Annex V

Credit Ratings and the Recent Crises

This annex provides background material to Chapter V. The first section covers factors considered by rating agencies in sovereign credit ratings and empirical studies of the determinants of such ratings. The second section provides a chronology of sovereign credit ratings during the recent financial crises in emerging markets. The third section proposes criteria by which to evaluate rating agencies and attempts to assess recent sovereign rating trends. A survey of credit rating agencies' methodology and resources is provided in the final section.

Factors in Sovereign Ratings and Empirical Studies of Determinants

In assessing the solvency and liquidity of sovereigns, rating agencies have focused on a number of factors that are quite distinct from those that apply to corporates. Notably, political risk as well as *overall* pressures on the balance of payments and the macroeconomic situation have been the focus of attention. Table A5.1, from S&P's, illustrates which factors agencies focus on when rating sovereigns. Boxes A5.1 and A5.2 provide the definitions of S&P's and Moody's issuer ratings.

The rating agencies emphasize that they do not use a specific formula to combine the various political and economic factors in deciding on an overall rating. However, a number of empirical studies can help illuminate which factors have historically received the greatest weights in the decision making process. In particular, Cantor and Packer (1996) and subsequently Juttner and McCarthy (1998) examined the determinants of the levels of Moody's and S&P's ratings for a range of mature and emerging market economies in the mid-1990s.

Cantor and Packer (1996) used ratings from Moody's and S&P's on 49 countries as of September 1995. After converting these ratings to a numerical scale (with the highest Aaa/AAA=16 and the lowest B3/B-=1), they regressed these ratings on a set of economic variables that had been identified by the agencies as influencing the level of a sovereign's rating. The results indicated that high ratings were associated with high per capita income, low inflation, more rapid growth, a low ratio of foreign currency external debt to exports, the absence of a history of defaults on foreign currency debt since 1970, and a high level of economic development (as measured by the IMF's classification as an industrial country). The coefficients on the fiscal position (as measured by the average annual central government budget surplus relative to GDP in 1992–94) and the external balance (as measured by the average annual current account surplus relative to GDP in 1992–94) were statistically insignificant. The statistical analysis also suggested that Moody's and S&P's

Table A5.1. Variables Used in Sovereign Rating Analysis by Standard & Poor's

Political risk
Form of government and adaptability of political institutions
Extent of popular participation
Orderliness of leadership succession
Degree of consensus on economic policy objectives
Integration into global trade and financial system
Internal and external security risks
Economic factors
Income and economic structure
Economic growth prospects
Fiscal flexibility
Public debt burden
Price stability
Balance of payments flexibility
External debt and liquidity

Source: Standard & Poor's (1998).

Box A5.1. Standard & Poor's Issuer Ratings

Issuer Credit Rating Definitions

An S&P's Issuer Credit Rating is a current opinion of an obligor's overall financial capacity (its creditworthiness) to pay its financial obligations. This opinion focuses on the obligor's capacity and willingness to meet its financial commitments as they come due. It does not apply to any specific financial obligation, as it does not take into account the nature and provisions of the obligation, its standing in bankruptcy or liquidation, statutory preferences, or the legality and enforceability of the obligation. In addition, it does not take into account the creditworthiness of the guarantors, insurers, or other forms of credit enhancement on the obligation. The Issuer Credit Rating is not a recommendation to purchase, sell, or hold a financial obligation issued by an obligor, as it does not comment on market price or suitability for a particular investor.

Counterparty Credit Ratings, ratings assigned under the Corporate Credit Rating Service (formerly called the Credit Assessment Service), and Sovereign Credit Ratings are all forms of Issuer Credit Ratings.

Issuer Credit Ratings are based on current information furnished by obligors or obtained by S&P's from other sources it considers reliable. S&P's does not perform an audit in connection with any Issuer Credit Rating and may, on occasion, rely on unaudited financial information. Issuer Credit Ratings may be changed, suspended, or withdrawn as a result of changes in, or unavailability of, such information, or based on other circumstances. Issuer Credit Ratings can be either long term or short term. Short-Term Issuer Credit Ratings reflect the obligor's creditworthiness over a short-term time horizon.

Long-Term Issuer Credit Ratings

AAA
An obligor rated AAA has extremely strong capacity to meet its financial commitments. AAA is the highest Issuer Credit Rating assigned by S&P's.

AA
An obligor rated AA has very strong capacity to meet its financial commitments. It differs from the highest-rated obligors only in small degree.

A
An obligor rated A has strong capacity to meet its financial commitments but is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligors in higher-rated categories.

BBB
An obligor rated BBB has adequate capacity to meet its financial commitments. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitments.

Obligors rated BB, B, CCC, and CC are regarded as having significant speculative characteristics. BB indicates the least degree of speculation and CC the highest. While such obligors will likely have some quality and protective characteristics, these may be outweighed by large uncertainties or major exposures to adverse conditions.

BB
An obligor rated BB is less vulnerable in the near term than other lower-rated obligors. However, it faces major ongoing uncertainties and exposure to adverse business, financial, or economic conditions which could lead to the obligor's inadequate capacity to meet its financial commitments.

B
An obligor rated B is more vulnerable than the obligors rated BB, but the obligor currently has the capacity to meet its financial commitments. Adverse business, financial, or economic conditions will likely impair the obligor's capacity or willingness to meet its financial commitments.

CCC
An obligor rated CCC is currently vulnerable, and is dependent upon favorable business, financial, and economic conditions to meet its financial commitments.

CC
An obligor rated CC is currently highly vulnerable.

Plus (+) or minus (–)
Ratings from “AA” to “CCC” may be modified by the addition of a plus or minus sign to show relative standing within the major rating categories.

An Issuer Credit Rating is withdrawn upon the first occurrence of any of the following events: (1) a payment default on any financial obligation, rated or unrated, other than a financial obligation subject to a bona fide commercial dispute; (2) a voluntary bankruptcy filing by the issuer or similar action; or, (3) in the case of banks, upon seizure of the bank by a regulator, or, in the case of insurance companies, upon placement of the insurer under regulatory supervision due to its financial condition.

Public Information Ratings

Ratings with a “pi” subscript are based on an analysis of an issuer's published financial information, as well as additional information in the public domain. They do not, however, reflect in-depth meetings with an issuer's management or incorporate material nonpublic information, and are therefore based on less comprehensive information than ratings without a “pi” subscript. Ratings with a “pi” subscript are reviewed annually based on a new year's financial statements, but may be reviewed on an interim basis if a major event that may affect an issuer’s credit quality occurs. Ratings with a “pi” subscript are not modified with ‘+’ or ‘-’ designations. Outlooks will not be provided for ratings with a “pi” subscript, nor will they be subject to potential CreditWatch listings.

Short-Term Issuer Credit Ratings

A-1
An obligor rated “A-1” has strong capacity to meet its financial commitments. It is rated in the highest category by S&P’s. Within this category, certain obligors are designated with a plus sign (+). This indicates that the obligor's capacity to meet its financial commitments is extremely strong.

A-2
An obligor rated “A-2” has satisfactory capacity to meet its financial commitments. However, it is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligors in the highest rating category.

A-3
An obligor rated “A-3” has adequate capacity to meet its financial obligations. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitments.

B
An obligor rated “B” is regarded as vulnerable and has significant speculative characteristics. The obligor currently has the capacity to meet its financial commitments; however, it faces major ongoing uncertainties which could lead to the obligor's inadequate capacity to meet its financial commitments.

C
An obligor rated “C” is currently vulnerable to nonpayment and is dependent upon favorable business, financial, and economic conditions for it to meet its financial commitments.

An Issuer Credit Rating is withdrawn upon the first occurrence of any of the following: (1) a payment default on any financial obligation, rated or unrated, other than a financial obligation subject to a bona fide commercial dispute; (2) a voluntary bankruptcy filing by the issuer or similar action; or (3) in the case of banks, upon seizure of the bank by a regulator, or, in the case of insurance companies, upon placement of the insurer under regulatory supervision due to its financial condition.

Local Currency and Foreign Currency Risks

Country risk considerations are a standard part of S&P’s analysis for credit ratings on any issuer or issue. Currency of repayment is a key factor in this analysis. An obligor's capacity to repay foreign currency obligations may be lower than its capacity to repay obligations in its local currency, owing to the sovereign government's own relatively lower capacity to repay external versus domestic debt. These sovereign risk considerations are incorporated in the debt ratings assigned to specific issues. Foreign currency issuer ratings are also distinguished from local currency issuer ratings to identify those instances where sovereign risks make them different for the same issuer.

Rating Outlook Definitions

An S&P’s Rating Outlook assesses the potential direction of a long-term credit rating over the intermediate to longer term. In determining a Rating Outlook, consideration is given to any changes in the economic and/or fundamental business conditions. An Outlook is not necessarily a precursor of a rating change or future CreditWatch action. *Positive* means that a rating may be raised. *Negative* means that a rating may be lowered. *Stable* means that a rating is not likely to change. *Developing* means a rating may be raised or lowered. *N.M.* means not meaningful.

CreditWatch

CreditWatch highlights the potential direction of a short- or long-term rating. It focuses on identifiable events and short-term trends that cause ratings to be placed under special surveillance by S&P's analytical staff. These may include mergers, recapitalizations, voter referendums, regulatory action, or anticipated operating developments. Ratings appear on CreditWatch when such an event or a deviation from an expected trend occurs and additional information is necessary to evaluate the current rating. A listing, however, does not mean a rating change is inevitable, and whenever possible, a range of alternative ratings will be shown. CreditWatch is not intended to include all ratings under review, and rating changes may occur without the ratings having first appeared on CreditWatch. The "positive" designation means that a rating may be raised; "negative" means a rating may be lowered; and "developing" means that a rating may be raised, lowered, or affirmed.

Source: Reproduced from www.standardandpoors.com.

Box A5.2. Moody's Issuer Ratings

Foreign Currency

Moody's Foreign Currency Issuer Ratings are opinions of the ability of entities to honor senior unsecured financial obligations and contracts denominated in foreign currency. These ratings are subject to Moody's Foreign Currency Country Ceilings. Issuer Ratings are unlike Moody's long-term debt ratings in that they are assigned to issuers rather than specific debt issues. Specific debt issues of the issuer may be rated differently, and are considered unrated unless individually rated by Moody's. Unless specified, obligations guaranteed by the issuer are considered unrated and are not covered by the issuer rating.

Domestic Currency

Moody's Domestic Currency Issuer Ratings are opinions of the ability of entities to honor senior unsecured financial obligations and contracts denominated in their domestic currency.

Rating Symbols

Moody's rating symbols for Issuer Ratings are identical to those used to show the credit quality of bonds. These rating gradations provide creditors a simple system to measure an entity's ability to meet its senior financial obligations.

Aaa Issuers rated Aaa offer exceptional financial security. While the creditworthiness of these entities is likely to change, such changes as can be visualized are most unlikely to impair their fundamentally strong position.

Aa Issuers rated Aa offer excellent financial security. Together with the Aaa group, they constitute what are generally known as high grade entities. They are rated lower than Aaa entities because long-term risks appear somewhat larger.

A Issuers rated A offer good financial security. However elements may be present which suggest a susceptibility to impairment sometime in the future.

Baa Issuers rated Baa offer adequate financial security. However, certain protective elements may be lacking or may be unreliable over any great period of time.

Ba Issuers rated Ba offer questionable financial security. Often the ability of these entities to meet obligations may be moderate and not well safeguarded in the future.

B Issuers rated B offer poor financial security. Assurance of payment of obligations over any long period of time is small.

Caa Issuers rated Caa offer very poor financial security. They may be in default on their obligations or there may be present elements of danger with respect to punctual payment of obligations.

Ca Issuers rated Ca offer extremely poor financial security. Such entities are often in default on their obligations or have other marked shortcomings.

C Issuers rated C are the lowest rated class of entity, are usually in default on their obligations, and potential recovery values are low.

Moody's Short-Term Prime Rating System—Taxable Debt and Global Deposits

Moody's short-term debt ratings are opinions of the ability of issuers to repay punctually senior debt obligations. These obligations have an original maturity not exceeding one year, unless explicitly noted.

Moody's employs the following three designations, all judged to be investment grade, to indicate the relative repayment ability of rated issuers.

Prime-1

Issuers rated Prime-1 (or supporting institutions) have a superior ability for repayment of senior short-term debt obligations. Prime-1 repayment ability will often be evidenced by many of the following characteristics:

- Leading market positions in well-established industries.
- High rates of return on funds employed.
- Conservative capitalization structure with moderate reliance on debt and ample asset protection.
- Broad margins in earnings coverage of fixed financial charges and high internal cash generation.
- Well-established access to a range of financial markets and assured sources of alternate liquidity.

Prime-2

Issuers rated Prime-2 (or supporting institutions) have a strong ability for repayment of senior short-term debt obligations. This will normally be evidenced by many of the characteristics cited above but to a lesser degree. Earnings trends and coverage ratios, while sound, may be more subject to variation. Capitalization characteristics, while still appropriate, may be more affected by external conditions. Ample alternate liquidity is maintained.

