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SPECIAL POLICY REPORT 6

Credit Rating Agencies: Their Impact on Capital Flows to Developing Countries

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Abstract:

The impact of credit rating agencies on financial markets has become one of the most important policy concerns facing the international financial architecture. Ratings indicate a relative credit risk and serve as an important metric by which many investors and regulators measure credit risk. The poor performance of these agencies, especially as indicators of the East Asian financial crises and the sudden collapse of Enron, has brought renewed criticism of their methods, their regulatory status and their role in financial markets. Together with BIS proposals for new risk-based capital standards, these concerns make it very important to understand these agencies and their role in financial markets and especially those in developing economies. This paper examines the three major credit rating agencies, their rating methods and several related public policy concerns. It examines the regulatory background and competitive structure of the credit rating industry, the historical performance of the major agencies and the impact of ratings on economies and capital flows. The goal of new policies should be to improve transparency, increase investor education, level the playing field for all investors, safely stimulate competition between rating agencies, increase investment in research and coverage of developing countries' financial markets and protect the independence and quality of credit ratings. Recommendations are made at the end to create more accurate ratings and to reduce the unwanted side-effects of the rating process.

INTRODUCTION

One of the fundamental economic problems faced by developing countries is the difficulty in mobilizing funds to increase investment. The level of income is often too low to generate sufficient savings, and the domestic financial system often does a poor job of directing those funds back into domestic capital formation. This makes access to international capital markets an important resource for obtaining funds to raise the level and accelerate the pace of investment and growth. In order to gain access, developing countries must first obtain a favorable rating of their creditworthiness by one or more credit rating agencies. A strong credit rating will play a major role in determining the cost and availability of credit flows, and the failure to maintain a strong rating will possibly lead to a reversal of capital flows, a disruption of the financial system and an overall economic downturn.

It has been not just the likelihood, but the fact, of such financial crises in many parts of the developing world that has focused so much attention on the role played by credit rating agencies in international capital markets and the world economy. This paper will look at the credit rating agencies and their methodologies, analyze the current policy concerns regarding their role in capital flows, and offer a few recommendations on how to make improvements.

Table 1
Patterns of Capital Flows to Developing Countries
(percentage of official and private capital flows)

Type of flow	1973-81	1990-97
Bonds	3.5	15.2
Bank Lending	63.9	11.7
Foreign direct investment	16.8	50.3
Portfolio Equity	0.3	16.4

* Note that figures are calculated as percentage of total flows and therefore private flows do not sum to 100 per cent.

Source: World Bank (2000) Chapter 6, p.126.

The composition of the flow of capital to developing countries, as illustrated in Table 1 above, has dramatically changed in the last few decades. In the 1990s, the bond market surpassed bank lending as the dominant source of private capital to developing countries. This had the effect of making credit ratings and credit rating agencies (CRA) even more important factor in determining total capital flows. It is sometimes joked that the most important event for a developing country is having an official from a rating agency come visit them. Rating agencies are firms that evaluate a debtor or a debt instrument and assign it a grade according to its degree of relative creditworthiness. Fees are typically paid by the debtor or debt issuer, and the fees can be negotiated. The grades on the debt range from AAA to D with some variation in notation by each agency (see Exhibit 1 below). Using for example the S&P notation, a credit rating between AAA and BBB- is

used to indicate "investment grade" debt, and below that range debt rating between BB+ and D is considered speculative and is often referred to as "high yield" or "junk." The investment grade distinction is highly significant. Many investment and regulatory policies are linked to the distinction.

The assigned grades are intended to reflect the relative¹ probability that the debtor or debt issue will default on its obligation to make timely payments of principal and interest. In this manner, ratings indicate a measure of credit risk in holding or purchasing the security instrument. The grades should be considered relative because they rate debtors and debt instruments against other debtors and debt instruments. The absolute level of credit risk for each grade can change over time and over the business cycle, and it can also differ across rating agencies. Higher ratings are given to sovereign debtors who have the highest ability and willingness to pay.² Ratings, and especially changes in ratings, can have large effects on the prices of securities, capital flows and investor attitudes. Consequently, those who assign the ratings have a tremendous responsibility in making the rating as accurate and timely as possible.

