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Default, Transition, and Recovery: 2015 Annual Sovereign Default Study And Rating Transitions

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Related Research

Default, Transition, and Recovery:

2015 Annual Sovereign Default Study And Rating Transitions

In 2015, there was one default among the sovereign obligors that S&P Global Ratings rates. This was the same number of sovereign defaults as in 2014 and the fourth consecutive year with at least one sovereign default. Including the default, in 2015 we lowered 21 sovereign ratings and raised 15, which is the highest number of sovereign rating actions since 2011. Ratings on 92 sovereigns remained the same throughout 2015, and we assigned new ratings to three.

Overview

- The rank ordering of sovereign ratings has been consistent with historical default experience, and these ratings continue to serve as effective indicators of relative credit risk. For 1975-2015, the one-, three-, five-, and seven-year average foreign-currency Gini coefficients were 91.1%, 77.8%, 73.1%, and 75.7%, respectively.
- Of the 130 active sovereign ratings at the end of 2015, 70 (54%) were investment-grade and 60 (46%) were speculative-grade.
- Sovereign ratings generally exhibited greater stability at higher rating levels than at lower levels, as one would expect. For 1975-2015, for example, 96.7% of sovereigns rated 'AAA', on average, remained 'AAA' after a year, while only 86.6% of sovereigns rated 'BB' held the same rating after one year.
- The ratio of downgrades to upgrades decreased to 1.40x in 2015 from 1.73x in 2014. In addition, the average number of notches of foreign-currency downgrades declined to 1.15 from 1.22. The average number of notches for upgrades decreased to 1 from 1.27.
- On average, there is a negative correlation between the initial rating on a sovereign and its time to default. For the entire pool of sovereign defaults (1975-2015), the average times to default for issuers that were originally rated in the 'AA' and 'BBB' categories were 19.38 years and 15.09 years, respectively, from the initial rating, whereas issuers in the 'B' rating category had an average time to default of only 6.69 years.

We track rating movement according to the number of ratings that changed during 2015 as opposed to the number of times a rating changed. For example, in 2015 S&P Global Ratings lowered its rating on Greece four times and raised it once. The aggregate effect was that the final rating ('CCC+') was two notches lower than the initial rating ('B'). Therefore, for the purposes of this study, this is considered one downgrade or, more precisely, one rating that was lowered in 2015.

This study is based on long-term sovereign credit ratings. The methodology tracks rating migrations over time and includes revisions to 'SD' (selective default). An 'SD' rating is more common for sovereign issuers than 'D', as defaulting sovereigns often continue to service some of their debt. This is an issuer ratings-based study as opposed to being based on issue ratings. In other words, we look at the sovereign ratings on the central governments themselves, not the ratings on the individual securities these governments might have issued.

Our metrics treat all issuers equally and are not adjusted for size or influence. Therefore, for the purposes of this study, a default by Argentina counts the same as a default by Mali, even though the latter has a much smaller economy. Our

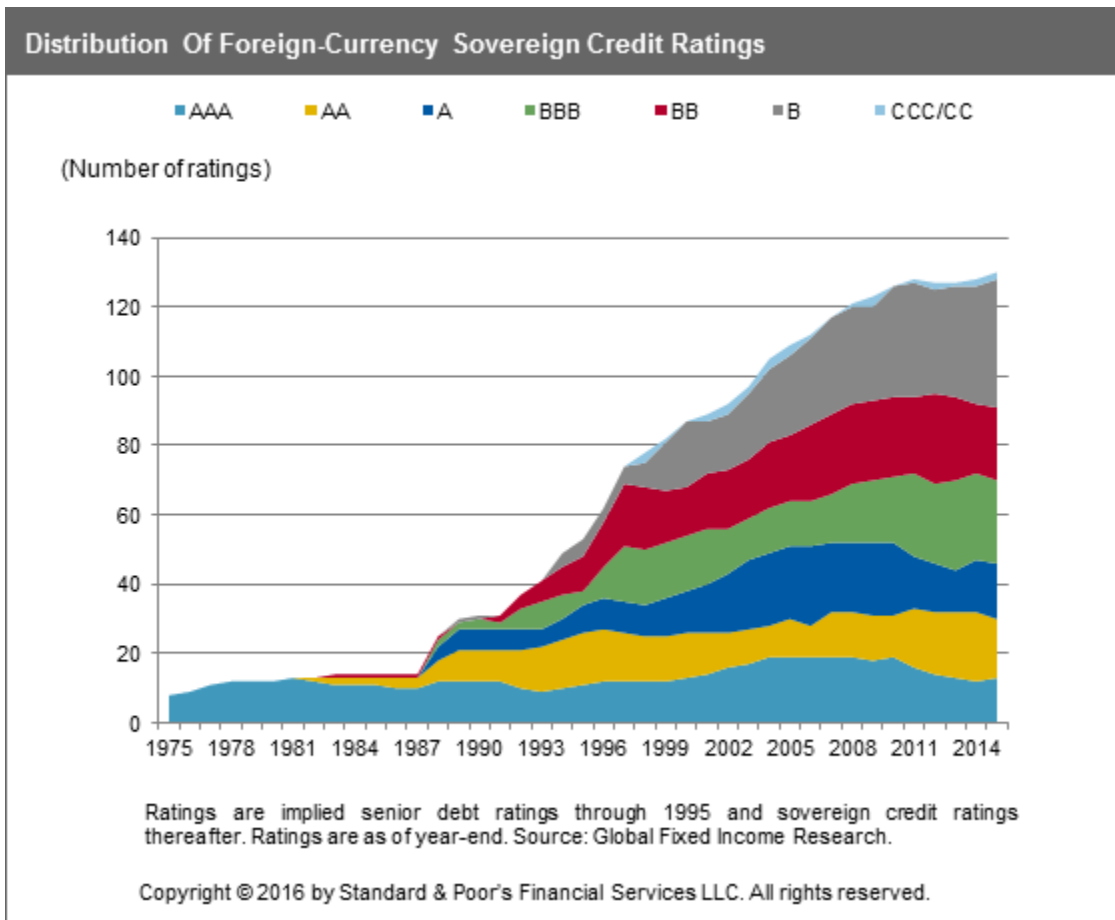
study tracks defaults on a sovereign's commercial debt, including both bonds and bank loans (see Appendix I). When tallying defaults for the study, we use solicited or unsolicited public ratings as of the start of the cohort period.

Withdrawn ratings (as indicated with the abbreviation 'NR,' which stands for "not rated") are included up until the date of withdrawal. As of Dec. 31, 2015, S&P Global Ratings had withdrawn nine public sovereign ratings: Benin, Cambodia, Guernsey, Isle of Man, Libya, Madagascar, Mali, Seychelles, and Tunisia. (We reinstated the rating on Guernsey in October 2014.) Furthermore, Argentina had a selective default (SD) designation, which has since changed to default. As defaulters are not included in the static pools that form the data set for default and transition studies, Argentina is not considered to have an active rating for this report. There are a total of 160 rating records for sovereigns, including those of defaulted ratings.

The number of sovereigns that we rate has grown as more governments access the international bond markets. We have rated 140 sovereigns (foreign currency) since 1975, and 130 of these had active ratings at the end of 2015 (see Chart 1).

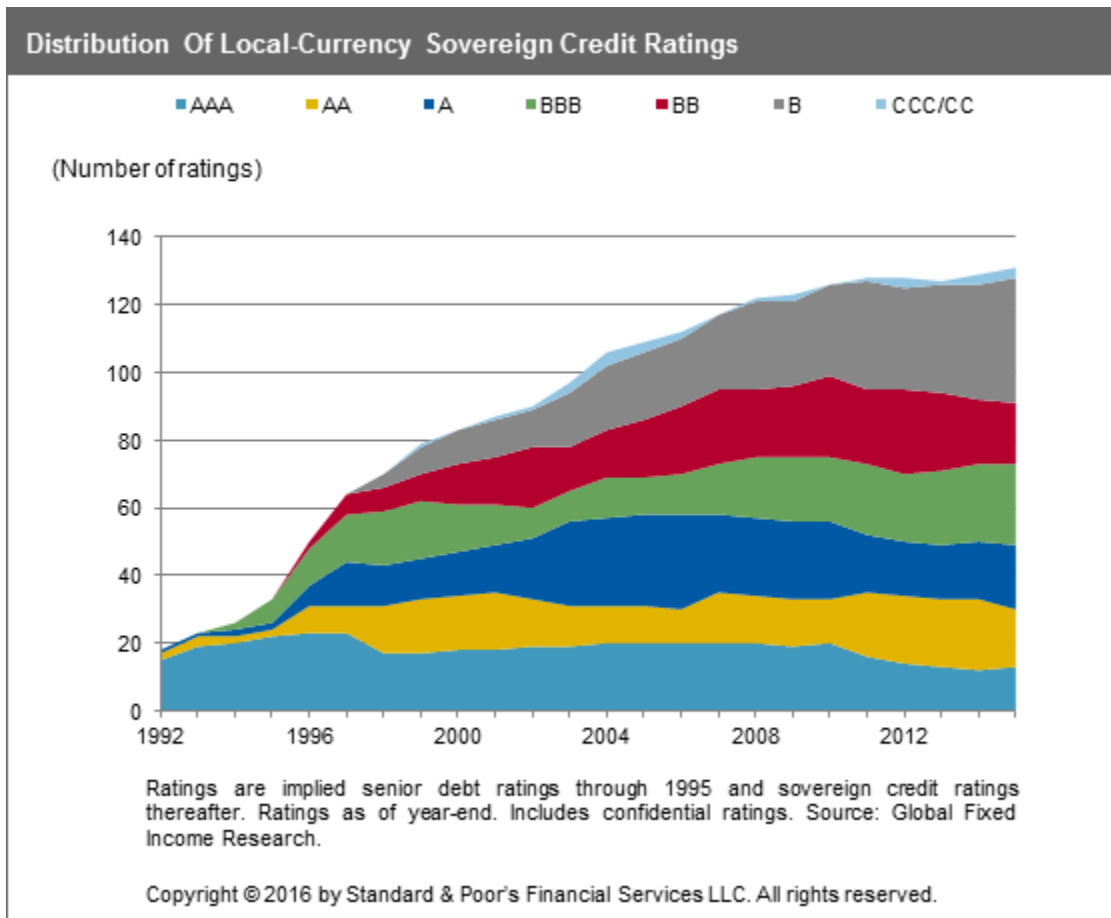
In the 1990s, speculative-grade rated sovereigns became more common as we started rating smaller and less-diversified economies. Eighty-eight of the initial sovereign ratings we have assigned have been speculative-grade; we assigned the first to Hungary in April 1992. As of the end of 2015, 13 of the 83 sovereigns with initial speculative-grade ratings were investment-grade, 18 defaulted at some point, and three had withdrawn ratings. On the other hand, of the 69 initial investment-grade ratings we assigned since 1975, five were speculative-grade at the end of 2015, four defaulted, and three were withdrawn. Of the 130 sovereigns with active foreign-currency ratings at the end of 2015, 70 (54%) were investment grade and 60 (46%) were speculative grade.

Chart 1



Seventeen local-currency sovereign ratings were higher than the corresponding foreign-currency credit ratings as of year-end 2015 (see Chart 2). This reflects S&P Global Ratings' view that a sovereign has inherent flexibility in servicing its local-currency debt based on the unique powers it enjoys within its own borders, particularly in its control of domestic financial and monetary systems.

Chart 2



S&P Global Ratings' credit ratings continue to serve as effective indicators of relative credit risk. From 1975-2015, the one-, three-, five-, and seven-year average foreign-currency Gini coefficients were 91.1%, 77.8%, 73.1%, and 75.7%, respectively. We used sovereign counts at the beginning of the year as the weights for the weighted averages. Gini ratios are measures of the rank-ordering power of ratings over a given time horizon. They show the ratio of actual rank-ordering performance to theoretically perfect rank-ordering. (For details on the Gini methodology, see Appendix II.) Moreover, we find that there is a strong negative correlation between our ratings assessments and default occurrences. In other words, sovereigns that have defaulted on their obligations were generally rated at the lower end of our ratings spectrum prior to defaulting.

Rating And Default Activity In 2015

At the beginning of 2015, S&P Global Ratings had ratings on 128 sovereigns. At the end of the year, 20 of those had lower ratings, 16 had higher ratings, and 92 remained unchanged. The 20 downgrades included a selective default by Ukraine. We lowered the long-term foreign currency sovereign credit rating on Ukraine to 'SD' from 'CC' on Sept. 25 after the Ukrainian government initiated debt buyback auctions, which we treated as a distressed debt restructuring as per our criteria. The historically low price of crude oil was a significant factor in downward rating movement; six

ratings on oil-producing sovereigns were lowered at least partly because of low oil prices.

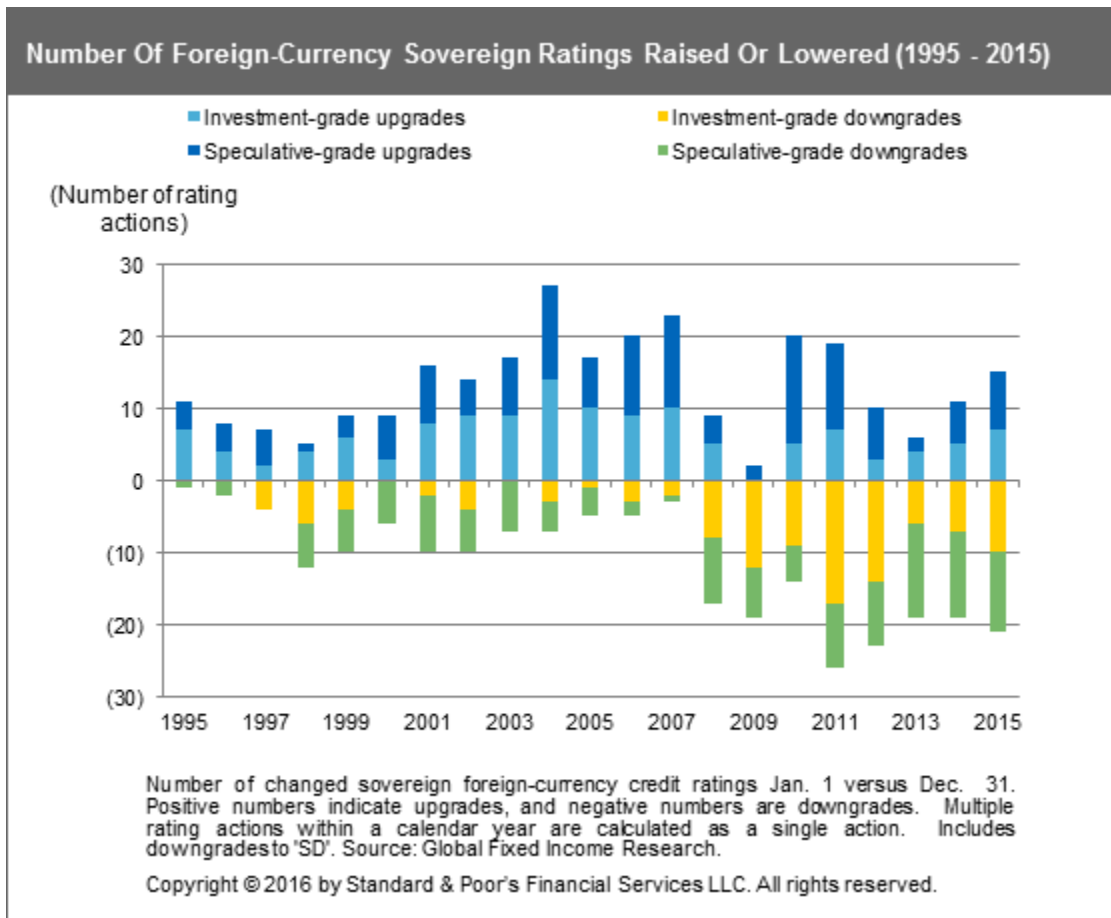
In addition, in 2015 we assigned three new sovereign ratings (Ethiopia, Sharjah, and Turks and Caicos Islands) and withdrew two (Cambodia and Isle of Man). As a result, we had 130 actively rated sovereigns at the end of 2015.

Sovereign Foreign-Currency Rating Changes And Migration

Chart 3 shows the number of foreign-currency rating actions since 1995. For the purposes of this chart, we count multiple rating actions during a calendar year as a single action. Although downgrades have outnumbered upgrades in seven of the last eight years, the ratio of downgrades to upgrades decreased to 1.40x in 2015 from 1.73x in 2014. By contrast, from 2000 to 2008, upgrades were consistently more commonplace than downgrades. At year-end 2015, 25 sovereigns had negative outlooks or ratings that were on CreditWatch with negative implications, while only eight sovereign ratings had positive outlooks. This three-to-one ratio indicates that downgrades will likely continue to outnumber upgrades in 2016. Starting in December 2012, the balance of positive to negative outlooks improved to the point that by July 2015, there were 14 positive outlooks and 18 negative outlooks or ratings on CreditWatch with negative implications. However, this distribution changed significantly in the second half of 2015, with six fewer positive outlooks and seven more negative outlooks or negative CreditWatch placements.

Through the first two months of 2016, sovereign rating actions have skewed somewhat more negative than the outlook and CreditWatch balance would suggest. There were 12 downgrades and three upgrades in those months, a ratio of four downgrades for every upgrade. Three downgrades were to sovereigns with significant reliance on oil production.