Prime-3

Issuers rated Prime-3 (or supporting institutions) have an acceptable ability for repayment of senior short-term obligations. The effect of industry characteristics and market compositions may be more pronounced. Variability in earnings and profitability may result in changes in the level of debt protection measurements and may require relatively high financial leverage. Adequate alternate liquidity is maintained.

Not Prime

Issuers rated Not Prime do not fall within any of the Prime rating categories.

Watchlist Definitions

UPG on Review for Possible Upgrade

DNG on Review for Possible Downgrade

UNC Direction uncertain

Source: Reproduced from www.moodys.com

Note: Moody's applies numerical modifiers 1, 2 and 3 in each generic rating category from Aa to Caa in the corporate finance sectors, and from Aa to B in the public finance sectors. The modifier 1 indicates that the issuer is in the higher end of its letter rating category; the modifier 2 indicates a mid-range ranking; the modifier 3 indicates that the issuer is in the lower end of the letter ranking category.

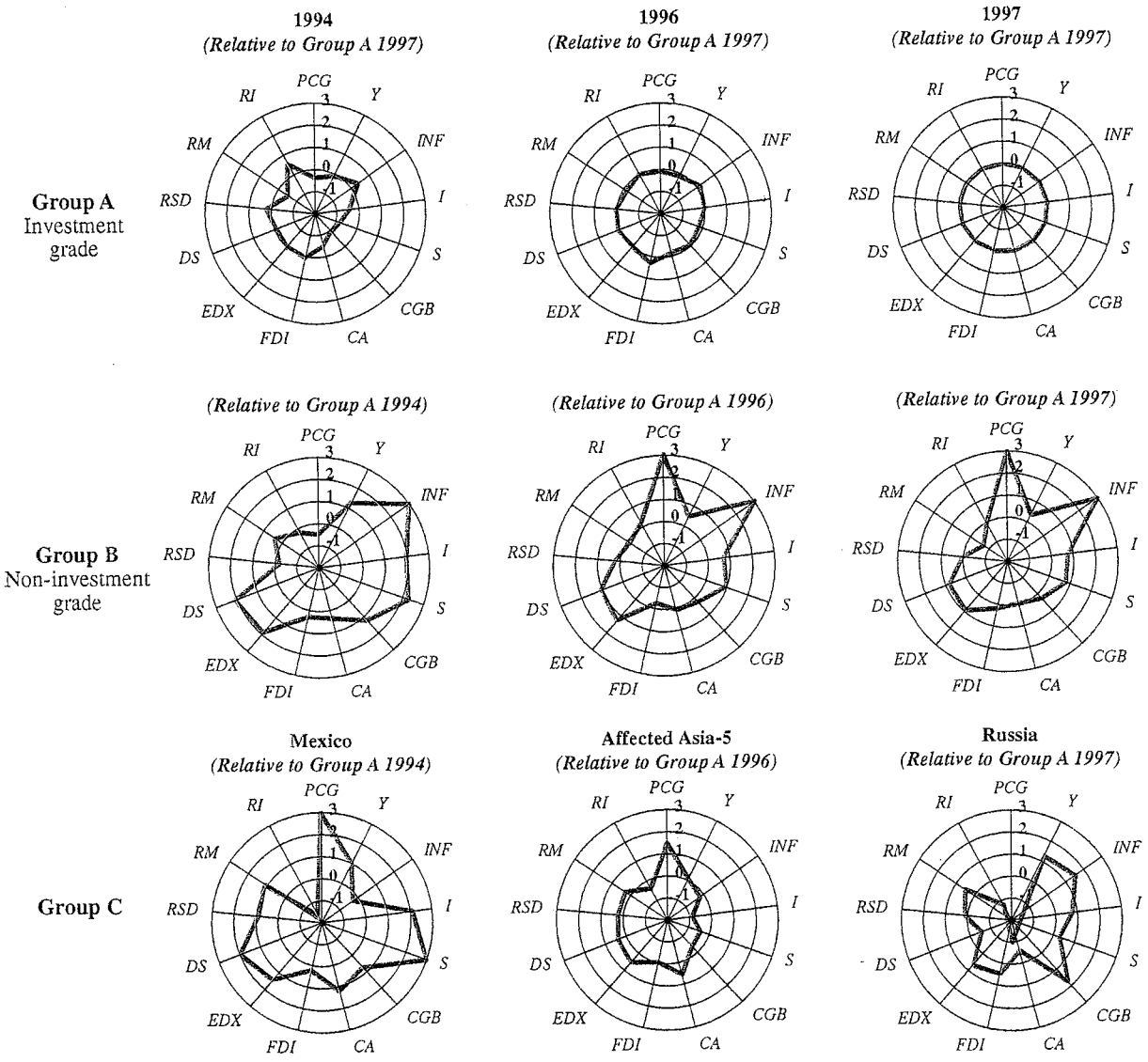
broadly shared the same rating criteria, but Moody's appeared to place more weight on external debt and less weight on default history as negative factors than did S&P's.

In a follow-up study, Juttner and McCarthy (1998) found that the factors identified by Cantor and Packer continued to adequately explain ratings in 1996 and 1997, but that this relationship broke down in 1998, in the wake of the Asian crises. For 1998, additional variables appeared to have come into play—notably, problematic bank assets as a percent of GDP and the interest rate differential (a proxy for expected exchange rate changes).

The above studies focused on the use of the ratings of the two largest rating agencies—Moody's and S&P's—and this raises the issue of whether there are significant differences between the ratings issued by these agencies and those of other rating agencies. Although this issue has not been addressed in the case of sovereign ratings, Cantor and Packer (1997) compared the corporate ratings from Moody's and S&P's with those from Duff & Phelps Credit Rating Agency (DCR) and Fitch Investor Service for ratings published at the end of 1993. If all agencies rated all firms, then differences in the ratings could be analyzed directly to see if there are differences in ratings scales. However, some firms were not rated by DCR or Fitch, which creates the possibility of sample selection bias. A firm might know that one particular agency provides more favorable treatment to firms in an industry with its specific characteristics. Alternatively, a firm might be told its likely rating by a particular agency before it is required to commit fully to the new agency's rating process. In either situation, ordinary regression analysis would produce biased estimates of the factors influencing each agency's rating process and the differences between processes. Cantor and Packer used a two-step procedure developed by Heckman (1979) to eliminate sample selection bias. They first sought to identify those factors that influence a firm's decision to seek a rating, and then analyzed whether there were significant differences between the ratings by Moody's and S&P's and the other two agencies. The empirical results indicated that firms were more likely to obtain two or more ratings if they were large and experienced issuers in capital markets. However, there was little evidence that third agencies were employed either to resolve ex ante uncertainty about ratings outcomes or to clear regulatory hurdles. Moreover, while the rating scales of the third agencies appeared to be somewhat higher than others, there was little evidence that decisions of issuers to use them were influenced by that factor.

Figure A5.1 provides a graphical analysis of the variables identified by the Cantor and Packer studies as well as by Juttner and McCarthy. The figure also analyzes a number of other economic determinants of ratings. It uses the average performance of emerging markets rated investment grade (the base group) as a metric to compare the macroeconomic fundamentals on the eve of the Mexican, Asian, and Russian crises. For each macroeconomic variable, the value of that variable for a particular country at any time is normalized using the mean and standard deviation of that variable for the base group. These normalized or standardized variables are then plotted in the figures with a movement away from the origin signifying a deterioration and a movement toward the origin signifying an improvement. For

Figure A5.1. Emerging Markets: Sovereign Ratings and Fundamentals[1]



Legend

PCG = Claims on private sector as a percent of GDP growth rate, 5-year moving average.
Y = GDP growth rate, 5-year moving average.
INF = CPI inflation rate.
I = Gross fixed capital formation as a percent of GDP.
S = Gross saving as a percent of GDP.
CGB = Central government balance as a percent of GDP.
CA = Current account as a percent of GDP.
FDI = Foreign direct investment as a percent of GDP.
EDX = Total external debt as a percent of exports.
DS = Debt service ratio.
RSD = Total foreign exchange reserves as a percent of short-term debt.
RM = Total foreign exchange reserves as a percent of broad money.
RI = Total foreign exchange reserves as a percent of imports.

Sources: Global Development Finance; IMF, *International Financial Statistics,* and *World Economic Outlook.*

[1]The figures plot a standardized value, lying between +3 and -3, for each macroeconomic variable. Note that for all variables a movement away from the origin signifies a deteriation. See text for full explanation.

example, the value of 1 calculated for the current account for Mexico in 1994 implies that Mexico's current account balance lay 1 standard deviation below the average for the base group in 1994.

The analysis shows that the determinants of ratings were stable through 1997 and that ratings were generally consistent with economic fundamentals. This held for investment- and non-investment-grade countries on average, as well as for the countries involved in the recent financial crises.

The first row traces the evolution of the fundamentals of investment-grade countries over time and shows that there is little difference over time (up to 1997) in their fundamentals, with the exception of investment, savings, the current account, and the government budget, which deteriorate somewhat for investment-grade countries between 1994 and 1996.

The second row tracks the fundamentals of non-investment-grade countries relative to investment grade countries. It shows that there are marked differences in fundamentals, notably in the level of growth, inflation, debt, savings and investment, and macro-imbalances (current account, budget balance) between investment- and non-investment-grade countries. Over time, lending to the private sector also becomes a differentiating fundamental.

The third row shows the fundamentals of the countries most affected in the recent financial crises. It shows that Mexico, which was rated as non-investment-grade at the time of its balance of payments crisis, had generally worse fundamentals than investment-grade countries; that the affected Asian countries, which were rated investment-grade, had fundamentals similar to the average for investment-grade, and that Russia, which was rated non-investment-grade, had generally worse fundamentals than investment-grade countries (with the exception—not surprisingly, given its early stage in transition—of lending to the private sector).

Dynamics of Ratings Changes

An interesting question is whether credit rating agencies can add to the dynamics of—i.e., either accentuate or attenuate—balance of payments crises. A necessary condition for this to occur is the existence of causality from ratings to spreads. A number of studies shed light on this issue using event studies and Granger causality studies.

Cantor and Packer (1996) studied the effects of rating announcements (both outlooks (S&P's term)/watches (Moody's term) and implemented ratings)[1] on spreads (the differential between yields on sovereign dollar-denominated eurobonds and on comparable U.S. treasury

[1] See Box A5.2 for definitions.

bonds), using daily data covering the periods before and after the 79 announcements covered by their 35-country sample. They found that (1) positive announcements in the agencies' ratings were followed by statistically significant bond yield movements in the expected direction, but that negative changes did not produce significant effects; and (2) the impact of rating announcements on spreads was much stronger for non-investment-grade than for investment-grade sovereigns.

Reisen and von Maltzan (1999), using data on 29 sovereigns from 1989 to 1997 and 152 rating announcements (of which 97 for emerging markets), conducted a two-part study. First, they examined the interaction between spreads on sovereign bonds (specifically, the differential between yields on U.S. dollar–denominated sovereign bonds and on 10-year U.S. treasury bonds) and *implemented* credit ratings, after allowing for the influence of macroeconomic country risk determinants. In particular, they considered whether credit ratings Granger-caused[2] sovereign interest spreads after controlling for macroeconomic indicators available at a monthly frequency. These latter variables included the total stock market return, foreign exchange reserves, the real exchange rate, the terms of trade, and industrial production. The authors concluded that credit ratings Granger-cause yield spreads (and vice versa).

