injunction authorizing Elliott to attach any financial assets owned by the Peruvian Government in the United States. The government of Peru was concerned that Elliott would attach the $80 million debt service payment.

After tense negotiations that lasted four weeks and failure to find a safe depository for the $80 million, Peru settled the dispute with Elliott with a multimillion-dollar payment. This settlement allowed the Peruvian government to make the interest payments through its fiscal agent in the United States. The payment was made on October 4, 2000 and cured the grace period default.

Russia 1998

A significant drop in oil prices in late 1997 and early 1998 led to a serious shortfall in exports. This decline significantly reduced federal budget revenues even in nominal terms in the spring of 1998, while the stock of short-term Russian T-bills (GKOs) grew rapidly. Faced with the high cost of domestic debt service (almost five percent of GDP in 1996), the government sped up liberalization of the T-bill market. Restrictions on nonresidents' participation were gradually reduced and then eliminated at the beginning of 1998. The Russian market benefited from the inflow in 1997, with the interest rate on short-term debt (GKO) reaching its historical floor of 13 percent in August 1997, a time when consumer price inflation was at an annual 15 percent.

With East Asian economies in crisis, non-resident investors decided to pull out money from the Russian T-Bill market as evidenced by a reduction of almost $1bn in FOREX reserves per week. The uncertainty over the July 1998 emergency loan from the International Monetary Fund (IMF) also resulted in large swings in foreign flows to the T-bill market. The IMF loan was intended to boost confidence among foreigners, and for a while it had the intended effect. However, Russia stopped payments first on local currency Treasury obligations and later defaulted on its foreign currency obligations that were issued locally but held mostly by foreign investors. Subsequently, it also failed to pay principal on MINFIN III foreign currency bonds.

Debts were restructured in August 1999 and February 2000.

Ukraine 1998, 2000

In 1998, the Government of Ukraine issued a decree wherein all anonymous "non-person" saving accounts in foreign currency were "frozen." The only recourse for account holders was to identify themselves and "transfer" the accounts to local-currency accounts.

After its independence, Ukraine has remained dependent upon imported energy and foreign loans. Approximately, US$3 billion of these foreign loans came due in 2000. The IMF's US$ 2.6bn extended fund facility (EFF) was suspended in September 1999, and the World Bank postponed all its lending to Ukraine in October 1999.

On February 28, 2000 Ukraine's Finance Ministry confirmed that it missed the scheduled coupon repayment for its 16% DM-nominated eurobonds, which were to mature in 2001. With over $13 billion in foreign debt, Ukraine had already announced in January 2000 that it would miss the scheduled repayment for USD-nominated 16.75% bond and offered to include them in an exchange proposal. Bondholders were offered seven-year coupon amortization bonds which would be issued by Ukraine and nominated in the euro or U.S. dollar. In euro, the bond coupon amounts to 10%, while in U.S. dollars the coupon represents 11% with no grace period.

The bulk of the debt will be amortized in the new euro bonds every six months with the first six months as a grace period. The average term of the bonds is 4.5 years. While exchanging, investors are able to choose the currency in which the bonds will be denominated.

By end of March 2000 over 90% of holders of Ukrainian government bonds had agreed to the restructuring and accepted new bonds with face value of approximately 50% of the debt they replaced.

Venezuela 1998

In the first week of July 1998, the government of Venezuela did not pay the coupon on local currency bonds that were held by local residents. The payments were made a week later. Since these bonds had no grace period, this delay in payment amounted to a technical default.

The government claimed that the person who was supposed to sign the checks was unavailable at the time but that the checks were later issued from the appropriate office. It was a type of episode that seems to have happened more than once in Venezuela, where the government did not pay the coupon on local currency bonds on time. However, the government has always claimed that there was no "intentional" delay.

After this default, Venezuela installed state-of-the-art payment machinery that would reduce or eliminate the need for human intervention in the payment processes.

Moody's subsequently changed the issuer ratings to **Caa1** from B2 due to the fact that the government, though fully capable of paying domestic coupons and principal, had shown unwillingness to pay its domestic obligations from time to time.

Appendix IV: Defaulted Bond Prices

Defaulted Sovereign Bonds Prices Approximately One Month After Default

Country Name	Maturity	Coupon	Default Date	Issue Date	Initial Rating	Default Amount in MM	Default Price
Argentina, Republic of	Nov-2002	NA	30-Nov-01	9-Dec-97	Ba3	$ 135	$ 40.75
Argentina, Republic of	Jun-2015	11.38%	30-Nov-01	2-Jun-00	B1	$ 903	$ 31.00
Argentina, Republic of	Dec-2008	7.00%	30-Nov-01	24-May-01	B2	$ 11,456	$ 30.55
Argentina, Republic of	Oct-2006	11.00%	30-Nov-01	1-Oct-96	B1	$ 1,213	$ 30.50
Argentina, Republic of	Apr-2009	11.75%	30-Nov-01	29-Mar-99	Ba3	$ 1,163	$ 30.25
Argentina, Republic of	Feb-2012	12.38%	30-Nov-01	7-Feb-01	B1	$ 905	$ 29.00
Argentina, Republic of	Feb-2019	12.13%	30-Nov-01	17-Feb-99	Ba3	$ 176	$ 28.00
Argentina, Republic of	Feb-2020	12.00%	30-Nov-01	25-Jan-00	B1	$ 158	$ 28.00
Argentina, Republic of	Dec-2005	11.00%	30-Nov-01	18-Nov-98	Ba3	$ 862	$ 26.50
Argentina, Republic of	Sep-2027	9.75%	30-Nov-01	12-Sep-97	B1	$ 891	$ 26.00
Argentina, Republic of	Jun-2018	12.25%	30-Nov-01	24-May-01	B2	$ 7,463	$ 25.45
Argentina, Republic of	Jul-2002	8.75%	30-Nov-01	26-Jun-97	B1	$ 113	$ 25.00
Argentina, Republic of	Jun-2031	12.00%	30-Nov-01	24-May-01	B2	$ 8,821	$ 25.00
Argentina, Republic of	Feb-2007	11.75%	30-Nov-01	29-Jan-97	B1	$ 80	$ 10.00
Ecuador, Republic of	Apr-2004	FLT	22-Oct-99	18-Apr-97	B1	$ 150	$ 59.88
Ecuador, Republic of	Feb-2025	4.00%	22-Oct-99	24-Jul-97	B1	$ 1,914	$ 30.01
Ivory Coast	Mar-2018	2.00%	31-Mar-00	31-Mar-98	NR	$ 410	$ 18.13
Moldova	Jun-2002	9.875%	12-Jun-01	10-Jun-97	Ba2	$ 75	$ 65.00
Pakistan, Islamic Republic of	Dec-1999	11.50%	6-Dec-99	19-Sep-96	B2	$ 150	$ 40.00
Pakistan, Islamic Republic of	Feb-2002	6.00%	6-Dec-99	20-Feb-97	B1	$ 150	$ 55.00
Russian Federation	May-1999	3.00%	20-Apr-99	14-May-94	Ba3	$ 1,307	$ 25.00
Russian Federation	Dec-2015	FLT	25-May-99	6-Oct-97	Ba3	$ 6,051	$ 10.50
Ukraine, Government of	Mar-2000	14.75%	25-Feb-00	9-Mar-98	B2	$ 489	$ 69.25
Ukraine, Government of	Feb-2001	16.00%	25-Feb-00	19-Feb-98	B2	$ 500	$ 68.80

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Author	Editor	Senior Production Associate
Praveen Varma	*Joseph Cullen*	*John Tzanos*

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