Chart 3

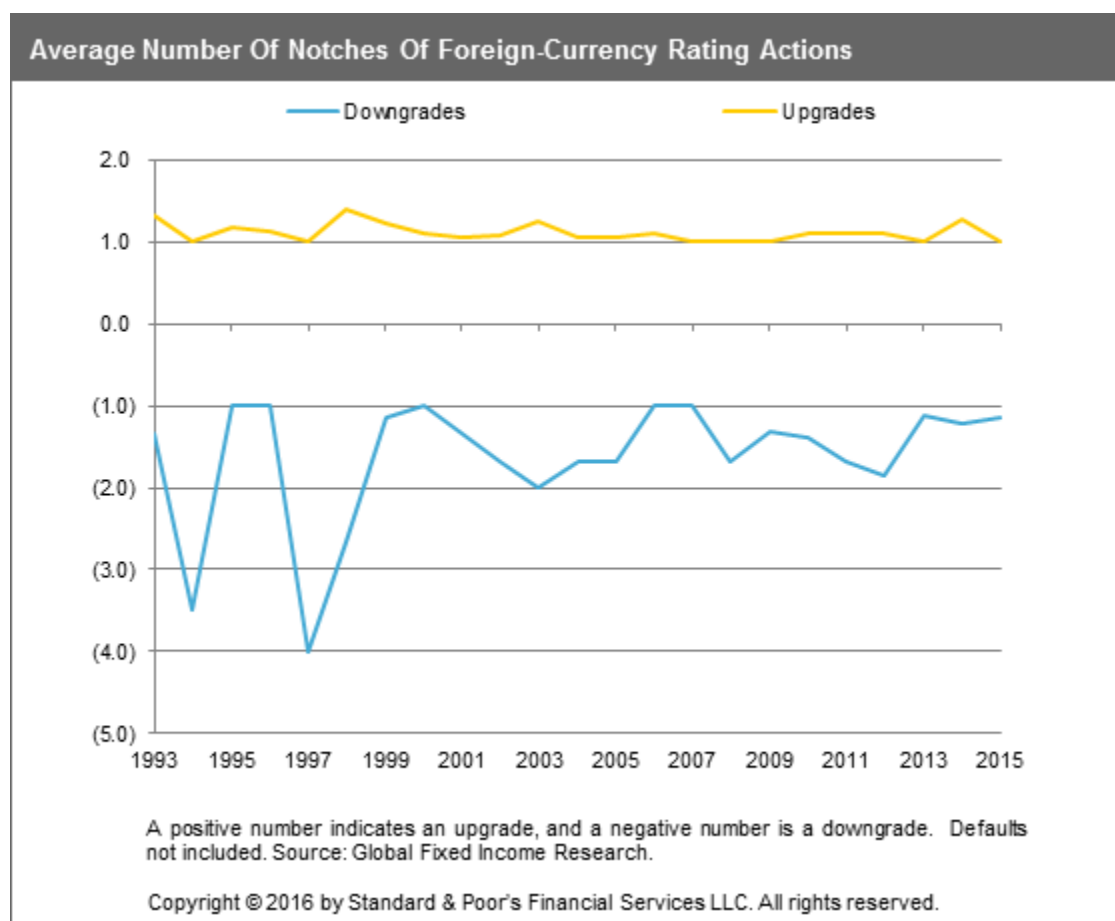


There were just three multi-notch (more than two notches) rating changes in 2015:

- In two separate rating actions, we lowered our rating on Ukraine three notches to 'SD' (selective default) from 'CCC-'.
- We took five rating actions on Greece, resulting in a rating of 'CCC+' at the end of 2015, two notches lower than the 'B' rating in January 2015.
- Over two rating actions, we lowered the rating on Andorra two notches to 'BBB-' from 'BBB+'.

The average upgrade was 1.00 notch in 2015, down from 1.27 notches in 2014; the average downgrade was 1.15 notches, down slightly from 1.22 in 2014 (see Chart 4).

Chart 4



Upgrades and downgrades occurred less frequently at higher ratings than at lower ratings. Thus, sovereigns with higher ratings tend to keep the same ratings longer than lower-rated sovereigns. This is generally the case at both short and longer time horizons. This is not surprising given that sovereigns with higher ratings are perceived to have better credit quality and are therefore less prone to ratings transitions.

From 1975-2015, on average, 96.7% of sovereigns rated 'AAA' at the beginning of the year were rated 'AAA' at the end of the year, 90.5% after three years, 85.4% after five years, 76.1% after 10 years, and 70.1% after 15 years (see Tables 1-5). Moreover, in the 15-year transition rate table, 27.8% (on average) of sovereigns rated 'AAA' at the beginning of the period were rated in the 'AA' category at the end of 15 years. The tables show that ratings were generally more stable when the time horizon is shorter and the rating is higher. Upgrades and downgrades are broadly balanced in the shorter time horizons, with some greater preponderance of upgrades at longer time horizons at 'BB' ratings and above.

Table 1

Sovereign Foreign-Currency Ratings Average One-Year Transition Rates (1975 - 2015)*									
--Rating one year later (%)--									
Rating as of 1st of the month	AAA	AA	A	BBB	BB	B	CCC/CC	SD	NR
AAA	96.7	3.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0

Table 1

Sovereign Foreign-Currency Ratings Average One-Year Transition Rates (1975 - 2015)* (cont.)

--Rating one year later (%)--									
Rating as of 1st of the month	AAA	AA	A	BBB	BB	B	CCC/CC	SD	NR
AA	2.7	93.6	2.4	0.4	0.3	0.1	0.0	0.0	0.6
A	0.0	3.9	90.8	4.6	0.5	0.0	0.0	0.0	0.3
BBB	0.0	0.0	5.5	89.7	4.0	0.6	0.2	0.0	0.0
BB	0.0	0.0	0.0	6.0	86.6	5.9	0.7	0.6	0.2
B	0.0	0.0	0.0	0.0	6.2	87.1	3.2	2.4	1.1
CCC/CC	0.0	0.0	0.0	0.0	0.0	33.1	27.8	39.1	0.0

*Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Average transitions over each 12-month cohort between 1975 and 2015 annualized. Source: Global Fixed Income Research.

Table 2

Sovereign Foreign-Currency Ratings Average Three-Year Transition Rates (1975 - 2015)*

--Rating three years later (%)--									
Rating as of 1st of the month	AAA	AA	A	BBB	BB	B	CCC/CC	SD	NR
AAA	90.5	8.2	0.1	0.2	0.5	0.0	0.0	0.0	0.5
AA	8.8	82.4	5.4	2.7	0.4	0.0	0.0	0.0	0.4
A	0.0	11.3	73.8	11.4	1.8	0.1	0.4	0.6	0.6
BBB	0.0	0.0	17.2	70.1	9.2	1.2	0.4	1.5	0.5
BB	0.0	0.0	0.3	17.8	66.4	11.6	0.8	2.9	0.2
B	0.0	0.0	0.0	0.5	15.7	69.8	2.9	8.4	2.8
CCC/CC	0.0	0.0	0.0	0.0	0.0	31.7	14.6	53.7	0.0

Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Average transitions over each 36-month cohort between 1975 and 2015 annualized. Source: Global Fixed Income Research.

Table 3

Sovereign Foreign-Currency Ratings Average Five-Year Transition Rates (1975 - 2015)*

--Rating five years later (%)--									
Rating as of 1st of the month	AAA	AA	A	BBB	BB	B	CCC/CC	SD	NR
AAA	85.4	11.9	0.2	1.0	1.0	0.0	0.0	0.0	0.6
AA	16.0	71.8	8.7	2.6	0.9	0.0	0.0	0.0	0.0
A	0.0	18.0	58.4	17.8	2.7	0.2	0.4	1.9	0.7
BBB	0.0	0.1	27.6	55.0	11.2	1.7	0.4	3.1	0.8
BB	0.0	0.0	1.7	22.9	57.1	12.7	1.1	4.5	0.0
B	0.0	0.0	0.1	3.8	19.2	56.4	2.7	13.8	4.1
CCC/CC	0.0	0.0	0.0	0.0	3.3	26.3	13.6	56.8	0.0

*Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Average transitions over each 60-month cohort between 1975 and 2015 annualized. Source: Global Fixed Income Research.

Table 4

Sovereign Foreign-Currency Ratings Average 10-Year Transition Rates (1975 - 2015)*									
--Rating 10 years later (%)--									
Rating as of 1st of the month	AAA	AA	A	BBB	BB	B	CCC/CC	SD	NR
AAA	76.1	20.6	0.4	1.0	0.6	0.7	0.0	0.0	0.5
AA	31.5	52.6	9.1	4.7	2.1	0.0	0.0	0.0	0.0
A	2.6	25.6	42.3	20.3	4.7	0.1	0.7	3.7	0.0
BBB	0.0	5.8	42.1	30.3	12.6	2.2	0.0	5.8	1.2
BB	0.0	0.0	6.8	36.5	33.6	9.8	1.0	12.2	0.0
B	0.0	0.0	0.1	9.7	28.3	31.3	1.7	26.2	2.7
CCC/CC	0.0	0.0	0.0	0.0	5.3	8.6	0.0	86.2	0.0

*Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Average transitions over each 120-month cohort between 1975 and 2015 annualized. Source: Global Fixed Income Research.

Table 5

Sovereign Foreign-Currency Ratings Average 15-Year Transition Rates (1975 - 2015)*									
--Rating 15 years later (%)--									
Rating as of 1st of the month	AAA	AA	A	BBB	BB	B	CCC/CC	SD	NR
AAA	70.1	27.8	0.1	0.0	0.6	1.1	0.0	0.0	0.3
AA	40.8	38.2	9.5	7.6	2.9	0.4	0.3	0.3	0.0
A	6.8	26.1	41.2	20.8	0.1	1.3	0.0	3.7	0.0
BBB	0.0	12.9	41.7	12.7	14.5	3.8	1.1	11.3	2.0
BB	0.0	0.0	9.2	42.7	20.0	9.4	0.6	18.2	0.0
B	0.0	0.0	0.3	17.8	23.7	17.6	0.0	40.6	0.0
CCC/CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0

*Implied senior debt rating through 1995; sovereign credit ratings thereafter. Average transitions over each 180 month cohort between 1975 and 2015 annualized. Source: Global Fixed Income Research.

Another gauge of ratings stability is the average time a sovereign spends with a particular rating. Table 6 shows the average number of years that the rating had been effective as of Dec. 31, 2015. The number of years decline as we move down the rating spectrum, signaling less stability at lower ratings. In addition, the average time spent with a rating below 'B-' is less than one year.

Table 6

Average Time Spent At All Ratings Prior To Rating On Dec. 31, 2015		
Rating	Average time (years)	Number of sovereigns
AAA	19.82	13
AA+	2.58	5
AA	4.83	6
AA-	5.02	6
A+	1.07	6
A	5.77	3
A-	5.31	7
BBB+	2.89	8

Table 6

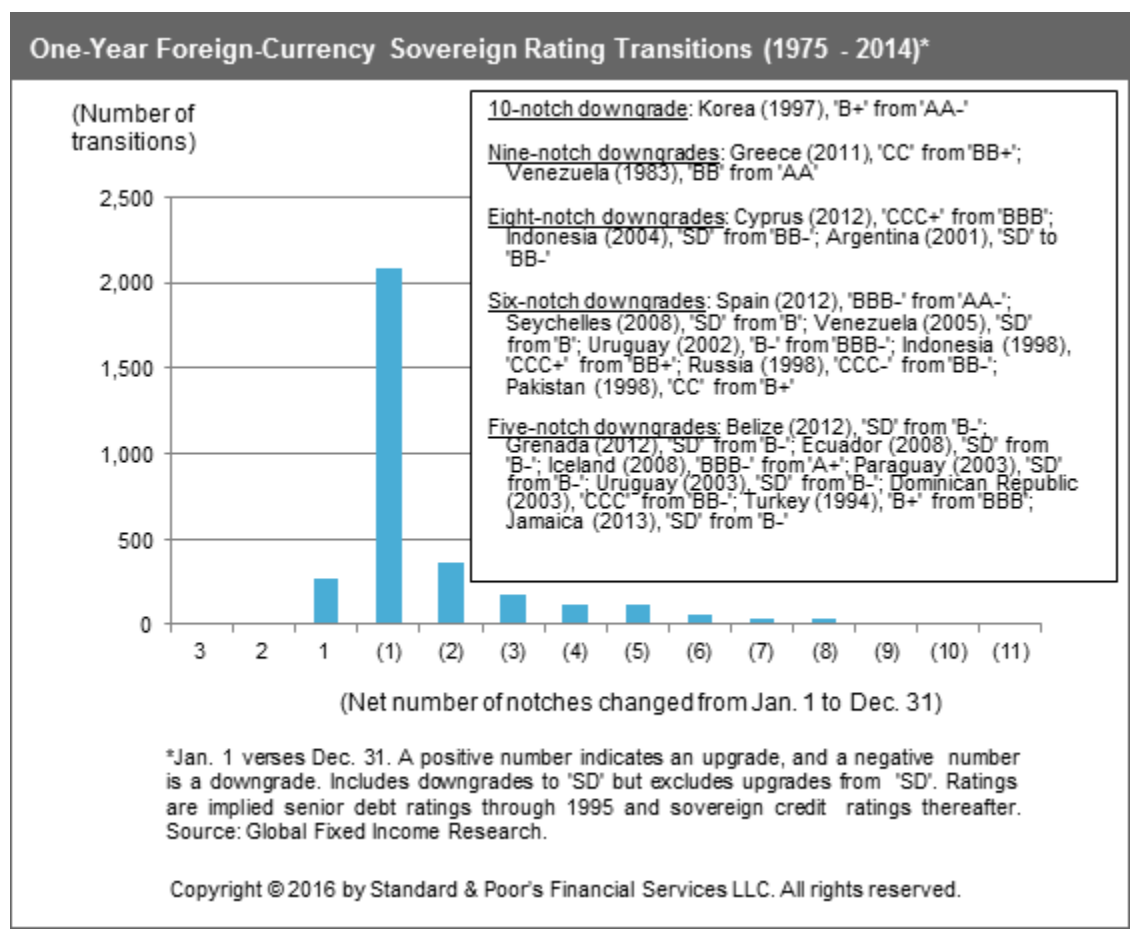
Average Time Spent At All Ratings Prior To Rating On Dec. 31, 2015 (cont.)

Rating	Average time (years)	Number of sovereigns
BBB	1.63	6
BBB-	3.62	10
BB+	1.55	7
BB	6.61	5
BB-	3.19	9
B+	3.63	12
B	1.87	13
B-	2.09	11
CCC/C	0.67	2

Source: Global Fixed Income Research.

Large rating transitions are not common among sovereigns (see Chart 5). The more pronounced, multi-notch downgrades were on sovereigns that defaulted. For example, lowering a rating to 'SD' from 'B' within the calendar year constitutes a three-notch downgrade. Outside of these, the vast majority of downgrades are one or--to a much lesser extent--two notches. Sovereign upgrades seldom exceed a notch over a calendar year.

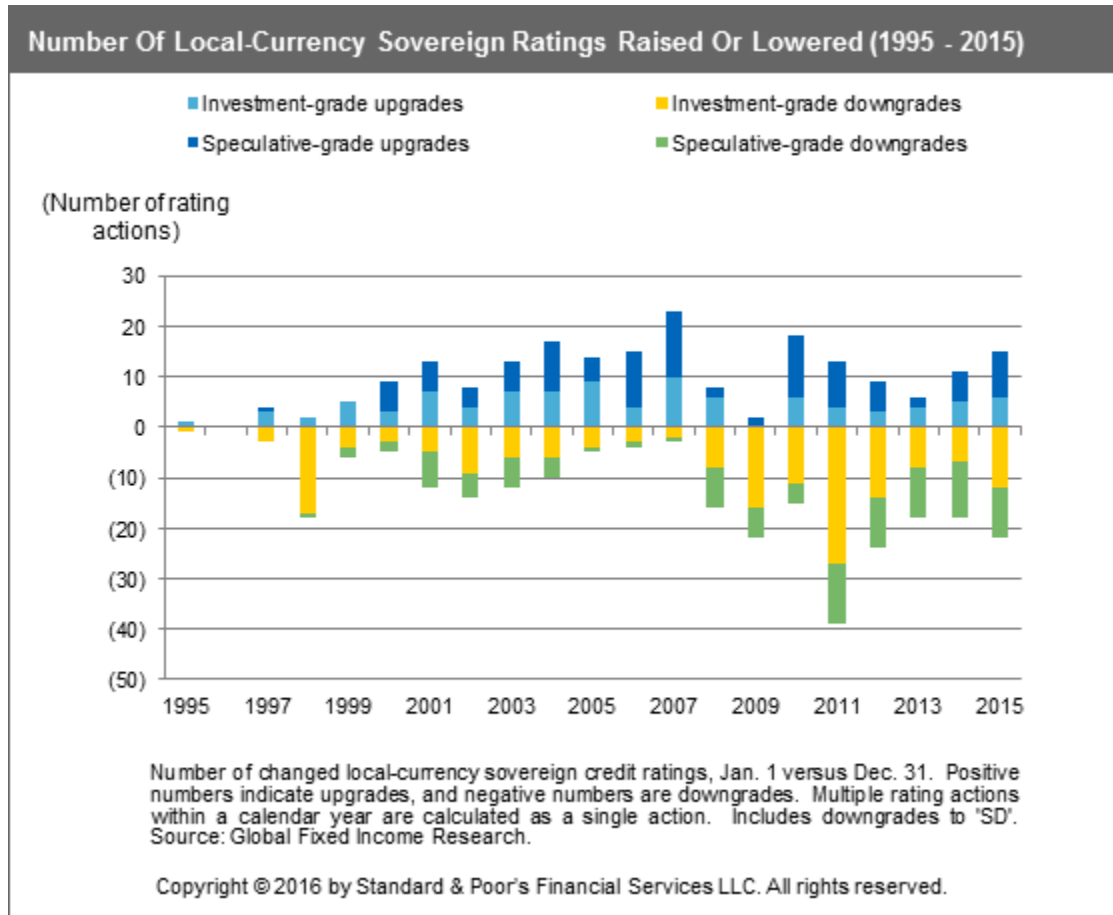
Chart 5



Sovereign Local-Currency Rating Transition Rates

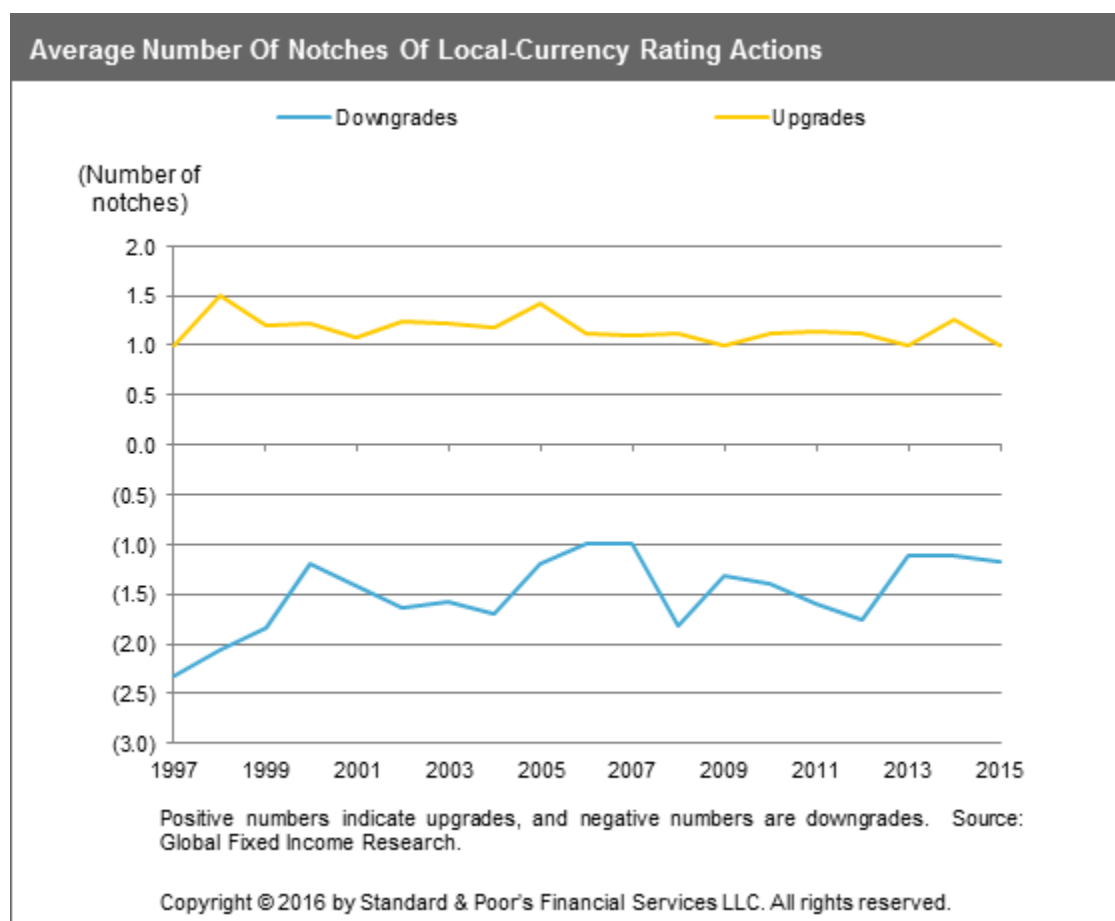
As with foreign-currency sovereign credit ratings, local-currency ratings have generally been more stable at higher rating levels than at lower levels (see Tables 18-22).