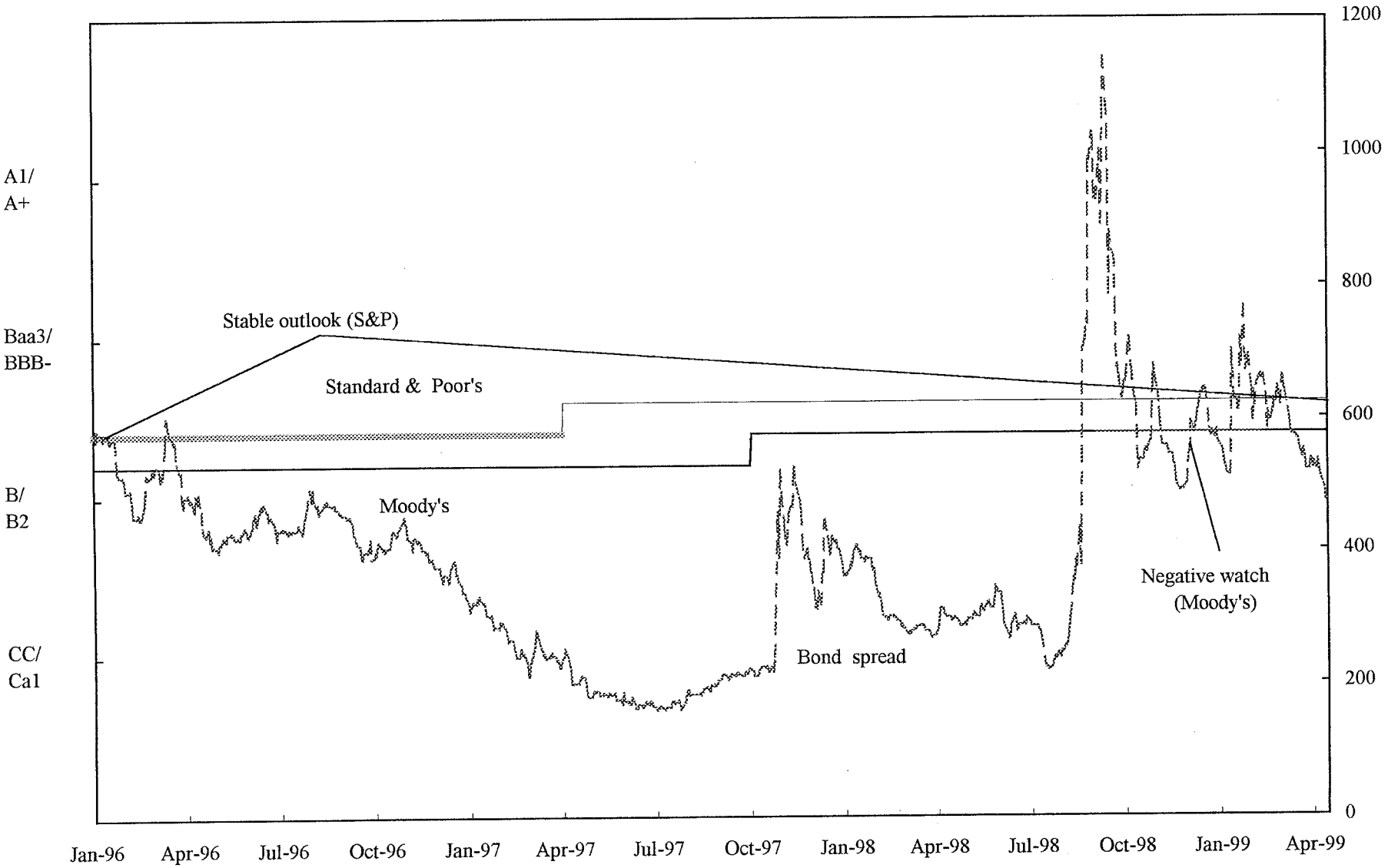
The authors also undertook an event study similar to that undertaken by Cantor and Packer (1996). In this sample period, a significant change in the yield spread in the expected direction occurred during the announcement period only when a *downgrade* was implemented. These results are in sharp contrast with those of Cantor and Packer, who found significant effects only for *positive announcements*. However, one similarity between the two studies is that Reisen and von Maltzan find that the largest announcement effects are for emerging market sovereign spreads. As noted above, Cantor and Packer found the largest effects for non-investment-grade bonds, which correspond to those issued by emerging market sovereigns.

Review of Ratings During the Crises

Figures A5.2–A5.12 summarize the ratings actions (changes both in outlooks and in long-term issuer ratings) taken by Moody's and S&P's for selected sovereigns in Asia, Latin

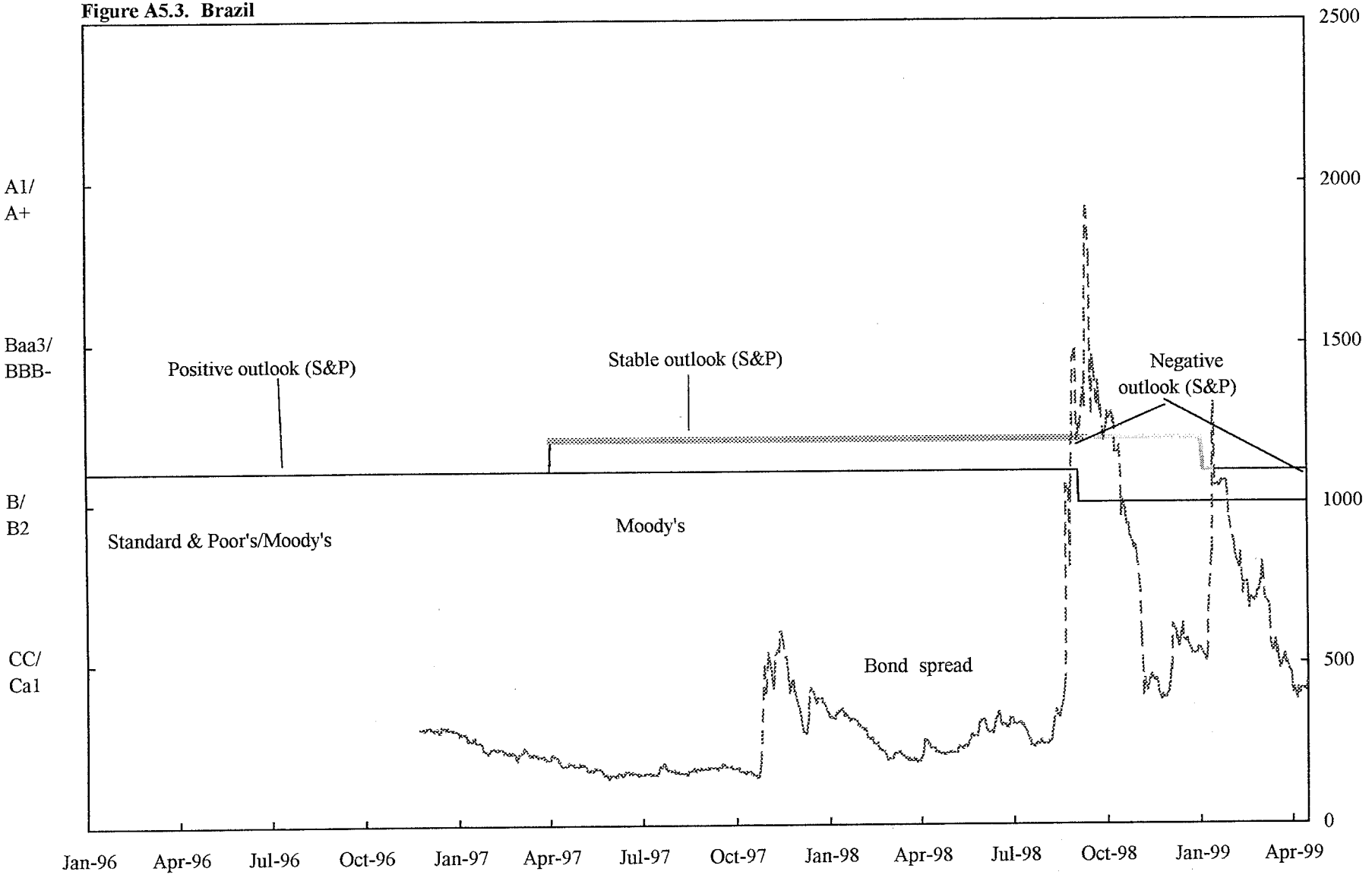
[2] A variable *x* is said to Granger-cause another variable *y* if prediction of the current value of *y* is enhanced by using the past values of *x*. This definition is usually implemented by regressing *y* on past values of *x* and *y* and possibly a number of control variables. If past values of *x* help explain *y* (as measured by an *F*-test), *x* is said to Granger-cause *y* (Kennedy, 1985).

Figure A5.2 Argentina



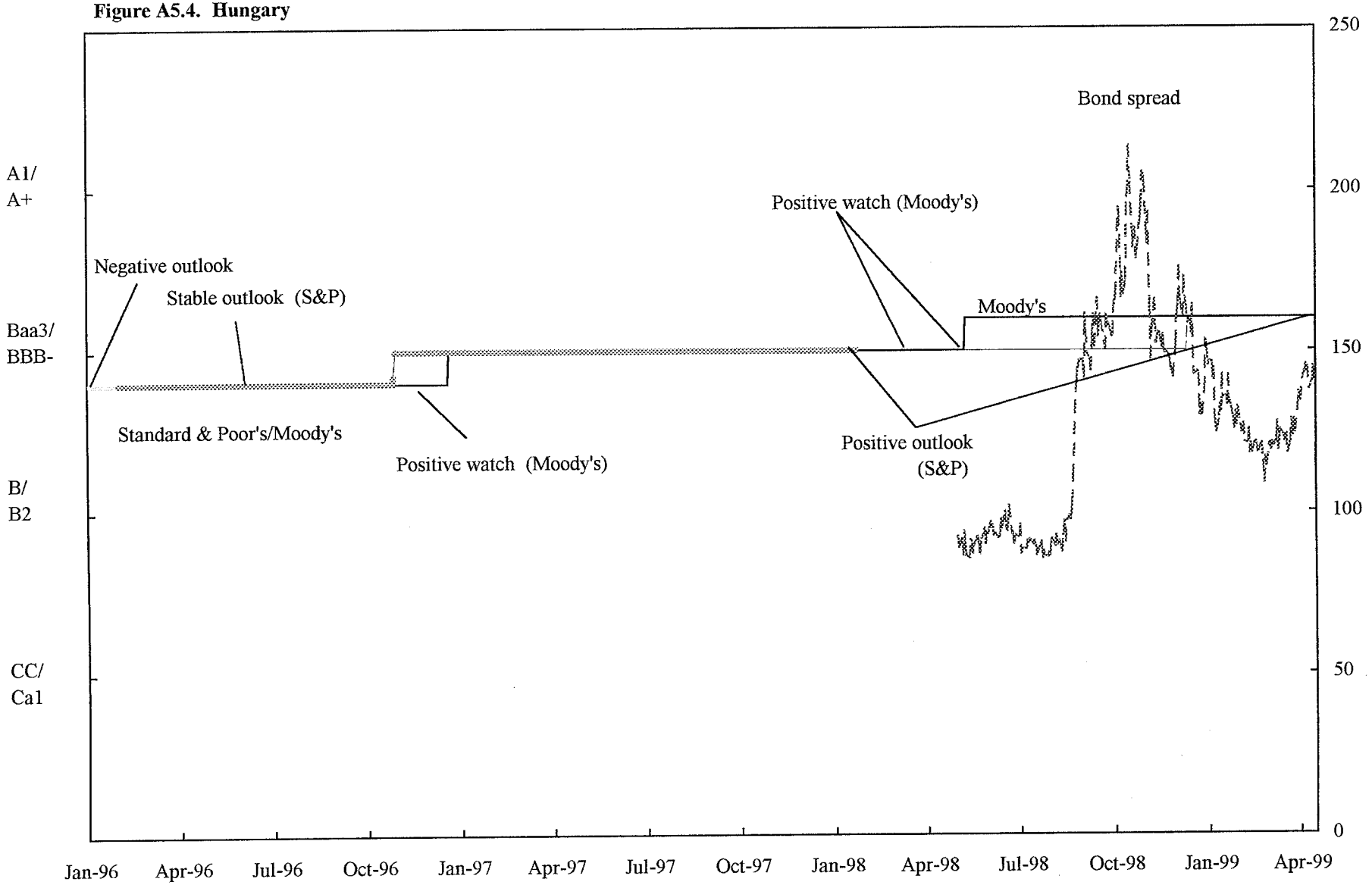
Sources: Moody's; and Standard & Poor's.