This report will focus on the three dominant agencies, how they are officially recognized in the U.S. and their impact on financial markets. We focus a good deal of the analysis on the U.S. market because of the importance of U.S. investors and financial institutions for international financial markets and capital flows into developing countries.

HISTORY

The use of credit ratings arose in the U.S. out of the desire by the growing investing class to have more information about the many new securities – especially railroad bonds – that were being issued and traded. In the middle of the 19th century, the U.S. railroad industry began expanding across the continent and into undeveloped territories. The industry's demand for capital exceeded the ability or willingness of banks and direct investors to provide it. In order to reach a broader and deeper capital market, railroads and other corporations began raising new capital through the market for private corporate bonds.³ The growth in the sale of many different corporate bonds to a broad investing public generated the need for better, cheaper and more readily available information about these debtors and debt securities. In response to this development, Henry Varnum Poor first published in 1868 the *Manual of the Railroads of the United States*. His publication contained operating and financial statistics for the major railroad companies, and provided an independent source of information on the business conditions of these corporate borrowers. John Moody took the process another step forward in 1909 by issuing the first credit ratings in the United States.

¹ Most agencies use a relative measure of default the exception being Upplysningscentralen AB in Sweden, which uses an absolute measure.

² Unlike corporate and person debtors, sovereign debtors have to be willing to pay. There is no court or procedure to force payment even though discussions are being held to create one.

³ Prior to this, the U.S. bond market consisted of federal and local government securities. Investors trusted that the governments would be willing and able to honor their obligations, and there was less investors needed to know about the business plans and fiscal affairs of those sovereign organizations.

Prior to this independent source of information, banks played a key role in shaping investor perceptions of corporate borrowers. After all, banks had greater knowledge from the inside information they obtained in their role as direct lenders and as bond underwriters. By lending and underwriting, banks were putting their money and reputations on the line. If the borrower failed to meet its obligations, the reputation of the bank would be damaged and that would make it harder for the bank to retain existing and attract new clients. In essence the bank certified the quality of the bonds to the public with the bank's reputation. Alternatively, the bank as creditor would become more involved in the business of the corporation and become an insider. Bond investors, however, did not have the same access to information. (There were no disclosure requirements prior to the securities acts of 1933 and 1934.) This created an asymmetry in the availability of information in the U.S. capital markets. The impact of rating agencies was to help level the playing field and improve the efficiency of capital markets.

The role of credit ratings and rating agencies would go on to solve other asymmetric information problems -- that between investors and asset managers. The use of credit ratings help police the conflicts of interest between the asset managers and their clients whose money the managers invest. Asset managers may be tempted to invest in higher risk securities even though investors would not knowingly approve of such investments. The use of ratings by investment policies can limit the risk⁴ in the asset manager's investments at a low monitoring cost and thus benefit the investors.

According to the BIS, there are 130 to 150 credit rating agencies worldwide.⁵ Many of these agencies are smaller and focus on a niche market based on sector or geography. The three most prominent credit rating agencies that rate sovereign countries are Standard & Poor's, Moody's and Fitch Ratings. Only a few are officially recognized by governments for regulatory purposes. On average, the 10 member countries of the Basel Committee for Banking Supervision (BCBS) recognize six agencies.⁶ In the U.S., the Securities and Exchange Commission (SEC) recognizes only four at present. These four include the major three agencies plus Dominion Bond Ratings, a Canadian firm, which was granted the status of Nationally Recognized Statistical Rating Organization (NRSRO) in February 2003.⁷

The official certification is granted by the Securities and Exchange Commission's Division of Market Regulation through the issue of a "No Action" letter.⁸ Three other

⁴ Risk here refers to credit risk. It should be noted that the credit ratings does not reflect the level of market risk. Debt instruments with attached derivatives, such as structured securities, generally have much greater market risk than conventional fixed-income securities even though they may have the same credit rating.