Chart 6



The average magnitude of local-currency sovereign rating changes has remained close to one notch in recent years, signifying fewer multi-notch actions during a short time period. The average number of notches of local-currency downgrades increased to 1.18 in 2015 from 1.11 in 2014. The average magnitude of local-currency upgrades decreased to 1.00 in 2015 from 1.27 in 2014 (see Chart 7).

Chart 7



Sovereign Default Rates

On Sept. 25, 2015, S&P Global Ratings lowered its long-term foreign-currency sovereign credit rating on Ukraine to 'SD' from 'CC' and its short-term foreign-currency sovereign credit rating to 'D' from 'C'. The rating action was taken after the Ukrainian government invited its commercial bondholders to participate in a series of debt buyback auctions. We consider this event as a distressed debt restructuring, as per our criteria (see "Ukraine Foreign Currency Ratings Lowered To 'SD' (Selective Default) On Distressed Debt Restructuring," Sept. 25, 2015.)

In the context of sovereign ratings, we treat governments that selectively default as a complete default. The foreign-currency sovereign defaults included in the data occurred in Argentina, Belize, Cyprus, the Dominican Republic, Ecuador, Greece, Grenada, Indonesia, Jamaica, Mali, Pakistan, Paraguay, Russia, Seychelles, Ukraine, Uruguay, and Venezuela (see Table 7). Of this group, the default of Ukraine in 2015 was that sovereign's first.

Chart 8

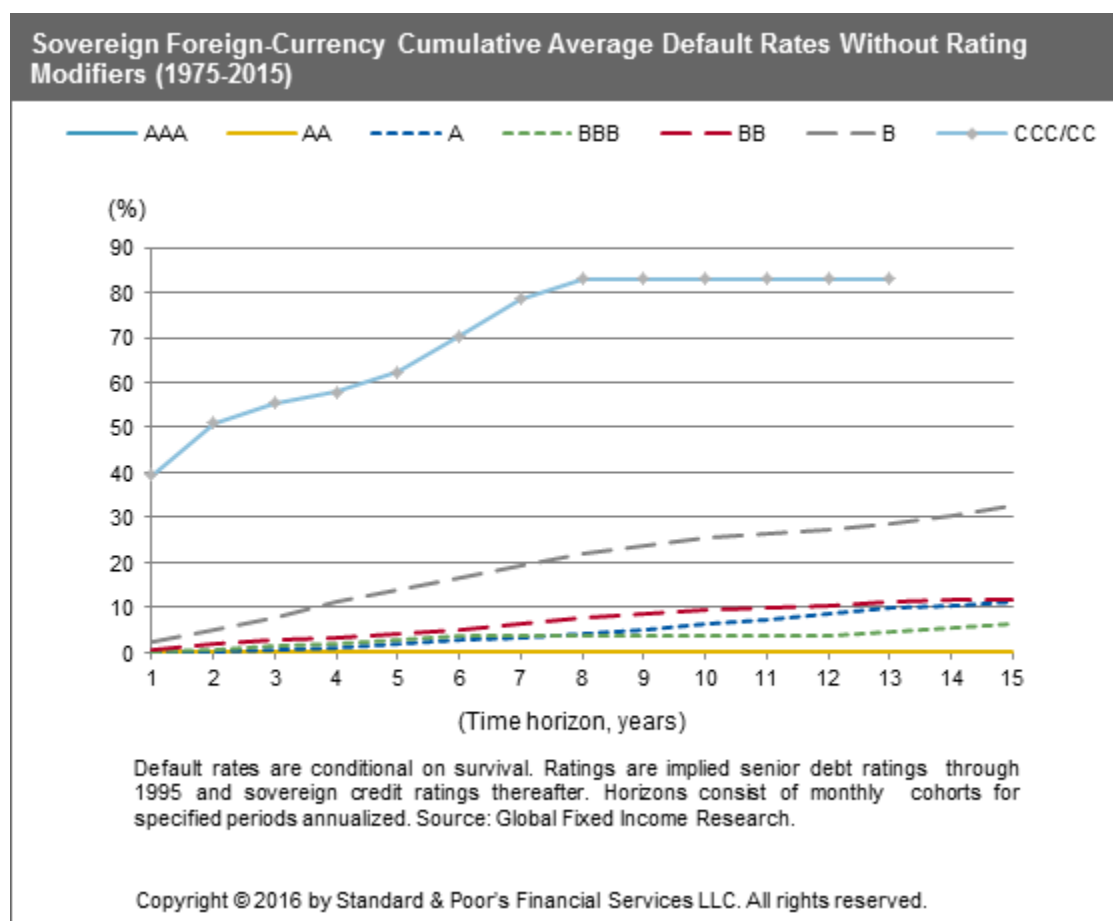


Table 7

Sovereign Foreign-Currency Selective Defaults					
Country	Selective default date	Emergence date	Time in selective default	Rating one year before selective default	Rating three years before selective default
Russia	Jan. 27, 1999	Dec. 8, 2000	22 months	BB-	-
Pakistan	Jan. 29, 1999	Dec. 21, 1999	11 months	B+	B+
Indonesia, first default	Mar. 30, 1999	Mar. 31, 1999	One day	B-	BBB
Indonesia, second default	Apr. 17, 2000	Oct. 2, 2000	Six months	CCC+	BBB
Argentina, first default	Nov. 6, 2001	Jun. 1, 2005	54 months	BB	BB
Indonesia, third default	Apr. 23, 2002	Sep. 5, 2002	Four months	B-	CCC+
Paraguay	Feb. 13, 2003	Jul. 26, 2004	18 months	B	B
Uruguay	May. 16, 2003	Jun. 2, 2003	One month	BB-	BBB-
Grenada, first default	Dec. 30, 2004	Nov. 18, 2005	11 months	BB-	-
Venezuela	Jan. 18, 2005	Mar. 3, 2005	One month	B-	B

Table 7

Sovereign Foreign-Currency Selective Defaults (cont.)					
Country	Selective default date	Emergence date	Time in selective default	Rating one year before selective default	Rating three years before selective default
Dominican Republic	Feb. 1, 2005	Jun. 29, 2005	Five months	CCC	BB-
Belize, first default	Dec. 7, 2006	Feb. 20, 2007	Three months	CCC-	B+
Seychelles*	Aug. 7, 2008	-	-	B	-
Ecuador	Dec. 15, 2008	Jun. 15, 2009	Six months	B-	CCC+
Jamaica, first default	Jan. 14, 2010	Feb. 24, 2010	One month	B	B
Greece, first default	Feb. 27, 2012	May. 2, 2012	Three months	BB+	
Belize, second default	Aug. 21, 2012	Mar. 20, 2013	Seven months	B-	B
Grenada, second default	Oct. 8, 2012	Oct. 16, 2012	One week	B-	B-
Greece, second default	Dec. 5, 2012	Dec. 18, 2012	Two weeks	CCC	
Jamaica, second default	Feb. 12, 2013	Mar. 06, 2013	22 days	B-	SD
Grenada, third default	Mar. 12, 2013	-	-	B-	B-
Cyprus	Jun. 28, 2013	Jul. 03, 2013	Five days	CCC+	A+
Argentina, second default	Jul. 30, 2014			B-	B
Ukraine	Sep. 25, 2015	Oct. 19, 2015	One month	CCC	B+

*We withdrew the rating on Seychelles while it was still in default. Mali defaulted in 2012, but we had withdrawn the rating in 2008. Source: Global Fixed Income Research.

From 1975 to 2015, no sovereign rated 'AAA' in the beginning of the month has defaulted within the ensuing 180 months (15 years; see Table 23). Moreover, the cumulative default rates were generally higher at lower rating tiers, as one would expect. For example, from 1975-2015, the five-year average cumulative default rate for sovereigns rated in 'A' category was only about 1.9% (see Table 24). By comparison, the five-year average cumulative default rate for sovereigns rated in the 'BBB' category was 2.8%; the 'BB' category, 4.0%; the 'B' category, 14.0%; and the 'CCC'/'CC' categories, 56.8%. Fifteen-year cumulative default rates for sovereigns averaged 3.4% for sovereigns with investment-grade ratings and 23.0% for sovereigns with speculative-grade ratings. The same trends are generally true when calculating default rates disaggregated by rating category. Apart from the 'A+' and 'A' categories, which include the defaults of Greece and Cyprus, the cumulative default rates for ratings with modifiers were higher at lower ratings. These statistics of many years of monthly data suggest that foreign-currency ratings have been strong indicators of default probability and the imminence of default.

Chart 9

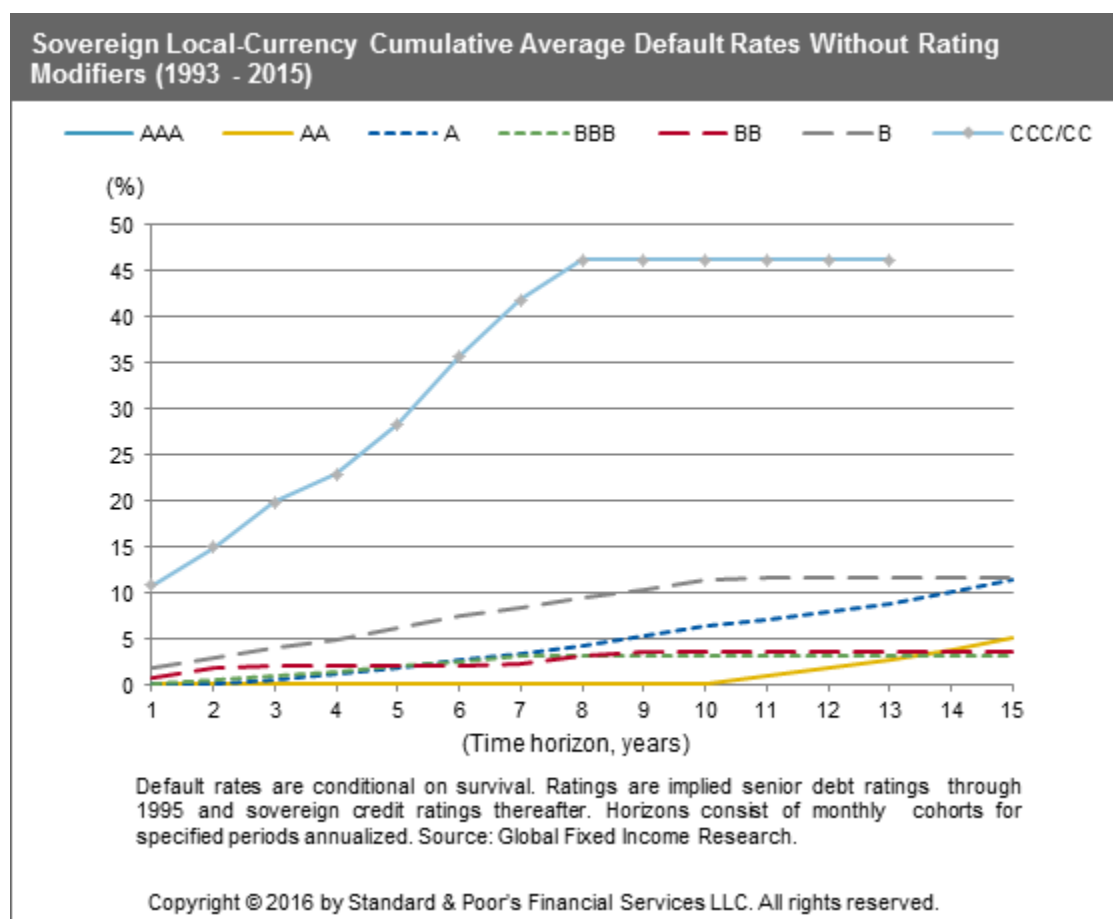


Table 8

Sovereign Local-Currency Selective Defaults

Country	Selective default date	Emergence date	Time in selective default	Rating one year before selective default	Rating three years before selective default
Dominican Republic	Apr. 9, 1999	Jun. 12, 2001	26 months	BB	-
Suriname	Jan. 1, 2000	Jan. 1, 2002	60 months	B	-
Argentina	Nov. 6, 2001	Jun. 01, 2005	43 months	BBB-	BBB-
Grenada, first default	Jan. 1, 2005	Nov. 18, 2005	11 months	BB-	-
Grenada, second default	Dec. 1, 2006	Apr. 02, 2007	Four months	B-	BB-
Ecuador	Dec. 15, 2008	Jun. 15, 2009	Six months	B-	CCC+
Jamaica, first default	Jan. 14, 2010	Feb. 24, 2010	One month	B	B
Greece, first default	Feb. 27, 2012	May. 02, 2012	Two months	BB+	A-
Greece, second default	Dec. 5, 2012	Dec. 18, 2012	Two weeks	N/A	A-
Jamaica, second default	February 12, 2013	March 6, 2013	22 days	B-	B-
Grenada, third default	March 12, 2013	-	-	B-	B-

Table 8

Sovereign Local-Currency Selective Defaults (cont.)

Country	Selective default date	Emergence date	Time in selective default	Rating one year before selective default	Rating three years before selective default
Cyprus	June 28, 2013	July 3, 2013	Five days	CCC+	A+

Cameroon and Grenada (excluding the third default) cured their local-currency defaults before the ratings were changed. Mali defaulted in 2012, but we had withdrawn the rating in 2008. *Confidential rating; we include these confidential ratings in our calculations because we had public foreign-currency ratings on the sovereigns at the time and because the local-currency rating subsequently went public. One of the two local-currency sovereign ratings defaulted while it was confidential. ¶Jamaica was in default exactly three years prior to its second default; a 'C' rating was assigned after emerging from the first default. Source: Global Fixed Income Research.

Generally, the cumulative default rates by rating category have been higher for foreign-currency sovereign credit ratings than for local-currency sovereign credit ratings (see Tables 23 and 31). The discrepancy may be attributable to the smaller local-currency universe compared to the foreign-currency universe (the foreign-currency series begins in 1975, while the local-currency one begins in 1992). Also, the local-currency sovereign default rates could be understated, as it is hard to detect forced rollovers of domestic bank debt or coerced exchanges of local-law, local-currency debt when domestic financial institutions hold the debt.

On average, there is a negative correlation between the initial rating on a sovereign and its time to default, if that occurs. For example, for the entire pool of sovereign defaults (1975-2014), the average times to default for issuers that were originally rated in the 'AA' and 'BBB' categories were 19.38 years and 15.09 years, respectively, from the initial ratings, whereas issuers in the 'B' rating category had an average time to default of only 6.69 years. When an issuer emerges from a default (including selective default), we treat it as a new entity. Similarly, we consider the first rating we assign after the default event to be the original rating on this new entity. Tables 9 and 10 display the median, average, and standard deviations for the time to default from the original rating for foreign- and local-currency ratings. Tables 11 and 12 present the average and median times to default from each rating category and include both rating originations and transitions to each category. In both cases, the standard deviation of the times to default shrinks progressively as the rating gets lower. Generally speaking, the average time to default for each rating category is longer when based on the initial rating on a sovereign than it is based on later ratings.

Table 9

Time To Default From Original Rating, Foreign-Currency Ratings (Years)

	Average	Median	Standard deviation	Number of defaults
AAA	27.31	27.31		1
AA	19.38	19.38		1
A	-	-		0
BBB	15.09	15.09	11.87	2
BB	6.03	6.81	2.87	6
B	6.69	7.40	3.63	12
CCC/C	0.68	0.59	0.33	3
Total	7.82	6.89	6.87	25

Source: Global Fixed Income Research.

Table 10

Time To Default From Original Rating, Local-Currency Ratings (Years)

	Average	Median	Standard deviation	Number of defaults
AAA	-	-	-	0
AA	16.96	16.96		1
A	14.93	14.93		1
BBB	7.19	7.19		1
BB	2.09	2.09	0.97	2
B	4.58	2.97	4.32	7
CCC/C	3.27	3.27	3.79	2
Total	5.85	4.46	5.46	14

Source: Global Fixed Income Research.

Table 11

Time To Default From All But The Original Rating, Foreign-Currency Ratings (Years)

	Average	Median	Standard deviation	Number of defaults
AAA	-	-	-	0
AA	22.45	22.45		1
A	14.64	14.64		1
BBB	10.50	5.93	9.69	3
BB	4.38	4.60	0.88	3
B	4.36	2.54	4.42	8
CCC/C	3.54	3.22	3.68	4
NR	3.75	3.75		1
Total	5.38	3.95	6.34	21

Source: Global Fixed Income Research.