Figure A5.3. Brazil



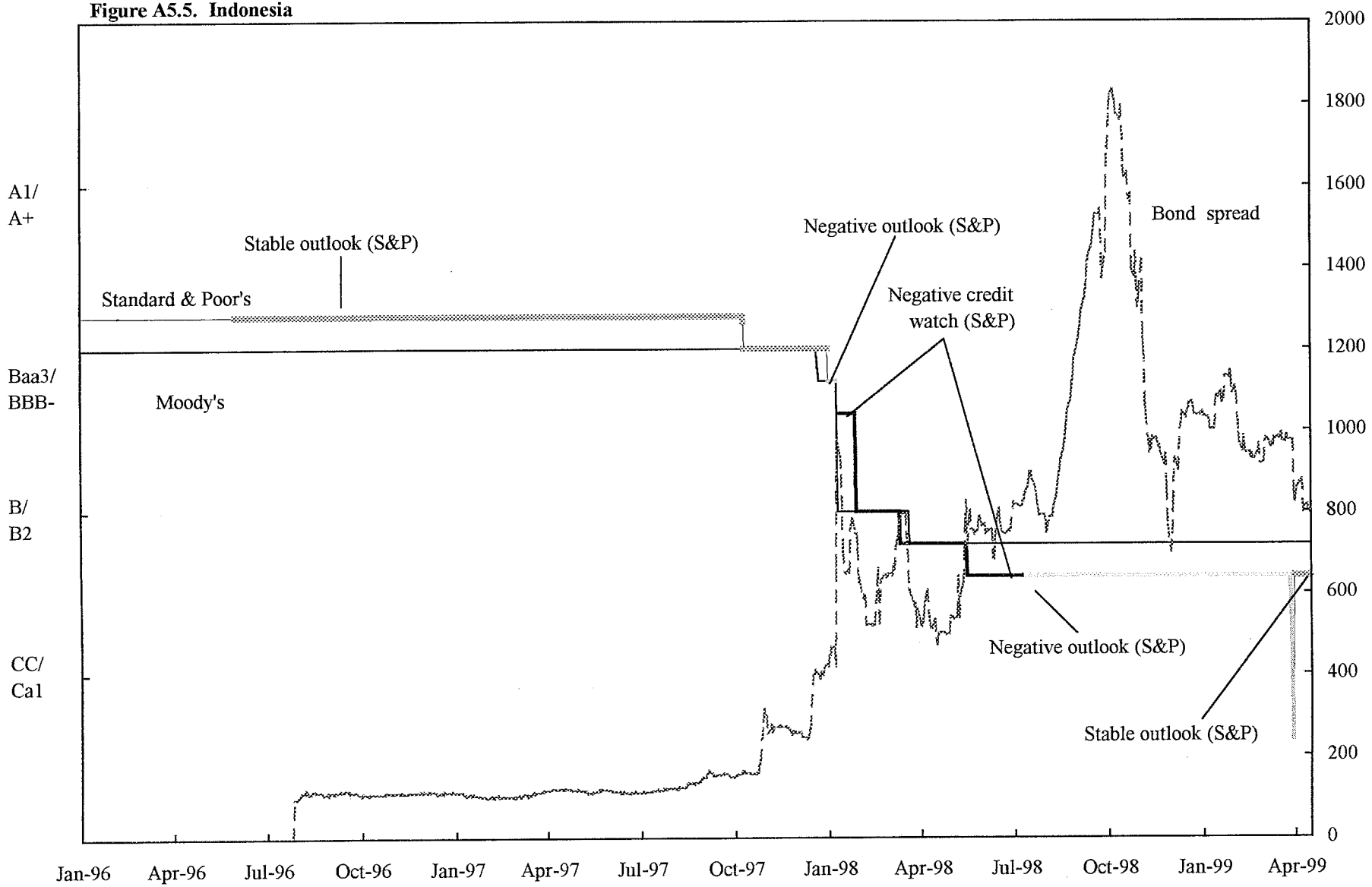
Sources: Moody's; and Standard & Poor's.

Figure A5.4. Hungary



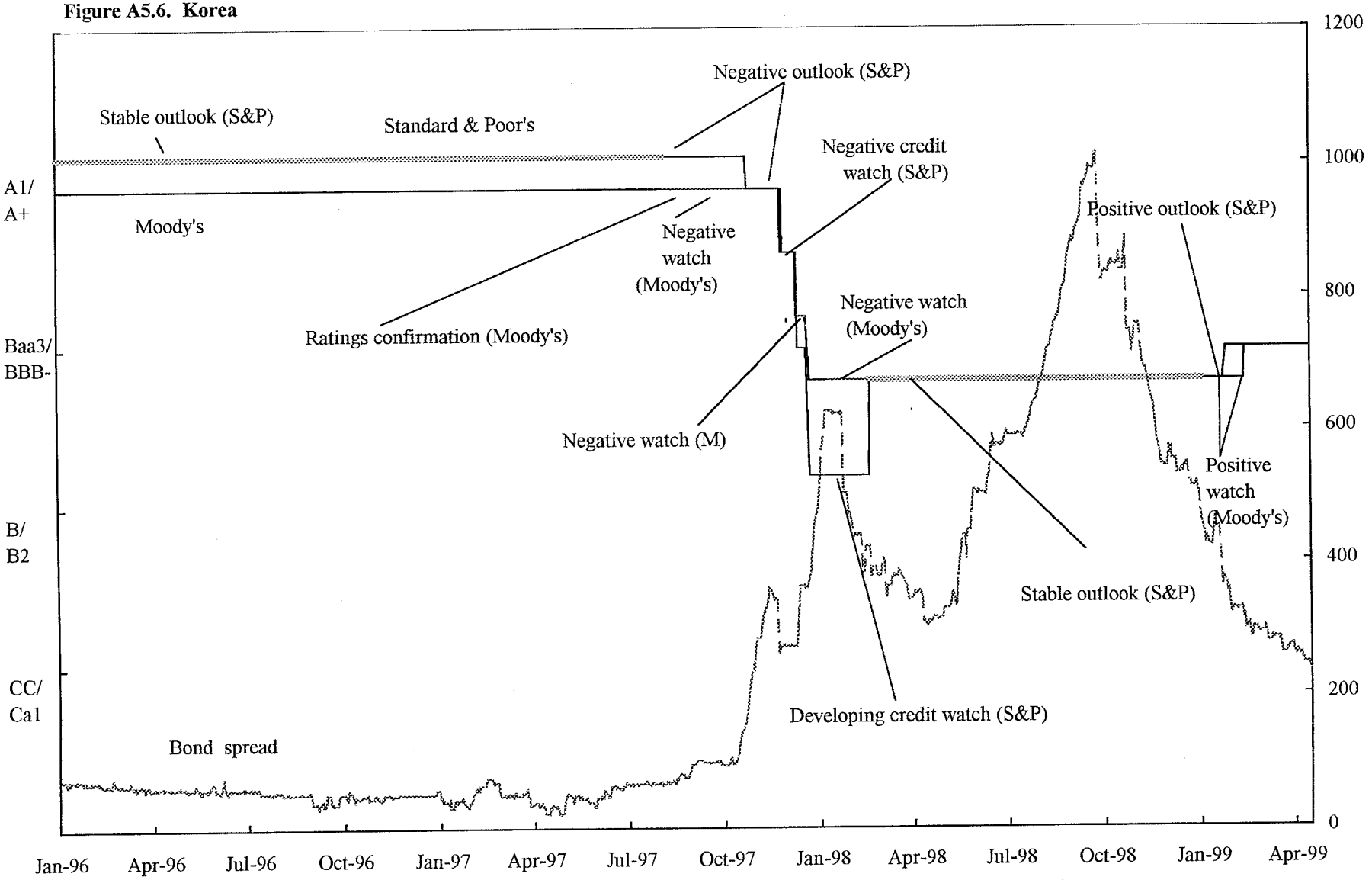
Sources: Moody's; and Standard & Poor's.

Figure A5.5. Indonesia



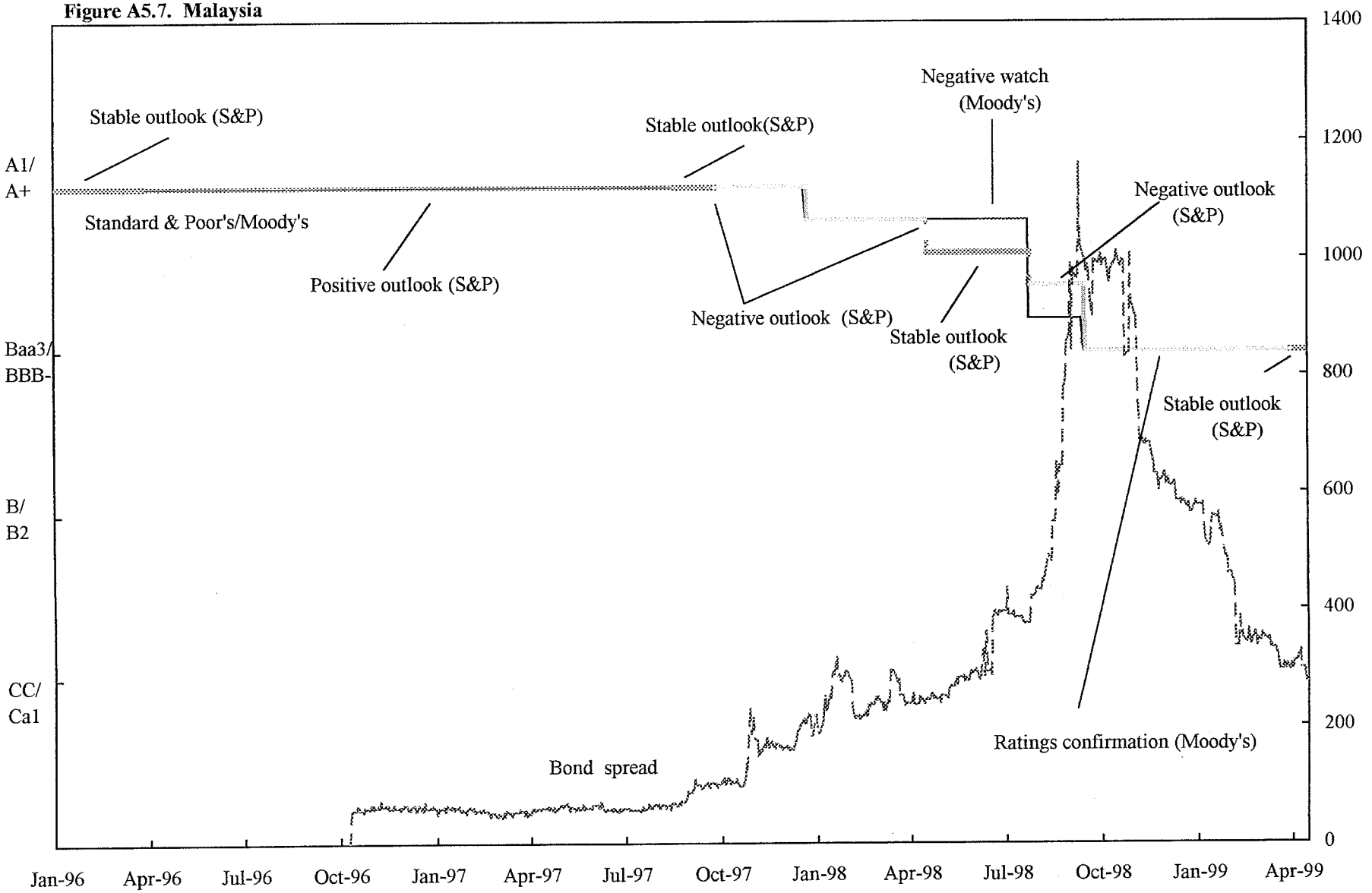
Sources: Moody's; and Standard & Poor's.

Figure A5.6. Korea



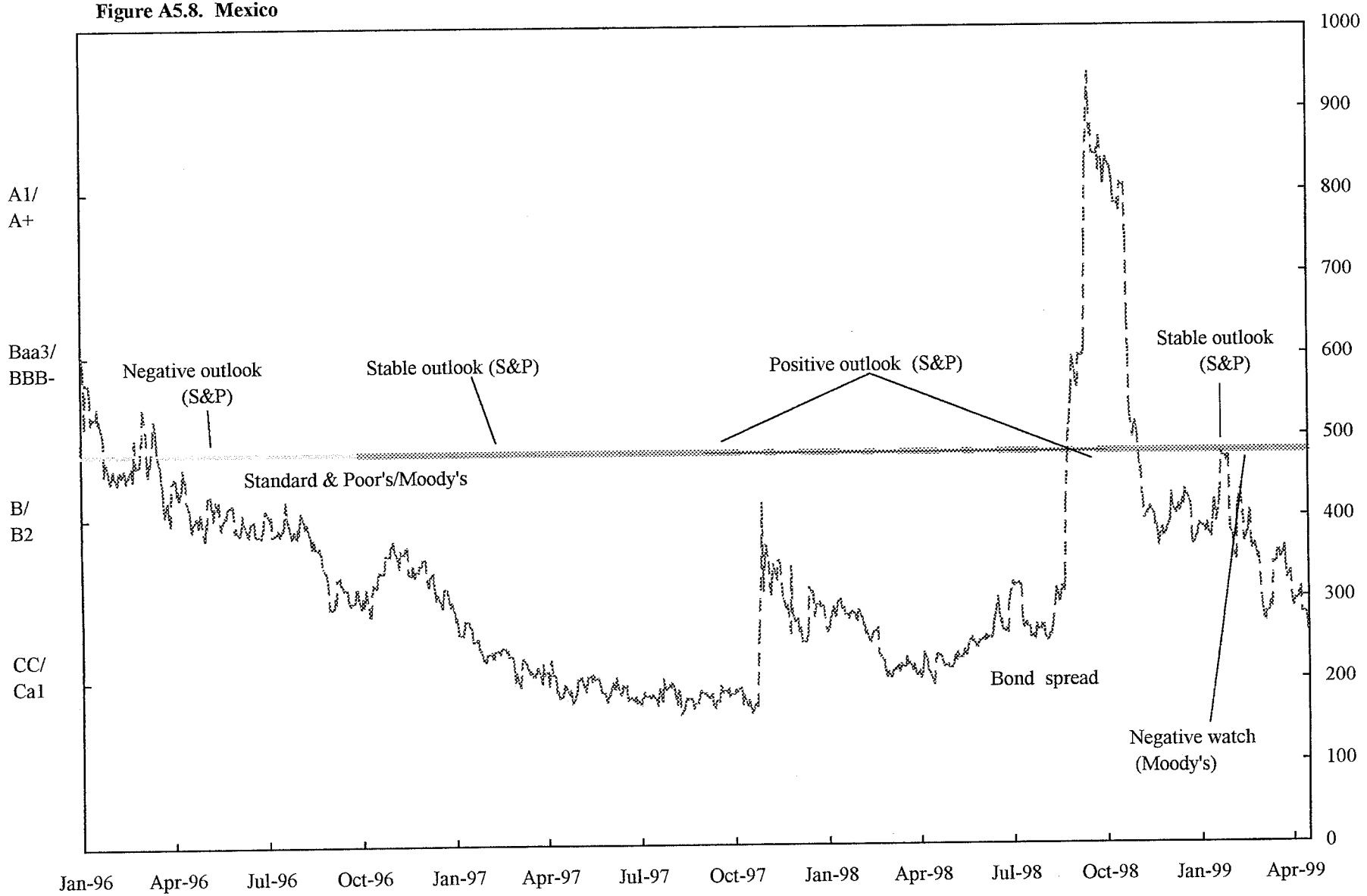
Sources: Moody's; and Standard & Poor's.