⁵ Bank for International Settlements (BIS). 2000. *Credit Ratings and Complementary Sources of Credit Quality Information* BCSB, August 2000.

⁶ BIS. 2000.

⁷ The term NRSRO was initially designed for broker-dealers in 1975 under rule 15c3-1 of the Securities Exchange Act of 1934. The purpose was to designate different levels of "haircuts" for securities used as collateral by securities broker-dealers.

⁸ A "No Action" letter states the SEC staff will not recommend enforcement procedures against an entity for the designated status or some specific activity. It may sound odd, but it is a well established regulatory

firms were granted NRSRO status, but they have subsequently been merged into the big three. The process for qualification as a NRSRO has not been formalized, although there have been attempts to do so. In 1997 the SEC proposed a procedure to formalize the process for recognizing a rating agency. Conflicts amongst members of the financial sector hampered the rule making process. The SEC cited the need for further studies and investigations, and the proposal was never implemented. More recently, the Sarbanes-Oxley Act of 2002 instructed the SEC to review the role of rating agencies in the wake of their failure to predict the troubles at Enron.

The most important criterion used by the SEC to designate a firm as a NRSRO is that the agency must have national recognition from investors as a credible source of information. Other criteria included the following:

1. Organizational structure of the rating organization
2. Financial resources in order to determine if the agency could operate independently or would be under economic pressure from the companies it rates
3. Size and quality of staff to determine if ratings evaluations would be thorough and competent
4. Rating organization's independence from the companies it rates
5. Rating organization's rating procedure to determine if ratings could be consistent, credible and accurate
6. Internal procedures of organization to prevent the misuse of non-public information

In 1999 the Basel Committee on Banking Supervision (BCBS) sent a proposal to its members on criteria for recognizing agencies. The criteria included a systematic, rigorous and a historically validated methodology for assigning ratings as well as independence from external political and economic influences. Different members responded with different measures, some of which included the BCBS proposals, and some which included additional measures based on market usage, credibility and adequacy of staff.

MAJOR AGENCIES and THEIR METHODOLOGIES

Standard & Poor's (S&P) was created in 1941 through the merger with Standard Statistics and Poor's Publishing. The company has evolved from the days of Henry Varnum Poor to now provide a wide range of information on financial products and markets. Standard & Poor's sells investment data, valuations, analysis and opinions. The flagship product is their S&P 500, an index that tracks the high capitalization equity markets in the United States. Currently, \$1.5 trillion dollars in investor's assets are tracking the S&P 500 along with other Standard & Poor's indices.

procedure for dealing with political failures to resolve interpretations and other disputes. As a "process," it may be informal, but it is not unknowable.

Table 2: Standard & Poor's Sovereign Categories

1. Political risk
 - Stability, predictability and transparency of political institutions
 - Public and national security
 - Responsiveness to change and adapt
2. Income and Economic Structure
 - Degree economy is market-oriented
 - Extent of property rights
 - Per-Capita GDP
3. Economic Growth Prospects
 - Changes in standard of living
 - Income distribution
4. Fiscal Flexibility
 - Tax revenues, expenditures and past performance in balancing budgets
 - Methods of deficit financing and their inflationary impact
 - Growth friendly tax system and the ease of which it can be changed
 - Efficiency of expenditures
5. Government Debt Burden
 - Extent to which government can pay and manage its debt
6. Off-Budget and Contingent Liabilities
 - Size and health of non-financial public sector enterprises
 - Health of financial and banking system
7. Monetary Stability
 - Credit trends
 - Price behavior in past economic cycles
 - Level, currency and maturity of public sector debt
 - Money and credit expansion
 - Independence of central bank
 - Compatibility of exchange rate regime with monetary policy
 - The range and efficiency of monetary policy tools
 - Depth and breadth of capital markets
8. External Liquidity
 - Structure of merchandise trade, service, income and transfers
 - Vulnerability to changes in investor sentiment
 - Gross external financing as a percentage of official foreign exchange reserves
9. Private Sector Debt Burdens
 - Residents assets and liabilities
10. Public Sector Debt Burdens
 - Trends in public sector debt
 - Contingent liabilities
 - Foreign exchange reserves