Table 12

Time To Default From All But The Original Rating, Local-Currency Ratings (Years)

	Average	Median	Standard deviation	Counts
AAA	-	-	-	0
AA	14.64	14.64		1
A	10.97	10.97		1
BBB	-	-	-	0
BB	4.84	4.84	5.47	2
B	2.95	2.95	3.77	2
CCC/C	7.71	7.71		1
NR	4.50	4.50		1
Total	3.82	0.63	4.95	8

Source: Global Fixed Income Research.

Sovereigns that approach default usually experience multiple successive downgrades as the likelihood of default increases. Table 13 shows the last date of the highest rating, the number of intermediate rating actions (including outlook changes) before default, and the date of the sovereign's default. Charts 10-13 depict the rating movements and

show how defaulted sovereigns that were rated higher generally took longer to default than lower-rated sovereigns.

Chart 10

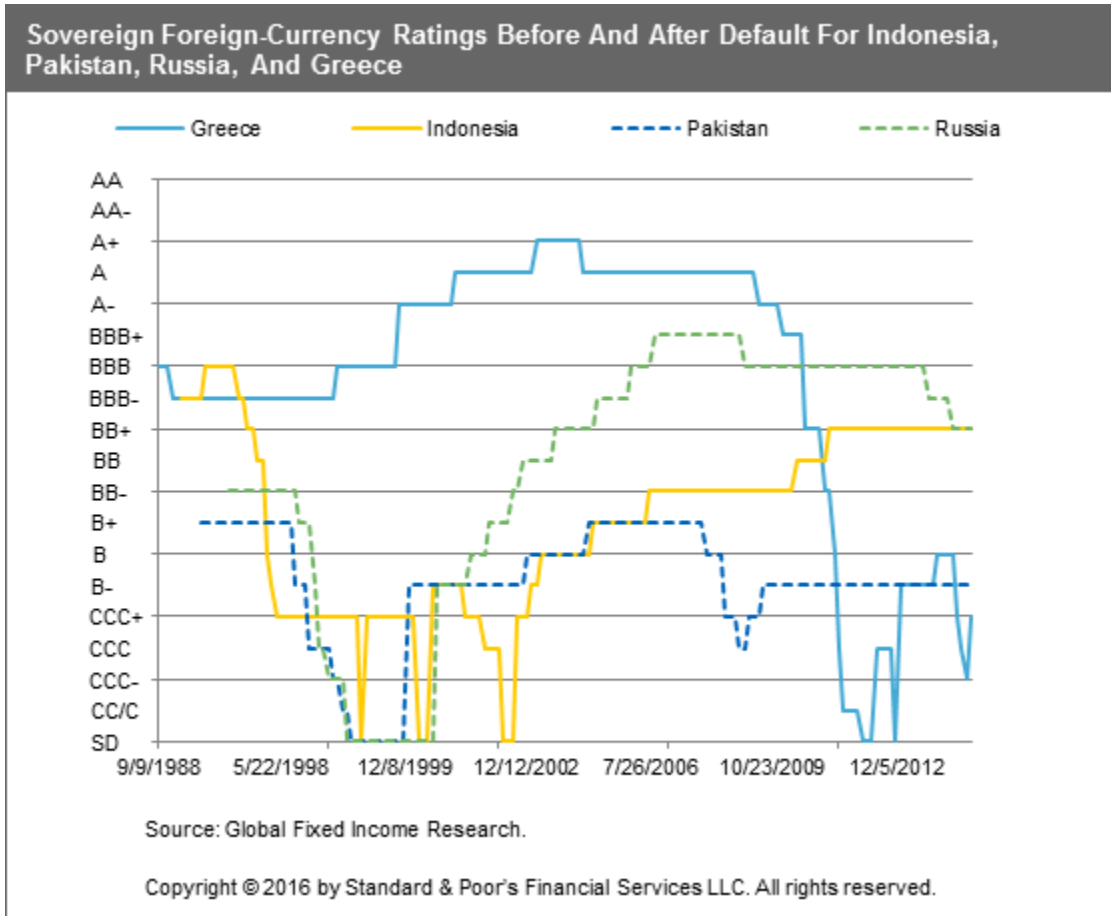


Chart 11

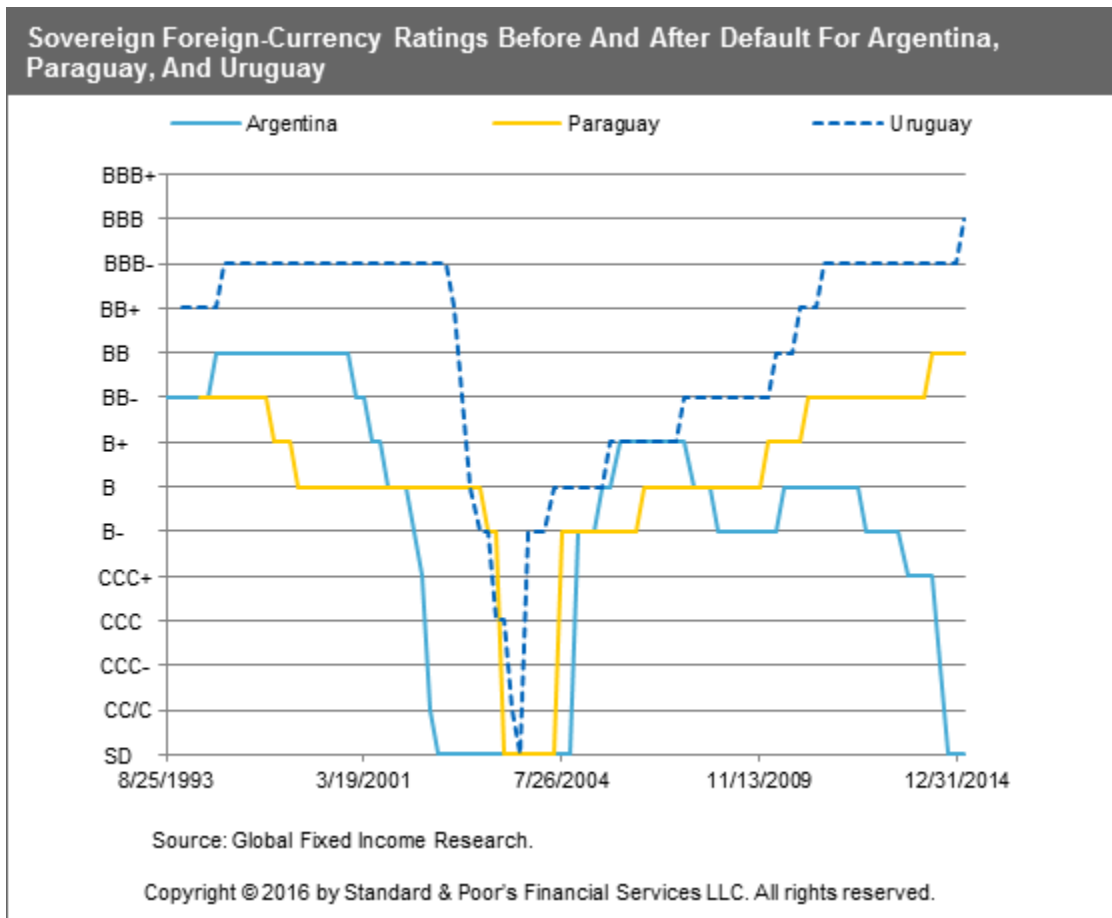


Chart 12

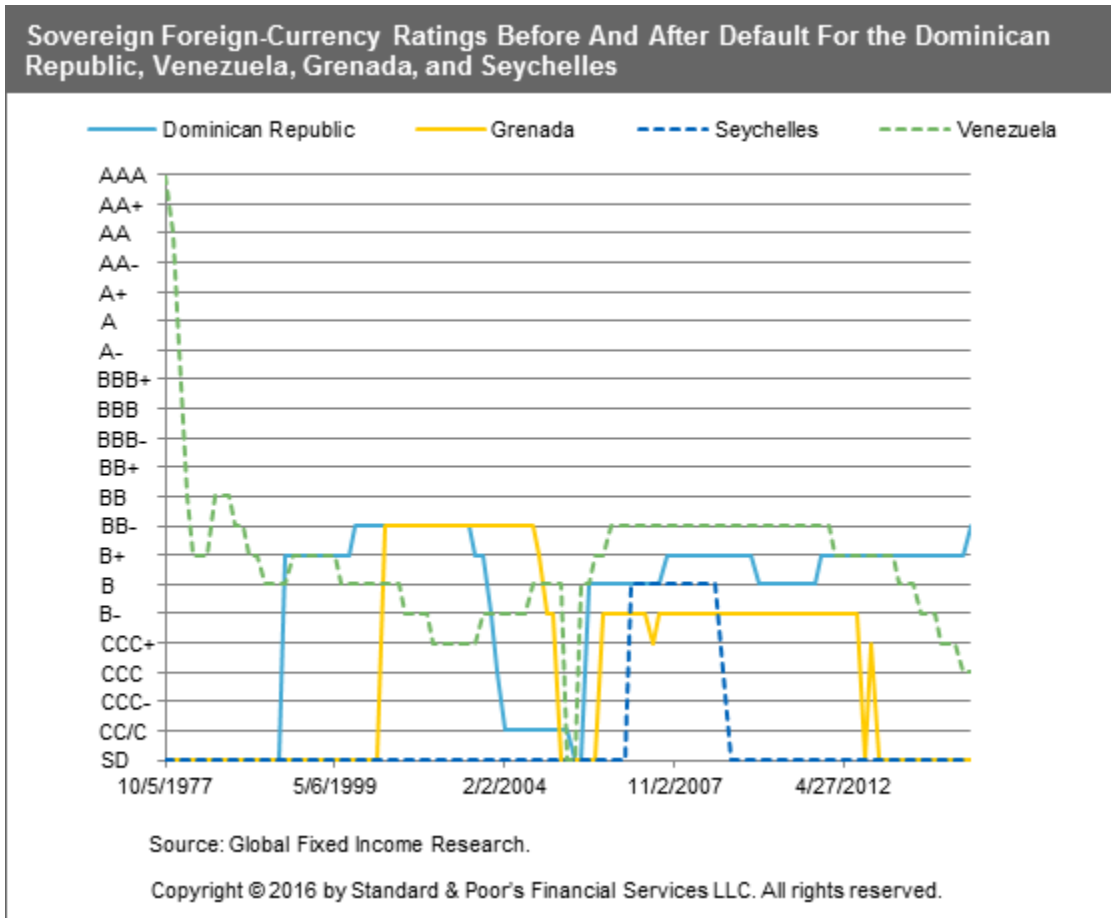


Chart 13



Table 13

Length Of Time To Default				
Government	Date of initial rating	Highest rating/outlook before default	Last date of highest rating	Number of intermediate rating actions
Foreign-currency sovereign credit rating defaults				
Russia	Oct. 14, 2006	BB-/Stable	Dec. 18, 1997	7
Pakistan	Sep. 21, 1994	B+/Positive	Aug. 2, 1995	8
Indonesia, first default	Jul. 20, 1992	BBB/Stable	Oct. 9, 1997	8
Indonesia, second default	Jul. 20, 1992	CCC+/Stable	Sep. 12, 1999	2
Argentina	Aug. 25, 1993	BB/Stable	Oct. 30, 2000	10
Indonesia, third default	Jul. 20, 1992	B-/Stable	Mar. 7, 2001	5
Paraguay	Oct. 23, 1995	BB-/Stable	Nov. 18, 1998	5
Uruguay	Feb. 14, 1994	BBB-/Stable	Jan. 10, 2002	8
Grenada, first default	Mar. 22, 2002	BB-/Stable/B	Sep. 16, 2004	2
Venezuela	Oct. 5, 1977	AAA	Aug. 12, 1982	26
Dominican Republic	Feb. 13, 1997	BB-/Stable	Oct. 22, 2001	5
Belize, first default	Aug. 18, 2000	BB/Stable	Aug. 18, 2000	7

Table 13

Length Of Time To Default (cont.)				
Government	Date of initial rating	Highest rating/outlook before default	Last date of highest rating	Number of intermediate rating actions
Seychelles*	Sep. 15, 2006	B/Stable	Nov. 1, 2007	2
Ecuador	Jul. 29, 2000	B-/Stable	Nov. 13, 2008	1
Jamaica, first default	Nov. 9, 1999	B+/Positive	Jul. 27, 2003	8
Greece, first default	Sep. 9, 1988	A+/Stable	Nov. 16, 2004	8
Belize, second default	Feb. 20, 2007	B/Stable	Aug. 3, 2011	4
Grenada, second default	Nov. 18, 2005	B-/Stable	Jul. 31, 2007	0
Greece, second default	May. 2, 2012	CCC/Stable	Dec. 4, 2012	0
Jamaica, second default	2/24/2010	B-/Stable	Oct. 31, 2011	1
Grenada, third default	10/16/2012	CCC+/Negative	Mar. 11, 2013	0
Cyprus	2/14/1994	AA-/Stable	Nov. 09, 1998	16
Argentina, second default	6/1/2005	B+/Stable	Oct. 02, 2006	9
Ukraine	12/21/2001	BB-/Stable	May. 11, 2005	15
Local-currency sovereign credit rating defaults				
Dominican Republic	Feb. 13, 1997	BB/Stable	Sep. 30, 1998	2
Suriname	Nov. 23, 1999	B/Stable	Dec. 31, 1999	1
Argentina	Sep. 1, 1994	BBB-/Stable	Oct. 30, 2000	10
Ecuador	Jul. 29, 2000	B-/Stable	Nov. 13, 2008	1
Jamaica	Nov. 9, 1999	BB-/Stable	Jul. 27, 2003	8
Greece	Mar. 26, 2007	A+/Stable	Nov. 16, 2004	8
Greece, second default	May. 2, 2012	CCC/Stable	Dec. 4, 2012	0
Jamaica, second default	2/24/2010	B-/Stable	Oct. 31, 2011	1
Grenada, third default	3/22/2002	BB-/Stable	Sep. 17, 2004	7
Cyprus	7/16/1996	AA+/Stable	Nov. 09, 1998	19

Mali defaulted in 2012, but we had withdrawn the rating in 2008. Grenada cured its first two local-currency defaults before ratings were changed.

*The rating on Seychelles was withdrawn while it was still in default. Source: Global Fixed Income Research.

Gini Ratios

The sovereign foreign-currency Gini coefficients for the one-, three-, five-, and seven-year horizons are 0.91, 0.78, 0.73, and 0.76, respectively. The sovereign local-currency Gini coefficients for the one-, three-, five-, and seven-year horizons are 0.84, 0.72, 0.64, and 0.64, respectively (see Charts 14-17). For a more detailed description of the methodology, please see Appendix II.