Figure A5.7. Malaysia



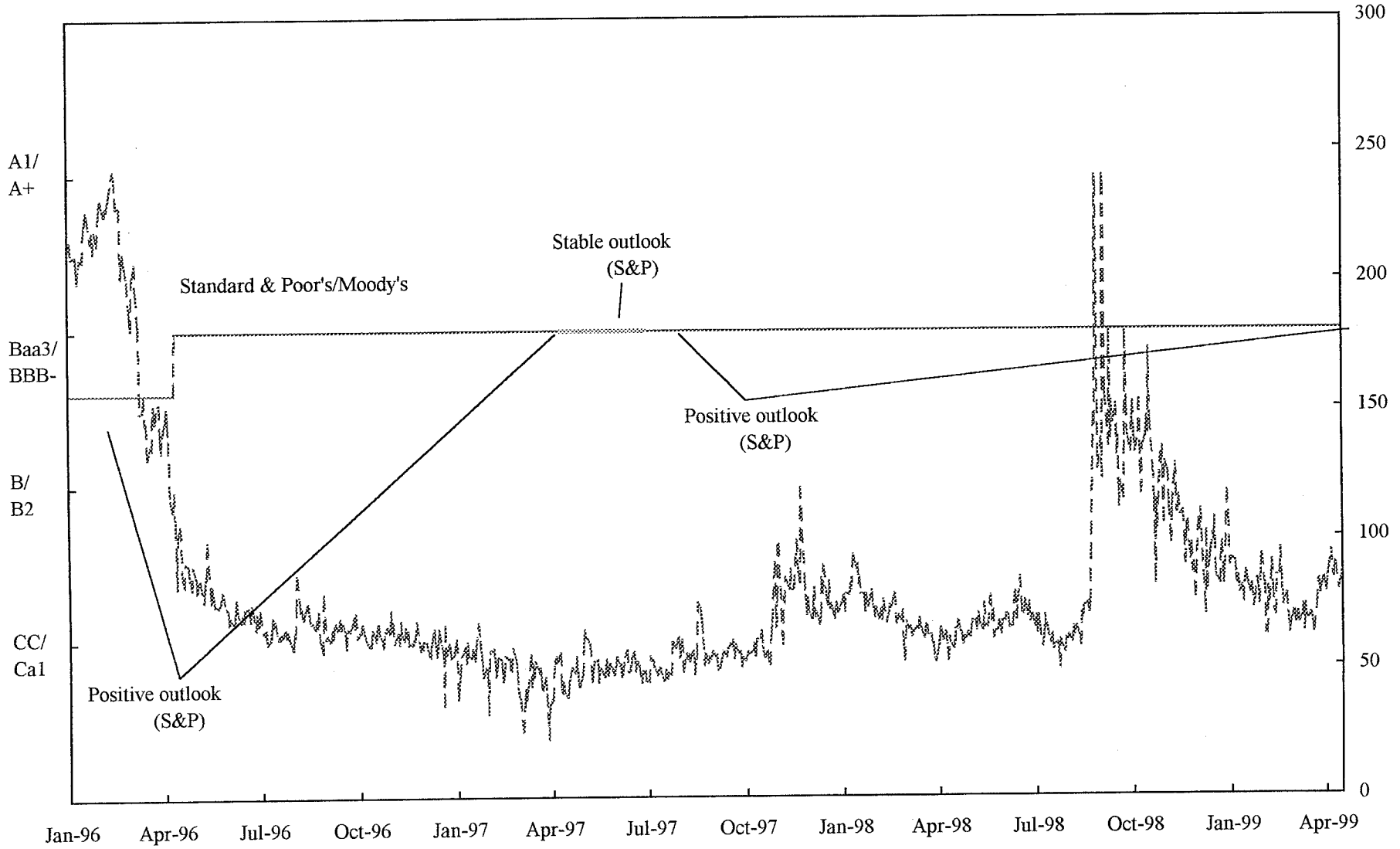
Sources: Moody's; and Standard & Poor's.

Figure A5.8. Mexico



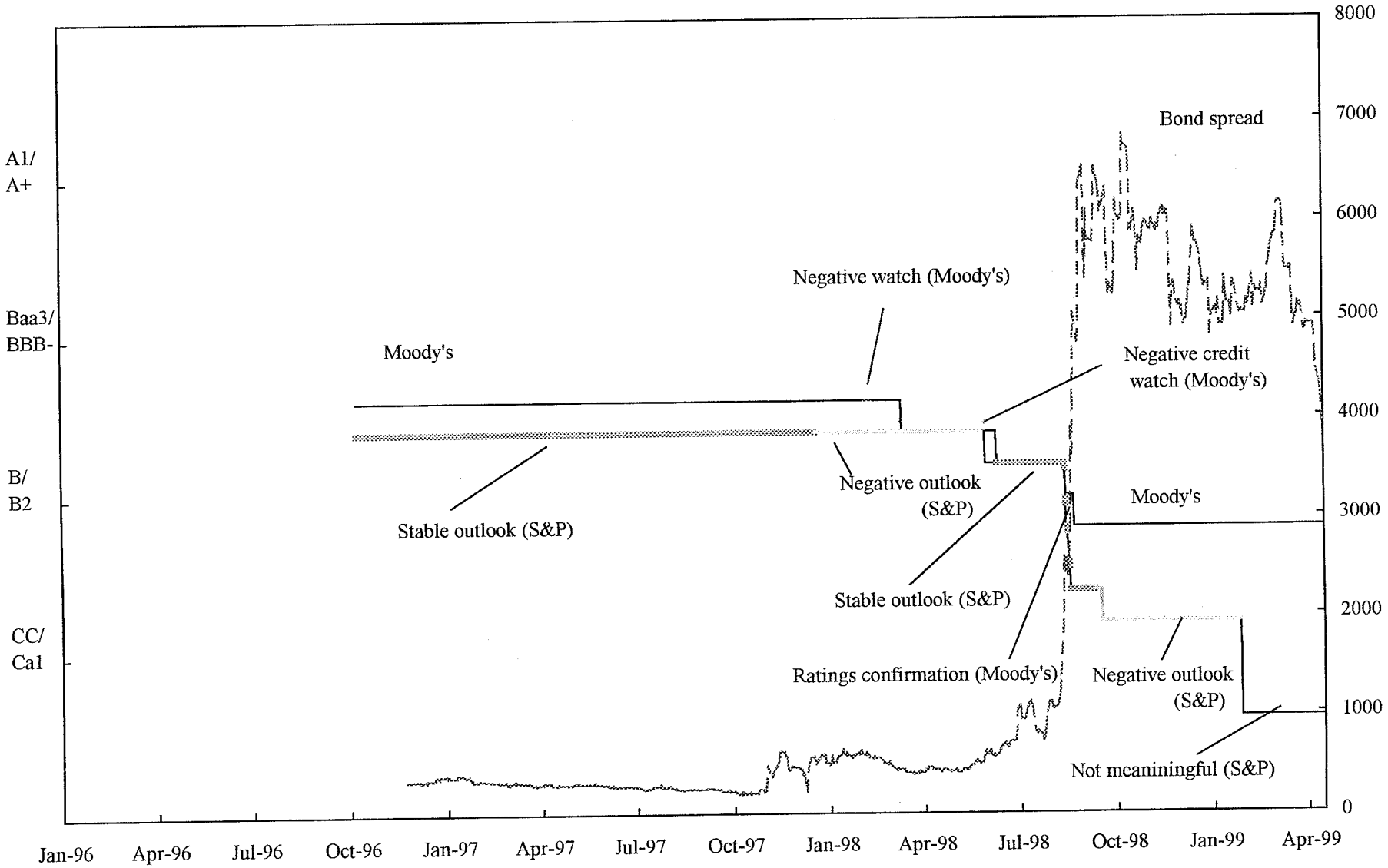
Sources: Moody's; and Standard & Poor's.

Figure A5.9. Poland



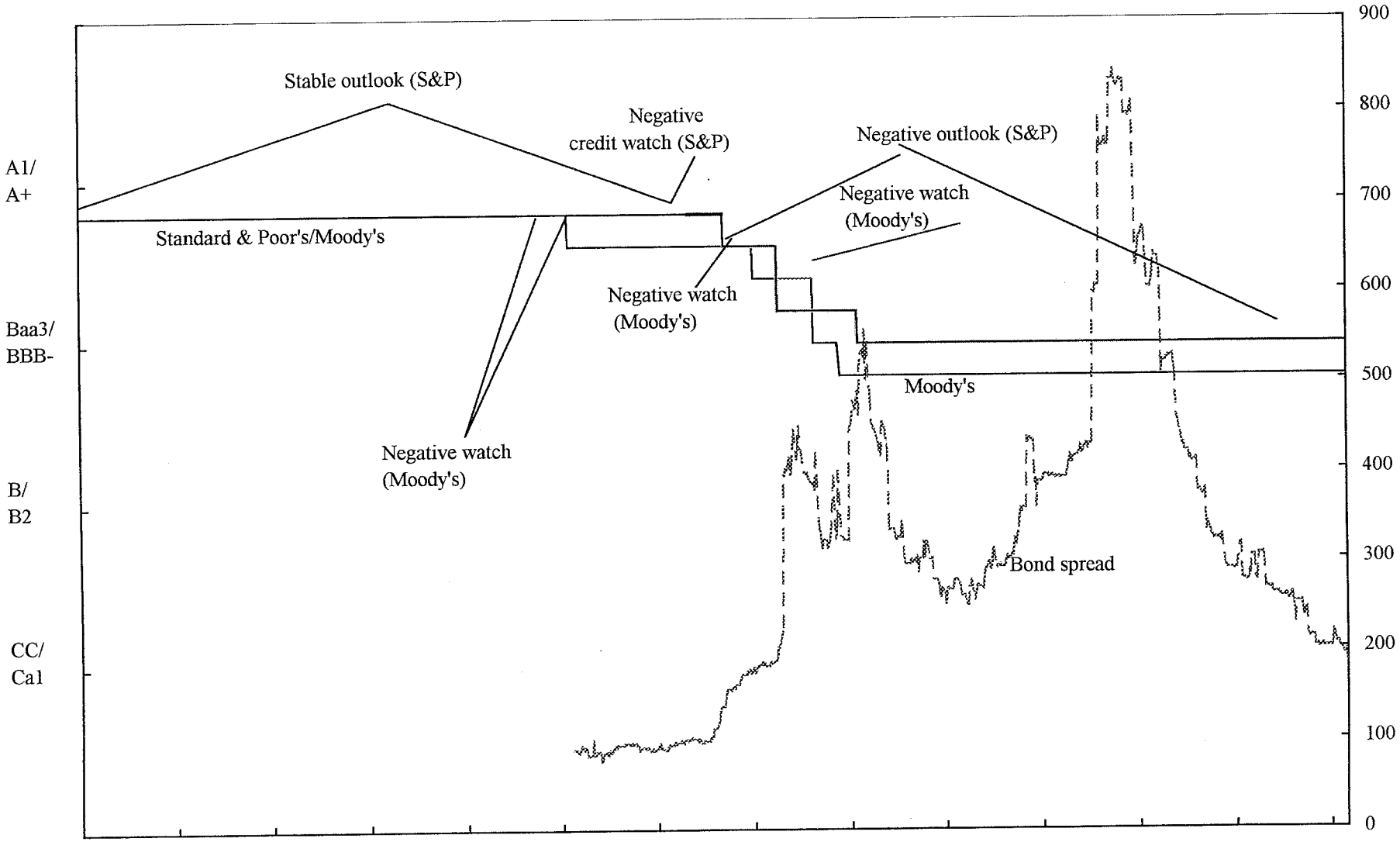
Sources: Moody's; and Standard & Poor's.