McGraw-Hill Companies acquired Standard & Poor's in 1966. Along with Standard & Poor's, McGraw Hill Companies has two more units, Education and Information & Media Services. In education, McGraw Hill Companies is the leader in the U.S. in providing educational materials and textbooks. Its last unit, Information & Media Services, is well known for producing such publications such as BusinessWeek and Platts. In 2001, McGraw Hill Companies had sales of \$4.6 billion and income of \$377 million. Standard & Poor's contributed to the total with sales of almost \$1.5 billion and operating profit of \$435 million.

In order to determine the credit rating of a sovereign government, Standard and Poor's looks at ten different categories and assigns a value to each category from 1 to 6 (1 being the best). Qualitative judgments are then used to assess the values and assign a rating.

Moody's Investor Services is a subsidiary of Moody's Corporation. The Investors Services subsidiary provides ratings, research and risk analysis for a broad scope of debt securities. It has 17 offices worldwide and provides ratings on a 100 sovereign nations' debt. In 2001, Moody's generated \$700 million in sales from their ratings.

Moody's, like Standard & Poor's, uses a combination of quantitative and qualitative factors. Quantitative measures are used to evaluate historical performance and trends. Weights on each variable depend on whether the country has a high income with a long history of institutional stability or whether the country is still in the midst of development. For example, fiscal policy is more of an important element in advanced countries while balance of payment trends is more important for developing countries. Qualitative judgments are then made to assess the data in the context of the sovereign's economic, political, and social forces. Moody's looks at information that is grouped in four broad categories.

Table 3: Moody's Sovereign Categories

1. Economic Structure and Performance
 - GDP, inflation, population, GNP per capita, unemployment, imports and exports
2. Fiscal Indicators
 - Government revenues, expenditures, balance, debt all as percentage of GDP
3. External Payments and Debt
 - Exchange rate, labor costs, current account, foreign currency debt and debt service ratio
4. Monetary and Liquidity Factors
 - Short-term interest rates, domestic credit, M2/foreign exchange reserves, maturing debt/foreign exchange reserves, liabilities of banks/assets of banks

The third major rating agency, **Fitch Ratings** provides ratings and research to over 75 countries. Similar to the other agencies, Fitch Ratings covers a wide range of debt securities offered by corporations, financial institutions, municipal government, insurance companies and sovereign nations. At present they have ratings on 69 sovereign nations. In 1997 Fitch Ratings was fully acquired by Fimalac⁹, a provider of business support services headquartered in Paris. Fimalac added to its ratings market penetration in 2000 by acquiring Duff & Phelps, a rating agency in the US. It has further been expanding by opening offices in Central Europe and by joint ventures and equity stakes in Asian rating agencies. FIMALAC earned 1.4 billion euros in 2001 and Fitch Ratings was responsible for 25% of sales or approximately 350 million euros.

After being asked to rate a sovereign, Fitch Ratings will send the sovereign officials a questionnaire for private information about the level of debt and the officials' views on its ability to pay the debt. The questionnaire is modified to ask country specific questions.

⁹ Fimalac is a publicly traded company on the Paris Bourse with the symbol 3794

The purpose of this exercise is to be able to gain sensitive non-public data, which is used as a basis for conducting interviews. Fitch Ratings will then look into public data concerning the following areas: fiscal policy and execution, demographics, current account, openness of economy, ability to withstand shocks, and stability of political institutions.

Fitch Ratings uses the data to establish key-leading indicators of distress based on recent defaults or near defaults and then incorporates the indicators into a risk model, which generates scores for sovereign borrowers. The agency does recognize the problems and limitations of using sophisticated econometrics and neural networks¹⁰ when there is a limited sample of sovereign nations and sovereign defaults. This becomes a further problem when recognizing the sovereigns that have defaulted have shared very few similar characteristics.