Chart 14

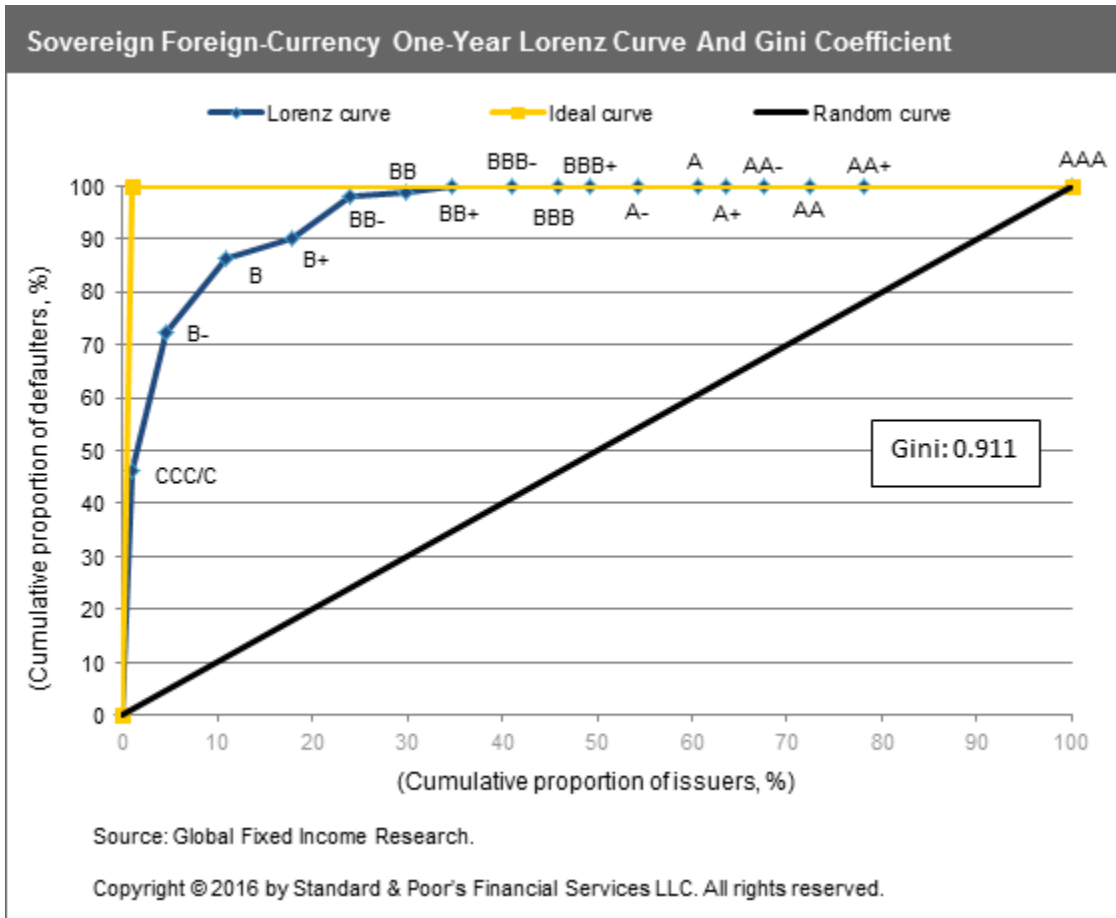


Chart 15

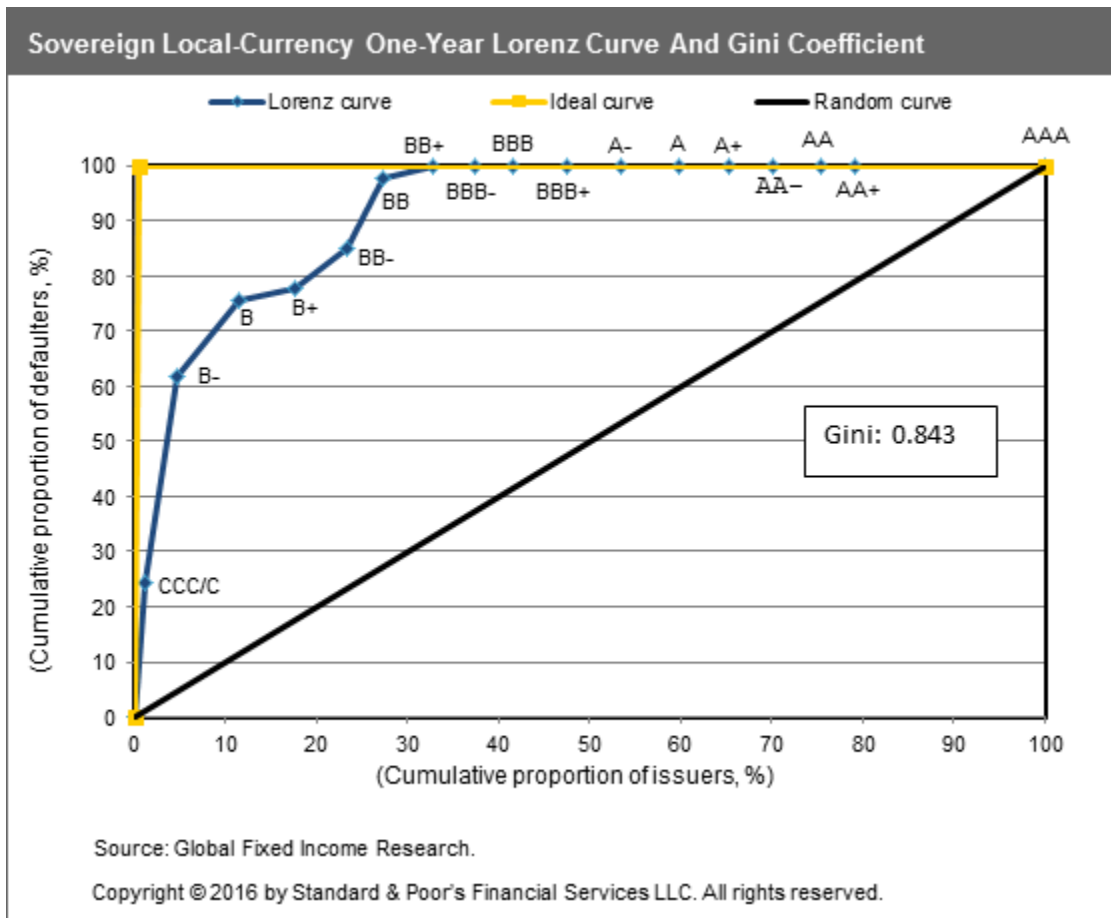


Chart 16

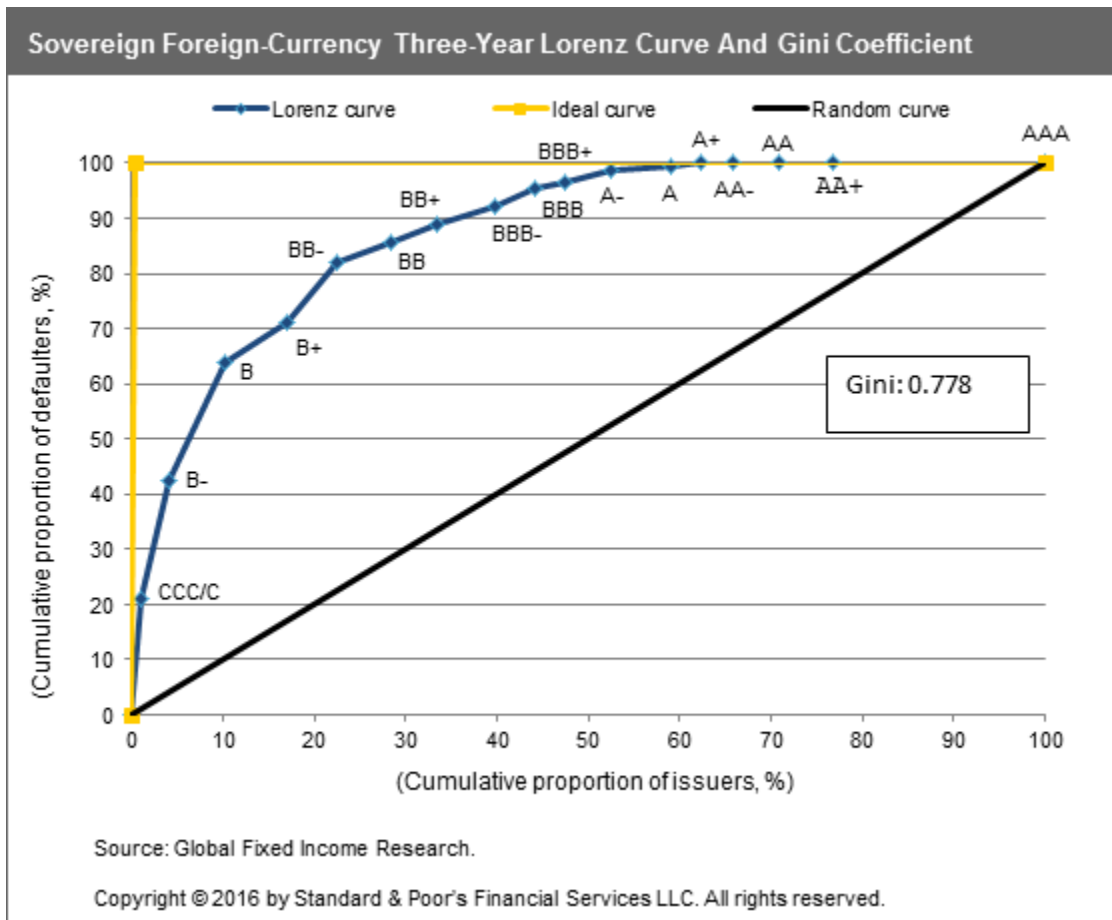


Chart 17

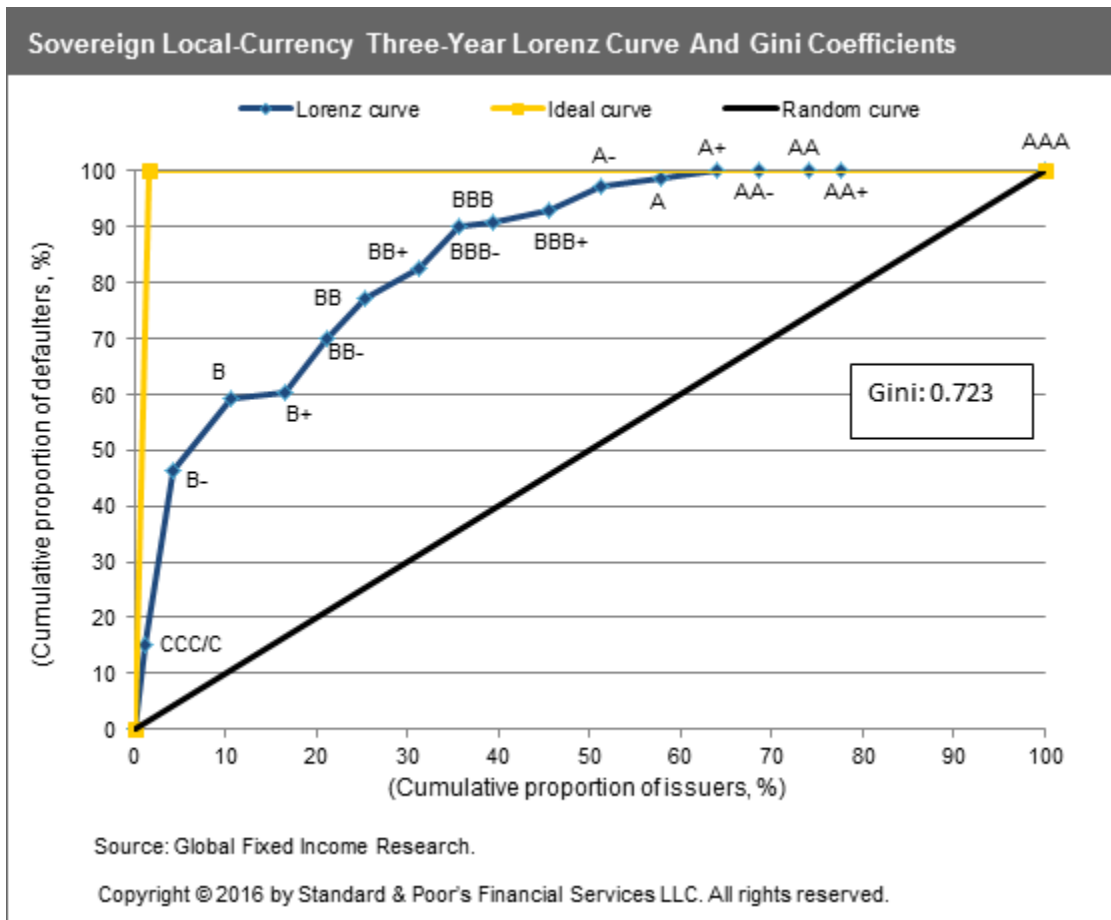


Chart 18

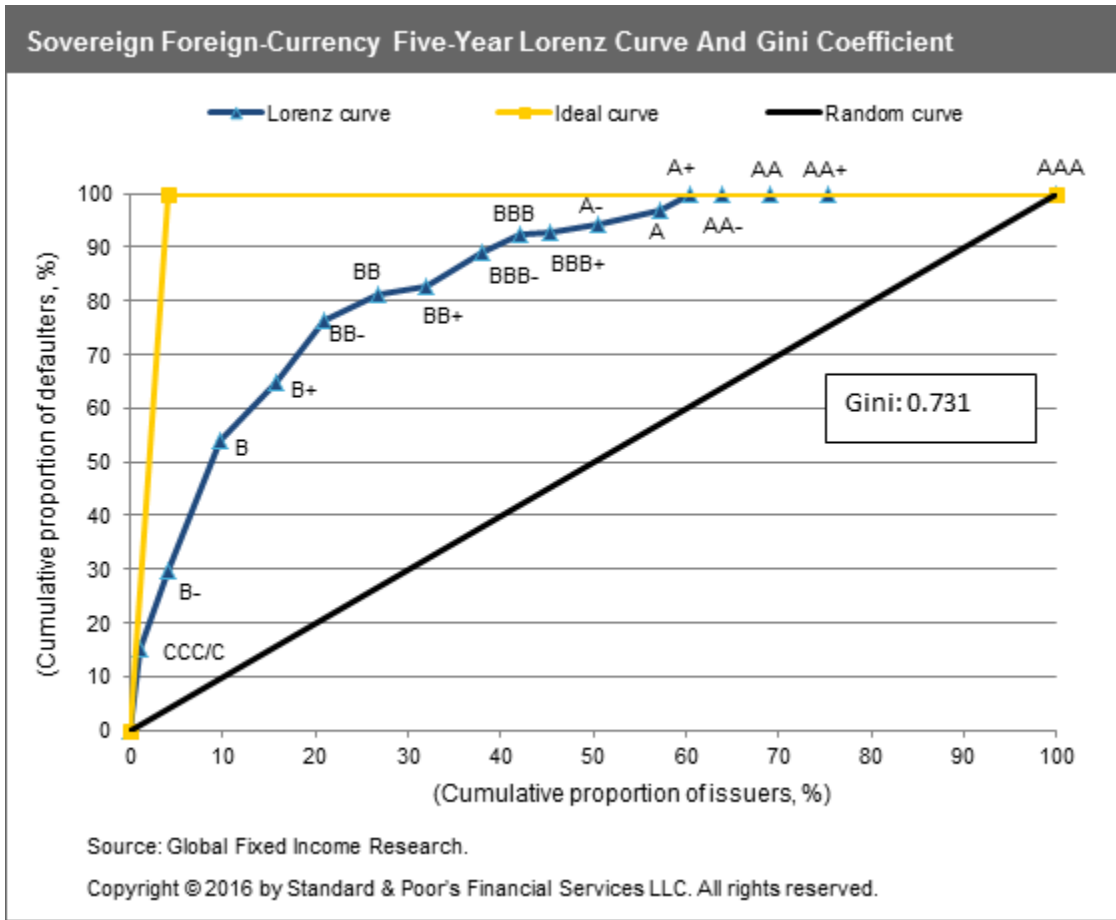


Chart 19

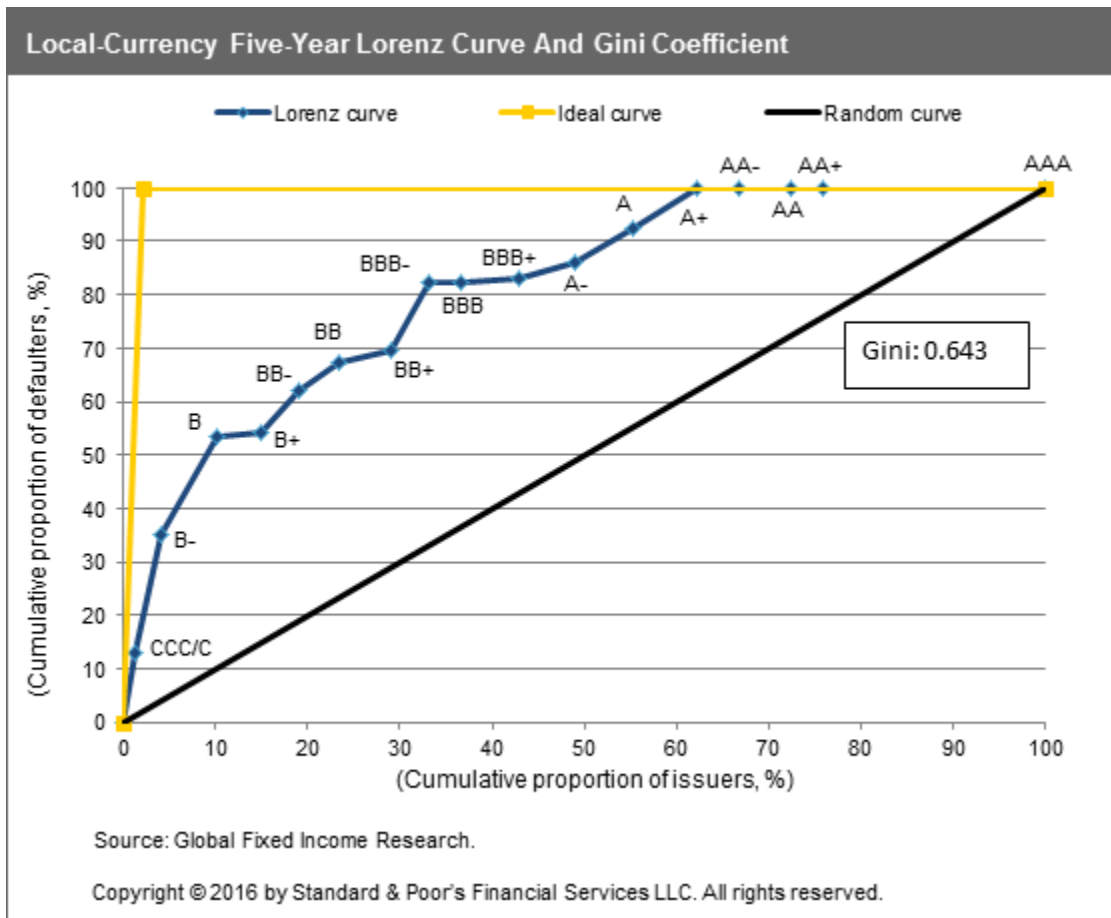


Chart 20

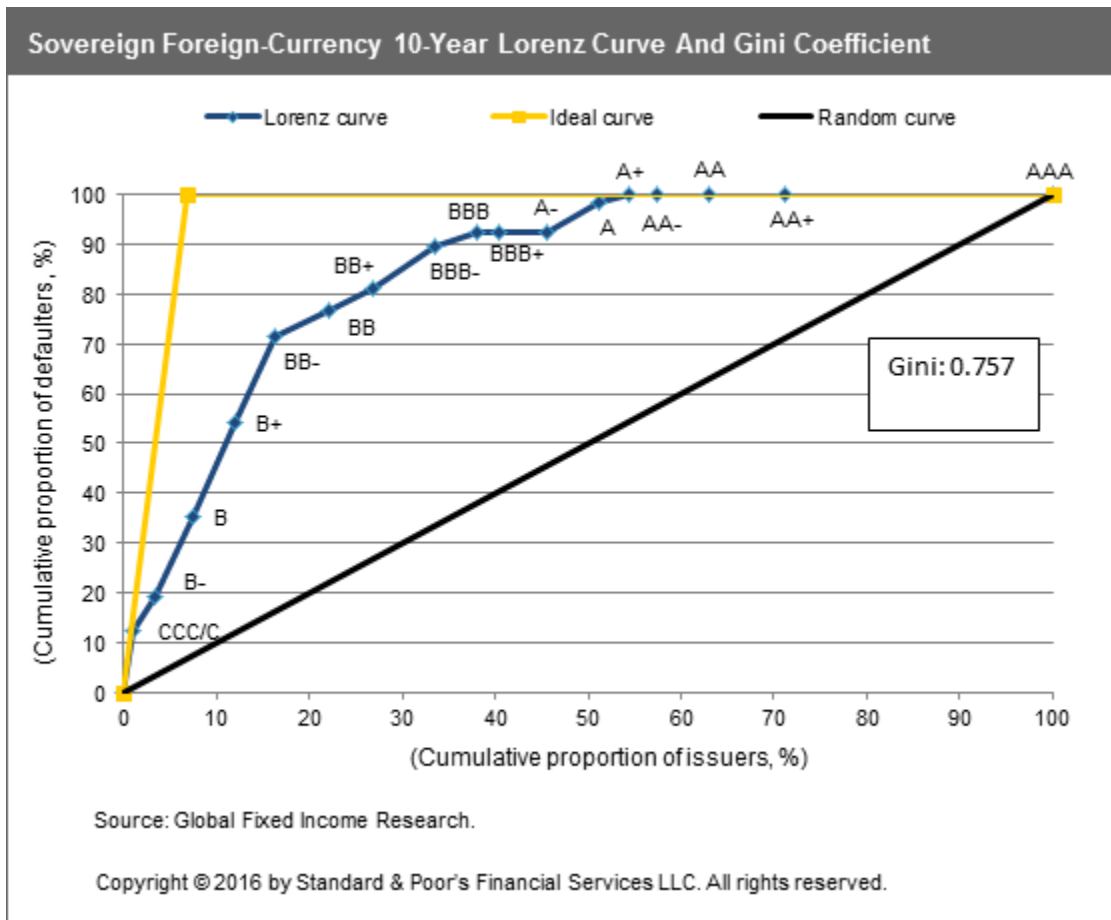
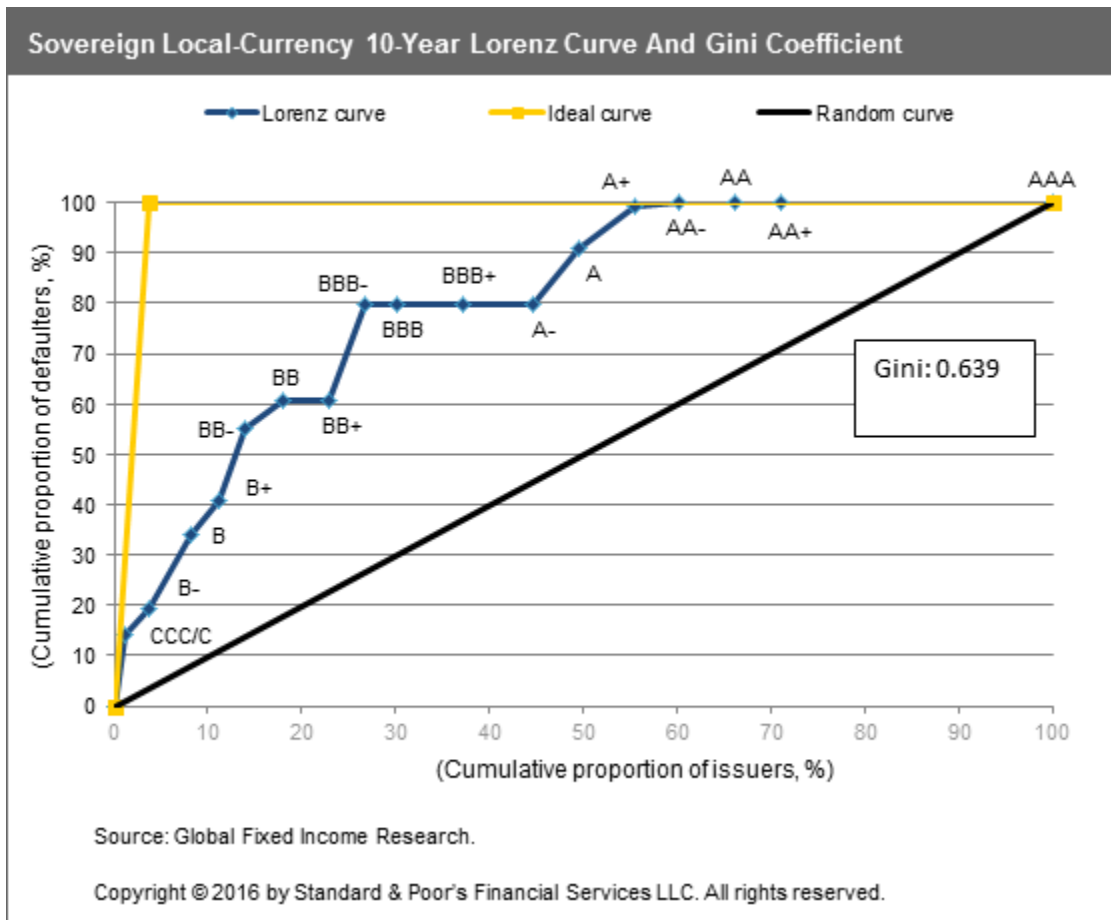


Chart 21



Appendix I: Methodology And Definitions

S&P Global Ratings generally defines "default" as the failure to meet a principal or interest payment on the due date contained in the original terms of a debt issue (see "Methodology: Timeliness Of Payments: Grace Periods, Guarantees, And Use Of 'D' And 'SD' Ratings," Oct. 24, 2013). However, questions can arise when applying this definition to sovereign obligations. We consider a sovereign to be in default under any of the following circumstances:

- For local- and foreign-currency bonds, notes, and bills issued by the central government and held outside the public sector of the country, a sovereign default occurs when the central government either fails to pay scheduled debt service on the due date or tenders an exchange offer of new debt with less-favorable terms than the original issue.
- For local currency issued by the central bank, a sovereign default takes place when notes are converted into a new currency of less-than-equivalent face value.
- For private-sector bank loans incurred by the central government, a sovereign default occurs when the central government either fails to pay scheduled debt service on the due date or negotiates with the bank creditors a rescheduling of principal or interest at less-favorable terms than in the original loan.

Emergence from default also can be a complicated analytical issue for sovereigns. Sovereigns often undertake debt

restructurings through exchange offers that, we find, rarely close the books on the restructured debt. For a number of reasons, ranging from difficulty in contacting all debtholders to holdouts seeking payment in accordance with original terms, we have observed that participation in sovereign distressed debt exchanges usually does not reach 100%. This stands in contrast with corporate debt restructurings in the U.S. and in many other jurisdictions, where all obligations are typically addressed in bankruptcy reorganization. A corporate entity reorganizing outside of bankruptcy generally must continue payments on the holdouts' debt or face the prospect of an involuntary bankruptcy filing.

Less common among sovereign defaults is the repudiation of debt, which most often follows a revolutionary change of regime (as occurred in Russia in 1917, China in 1949, and Cuba in 1960). S&P Global Ratings takes no position on the propriety of government debt defaults, repudiations, and the like. S&P Global Ratings also does not take a position on the course of negotiations (or the absence thereof) between creditors and the government about working out debt that is repudiated or on the parameters of any settlements between creditors and governments that could occur. Instead, our ratings are an opinion of the probability of default on a forward-looking basis. We analyze historical defaults to form our own view as to the extent that they could affect the likelihood of the sovereign defaulting in the future.

In general, S&P Global Ratings' sovereign ratings apply only to debt that the present government acknowledges as its own. If there is no resolution of a default through the courts or by the parties involved, S&P Global Ratings eventually withdraws the default ratings based on the diminished prospects for resolution and the lack of relevance of the default ratings in the context of the market. For example, S&P Global Ratings has no rating on direct and guaranteed debt of the government of China issued prior to the founding of the People's Republic of China in 1949 because S&P Global Ratings first rated China in 1992, long after the new government repudiated pre-1949 debt. The default is included in S&P Global Ratings' sovereign default survey, which covers defaults by rated and unrated issuers.

The data set includes sovereign ratings that were removed following a default. In those cases, if the sovereign has been rated again, a new record would have been established, and the new rating would not be connected to the defaulted rating. This created more than one record for defaulted sovereigns. Therefore, there are 160 foreign-currency records for 140 sovereigns that we have rated, as some of the ratings were reestablished following defaults.

Static pool methodology

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

S&P Global Ratings uses the static pool methodology to avoid certain pitfalls in estimating default rates. This is to ensure that default rates account for rating migration and to allow for default rates to be calculated across multi-period time horizons. Some methods for calculating default and rating transition rates might charge defaults against only the initial rating on the issuer, ignoring more recent rating changes that supply more current information. Other methods may calculate default rates using only the most recent year's default and rating data, which may yield comparatively low default rates during periods of high rating activity because they ignore prior years' default activity.

The pools are static in the sense that their membership remains constant over time. Each static pool can be interpreted

as a buy-and-hold portfolio. Because errors, if any, are corrected by every new update and because the criteria for inclusion or exclusion of companies in the default study are subject to minor revisions as time goes by, it is not possible to compare static pools across different studies. Therefore, every new update revises results back to the same starting date of Dec. 31, 1975, so as to avoid continuity problems.

For instance, the 1976 static pool consists of all companies rated as of 12:01 a.m. on Jan. 1, 1976. Adding those companies first rated in 1976 to the surviving members of the 1976 static pool forms the 1977 static pool. All rating changes that took place are reflected in the newly formed 1977 static pool through the ratings on these entities as of 12:01 a.m. on Jan. 1, 1977. We used the same method to form static pools for 1978 through 2014.

Consider the following example for annual static pools: A sovereign is originally rated 'BB' in mid-1986 and is downgraded to 'B' in 1988. This is followed by a default in 1993. We would include this hypothetical issuer in the 1987 and 1988 pools with the 'BB' rating, which it was rated at the beginning of those years. Likewise, it would be included in the 1989 through 1993 pools with the 'B' rating. Yet each of the seven pools in which this company was included (1987-1993) would record its 1993 default at the appropriate time horizon.

Default rate calculations

Cumulative default rates average the experience of all static pools in a select period of time by calculating marginal weighted-average default rates conditional on survival (survivors being nondefaulters) for each possible time horizon and accumulating marginal default rates. We calculate conditional-on-survival default rates by dividing the number of issuers in a static pool that default within a specific time horizon by the number of issuers that had survived (had not defaulted) up to that point in time. In the context of sovereign ratings, we treat governments that selectively default as a complete default. We based weights on the number of issuers in each static pool and base these calculations on monthly start dates for 12-month increments.

Transition analysis

Transition rates compare issuer ratings at the beginning of a time period with ratings at the end of the period. To compute one-year rating transition rates by rating category, we compared the rating on each entity at the end of a particular year with the rating at the beginning of the same year. An issuer that remained rated for more than one year was counted as many times as the number of years it was rated. For instance, an issuer continually rated from the middle of 1984 to the middle of 1991 would appear in the seven consecutive one-year transition matrices from 1985 to 1991. If the rating on the issuer was withdrawn in the middle of 1991, it would be included in the column representing transitions to 'NR' in the 1991 transition matrix. Similarly, if it defaulted in the middle of 1991, it would be included in the column representing transitions to 'D' in the 1991 one-year transition matrix.

All 1975 static pool members still rated on Jan. 1, 2016, had 42 one-year transitions, while companies first rated on Jan. 1, 2015, had only one. Table 1 displays the summary of one-year transitions in the investment-grade and speculative-grade rating categories. Each one-year transition matrix displays all rating movements between letter categories from the beginning of the year through year-end. For each rating listed in the matrix's left-most column, there are nine ratios listed in the rows, corresponding to the ratings from 'AAA' to 'SD', plus an entry for 'NR'.