Figure A5.10. Russia



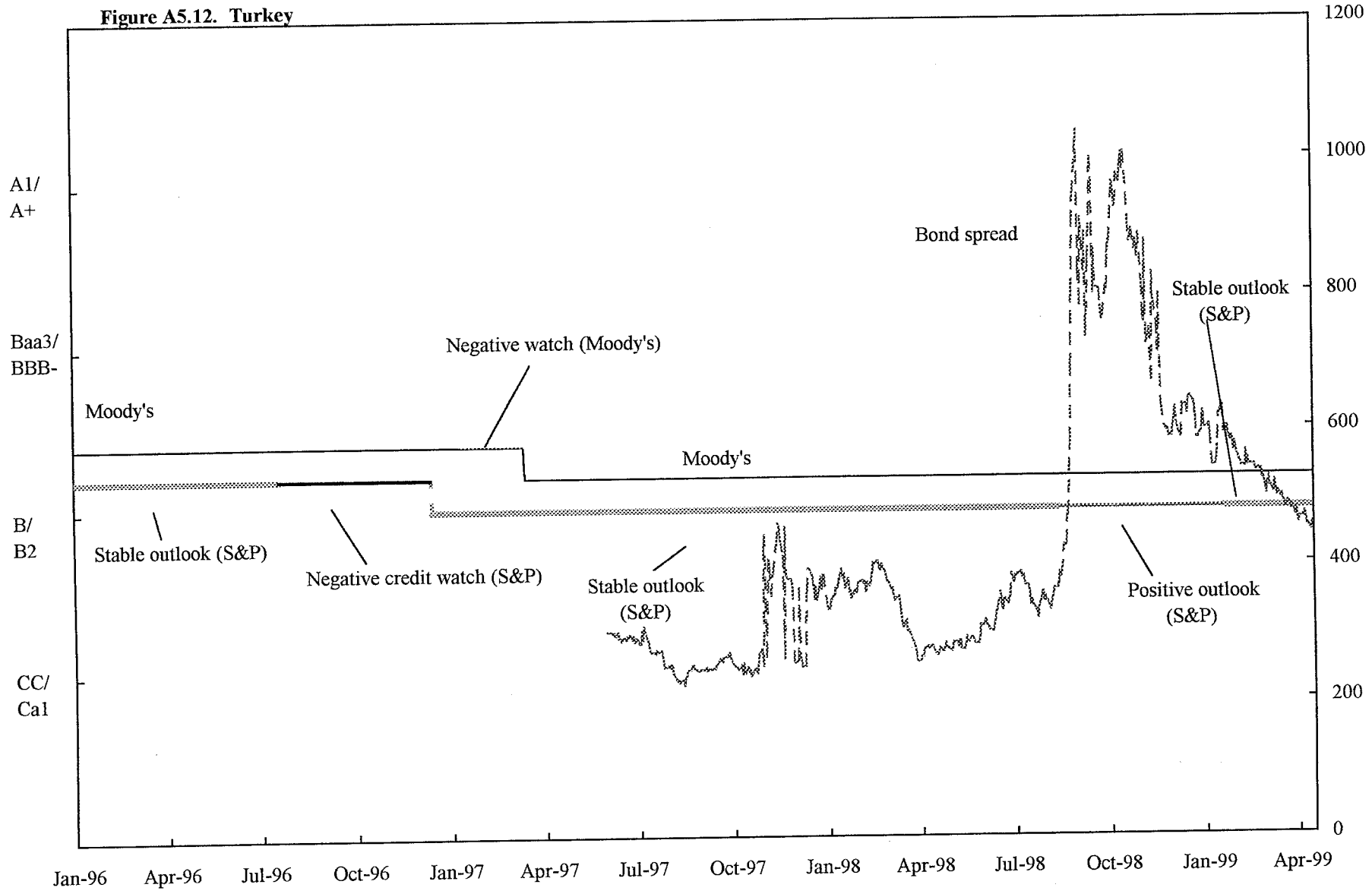
Sources: Moody's; and Standard & Poor's.

Figure A5.11. Thailand



Sources: Moody's; and Standard & Poor's

Figure A5.12. Turkey



Sources: Moody's ; and Standard & Poor's.

America, emerging Europe, and Russia during the 1990s, as well as changes in yield spreads.[3]

Asian Crises

In the period leading up to the Thai crisis, the agencies began to express concern about weaknesses in the Thai financial system and the build-up of short-term debt in 1996. For example, Moody's cited these concerns in both its May and September 1996 and February 1997 comments on the Thai situation. Its first rating action was to place Thailand's *short-term* rating on review for a downgrade in May 1996, and it was subsequently lowered in September 1996 (to Prime 2—still investment grade). In February 1997, Moody's placed Thailand's A2 long-term rating on review for a downgrade, which took place in April 1997 (to A3—still investment grade). Throughout this period, yield spreads on long-term Thai sovereign bonds remained essentially stable until July 1997. S&P's made no ratings changes in the period between 1994 and July 1997. No further ratings changes occurred during the severe speculative attacks on the baht in May and the subsequent floating of the baht in July 1997. Interest rate spreads began to rise in the third week of August prior to the downgrade of Thailand's rating by S&P's (to A- on September 3) and the placement of Moody's rating on review for a downgrade on September 18 (with the rating subsequently lowered to Baa1 on October 1). In the midst of the speculative attacks on Hong Kong SAR in October, S&P's lowered the long-term foreign currency rating for Thailand to BBB (on October 24); and Moody's placed the Thai rating on review on October 23 and downgraded the rating to Baa3 (on November 27). The Moody's rating was further reduced to Ba1 (non-investment-grade) on December 21, 1997. Subsequently, interest rate spreads declined from 500 basis points in early January 1998 to 300 basis points in late February without any ratings actions taking place.

S&P's initially downgraded Indonesia's rating in early October 1997 (to BBB-) with only limited increases in yield spreads. Spreads rose sharply in late October, though there were no rating actions, and again in mid-December 1997 prior to the downgrades by both Moody's (to Ba1) and S&P's (to BB+) in late December to below-investment-grade. The subsequent simultaneous downgrades on January 9, 1998 (to BB by S&P's and to B2 by Moody's) coincided with the peak in spreads. Indonesia was further downgraded in March and May 1998, and downgraded to "selective default" in March 1999.

In Korea, despite the growing awareness of financial sector vulnerabilities following the collapse of Hanbo Steel in January 1997, there were no actions by the ratings agencies until Moody's placed it on a negative outlook in June 1997. The downgrade on October 24

[3] Yield spreads refer to the difference between sovereign yields and U.S. treasury bill yields of the same maturity. In Malaysia, sovereign yields are not available and the yield on a public enterprise issue (Petronas) is used.

by S&P's (from AA- to A+) was accompanied by a sharp rise in yield spreads. Similarly, there were sharp increases in bond spreads as Korea was downgraded repeatedly in November and December by Moody's (to A3 on November 27, to Baa2 on December 10, and to Ba1 on December 21) and S&P's (to A1 on November 25, to BBB- on December 1, and to B+ on December 22). As was the case in Thailand and Indonesia, Korea was not downgraded to non-investment-grade until late December. A number of market observers have argued that the Korean downgrade was perhaps the largest and sharpest in the history of sovereign ratings.

Russian Crisis

A year ahead of Russia's August 1998 financial crisis, rating agencies viewed the sovereign as being of below investment grade. Moody's rated Russia Ba2 and S&P's BB- in August 1997. In the wake of the Asian crisis, during which Russia lost a sizeable amount of reserves and spreads roughly doubled, S&P's changed its outlook to negative in December 1997, whereas Moody's downgraded the sovereign to Ba3 in March 1998. When concerns about debt sustainability led to pressures on the exchange rate and reserves in May, to which the Russian central bank reacted by tripling key interest rates to 150 percent, Moody's downgraded the sovereign to B1 (along with several large banks) on May 29, and on June 9, S&P's followed suit with a downgrade to B+.

A financial crisis was narrowly avoided during May–July, as it became clear that additional financing, including from the IMF, would be mobilized. However, pressures built up again in August over concerns about the government's ability to roll over its maturing debt and the decision by the state-owned Savings Bank not to roll over its maturing treasury bills. Russia lost over $5.5 billion in reserves while spreads reached as high as 2,500 basis points.[4] Financier George Soros' call in his August 13 Financial Times article for a 25 percent devaluation, which included a warning about financial sector weaknesses, also unsettled the markets. During this period, there was a rapid succession of downgrades—characteristic also of the Korean crisis. On August 13, S&P's downgraded the sovereign to B- with a negative outlook, and downgraded domestic debt from a B to a C. The same day, Moody's downgraded Russia to B2. Moody's cited "concerns about the potential systemic effects of the financial crisis," while S&P's referred to liquidity problems "compounded by the banking crisis and the likelihood that further sharp declines in output and living standards will weaken domestic support for the Yeltsin administration's economic reform program."

Further downgrades followed after the ruble was effectively devalued when the upper band for the ruble was raised by 50 percent and a conversion of GKOs to longer-term paper was announced along with a 90-day moratorium on external debt payments, leading to fears of generalized default. S&P's downgraded the sovereign on August 17 to CCC with negative

[4] For a detailed account of developments during this period, see the *World Economic Outlook* (IMF, 1998), pp. 49–53.

outlook, and to CCC- with negative outlook on September 16, 1998. Moody's downgraded the sovereign on August 21 to B3. S&P's assigned a rating of selective default for both foreign and local currency debt on January 27, 1999; spreads reached a record that day.

Brazilian Crisis

In January 1998, a year ahead of the onset of its financial crisis, Brazilian sovereign issues were perceived as relatively risky by the rating agencies (Moody's B1/S&P's BB-). Subsequently, Moody's lowered its rating to B2 on September 3, 1998, in response to concerns that the Russian crisis might spread to Brazil. Spreads mirrored this concern, rising to 1,500 basis points in end-August. Throughout October and November, spreads declined following President Cardoso's reelection and the negotiation of the US$41.5 billion international package, but then rose rapidly again in December in response to capital outflows as markets worried about the fiscal situation and political wrangling with the states. Pressures mounted for a devaluation in the hope that this would arrest reserve losses and help reduce interest rates. After the real was devalued by 8 percent on January 13, S&P's downgraded Brazil to B+. Over the next two weeks, the real lost an additional 30 percent of its value—and did not stabilize until after the appointment of Arminio Fraga as Governor of the central bank and the resumption of the IMF-supported program in March. No further downgrades were implemented during this period.

Evaluating Rating Agencies: By What Criteria?

The expanding role of rating agencies in global capital markets, particularly with the steep rise of emerging market borrowing in the 1990s, has propelled the agencies to the spotlight and earned them much criticism for their performance. Criticism has been most intense during the Mexican and Asian crises, where the agencies have been blamed for failing to signal to investors the risks present in the Mexican and Asian economies prior to their eruption.

The failure to predict the Mexican and Asian crises has been attributed to a number of factors. First, rating agencies are said to be influenced by the compensation they receive from rated issuers.[5] According to this argument, the agencies would hesitate to downgrade issuers from fear of spoiling business relationships that underpin their income stream. Second, the agencies purportedly are reluctant to downgrade sovereigns for fear of precipitating self-fulfilling crises. Indeed, it is not uncommon for downgraded sovereigns to blame the rating agencies, among others, for their troubles.[6] Finally, some argue that the rating agencies are

[5] Larrain, Reisen, and von Maltzan (1997), p. 9.

[6] Prime Minister Mohamed Mahathir's public condemnation of the agencies following Malaysia's downgrade is a prime example of this during the Asian crisis.

inadequately staffed and therefore not up to the task. Critics contend that the agencies are unable to match the salaries offered by Wall Street firms to attract highly skilled analysts.[7] As such, the issue of inadequate staffing deserves scrutiny, and is analyzed in greater depth in the "Survey of Rating Agencies" section below.

However, a strong case can be made that disincentives to downgrade are outweighed by the incentive for rating agencies to build and maintain their reputation and credibility in the eyes of investors. Absent credibility, which is the pillar of their franchise value, demand for ratings would fall, and along with it, the *raison d'être* of the agencies. Rating agencies, therefore, are unlikely to trade off their credibility in return for short-term revenue gains.

Regardless of the merits of various criticisms of ratings agencies, the debate has progressed without proper context, namely, a set of explicitly defined criteria and standards by which the performance of agencies should be evaluated. Absent a predetermined set of criteria, the criticisms themselves have lacked credibility and utility.

We propose the following set of interrelated criteria for evaluating rating agencies.

Track Record

The starting point of evaluating ratings is their track record in capturing default risk.[8] Lower-rated issuers would be expected to have defaulted more frequently than higher-rated ones. Ultimately, ratings are probabilistic statements of the likelihood of default, and default alone. They are not meant to predict financial crises per se.