In addition to the economic risk, Fitch examines political risk with respect to internal and external conflicts. Fitch will look at internal politics to see if current politicians and parties can mobilize support for its policies. In the external political risk dimension, Fitch will evaluate the risk of a war through foreign policies and military buildups.

The most recent addition to the list NRSRO agencies is Dominion Bond Ratings. Founded in 1976 and headquartered in Canada, Dominion Bonds Rating Service (DBRS) is a privately held, full-service credit agency. Dominion Bond Ratings has 30 analysts and rates less than 500 corporations worldwide as well as Canadian government securities. DBRS provides ratings on commercial paper, bonds, preferred shares and asset backed securities. Similar to the other agencies, DBRS ratings reflect a relative credit standing. The rating decision is based on qualitative and quantitative information but does not take into account price or market risk. The agency discloses that the ratings should only be one part of the investment process. The firm's rating notation is similar to that of S&P's but DBRS uses "high" and "low" terms to indicate a relative standing in each rating category. DBRS does not rate sovereign debt in developing countries and consequently is not included in later discussions on sovereign ratings.

Although the agencies officially state that they look at a large array of factors when assigning ratings to sovereign borrowers, studies have shown that most ratings can be determined by a few economic variables. Cantor and Packer (1996) found that more than 90% of the cross-sectional variation in country ratings could be attributed to six factors: per capita income (see Exhibit 3 below), GDP growth, external debt burden, inflation experience, default history and level of economic development. The results of Cantor and Packer's study, however, leave out crucial variables such as capital flows, foreign exchange reserves and the strength of the financial system (which could provide a possible explanation of why rating agencies fail to forecast crises). Antonio Alfonso (2003) conducting a similar study argues that GDP per capita is virtually the only relevant economic variable for determining developing countries' ratings.

¹⁰ A neural network is mathematical model inspired by the functions of the human brain.

PUBLIC POLICY CONCERNS

RATINGS COMPETITION

One of the major policy concerns about the role of credit rating agencies is the dominance of the industry by three major agencies. Although there are over 130 rating agencies worldwide, three major agencies dominate the market and there is mixed evidence of their performance.

In a recent article, *The Economist*¹¹ blames the SEC's NRSRO certification process for the lack of competition. One of the major problems with the certification process, according to White (2001), is that an agency has to be nationally recognized in order to be certified. Thus there is a Catch-22 type of situation because national recognition is difficult to obtain without being certified. The article also argues that the other criteria are deliberately vague and ambiguous.

The Economist article, however, ignores the fact that there are a large number of such firms worldwide. The article further fails to mention that the SEC has certified seven firms as a NRSRO. IBCA was approved in 1991, it but later merged with Fitch in 1997. McCarthy, Crisanti & Maffei was approved in 1983, but it was later bought in 1991 by Duffs & Phelps. In turn, Duffs & Phelps was acquired by Fitch in 2001. Thomson Bank Watch, the sixth company to receive approval, was acquired by Fitch in 2000. The motivation for Fitch to pursue such an aggressive acquisition strategy was to be able to more effectively compete with S&P and Moody's. The seventh firm, Dominion Bond Ratings, was approved in February 2003, and makes the fourth firm currently acting in NRSRO status.

It should also be pointed out that the SEC's authority pertains only to the U.S., and although U.S. financial markets have an enormous impact on the shape of financial markets elsewhere in world, the SEC cannot strictly prohibit the use of ratings by other CRAs in other financial markets. Another factor affecting the market structure of credit rating agencies is the high fixed costs of building reputations and increasing economies of scale in producing credit ratings for a large number of entities and instruments.

The ability of three firms to dominate a global market is not simply regulatory protection, but can more reasonably be attributed to the product of mergers and acquisitions, increasing economies of scale for the large firms and the high fixed costs of building a national, if not global, reputation.

Aside from the argument about why the industry is dominated by three agencies, there are several reasons why more competition would improve the situation. The first reason is that more competition would improve the accuracy of ratings. Firms would invest more resources in the rating process in order to improve their quality, and that would result in better ratings for emerging market borrowers and overall more efficient markets.