The only ratings considered in these calculations are those on entities at the beginning of each static pool and those at the end. All rating changes that occur in between are ignored. For example, if an entity was rated 'A' on Jan. 1, 2015,

and was downgraded to 'BBB' in the middle of the year and then later upgraded to 'A' later in the year (with no other subsequent rating changes), this entity would only be included in the percentage of issuers that began the year as 'A' that ended the year as 'A'. This also applies to transition matrices that span longer time horizons. If an issuer defaults, we consider the rating as of Dec. 31 of that particular year to be 'D'. Similarly, if we withdraw our rating on an issuer, the methodology considers the rating as of Dec. 31 of that year to be 'NR'.

Multiyear transitions

Multi-year transitions were also calculated for periods of two to 15 years. In this case, we compared the rating at the beginning of the multi-year period with the rating at the end. For example, three-year transition matrices were the result of comparing ratings at the beginning of the years 1975-2012 with the ratings at the end of the years 1977-2015. Otherwise, the methodology was identical to that used for single-year transitions.

We calculated average transition matrices on the basis of the multi-year matrices described. These average matrices are a true summary, the ratios of which 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. Transition matrices that present averages over multiple time horizons are also calculated as issuer-weighted averages.

For inclusion in the matrix, the issuer must be in at least one year. In the case of the three-year matrix, we must have rated the sovereign by Jan. 1, 2012; in the case of the 15-year matrix, we must have rated it by Jan. 1, 2000. Thus, there are progressively fewer observations the longer the transition period is, given the growth of sovereign ratings and, of course, given that there will be fewer static pools for each added set of 12 monthly cohorts in the matrix.

Rating modifiers

Our calculations of the upgrade and downgrade percentages as well as the magnitude of rating changes considered the specific rating as opposed to the rating category. (To illustrate the difference, 'A-', 'A', and 'A+' or ratings with modifiers "+" and "-" are the ratings that fall within the 'A' rating category.) However, for practical reasons, some transition tables may use rating categories. Doing so means that actions such as a downgrade to 'AA-' from 'AA' or an upgrade to 'BBB+' from 'BBB-' are not considered to be transitions because the ratings remained within the same rating category.

Table 14

Rating History Of Ukraine (Long-Term Foreign-Currency Rating)

Date	Rating
19-Oct-2015	B-/Stable
25-Sep-2015	SD/NM
10-Apr-2015	CC/Negative
19-Dec-2014	CCC-/Negative
11-Jul-2014	CCC/Stable
21-Feb-2014	CCC/Negative
28-Jan-2014	CCC+/Negative
26-Dec-2013	B-/Stable
01-Nov-2013	B-/Negative
07-Dec-2012	B/Negative
15-Mar-2012	B+/Negative
29-Jul-2010	B+/Stable

Table 14

Rating History Of Ukraine (Long-Term Foreign-Currency Rating) (cont.)

Date	Rating
22-Jul-2010	B/Watch Pos
17-May-2010	B/Stable
11-Mar-2010	B-/Positive
30-Oct-2009	CCC+/Stable
31-Jul-2009	CCC+/Positive
25-Feb-2009	CCC+/Negative
15-Feb-2009	B/Watch Neg
24-Oct-2008	B/Negative
15-Oct-2008	B+/Watch Neg
12-Jun-2008	B+/Stable
05-Apr-2007	BB-/Negative
11-May-2005	BB-/Stable
20-Jul-2004	B+/Stable
28-Oct-2003	B/Positive
20-May-2003	B/Stable
12-Nov-2002	B/Negative
21-Dec-2001	B/Stable

Source: Global Fixed Income Research.

Table 15

Sovereign Foreign-Currency Average One-Year Transition Rates With Rating Modifier (1975-2015)*

--Rating one year later (%)--

Rating as of 1st of the month	--Rating one year later (%)--																						
	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	SD	NR	
AAA	96.7	2.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
AA+	6.9	83.3	7.1	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
AA	0.0	7.6	83.1	6.7	0.7	0.6	0.1	0.7	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AA-	0.0	0.0	10.9	80.5	6.7	0.3	0.1	0.3	0.0	0.3	0.7	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A+	0.0	0.0	0.0	15.6	67.0	11.7	2.9	1.5	0.2	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A	0.0	0.0	0.0	1.3	11.2	79.3	5.3	0.7	0.9	1.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A-	0.0	0.0	0.0	0.0	1.2	11.7	77.4	5.8	0.6	1.4	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
BBB+	0.0	0.0	0.0	0.0	0.0	2.7	17.1	64.4	11.9	2.2	1.0	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
BBB	0.0	0.0	0.0	0.0	0.0	0.0	2.5	19.2	65.5	10.1	1.2	0.1	0.0	0.7	0.3	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0
BBB-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	17.0	74.0	5.7	1.5	0.3	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
BB+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	19.3	67.6	9.6	1.0	0.2	0.1	0.0	0.2	0.4	0.0	0.6	0.2	0.0	0.0
BB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	15.2	72.6	8.6	1.4	0.8	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.1
BB-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	11.8	71.0	11.4	1.6	0.6	0.2	0.2	0.2	0.2	0.2	1.3	0.3
B+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	1.4	12.5	66.1	15.3	2.9	0.5	0.3	0.2	0.3	0.5	0.0	0.0
B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	17.2	67.0	6.6	1.9	1.3	0.3	0.0	2.0	2.7	0.0

Table 15

Sovereign Foreign-Currency Average One-Year Transition Rates With Rating Modifier (1975-2015)* (cont.)																									
--Rating one year later (%)--																									
Rating as of 1st of the month	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	SD	NR			
B-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	17.3	65.3	4.0	1.3	1.2	0.2	7.3	0.2
CCC+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	6.1	31.1	26.0	7.1	0.5	0.0	24.5	0.0
CCC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	30.3	0.0	7.6	6.1	10.6	40.9	0.0	
CCC-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9	13.8	79.3	0.0	
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0

*Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Average transitions over each 12-month cohort between 1975 and 2015 annualized. Source: Global Fixed Income Research.

Table 16

Sovereign Foreign-Currency Average Five-Year Transition Rates With Rating Modifier (1975-2015)*																									
--Rating five years later (%)--																									
Rating as of 1st of the month	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	SD	NR			
AAA	85.4	8.0	2.2	1.8	0.0	0.1	0.1	0.7	0.0	0.3	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
AA+	29.7	43.5	21.1	4.4	0.0	0.0	0.0	0.2	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AA	9.2	19.9	36.3	18.4	6.9	3.6	4.4	0.3	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AA-	0.9	13.8	35.8	23.4	6.0	6.4	2.8	1.1	2.4	4.3	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A+	0.0	3.2	9.3	31.7	14.2	13.0	2.4	3.6	7.4	7.5	1.5	2.0	0.0	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	3.8	0.0		
A	0.0	0.0	1.5	14.0	24.4	34.0	8.8	3.4	5.0	4.7	1.2	0.1	0.1	0.0	0.2	0.0	0.2	0.1	0.0	0.5	1.7	0.0			
A-	0.0	0.0	0.0	3.9	5.5	30.4	30.1	12.2	6.8	4.5	1.9	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.9			
BBB+	0.0	0.0	0.0	0.3	5.4	9.5	25.1	23.5	20.0	8.5	4.5	1.7	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0			
BBB	0.0	0.0	0.0	0.0	5.8	11.3	18.5	16.5	20.6	8.3	4.6	3.8	1.3	0.0	3.6	0.0	0.0	0.0	0.0	0.0	3.1	2.6			
BBB-	0.0	0.0	0.0	0.0	0.4	4.3	10.8	20.2	20.2	23.0	9.5	4.8	0.1	0.0	0.8	0.4	0.7	0.1	0.0	0.1	4.5	0.0			
BB+	0.0	0.0	0.0	0.0	0.0	0.9	3.3	2.6	16.6	22.8	16.1	21.3	10.6	0.6	0.9	2.7	0.5	0.0	0.0	0.0	1.1	0.0			
BB	0.0	0.0	0.0	0.0	0.0	0.0	1.2	2.2	2.7	13.1	20.3	35.6	11.4	8.3	0.9	0.0	0.0	0.0	0.9	0.2	3.3	0.0			
BB-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.8	6.8	11.9	25.6	16.9	12.7	5.2	7.1	0.4	0.9	0.0	0.3	9.0	0.0			
B+	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.9	4.5	2.0	2.6	14.1	26.2	25.1	13.1	1.1	0.1	0.0	1.0	7.3	1.2			
B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	1.7	0.7	3.2	16.3	18.3	23.9	6.4	1.5	0.2	0.5	0.2	17.4	9.3			
B-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.4	1.8	3.5	13.4	19.2	17.4	18.2	3.5	0.0	0.3	0.2	20.0	0.3			
CCC+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	7.6	5.7	15.8	5.7	12.7	2.5	0.0	44.9	0.0			
CCC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.8	2.2	0.0	0.0	0.0	0.0	60.0	0.0			
CCC-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0			
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0			

*Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Average transitions over each 60-month cohort between 1975 and 2015 annualized. Source: Global Fixed Income Research.