In this context, it is important to address the misconception that highly rated countries are not suppose to experience financial crises. Surely, highly rated countries can be expected to have fewer crises, but more importantly, more creditworthy sovereigns are thought to have stronger political, economic, and social capacities to *manage* a crisis than are less creditworthy issuers. Similarly, to the extent that market risks, liquidity risks, currency risks, and transfer risks affect default risk, ratings necessarily should reflect such risks as well.

The record on ratings and actual defaults for corporates in the past shows a high correlation between credit quality and default remoteness: the higher the rating, the lower the probability of default, and vice versa. On this score, ratings, on average, are a good indicator of relative creditworthiness. (See Figure A5.13.)

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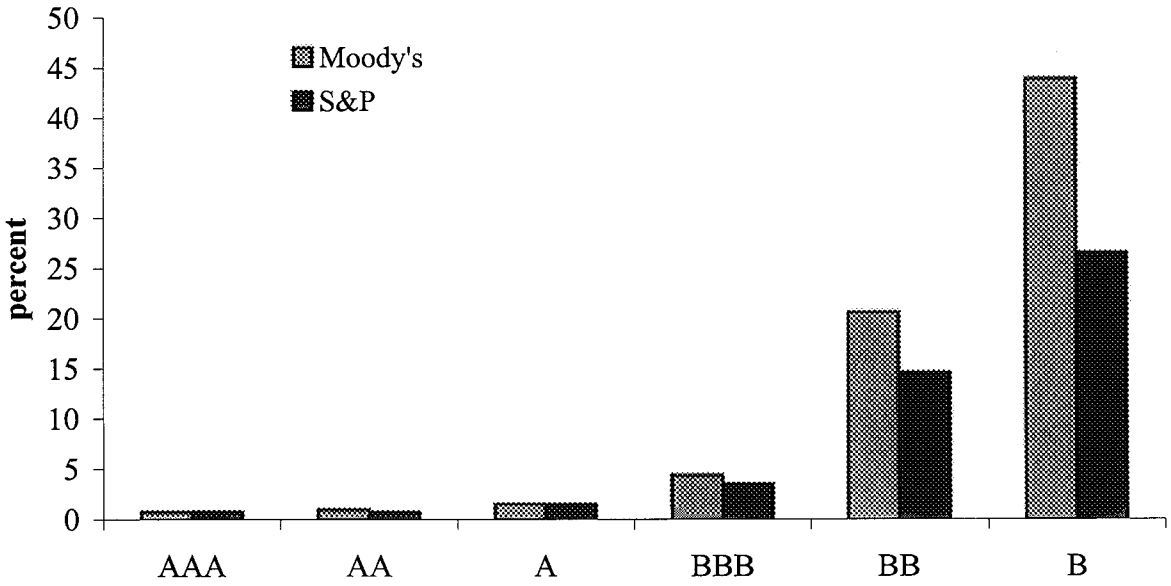
[7] "On Watch" (1999), p. 82.

[8] A default occurs when an issuer does not make *full* and *timely* payment of interest or principal on a rated debt instrument.

Figure A5.13 Average Cumulative 15-Year Default Rates for Corporate Issuers



Source: S&P (1999b) and S&P's Sovereign Ratings.

Evaluating the performance ratings in the sovereign sector is more problematic than for corporates, however. To date, among *rated* sovereigns, only Russia has defaulted (as defined by the rating agencies) on *rated* foreign currency debt, and only three, Indonesia, Pakistan, and Russia, have defaulted on *unrated* foreign currency debt. Moreover, the small sample size of rated sovereigns, at 80–100, would preclude a meaningful statistical analysis of default rates when they occur. However, given the equivalence of default risks across issuers, where in principle a AAA-rated sovereign has the same probability of default as a AAA-rated corporation, one can infer from Figure A5.13 the implied default probabilities for sovereigns. For example, sovereigns rated investment grade (BBB and higher) are supposed to have very low (1–5 percent) chances of default, even over 15 years.

In the context of the recent financial crises, several observations can be made. First, Thailand, Korea, and Indonesia's investment-grade ratings before the crisis failed to capture the risks of both their intense financial crises *and* initial crisis mismanagement, which subsequently were reflected in sharp downgrades. Hong Kong SAR and Malaysia's investment-grade ratings, by contrast, arguably better reflected their stronger crisis management capacities and vulnerability to crisis (i.e., modest external debt), respectively. Second, Brazil and Russia's initially low ratings in the non-investment-grade category adequately reflected the relatively high possibility of crisis and/or crisis mismanagement, which have since been validated.

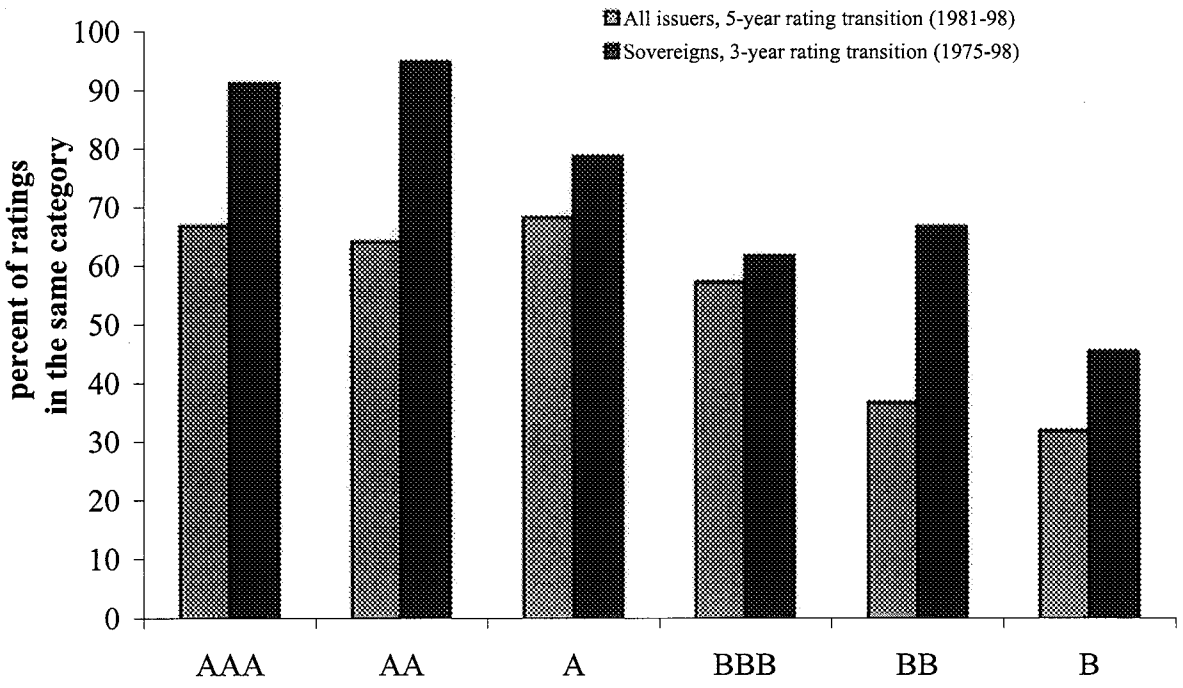
Durability

Another criterion by which to evaluate ratings is their durability. Presumably, the stronger the predictive value of ratings, the more durable they are and the less frequently they will change. Although ratings are inevitably influenced by cyclical factors, rating agency officials point out that long-term ratings, where possible, try to see through cycles. Admittedly, the durability criterion can falsely imply that a stable rating is "correct," even where the lack of a rating change reflects a gross error in analytical judgment or belated recognition of growing risks.

On this score, ratings are fairly stable. According to rating transition data from S&P's for all issuers, two facts emerge. First, higher ratings are longer lived. Second, issuers rated investment grade have a 60–70 percent chance of still being rated in the same category five years later. Sovereign ratings also exhibit stability, with sovereigns rated investment grade having a 60–90 percent chance of still being rated in the same category three years later (Figure A5.14).

Notwithstanding the overall stability of ratings for all issuers, including sovereigns, a number of sovereigns experienced sharp downgrades during the recent financial turmoil. "Ratings crises" (defined as in Juttner and McCarty (1998) as a downgrade of three notches or more in long-term foreign currency debt within a six-month period) were observed in Asia (Indonesia, Thailand, South Korea, and Malaysia), and later in Russia, Romania, and Venezuela. In Brazil, only one agency downgraded after the initial devaluation, and there were no further downgrades thereafter.

Figure A5.14 Rating Stability



Source: S&P's (1999b) and S&P's Sovereign Ratings.

Market Comparison

Another important factor is the track record and durability of ratings compared to the market. Although ratings are imperfect forecasts of default risks, to the extent that they are less volatile *and* more accurate than the market, ratings still enhance the efficiency of capital markets.

Ratings are clearly more stable than market spreads, which fluctuate daily and sometimes by substantial amounts. An analysis of a sample[9] of crisis and noncrisis countries shows that the variances of spreads (adjusted for the mean) were several times that of ratings. The key question then is whether ratings or spreads have greater foresight.

One year ahead of the crises in Thailand, Indonesia, and Korea, sovereign spreads were quite low (Figures A5.2–A5.12), on the order of 100–150 basis points. In Russia and Brazil, they were somewhat higher, about 300 basis points. Thus, in relative terms, the markets agreed with rating agencies, placing the probability of default in Russia and Brazil higher than in the Asian countries.[10] Spreads did not widen much in the Asian countries by the time of the onset of their crises; as with ratings, the bulk of the deterioration came afterward. In the case of Russia and Brazil, spreads also mirrored developments in ratings, growing sizably before the onset of the crises, worsening thereafter in the case of Russia, and hardly deteriorating in the case of Brazil. The same appears to have been true for the opinions of market analysts, as we discuss further below.

The above discussion suggests that in Asia markets failed to foresee the recent financial crises and the corresponding rise in default risks, along with rating agencies. It also appears, however, that the agencies discriminated more effectively between crisis and noncrisis countries compared to the market, which almost indiscriminately priced the debt of all issuers much higher. For noncrisis countries, the average downgrade was less than one notch, yet spreads trebled between mid-1997 and end-1998 and still stand at about double what they were before the crisis (see Table A5.2).

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[9] The sample included the debt instruments of Argentina (10/6/06), Brazil (11/5/01), China (11/03), Colombia (6/14/01), Hong Kong SAR (MTRC, 10/01/05), Indonesia (8/1/06), Korea (KDB, 11/21/03), Malaysia (Petronas, 10/18/06), Mexico (1/15/07), the Philippines (10/16), Poland (7/1/04), Russia (11/27/01), South Africa (10/17/06), Thailand (4/15/97), Turkey (05/02), and Venezuela (6/18/07).

[10] While in general market views on default can be inferred from spreads on foreign-currency-denominated instruments (see Cline and Barnes, 1997), and compared with rating agencies' views, such inferences need to bear in mind that liquidity is also an important determinant of spreads.

Table A5.2. Rating and Spread Trends

	Rating Changes[1] *(number of notches)*			Average Spreads[2] *(basis points)*			
	6/97-6/98	6/97-12/98	6/97-5/99	June 1997	June 1998	December 1998	May 1999
Noncrisis Countries[3]	-0.1	-0.6	-0.6	162	307	478	267
Crisis Countries[4]	-3.8	-4.6	-4.6	142	615	1470	1049
Total	-1.3	-1.8	-1.8	156	403	788	511

Sources: Moody's, S&P's, various issues; and Bloomberg.

[1] Average of Moody's and S&P's.

[2] The average spreads for "crisis" countries and the total sample are distorted by the extremely high level of Russia's spreads.

[3] Noncrisis countries include Argentina, China, Colombia, Hong Kong SAR, Mexico, the Philippines, Poland, South Africa, Turkey, and Venezuela.

[4] Crisis countries include Brazil, Indonesia, Korea, Russia, and Thailand.

Market analysts' views can be gauged in a summary fashion through Institutional Investor and Euromoney ratings. These institutions compile the views of economists in leading international banks and money management firms, among others, and thus can serve as a proxy for market analyst's views. Ratings are available semiannually (in March and September). Notwithstanding some reduction in its ratings of Asian countries during 1996, Institutional Investor continued to assign relatively high ratings to Thailand and Korea (63 and 72 out of 100) in the year before their crises, in September 1996, and a somewhat lower rating to Indonesia (52). Ratings were reduced substantially after the crises (Table A5.3). For Russia and Brazil, precrisis ratings were quite a bit lower (28 and 40 in September 1997, respectively). As was the case for credit ratings and spreads, after the crises, the Institutional Investor rating was reduced for Russia, but hardly for Brazil. Similar scores were assigned by economists participating in the Euromoney survey. Korea received the highest score among the Asian crisis countries (a score of 88 out of 100 for economic performance) in September 1996. Scores were subsequently lowered substantially. Russia and Brazil scored poorly ahead of their crises and also showed large declines over time (between September 1997 and March 1999). In the case of Brazil, most of the decline occurred as early as September 1998, in the wake of the Russian crisis, rather than after Brazil's devaluation.