¹¹ *The Economist*, "Exclusion Zone." February 6, 2003.

The second reason is that it would reduce economic rents from the market power exercised by the oligopoly, and this would result in lower fees. Partnoy (1999) makes the argument that rating agencies survive due to their ability to accumulate and retain reputational capital, but that once regulatory standards are put in place based on the agencies ratings, the agencies also sells property rights associated with compliance with the regulation. Increasing competition would decrease the value of those property rights and allow debtors and debt issuers to acquire credit ratings at a lower cost.

The third reason is that anti-trust enforcement (which would entail greater government involvement and not less) would discourage destructive forms of competitions such as "notching."

In a statement to the SEC, Fitch called for a more formalized procedure to designate NRSRO's but also stated that it believes the main barrier to entry is not certification, as *The Economist* claims, but the exercise of monopolistic power by Standard & Poor's and Moody's. Fitch cited a practice called "notching" whereby Standard & Poor's and Moody's would initiate an automatic downward of structured securities if the two agencies were not hired to rate the bonds themselves. Since most investors, especially small individual investors, use Standard & Poor's and Moody's, the downward adjustment strongly discourages issuers from exclusively using other agencies. Moody's response to Fitch's accusation is that there is a difference in methodology between the two firms, and that the unsolicited ratings usually receive a lower rating than normal because of the lack of information.

Moody's has been criticized before with similar practices. According to a statement from the Egan-Jones Rating Company to the SEC, Moody's deliberately issued low ratings to U.S. municipalities that refused to retain the agency. Moody's then argued that it was just issuing their opinion and that they were entitled to "free speech." Other smaller agencies have also complained that NRSRO's have been discouraging major news organizations from publishing ratings from other agencies. This argument is most likely aimed at Standard & Poor's whose parent company also owns the popular business publication *BusinessWeek*.

Arguments concerning the collusion power exerted by Moody's and Standard & Poor's can also be found in an examination their ratings coverage. In the United States, Europe, Africa and the Middle East, both firms have a very similar number of corporate ratings. However, the two firms appear to have divided the turf in Latin America and Asia. In 2000, Moody's had 286 corporate ratings in Asia while Standard & Poor's only had 94. In contrast, Standard & Poor's had 164 corporate ratings in Latin America while Moody's had only 109. Fitch had only 3 and 11 corporate ratings in Asia and Latin America respectively.¹² There seems to be a lack of competition even between the ratings leaders in some regions of the developing world.

With respect to developing countries, more competition might lead to more investment into rating firms in developing countries. Ferri (2001) concluded the oligopolistic

¹² BIS report (2000).

structure of the rating agency industry has led to an under-investment with respect to rating issuers in less developed countries. All other things being equal firm ratings in non-OECD countries tend to increase when more analysts are assigned. White (2001) studied the industry structure and dynamics and arrived at the same conclusion that the current structure leads to rent extraction and under-investment in innovation. New advances in credit ratings have typically been started by smaller agencies with the larger ones then following suit. Furthermore, smaller firms have been able to charge lower fees indicating that the market leaders have been able to charge a higher price than competition would allow. Even though White and Ferri conclude that a few firms currently dominate the industry, the BCBS believes the industry is expected to change in the next few years. The BCBS reports that there is anecdotal evidence that the total number of agencies will increase in the future, most notably in the less developed countries.

While collusion is an unambiguous indicator of a market fault, and monopoly power is similarly a market failure, it is not obvious that more market competition will solve the policy concerns with ratings performance and information efficiency. More competition will possibly lead to more "noise" from contrasting credit ratings. Different agencies will come out with different ratings, whose interpretation may or may not be comparable to every other agency. More time and money will be required to analyze and reconcile the different ratings from various agencies. In the end, the net economic benefit from more ratings might not prove to be positive.