Table 17

Sovereign Foreign-Currency Average 15-Year Transition Rates With Rating Modifier (1975 - 2015)*																						
--Rating 15 years later (%)--																						
Rating as of 1st of the month	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	SD	NR
AAA	70.1	15.3	6.7	5.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.3
AA+	43.5	22.6	11.6	14.8	2.5	0.6	0.6	1.7	1.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AA	41.4	13.9	5.8	10.9	7.5	1.5	0.3	7.2	2.5	4.4	0.6	3.1	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AA-	31.4	16.0	3.5	2.6	11.9	10.3	4.8	1.0	1.0	3.2	2.2	8.0	0.0	0.0	0.6	0.0	1.0	1.0	0.0	0.0	1.6	0.0
A+	9.5	0.0	0.0	6.7	6.0	23.3	24.4	4.9	2.1	18.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0
A	9.1	5.7	17.4	15.8	7.9	9.1	16.0	10.8	0.2	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0
A-	0.0	0.0	0.0	22.4	29.2	3.2	11.0	23.1	0.7	0.0	0.4	0.0	0.0	0.4	4.6	0.0	0.0	0.0	0.0	0.0	5.0	0.0
BBB+	0.0	0.0	0.0	43.4	13.1	29.7	6.9	0.0	0.0	0.0	6.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BBB	0.0	0.0	15.5	10.3	17.1	12.9	11.8	3.7	1.8	1.6	2.6	3.7	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	2.6
BBB-	0.0	0.0	0.0	0.0	2.6	17.8	19.7	5.8	5.4	6.9	9.7	6.4	1.4	0.1	2.1	4.3	0.8	0.1	0.0	1.0	13.7	2.1
BB+	0.0	0.0	0.0	0.0	5.9	13.0	0.0	15.8	20.1	28.0	3.7	1.0	1.6	2.6	0.0	0.0	0.0	0.0	0.0	0.0	8.3	0.0
BB	0.0	0.0	0.0	0.0	0.0	0.0	2.3	12.7	14.3	14.1	0.0	13.1	9.0	4.8	7.6	2.1	1.6	0.0	0.0	0.0	18.4	0.0
BB-	0.0	0.0	0.0	0.0	4.0	0.0	0.0	6.9	7.8	0.0	7.5	10.7	18.8	0.0	6.1	6.4	0.0	0.0	0.0	0.0	31.8	0.0
B+	0.0	0.0	0.0	0.0	0.6	0.0	0.0	5.0	3.5	10.0	7.6	10.6	2.9	7.3	1.5	3.2	0.0	0.0	0.0	0.0	47.8	0.0
B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	9.3	19.9	9.9	0.0	12.6	1.3	0.0	0.0	0.0	0.0	0.0	42.4	0.0
B-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.3	8.5	0.0	14.9	29.8	0.0	13.8	0.0	0.0	0.0	0.0	11.7	0.0
CCC+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
CCC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
CCC-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0

*Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Average transitions over each 180-month cohort between 1975 and 2015 annualized. Source: Global Fixed Income Research.

Table 18

Sovereign Local-Currency Average One-Year Transition Rates (1993 - 2015)*									
--Rating one year later (%)--									
Rating as of 1st of the month	AAA	AA	A	BBB	BB	B	CCC/CC	SD	NR
AAA	95.9	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AA	1.5	91.0	5.6	1.1	0.0	0.0	0.0	0.0	0.7
A	0.0	2.8	90.0	6.3	0.4	0.2	0.0	0.0	0.3
BBB	0.0	0.0	5.5	87.6	5.9	0.8	0.1	0.0	0.0
BB	0.0	0.0	0.0	5.0	84.4	8.4	1.2	0.9	0.2
B	0.0	0.0	0.0	0.0	7.0	86.7	2.8	1.9	1.6
CCC/CC	0.0	0.0	0.0	0.0	0.0	50.0	38.0	12.0	0.0

*Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Average transitions over each 12-month cohort between 1993 and 2015 annualized. Source: Global Fixed Income Research.

Table 19

Sovereign Local-Currency Average Five-Year Transition Rates (1993 - 2015)*									
--Rating five years later (%)--									
Rating as of 1st of the month	AAA	AA	A	BBB	BB	B	CCC/CC	SD	NR
AAA	81.4	16.4	0.2	1.3	0.0	0.0	0.0	0.0	0.7
AA	8.1	60.4	25.5	5.0	1.0	0.0	0.0	0.0	0.0
A	0.0	14.3	58.9	18.8	3.6	0.8	0.4	1.9	1.4
BBB	0.0	0.0	18.8	52.3	20.2	5.6	1.0	2.1	0.0
BB	0.0	0.0	1.7	19.9	47.8	26.1	2.1	2.4	0.0
B	0.0	0.0	0.4	3.2	26.2	53.2	3.0	6.5	7.4
CCC/CC	0.0	0.0	0.0	6.7	0.0	59.6	9.6	24.0	0.0

*Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Average transitions over each 60-month cohort between 1993 and 2015 annualized. Source: Global Fixed Income Research.

Table 20

Sovereign Local-Currency Average 15-Year Transition Rates (1993 - 2015)*									
--Rating 15 years later (%)--									
Rating as of 1st of the month	AAA	AA	A	BBB	BB	B	CCC/CC	SD	NR
AAA	68.6	23.4	3.2	3.4	0.8	0.0	0.0	0.0	0.6
AA	4.1	32.1	29.4	22.6	5.2	1.9	0.8	4.0	0.0
A	6.7	19.9	25.9	14.3	15.3	6.7	0.9	6.7	3.6
BBB	0.0	4.3	31.2	26.8	26.4	2.7	0.0	8.6	0.0
BB	0.0	0.0	8.4	34.2	30.8	21.3	0.0	5.3	0.0
B	0.0	0.0	0.0	26.2	25.1	37.2	0.0	11.5	0.0
CCC/CC	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0

*Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Average transitions over each 180-month cohort between 1993 and 2015 annualized. Source: Global Fixed Income Research.

Table 21

Sovereign Local-Currency Average One-Year Transition Rates With Rating Modifier (1993 - 2015)*																						
--Rating one year later (%)--																						
Rating as of 1st of the month	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	SD	NR
AAA	95.9	3.0	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AA+	5.7	78.7	9.8	2.5	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7
AA	0.0	3.6	83.8	8.4	0.9	0.9	1.1	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AA-	0.0	0.0	5.9	79.8	11.9	0.4	0.4	1.5	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A+	0.0	0.0	0.9	7.3	73.4	13.5	2.8	1.2	0.1	0.1	0.0	0.0	0.2	0.2	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
A	0.0	0.0	0.0	0.8	10.8	74.3	10.6	2.3	0.9	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A-	0.0	0.0	0.0	0.0	0.5	15.0	68.6	11.2	1.6	1.1	0.9	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.8
BBB+	0.0	0.0	0.0	0.0	0.0	0.6	11.7	71.1	11.1	2.9	1.5	0.3	0.2	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.1
BBB	0.0	0.0	0.0	0.0	0.0	0.0	1.7	12.2	68.2	15.0	1.4	1.0	0.3	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0

Table 21

Sovereign Local-Currency Average One-Year Transition Rates With Rating Modifier (1993 - 2015)* (cont.)																						
--Rating one year later (%)--																						
Rating as of 1st of the month	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	SD	NR
BBB-	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.8	11.2	71.0	10.7	2.4	0.8	1.0	0.3	0.3	0.0	0.2	0.0	0.2	0.0	0.0
BB+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3	11.8	69.6	11.8	3.5	0.0	0.7	0.0	0.2	0.3	0.0	0.5	0.2	0.0
BB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	16.4	61.4	12.6	2.7	2.1	1.3	0.6	0.0	0.0	0.0	1.8	0.2
BB-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	8.6	69.5	13.0	3.6	1.1	0.5	0.9	0.0	0.4	0.8	0.5
B+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.0	13.2	65.6	15.3	2.9	0.0	0.0	0.0	0.3	0.2	0.0
B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.9	14.1	69.3	7.3	1.9	0.3	0.0	0.0	1.2	3.8	
B-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	3.6	17.2	63.0	7.0	0.8	0.2	0.2	6.3	0.2	
CCC+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	8.6	36.6	40.9	7.5	0.0	0.0	5.9	0.0
CCC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	56.3	2.8	14.1	0.0	2.8	19.7	0.0
CCC-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.2	7.7	0.0	0.0	0.0	15.4	30.8	0.0

*Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Average transitions over each 12-month cohort between 1993 and 2015 annualized. Source: Global Fixed Income Research.

Table 22

Sovereign Local-Currency Average 15-Year Transition Rates With Rating Modifier (1993 - 2015)*																						
--Rating 15-years later (%)--																						
Rating as of 1st of the month	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	SD	NR
AAA	68.6	13.8	5.9	3.7	2.0	0.5	0.7	2.5	0.0	0.9	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
AA+	0.3	4.9	10.4	10.1	14.3	10.1	5.9	10.7	9.1	16.9	2.3	0.7	0.0	0.0	0.7	0.0	1.0	1.0	0.0	0.0	1.6	0.0
AA	5.4	10.7	25.1	6.4	5.4	3.3	17.1	0.7	5.7	7.7	1.3	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	
AA-	8.5	0.0	14.7	11.9	31.6	1.7	0.6	12.4	0.0	0.0	0.0	4.0	0.0	0.0	7.3	0.0	0.0	0.0	0.0	7.3	0.0	
A+	24.9	15.7	24.9	0.5	0.0	6.5	0.0	17.8	0.0	0.0	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
A	0.0	0.0	0.0	9.1	5.8	29.9	1.9	8.4	0.6	0.0	5.8	15.6	3.9	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	16.2
A-	0.0	0.0	0.0	13.5	0.0	14.9	16.1	7.2	2.0	5.5	10.1	3.7	0.0	0.3	2.9	8.9	1.7	0.0	0.0	0.0	13.2	0.0
BBB+	0.0	0.0	4.8	2.2	2.6	27.3	14.0	3.2	9.8	14.4	6.4	4.8	8.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BBB	0.0	0.0	0.0	0.0	0.0	9.5	7.8	8.6	6.9	47.4	12.9	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BBB-	0.0	0.0	0.0	0.8	0.0	0.0	11.3	3.3	0.0	5.0	11.3	7.5	25.8	4.2	0.0	0.0	0.0	0.0	0.0	0.0	30.8	0.0
BB+	0.0	0.0	0.0	0.0	0.0	0.0	13.7	13.1	25.0	1.8	0.0	35.1	8.3	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0
BB	0.0	0.0	0.0	0.0	0.0	0.0	4.1	9.9	5.0	3.3	4.1	2.5	0.0	19.8	17.4	18.2	0.0	0.0	0.0	0.0	15.7	0.0
BB-	0.0	0.0	0.0	0.0	0.0	0.0	2.9	41.2	7.4	0.0	14.7	27.9	0.0	0.0	0.0	5.9	0.0	0.0	0.0	0.0	0.0	0.0
B+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	17.8	17.8	0.0	0.0	2.2	0.0	28.9	0.0	0.0	0.0	0.0	31.1	0.0
B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	37.1	12.9	0.0	0.0	27.1	2.9	7.1	0.0	0.0	0.0	0.0	2.9	0.0
B-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.8	42.6	0.0	0.0	41.2	0.0	0.0	0.0	0.0	0.0	0.0	7.4	0.0
CCC+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 22

Sovereign Local-Currency Average 15-Year Transition Rates With Rating Modifier (1993 - 2015)* (cont.)																						
--Rating 15-years later (%)--																						
Rating as of 1st of the month	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	SD	NR
CCC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	88.9	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CCC-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Average transitions over each 180-month cohort between 1993 and 2015 annualized. Source: Global Fixed Income Research.

Table 23

Sovereign Foreign-Currency Cumulative Average Default Rate* Without Rating Modifiers (1975 - 2015)																	
--Time horizon (annualized months)--																	
Rating	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
AAA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
A	0.0	0.0	0.6	1.2	1.9	2.7	3.5	4.3	5.3	6.3	7.5	8.8	9.8	10.6	11.2		
BBB	0.0	0.7	1.4	2.1	2.8	3.6	3.9	3.9	3.9	3.9	3.9	3.9	4.5	5.3	6.3		
BB	0.6	1.8	2.7	3.1	4.0	5.1	6.4	7.7	8.7	9.3	9.8	10.4	11.2	11.6	11.6		
B	2.4	5.1	7.9	11.2	14.0	16.6	19.4	22.0	23.9	25.3	26.4	27.4	28.6	30.5	32.4		
CCC/CC	39.5	51.0	55.4	57.9	62.2	70.4	78.6	82.9	82.9	82.9	82.9	82.9	82.9	0.0	0.0		
Investment grade	0.0	0.1	0.4	0.7	1.0	1.3	1.6	1.8	1.9	2.2	2.4	2.6	2.9	3.1	3.4		
Speculative grade	2.7	5.0	6.9	8.7	10.7	12.7	14.9	16.9	18.3	19.2	19.9	20.6	21.5	22.4	23.0		
All rated	0.9	1.8	2.7	3.5	4.3	5.2	6.0	6.7	7.2	7.6	8.0	8.3	8.7	9.1	9.4		

*Default rates conditional on survival. Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Horizons consist of monthly cohorts for specified periods annualized. Source: Global Fixed Income Research.

Table 24

Foreign-Currency 'A' Static Pools And Default Rates																	
--Time horizon (years)--																	
Transition to default rates (%)	Number of issuers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
01/01/1992	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/01/1993	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/01/1994	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/01/1995	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/01/1996	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/01/1997	9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/01/1998	9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/01/1999	9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	11.1	11.1	
01/01/2000	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1	18.2	18.2	18.2	0.0	

Table 24

Foreign-Currency 'A' Static Pools And Default Rates (cont.)																
Transition to default rates (%)	Number of issuers	--Time horizon (years)--														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
01/01/2001	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	16.7	16.7	16.7	0.0	0.0
01/01/2002	14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1	14.3	14.3	14.3	0.0	0.0	
01/01/2003	17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	11.8	11.8	11.8	0.0	0.0		
01/01/2004	20	0.0	0.0	0.0	0.0	0.0	0.0	5.0	10.0	10.0	10.0	0.0	0.0			
01/01/2005	21	0.0	0.0	0.0	0.0	0.0	4.8	9.5	9.5	9.5	0.0	0.0				
01/01/2006	21	0.0	0.0	0.0	0.0	4.8	9.5	9.5	9.5	0.0	0.0					
01/01/2007	23	0.0	0.0	0.0	4.3	8.7	8.7	8.7	0.0	0.0						
01/01/2008	20	0.0	0.0	5.0	10.0	10.0	10.0	0.0	0.0							
01/01/2009	20	0.0	5.0	10.0	10.0	10.0	0.0	0.0								
01/01/2010	21	0.0	4.8	4.8	4.8	0.0	0.0									
01/01/2011	21	4.8	4.8	4.8	0.0	0.0										
01/01/2012	15	0.0	0.0	0.0	0.0											
01/01/2013	14	0.0	0.0	0.0												
01/01/2014	12	0.0	0.0													
01/01/2015	15	0.0														
Cumulative default rate*		0.0	0.0	0.6	1.2	1.9	2.7	3.5	4.3	5.3	6.3	7.5	8.8	9.8	10.6	11.2

*From the Rating Category row in Table 23. Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Source: Global Fixed Income Research.

Table 25

Foreign-Currency 'BBB' Static Pools And Default Rates (1992 - 2015)																
Transition to default rates (%)	Number of issuers	--Time horizon (years)--														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
01/01/1992	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/01/1993	6	0.0	0.0	0.0	0.0	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7
01/01/1994	8	0.0	0.0	0.0	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
01/01/1995	7	0.0	0.0	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
01/01/1996	4	0.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	50.0
01/01/1997	9	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	22.2	22.2
01/01/1998	16	0.0	0.0	0.0	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	12.5	12.5	12.5
01/01/1999	16	0.0	0.0	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	12.5	12.5	12.5	12.5
01/01/2000	16	0.0	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	0.0
01/01/2001	16	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	0.0	0.0
01/01/2002	16	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	0.0	0.0	
01/01/2003	13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
01/01/2004	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
01/01/2005	13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
01/01/2006	13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					

Table 25

Foreign-Currency 'BBB' Static Pools And Default Rates (1992 - 2015) (cont.)																
Transition to default rates (%)	Number of issuers	--Time horizon (years)--														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
01/01/2007	13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
01/01/2008	14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
01/01/2009	17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0							
01/01/2010	18	5.6	5.6	5.6	5.6	0.0	0.0									
01/01/2011	19	0.0	0.0	0.0	0.0	0.0										
01/01/2012	24	4.2	4.2	0.0	0.0											
01/01/2013	23	0.0	0.0	0.0												
01/01/2014	26	0.0	0.0													
01/01/2015	25	0.0														
Cumulative default rate*		0.0	0.7	1.4	2.1	2.8	3.6	3.9	3.9	3.9	3.9	3.9	3.9	4.5	5.3	6.3

*From the Rating Category row in Table 23. Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Source: Global Fixed Income Research.