To conclude, it appears that spreads as well as market analysts—as represented in Institutional Investor and Euromoney ratings—provided signals similar to those of the credit rating agencies. They failed to signal the Asian crises in advance; they downrated these countries after their crises; they assigned a higher risk to Russian and Brazilian issues from the start; and they did not revise their views in a major way for Brazil.

Academic Research

Similar mixed results characterize the performance of "leading indicators" of currency crises developed in the academic literature. This empirical literature, which continues to evolve, suggests that high growth in credit to the private sector, an overvalued real exchange rate compared to trend, a high current account deficit, and low reserves relative to either broad money or short-term debt are associated with a higher probability of crisis (see, e.g., Sachs, Tornell, and Velasco, 1996). An initial systematic review of empirical work on currency crises (Berg and Pattillo, 1999) concludes, however, that the out-of-sample predictive power of models of currency crises is poor. In the Asian crisis, the approach that appears to have the best out-of-sample predictive ability is the "signals" approach of Kaminsky, Lizondo, and Reinhart (1998), in which monthly indicators signal a crisis whenever they cross a certain threshold. Even using this approach, only a small fraction of

Table A5.3. Market Ratings of Crisis Countries
(*Scores out of 100*)

	Institutional Investor		Euromoney	
	Precrisis[1]	Postcrisis[2]	Precrisis[1]	Postcrisis[2]
Thailand	63	48	80	49
Korea	72	54	88	56
Indonesia	52	33	73	34
Russia	28	20	53	15
Brazil	40	37	56	24

Sources: *Institutional Investor* and *Euromoney*, various issues.

[1]September 1996 for Asian countries; and September 1997 for Russia and Brazil.

[2]September 1998 for Asian countries; and March 1999 for Russia and Brazil.

Asian crises were called.[11] The Thai crisis was foreseeable using these models, but the Indonesian was not; Brazil was seen as vulnerable to a crisis in 1997, even though it showed resilience at the time (Berg and Pattillo, 1999).

Proposed Use of Credit Ratings in the Basel Accord

External credit ratings are increasingly being adopted in regulations worldwide. The most common form of regulation involves limits on exposure to non-investment-grade securities. A recent Basel Committee consultative paper proposes to expand the use of external credit ratings, by integrating external ratings in the Basel Committee risk weighting scheme.[12] Specifically, risk weights based on sovereign credit ratings would replace the current distinction between OECD and non-OECD countries.[13] Box A5.3 lays out the criteria that the Basel Committee proposes to use in selecting institutions eligible to produce ratings for use in the new risk weighting scheme. These selection criteria aim to determine which agencies' ratings will be eligible for regulatory purposes. As such, they are separate and distinct from the criteria for evaluating the performance of rating agencies outlined earlier.

Survey of Credit Rating Agencies

Earlier in this annex, we emphasized the need to concentrate on analytical methodologies and resources of rating agencies as potential areas for improvement. To this end, a survey of the leading international ratings agencies was conducted,[14] involving several questions on information sources and access, analytical approaches and methods, and resources devoted to the analytical process. The results of the survey are reported in Table A5.4.

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[11] Of course, it is always possible to call every crisis, simply by "crying wolf" on every occasion, implying a large number of false alarms. For acceptable rates of false alarm, empirical models miss most crises. Berg and Pattillo show that the Kaminsky-Lizondo-Reinhart model correctly calls 25 percent of precrisis months when the rate of false alarm is 63 percent; and 4 percent of precrisis months when the rate of false alarm is 17 percent.

[12] Under the proposal, the more sophisticated banks would be able to rely on their own internal rating systems rather than using external ratings. See Basel Committee on Banking Supervision (1999).

[13] For banks, a second option is under consideration: risk weights based on banks' own ratings rather than the rating of their sovereign.

[14] The four rating agencies surveyed include Moody's, S&P's, Fitch IBCA, and DCR.

Table A5.4. Survey of Credit Rating Agencies[1]

Analytical Methodology

	Methodology	Scenario Analysis or Stress Testing ?	Coping with Uncertainty: Probabilistic Approach?	Changes Post-Asian Crisis (for all agencies)
For all rating agencies	Generally no model; only criteria. Qualitative approach using quantitative indicators and qualitative factors.	Generally yes, but informal and selective	Generally no. Only two of the agencies assign probabilities to risk factors for some dynamic emerging market countries.	Greater emphasis on external debt and liquidity, banking soundness, corporate leverage, and policy response capability.

Resources Devoted to Analysis

	Sovereigns Rated (A)	Country Analysts[3] (B)	Research Assistants (C)	Sovereigns Per Analyst and Research Assistant (A/B)	(A/C)
Average	70	12	5	7	31

Analyst Education and Experience

	Ph.D.	M.A.	B.A.	Work Experience[3]
Average[4]	2	12	2.5	10-12

Information, Resources, and the IMF

	Enough Information for Risk Analysis?	Enough Resources?	What Can the IMF Do? (for all agencies)
For all rating agencies	Yes	Yes	Publish Article IV reports, facilitate the provision and standardization of data. Efforts to establish framework for debt restructuring and involve the private sector in preventing and resolving financial crises viewed as very positive.

[1]The survey comprised questions on analytical sources, processes, and methodologies; human resources devoted to sovereign analysis; rating agencies' views on the adequacy of information and resources at their disposal and on the role of the IMF. The rating agencies surveyed include Moody's Investors Service, S&P's, Fitch IBCA, and DCR.
[2]Includes sovereign rating group heads and deputy heads.
[3]Includes country analysts only and experience in country risk analysis alone.
[4]The average work experience figure is a weighted average of years of work experience based on the number of country analysts in each rating agency.

Box A5.3. Criteria for Eligible External Credit Assessment Institutions

The minimum criteria that the Basel Committee sees as essential for recognition are as follows.

Objectivity. The methodology for assigning credit assessments must be rigorous, systematic, continuous, and subject to some form of validation based on historical experience. Moreover, assessments must be subject to ongoing review and responsive to changes in financial condition. Before being recognized by supervisors, the Committee proposes that an assessment methodology for each market segment, including rigorous backtesting, must have been established for at least one year, while recognizing that a three-year period would be preferable.

Independence. The methodology should be as free as possible from any external political influence or constraints, or economic pressure from assessed entities.

Transparency. For validation purposes, the individual assessments should be publicly available.

Credibility. To some extent, credibility will be derived from the criteria above. This criterion should not be used as a barrier to the entry of new institutions, but, at the same time, any new institution that emerges following this change in the supervisory framework would need to be carefully evaluated. The credibility of an institution would also be underpinned by the existence of internal procedures to prevent the misuse of confidential information.

International Access. The institution is not required to assess firms in more than one country, but its results should be available to nondomestic parties with legitimate interest on the same basis as to equivalent domestic parties.

Resources. The institution should have sufficient resources to allow substantial ongoing contact with senior and operational levels of assessed entities.

Recognition. National supervisory authorities will be responsible for recognition of institutions based on the above criteria. It is proposed that the Secretariat to the Committee will serve as a clearing house of information on the institutions recognized by national supervisory authorities.

Source: Reproduced from Basel Committee on Banking Supervision, 1999, pp. 33–34.

Information Sources

The principal source of information for all rating agencies is country visits, which generally occur once a year for each rated sovereign. Dynamic emerging market and crisis economies are visited more frequently, as much as two or three times a year, which complements continuous correspondence and contacts throughout the year, including when government authorities visit agency headquarters during investor road shows. During on-site visits, which usually last two to four days, the agencies interview a wide range of individuals, including finance ministry and central bank officials, private sector representatives, and political actors and observers. The agencies also gather the views of World Bank and IMF resident and desk economists, and use the publications and statistical resources of multilateral agencies, the BIS, the IIF, and the OECD.

Information Access and Sufficiency

The rating agencies have broad access to policymakers and independent observers and to available information on the sovereigns they rate. More important, the agencies unanimously report that they have enough information to assign and monitor sovereign ratings, especially after recent and ongoing improvements in the frequency and accuracy of foreign reserve data, and in the compilation of external debt statistics. As such, the high-profile cases of Mexico, Thailand, and Korea, where highly relevant foreign reserve figures were withheld, are exceptions rather than the rule. In this context, the agencies support the IMF's data transparency and standardization efforts. Moreover, the agencies were unanimous in calling for the publication of IMF Article IV consultation reports.

Analytical Methods

The rating agencies do not use specific models (probabilistic or otherwise) to assign sovereign ratings. Instead, their analytical approaches are qualitative and aim to assess a multiplicity of qualitative factors and quantitative indicators that affect sovereign default risk. Some highlights on analytical methods include the following.

- Political factors, such as government stability and unity, and consensus in favor of reform and austerity have always been emphasized along with economic and financial factors, particularly in emerging market economies.
- The track record of economic policy management has also been heavily emphasized, and underpinned the (false) expectation that Asian economies would respond more quickly and forcefully to impending signs of distress.
- The prospect of an IMF-supported reform program, and the associated financing, is assessed and generally viewed positively, though only on occasion has it had a material impact on the rating decision. The prospect of IMF support had the greatest initial impact on the ratings of Russia, and moderated the magnitude of deterioration in the creditworthiness of Mexico, Thailand, and Brazil during their crises.

• The agencies do not conduct rigorous scenario analysis and stress testing, and rarely assign probabilities to specific risk factors and scenarios when assigning and monitoring ratings.
• Following the Asian crisis, the agencies are placing greater emphasis on external debt and liquidity, banking soundness, corporate leverage, and policy response capacities.[15]

Analytical Resources

Among the more revealing aspects of the survey is the amount of resources devoted to sovereign analysis. On average, each rating agency analyst is responsible for seven sovereigns. In terms of educational and work background, most sovereign analysts have a master's degree, and on average they have 10–12 years of work experience in country risk analysis. The average level of experience, in the case of most agencies, reflects a mix of some analysts with very high levels of experience (15–20 years) and others with much less (1-3 years). Rating agencies are unanimous in their assessment that they have adequate human resources to perform their tasks.

In light of the survey findings, the following observations can be made.

• The agencies' unanimous position that they have enough information suggests that the real challenge of improving the predictive value of ratings and enhancing market efficiency rests more on improving the analysis of available information and less on generating more information. The agencies' call for the publication of IMF Article IV consultation reports arguably reflects their need for more sources of analysis.

• Given the importance of political factors in shaping policy decisions, policy implementation, and economic performance, the emphasis on political factors as much as economic ones seems appropriate, and a qualitative analytical approach is almost inevitable. Evaluating political factors, however, is inherently difficult, given the wide margin surrounding possible political outcomes in most developing countries. Even when they are accurately assessed, political factors may be less influential in rating outcomes because they are less tangible than economic and financial risks. It may not be coincidental that Indonesia and Russia have been among the most dynamic credit stories over the last year, driven mainly by their unstable politics.

• Similarly, the emphasis on economic management track record and the growing importance of policy responses is well placed. However, anticipating the policy responses of governments under stress is also analytically very challenging. Having managed their economies successfully for decades, Korea and Thailand were rated

[15] For example, see Fitch IBCA (1998) and S&P's (1998).

highly and were expected to manage their financial stresses successfully without depleting their usable reserves to the extent that they did. The subsequent rating downgrades reflected both the large scale of the crisis, but also the inadequate initial responses.

• Given the uncertainties inherent to political factors and government behavior under stress, the almost complete lack of a probabilistic approach to risk analysis is somewhat surprising, especially because ratings themselves are probabilistic statements of default risk. In the absence of a more probabilistic approach, the danger is that less tangible, but potentially important, risks may not be accorded the appropriate weight in rating decisions.

• The number of countries followed by agency analysts is excessive in light of the challenges associated with analyzing sovereigns. Global financial integration and liberalization have strengthened interdependencies to a degree that requires increasingly sophisticated risk assessment techniques, including systemic risk analysis, scenario analysis, and stress testing. The role of common lenders (commercial banks, investment banks, and hedge funds) in transmitting crises means that an intimate knowledge of lender and market behavior is also important. The excessive number of countries followed by agency analysts heightens the challenge of broadening the scope of country risk analysis and applying time-intensive techniques. As such, adequate staffing is clearly an issue to be contended with by the agencies.

• A key dimension of the resource issue is how the agencies compare to the market. To the extent that the agencies are better staffed than most market institutions, then the agencies clearly can add value, even if they are resource constrained by some analytical or objective criteria. This issue cannot be assessed at present with the available data.

•Finally, the frequent criticism that the agencies cannot attract high-caliber analysts is not supported by the survey. Virtually all agency sovereign analysts have graduate degrees, and on average, many years of experience in country risk analysis. The issue is that more of them are needed.

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