Another possible negative consequence from more competition is that it will lead to ratings shopping. In order to compete for clients, agencies will be tempted to hand out more favorable ratings and to compete for lower fees by lowering their research and analysis costs. The debtor or debt issuer pays for the rating, and the 1999 report by the Friedrich Ebert Stiftung claims that 90% of agency revenues come from such fees. New and existing smaller firms might be driven to high ratings and lower quality by the need to attract business and the inability to focus on the long-term goal of reputation building. Some evidence of rate shopping can be found in Cantor and Packer's 1997 study on the differences in ratings among agencies. The study found that smaller agencies have higher ratings on average than Standard & Poor's and Moody's.

RATINGS PERFORMANCE AS INDICATORS OF DEFAULT

With regard to actually predicting default,¹³ the agencies' performance has been mixed. Reinhart (2002), using data from 1979-1999, found that credit ratings have systematically failed to anticipate currency crises and that nearly half of all defaults were linked with a currency crisis. Moreover, default did not occur in some cases due to IMF intervention and assistance. The report concluded that rating agencies were reactive, especially with respect to emerging markets. In addition to the problems with timing, the magnitude of downgrades was significantly higher for emerging markets.

¹³ Moody's defines a default as any missed or delayed payment on interest or principal.

These conclusions, however, should be qualified by the fact that most of the defaults in the study occurred in the 1980s. After the Southeast Asian financial crisis in 1997, investors saw the effects of a weak banking system and a mispriced exchange rate. Subsequently, credit rating agencies began to treat factors such as bank assets as a percentage of GDP and the interest rate differential with greater emphasis in their country ratings (Juttner, McCarthy 2000).

After conducting a study of their own ratings history in 2001, Standard & Poor's concluded that there is no systematic bias in subsequent ratings movements upward or downward and their ratings are a robust prediction of default.

Most studies on sovereign default and credit ratings are based on data that is limited by the number of rated countries, narrow time range over which ratings were in effect and the small number of actual defaults. Only until the 1990's did less creditworthy countries receive a rating. According to Moody's, there was no sovereign borrower that was rated and that subsequently defaulted until the case of Venezuela in 1998 (see exhibit 4 in the appendix below). Moody's claims to have a strong performance in predicting sovereign default. Of all defaults that did occur, the sovereign borrower carried a rating of B1 or below by Moody's one year prior to the default.

Table 4:
Standard and Poor's Average 5 Yr Transition Rate (1975-2001)

Initial Rating	Rating in Fifth Year							
	AAA	AA	A	BBB	BB	B	CCC	SD
AAA	86.80%	11.60%	0.00%	0.00%	1.60%	0.00%	0.00%	0.00%
AA	6.14%	88.60%	2.63%	1.75%	0.88%	0.00%	0.00%	0.00%
A	0.00%	14.29%	64.29%	17.86%	1.79%	1.79%	0.00%	0.00%
BBB	0.00%	0.00%	32.56%	41.86%	11.63%	4.65%	2.33%	6.98%
BB	0.00%	0.00%	2.08%	20.83%	56.25%	16.67%	0.00%	4.17%
B	0.00%	0.00%	0.00%	0.00%	13.33%	86.67%	0.00%	0.00%

* Data from Standard and Poor's.

Table 5:
Moody's 1998-2002

Initial Rating	Rating in Fifth Year							
	Aaa	Aa	A	Baa	Ba	B	Caa-C	Default
Aaa	85.70%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Aa	69.20%	30.80%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	20.00%	60.00%	20.00%	0.00%	0.00%	0.00%	0.00%
Baa	0.00%	0.00%	25.00%	37.50%	12.50%	12.50%	0.00%	0.00%
Ba	0.00%	0.00%	0.00%	37.50%	31.30%	6.30%	0.00%	18.80%
B	0.00%	0.00%	0.00%	0.00%	0.00%	57.10%	0.00%	42.90%

* Data from Moody's.

Tables 4 and 5 show the movement of sovereign ratings over a five-year period. The first column represents the initial rating a sovereign received and the rows represent the movement from the initial rating after five years. The tables show the stability of ratings.