Table 26

Foreign-Currency 'BB' Static Pools And Default Rates (1992 - 2015)																
Transition to default rates (%)	Number of issuers	--Time horizon (years)--														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
01/01/1992	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/01/1993	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/01/1994	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
01/01/1995	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0	50.0	50.0
01/01/1996	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	25.0	25.0	25.0	25.0
01/01/1997	6	0.0	0.0	0.0	0.0	0.0	16.7	16.7	16.7	16.7	33.3	33.3	33.3	33.3	33.3	33.3
01/01/1998	8	0.0	0.0	0.0	0.0	12.5	12.5	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
01/01/1999	10	0.0	0.0	0.0	10.0	10.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
01/01/2000	13	7.7	7.7	15.4	15.4	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8
01/01/2001	18	11.1	16.7	16.7	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2
01/01/2002	18	5.6	5.6	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	
01/01/2003	15	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7		
01/01/2004	14	7.1	7.1	7.1	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3			
01/01/2005	16	0.0	6.3	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5				
01/01/2006	17	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8					
01/01/2007	17	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9						
01/01/2008	19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0							
01/01/2009	19	0.0	0.0	0.0	0.0	0.0	0.0	0.0								
01/01/2010	22	0.0	0.0	0.0	0.0	0.0	0.0									
01/01/2011	23	0.0	0.0	0.0	0.0	0.0										
01/01/2012	23	0.0	0.0	0.0	0.0											

Table 26

Foreign-Currency 'BB' Static Pools And Default Rates (1992 - 2015) (cont.)																
Transition to default rates (%)	Number of issuers	--Time horizon (years)--														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
01/01/2013	23	0.0	0.0	0.0												
01/01/2014	23	4.3	4.3													
01/01/2015	22	0.0														
Cumulative default rate*		0.6	1.8	2.7	3.1	4.0	5.1	6.4	7.7	8.7	9.3	9.8	10.4	11.2	11.6	11.6

*From the Rating Category row in Table 23. Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Source: Global Fixed Income Research.

Table 27

Foreign-Currency 'B' Static Pools And Default Rates (1995 - 2015)																
Transition to default rates (%)	Number of issuers	--Time horizon (years)--														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
01/01/1995	4	0.0	0.0	0.0	0.0	25.0	25.0	25.0	25.0	25.0	25.0	50.0	50.0	50.0	50.0	50.0
01/01/1996	5	0.0	0.0	0.0	20.0	20.0	20.0	20.0	20.0	20.0	40.0	40.0	40.0	40.0	40.0	40.0
01/01/1997	4	0.0	0.0	25.0	25.0	25.0	25.0	25.0	25.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
01/01/1998	5	0.0	20.0	20.0	20.0	20.0	20.0	20.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
01/01/1999	7	0.0	0.0	0.0	0.0	0.0	0.0	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6
01/01/2000	14	0.0	0.0	0.0	7.1	7.1	21.4	21.4	21.4	21.4	21.4	28.6	28.6	28.6	28.6	28.6
01/01/2001	19	0.0	5.3	10.5	10.5	21.1	21.1	21.1	26.3	26.3	31.6	31.6	31.6	31.6	31.6	31.6
01/01/2002	15	0.0	6.7	6.7	13.3	13.3	13.3	13.3	13.3	20.0	20.0	20.0	20.0	20.0	26.7	
01/01/2003	16	12.5	12.5	12.5	18.8	18.8	18.8	18.8	25.0	25.0	25.0	25.0	25.0	31.3		
01/01/2004	19	0.0	5.3	10.5	10.5	10.5	10.5	15.8	15.8	15.8	15.8	15.8	21.1			
01/01/2005	21	4.8	9.5	9.5	9.5	9.5	14.3	14.3	19.0	19.0	19.0	23.8				
01/01/2006	23	0.0	0.0	0.0	0.0	4.3	4.3	13.0	13.0	17.4	17.4					
01/01/2007	25	0.0	4.0	4.0	8.0	8.0	16.0	16.0	20.0	20.0						
01/01/2008	28	7.1	7.1	10.7	10.7	21.4	21.4	25.0	25.0							
01/01/2009	28	0.0	3.6	3.6	10.7	10.7	14.3	17.9								
01/01/2010	27	0.0	0.0	7.4	7.4	11.1	11.1									
01/01/2011	32	0.0	6.3	9.4	12.5	15.6										
01/01/2012	33	6.1	9.1	12.1	15.2											
01/01/2013	30	3.3	6.7	10.0												
01/01/2014	32	0.0	3.1													
01/01/2015	34	0.0														
Cumulative default rate*		2.4	5.1	7.9	11.2	14.0	16.6	19.4	22.0	23.9	25.3	26.4	27.4	28.6	30.5	32.4

*From the Rating Category row in Table 23. Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Source: Global Fixed Income Research.

Table 28

Foreign-Currency 'CCC'/'CC' Static Pools And Default Rates (1999-2015)												
Transition to default rates (%)	Number of issuers	--Time horizon (years)--										
		1	2	3	4	5	6	7	8	9	10	11
1/1/1999	3	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1/1/2000	1	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1/1/2001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/1/2002	2	50.0	50.0	50.0	50.0	50.0	50.0	100.0	0.0	0.0	0.0	0.0
1/1/2003	3	0.0	0.0	33.3	33.3	33.3	66.7	66.7	66.7	66.7	66.7	66.7
1/1/2004	2	0.0	50.0	50.0	50.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
1/1/2005	3	33.3	33.3	33.3	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7
1/1/2006	3	33.3	33.3	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	
1/1/2007	1	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
1/1/2008	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
1/1/2009	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
1/1/2010	3	33.3	33.3	33.3	33.3	33.3	66.7					
1/1/2011	N/A	N/A	N/A	N/A	N/A	N/A						
1/1/2012	1	100.0	0.0	0.0	0.0							
1/1/2013	2	100.0	0.0	0.0								
1/1/2014	1	100.0	0.0									
1/1/2015	2	50.0										
Cumulative default rate*		38.2	44.4	50.6	53.7	56.8	62.9	66.3	66.3	66.3	66.3	66.3

*From the Rating Category row in Table 23. Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. N/A--Not applicable; there are no observations for this period. Source: Global Fixed Income Research.

Table 29

Sovereign Foreign-Currency Cumulative Average Default Rate* With Rating Modifiers (1975 - 2015)															
Rating	--Time horizon (annualized months)--														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AAA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AA+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AA-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
A+	0.0	0.0	0.6	2.1	3.6	3.9	3.9	5.4	6.8	6.8	6.8	6.8	6.8	8.6	10.8
A	0.0	0.0	0.2	0.9	1.7	3.2	5.1	6.3	7.9	10.5	13.2	14.8	16.5	17.3	17.3
A-	0.0	0.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.3	3.3	3.8	3.8	3.8
BBB+	0.0	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
BBB	0.0	0.8	1.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	4.5	5.1	5.1
BBB-	0.0	0.6	1.4	2.2	3.9	5.7	6.4	6.4	6.4	6.4	6.4	6.4	6.4	7.5	9.2
BB+	0.2	1.6	1.6	1.6	1.6	1.7	2.9	4.2	5.6	6.0	6.0	6.0	6.0	6.0	6.0
BB	0.1	0.9	1.6	2.4	2.9	3.8	4.1	4.1	4.1	4.1	4.4	6.0	8.0	9.2	9.2
BB-	1.2	2.9	4.5	4.9	7.3	9.7	12.1	14.9	16.8	18.6	20.0	20.0	20.0	20.0	20.0
B+	0.5	1.3	2.6	5.5	7.3	9.4	13.3	17.8	19.0	20.8	23.3	23.7	23.7	25.5	29.6
B	2.0	5.1	9.2	13.2	16.9	19.8	21.9	23.9	26.3	28.1	28.5	30.9	34.6	38.0	38.0

Table 29

Sovereign Foreign-Currency Cumulative Average Default Rate* With Rating Modifiers (1975 - 2015) (cont.)															
--Time horizon (annualized months)--															
Rating	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
B-	6.9	12.9	16.8	19.3	22.7	25.5	27.3	28.0	30.2	30.4	30.4	30.4	30.4	30.4	30.4
CCC+	24.1	28.8	36.2	40.4	47.6	61.3	76.0	84.7	84.7	84.7	84.7	84.7	84.7	N/A	N/A
CCC	37.7	71.2	71.2	71.2	71.2	71.2	71.2	71.2	71.2	71.2	71.2	N/A	N/A	N/A	N/A
CCC-	80.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CC	100.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Investment grade	0.0	0.1	0.4	0.7	1.0	1.3	1.6	1.8	1.9	2.2	2.4	2.6	2.9	3.1	3.4
Speculative grade	2.7	5.0	6.9	8.7	10.7	12.7	14.9	16.9	18.3	19.2	19.9	20.6	21.5	22.4	23.0
All rated	0.9	1.8	2.7	3.5	4.3	5.2	6.0	6.7	7.2	7.6	8.0	8.3	8.7	9.1	9.4

*Default rates are conditional on survival. N/A--Not applicable; there are no observations for this period. Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Source: Global Fixed Income Research.

Table 30

Sovereign Foreign Currency Cumulative Average Default Rate* With Rating Modifiers (1975 - 2015)																				
--Time horizon (months)--																				
Rating	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BBB+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
BBB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.5	0.5
BBB-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.4	0.5	0.5
BB+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.7	1.0	1.1	1.3	1.3	1.4	1.5	1.6	1.6
BB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.5	0.6	0.7	0.7
BB-	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.3	0.5	0.7	1.0	1.4	1.5	1.6	1.7	1.8	1.9	2.1	2.2	2.4
B+	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.4	0.4	0.5	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.2
B	0.1	0.2	0.3	0.5	0.7	0.8	1.0	1.3	1.5	1.6	1.8	2.2	2.5	2.7	3.0	3.2	3.4	3.7	3.9	4.1
B-	0.4	0.9	1.4	1.9	2.3	2.9	3.6	4.2	4.8	5.4	6.1	7.6	8.1	8.7	9.4	9.9	10.5	10.8	11.2	11.7
CCC+	1.5	3.4	5.9	8.9	11.9	14.4	16.4	18.5	20.5	22.5	23.6	24.6	24.6	24.6	24.6	24.6	24.6	25.1	26.2	26.7
CCC	5.3	11.9	17.4	21.5	27.1	30.0	31.4	32.9	32.9	34.5	36.1	40.9	45.7	48.9	52.0	55.2	58.4	63.2	66.4	68.0
CCC-	12.1	21.2	30.3	36.4	42.4	51.5	58.0	64.4	70.9	74.1	77.4	83.8	87.1	90.3	93.5	96.8	100.0	N/A	N/A	N/A
CC	22.6	35.5	48.4	61.3	71.0	77.4	83.9	87.1	90.3	93.5	96.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Investment grade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Speculative grade	0.2	0.5	0.7	0.9	1.2	1.4	1.6	1.8	2.0	2.3	2.5	2.9	3.1	3.4	3.6	3.8	3.9	4.1	4.3	4.5
All rated	0.1	0.2	0.2	0.3	0.4	0.5	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.2	1.3	1.4	1.5	1.5	1.6

*Default rates are conditional on survival. N/A--Not applicable; there are no observations for this period. Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Horizons consist of monthly cohorts for specified periods annualized. For expanded table, see HTML file on RatingsDirect. Source: Global Fixed Income Research.

Table 31

Sovereign Local-Currency Cumulative Average Default Rate* Without Rating Modifiers (1993 - 2015)															
Rating	--Time horizon (annualized months)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AAA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9	1.8	2.7	3.8	5.2
A	0.0	0.0	0.6	1.2	1.9	2.7	3.5	4.3	5.3	6.4	7.0	7.9	8.9	10.1	11.5
BBB	0.0	0.6	1.1	1.5	2.0	2.5	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
BB	0.8	1.8	2.1	2.1	2.1	2.1	2.4	3.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6
B	1.8	2.8	3.9	4.9	6.1	7.5	8.4	9.4	10.4	11.5	11.7	11.7	11.7	11.7	11.7
CCC/C	10.8	15.0	19.8	22.9	28.4	35.8	41.8	46.2	46.2	46.2	46.2	46.2	46.2	46.2	46.2
Investment grade	0.0	0.1	0.4	0.6	0.9	1.2	1.6	1.8	2.1	2.3	2.7	3.0	3.4	3.9	4.4
Speculative grade	1.7	2.8	3.7	4.3	5.1	6.0	6.9	7.9	8.6	9.1	9.2	9.2	9.2	9.2	9.2
All rated	0.6	1.0	1.5	1.8	2.3	2.7	3.2	3.7	4.0	4.4	4.6	4.9	5.2	5.6	6.0

*Default rates are conditional on survival. N/A--Not applicable; there are no observations for this period. Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Horizons consist of monthly cohorts for specified periods annualized. Source: Global Fixed Income Research.

Table 32

Sovereign Local-Currency Cumulative Average Default Rate* With Rating Modifiers (1993 - 2015)															
Rating	--Time horizon (annualized months)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AAA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AA+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
AA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	3.6
AA-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.0	5.9	9.3	11.3	11.3
A+	0.0	0.0	0.4	1.3	2.3	2.4	2.4	3.4	5.2	6.6	6.6	6.6	6.6	6.6	6.6
A	0.0	0.0	0.3	1.2	2.2	4.3	6.7	8.4	9.8	11.8	14.1	14.1	14.1	14.1	14.1
A-	0.0	0.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	3.3	5.5	8.2	11.1
BBB+	0.0	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BBB	0.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
BBB-	0.0	1.2	2.5	3.9	5.5	7.4	9.6	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
BB+	0.2	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
BB	1.8	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
BB-	0.8	1.7	2.7	2.7	2.7	2.7	3.8	6.6	8.8	8.8	8.8	8.8	8.8	8.8	8.8
B+	0.2	0.2	0.2	0.2	0.2	0.3	1.2	1.2	2.2	5.9	6.6	6.6	6.6	6.6	6.6
B	1.1	1.9	2.8	3.8	5.5	7.9	9.4	11.1	12.2	12.2	12.2	12.2	12.2	12.2	12.2
B-	5.9	9.3	13.0	15.8	18.0	19.3	19.3	20.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3
CCC+	5.3	5.9	13.8	18.9	28.2	41.0	52.5	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7
CCC	17.9	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3
CCC-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	0.0	0.0
Investment grade	0.0	0.1	0.4	0.6	0.9	1.2	1.6	1.8	2.1	2.3	2.7	3.0	3.4	3.9	4.4

Table 32

Sovereign Local-Currency Cumulative Average Default Rate* With Rating Modifiers (1993 - 2015) (cont.)															
Rating	--Time horizon (annualized months)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Speculative grade	1.7	2.8	3.7	4.3	5.1	6.0	6.9	7.9	8.6	9.1	9.2	9.2	9.2	9.2	9.2
All rated	0.6	1.0	1.5	1.8	2.3	2.7	3.2	3.7	4.0	4.4	4.6	4.9	5.2	5.6	6.0

*Default rates are conditional on survival. N/A--Not applicable; there are no observations for this horizon. Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Horizons consist of monthly cohorts for specified periods annualized. Source: Global Fixed Income Research.

Table 33

Sovereigns Foreign-Currency Ratings Original-To-Last Transition Matrices																								
Rating as of January 1st	Rating as of January 1st																							
	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	D	NR		
AAA	55.0	20.0	10.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	5.0	
AA+	0.0	33.3	33.3	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AA	20.0	0.0	20.0	20.0	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AA-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0
A+	33.3	0.0	0.0	33.3	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A	0.0	0.0	11.1	0.0	11.1	22.2	22.2	11.1	11.1	0.0	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A-	0.0	0.0	0.0	0.0	0.0	0.0	25.0	25.0	0.0	25.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5
BBB+	0.0	0.0	0.0	50.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BBB	0.0	0.0	12.5	37.5	0.0	0.0	12.5	0.0	0.0	12.5	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0
BBB-	0.0	0.0	0.0	0.0	11.1	0.0	11.1	11.1	11.1	11.1	0.0	11.1	0.0	0.0	11.1	0.0	0.0	0.0	0.0	0.0	0.0	11.1	11.1	0.0
BB+	0.0	0.0	0.0	0.0	0.0	16.7	0.0	16.7	16.7	16.7	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	0.0
BB	0.0	0.0	0.0	0.0	0.0	0.0	10.0	10.0	0.0	20.0	0.0	20.0	10.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0
BB-	0.0	0.0	0.0	0.0	6.7	0.0	0.0	0.0	13.3	6.7	0.0	6.7	13.3	20.0	0.0	6.7	0.0	0.0	0.0	0.0	0.0	26.7	0.0	0.0
B+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.3	28.6	28.6	9.5	0.0	0.0	0.0	0.0	0.0	9.5	9.5	0.0
B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8	0.0	5.9	5.9	23.5	11.8	0.0	0.0	0.0	0.0	0.0	29.4	5.9	0.0
B-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	0.0	6.3	6.3	6.3	6.3	0.0	31.3	0.0	0.0	0.0	0.0	0.0	31.3	0.0	0.0
CCC+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CCC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CCC-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Original-to-last transition rates compare the issuer rating from the time of first rating to the last rating, regardless of the time elapsed in the interim. Ratings are implied senior debt ratings through 1995 and sovereign credit ratings thereafter. Source: Global Fixed Income Research.

Appendix II: Gini Methodology

To measure relative ratings performance, we utilize the Lorenz curve as a graphical representation of the proportionality of a distribution, and summarize this via the Gini coefficient. For this study, the Lorenz curve is plotted with the X axis showing the cumulative share of issuers, arranged by rating, while the Y axis represents the cumulative

share of defaulters, also arranged by rating. Within both axes of the Lorenz curve, the observations are ordered from the low end of the ratings scale ('CCC'/'C') to the high end ('AAA'). For example, if 'CCC'/'C' rated entities made up 10% of the total population of issuers at the start of the time frame examined (X axis), and 50% of the defaulters (Y axis), then the coordinate (10, 50) would be the first point on the curve. If S&P Global Ratings corporate ratings only randomly approximated default risk, the Lorenz curve would fall along the diagonal. Its Gini coefficient--which is a summary statistic of the Lorenz curve--would thus be 0. If corporate ratings were perfectly rank ordered so that all defaults occurred only among the lowest-rated entities, the curve would capture all of the area above the diagonal on the graph (the ideal curve) and its Gini coefficient would be 1. In other words, the Gini coefficient captures the extent to which actual ratings accuracy diverges from the random scenario and aspires to the ideal scenario.

The Lorenz curve was developed by Max O. Lorenz as a graphical representation of the proportionality of a distribution. Used with ratings, it is one indication of the appropriateness of the rating distribution's rank ordering. The Lorenz curve is derived by plotting out the cumulative proportion of issuers by rating category with the cumulative proportion of defaulters by rating category. To determine relative performance of the Lorenz curve, we compare it with an ideal curve and a random curve. In the ideal curve, all issuers in the lowest rating category ('CCC'/'CC', in this case) default, and all defaults are in the lowest rating category. In the random curve, all defaults occur randomly throughout the rating distribution, so it lies along the diagonal of the chart. The Gini coefficient is a ratio of two areas: the area bounded by the Lorenz curve and the random curve divided by the area bounded by the ideal curve and random curve. The result is a relative performance measure that is between 1 and 0, 1 being a Gini coefficient with perfect rank ordering (all defaults in the lowest rating category and all issuers in the lowest rating category default) and 0 being a random rank ordering.

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