In addition to the stability of credit ratings, another important feature of ratings is that default rates on sovereign debt are below that of corporate defaults rates in most categories. The two agencies differ in their explanation of why there are different default rates for similarly rated corporate and sovereign borrowers. Standard and Poor's claims the difference is due to sample size, and that as more samples are gathered over time the default rates on sovereigns and corporations will eventually converge. Moody's claims its sovereign ratings have strong similarities to its corporate ratings with regard to default. According to this agency, the lowest 20% of rated sovereigns and corporations accounted for 80% of the defaults in their respective group. Both agencies do agree that ratings on sovereigns are far more stable than ratings on corporations.

Table 6
Standard and Poor's 1975-2001

Sovereign vs Corporate Default Rates	One-Year		Three-Year		Five-Year	
	Sov. Corp.		Sov. Corp.		Sov. Corp.	
	(%)					
AAA	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
AA	0.0%	0.0%	0.0%	0.1%	0.0%	0.3%
A	0.0%	0.1%	0.0%	0.2%	0.0%	0.6%
BBB	0.0%	0.3%	1.3%	1.1%	7.0%	2.4%
BB	2.6%	1.3%	3.6%	7.1%	4.2%	13.8%
B	3.3%	6.7%	3.7%	22.4%	0.0%	33.1%
CCC	100.0%	28.3%	100.0%	45.8%	0.0%	61.9%

* Data from Standard and Poor's, and we suspect that for CCC contains a typo.

Table 7
Moody's 1985-2002

Sovereign vs Corporate Default Rates	One-Year		Three-Year		Five-Year	
	Sov. Corp.		Sov. Corp.		Sov. Corp.	
	(%)					
Aaa	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Aa	0.0%	0.0%	0.0%	0.1%	0.0%	0.2%
A	0.0%	0.0%	0.0%	0.3%	0.0%	0.6%
Baa	0.0%	0.2%	0.0%	1.0%	0.0%	2.2%
Ba	1.6%	1.4%	5.5%	7.0%	12.6%	13.0%
B	7.9%	6.4%	18.3%	21.3%	22.2%	33.2%
Caa, Ca, C	0.0%	22.8%	NA	46.0%	NA	59.4%

* Data from Moody's.

ECONOMIC IMPACT OF RATINGS

Another major policy concern regards the impact of ratings on capital flows and the overall economic performance of developing countries. Critics of the agencies argue that ratings have a large economic impact because they are procyclical. They claim that ratings increase the magnitudes of the business cycles because sovereigns are upgraded during expansionary periods and downgraded contractionary periods. Moody's, Standard & Poor's, and Fitch all claim to rate with a view across the business cycle, and therefore their ratings are not significantly affected by purely cyclical influences.

The foundation for this policy concern is the economic relationship between credit ratings – plus changes in those ratings – and overall economic growth. If accurate ratings can come out ahead of movements in the financial markets, the ratings can be very useful in curbing or dampening the current direction of capital. During an economic expansion, hot money can travel quickly into an emerging market country. A downgrade during this expansionary period would have a sobering effect on exuberant expectations, and in turn this would reduce the likelihood of a country experiencing a boom-bust cycle. The same is true for a ratings upgrade during an economic contraction. The upgrade would likely reduce capital outflows and help the country to finance their recession with lower interest rates.

Conversely, if the ratings are inaccurate or are behind financial markets, the speed of capital flows will likely increase and exacerbate the cycle. A downgrade during a period of contraction in developing countries will hurt businesses from gaining trade credits. Portfolio managers may be forced to shed their holdings of the downgraded debt due to legal requirements (see Exhibit 5) or investment policies. These effects are greatly accelerated once the important threshold of investment grade rating has been crossed.

An upgrade during expansion will also speed up capital – this time an inflow – and may create a dangerous level of over-lending to the sovereign. Over-lending is a possible explanation to Mora's (2001) conclusion that higher ratings have led to a higher probability of a crash once other factors are controlled for.

**Table 8:
1991 S&P One-Year Transition Matrix**

Rating	AAA	AA	A	BBB	BB	B	CCC	D	N.R.
AAA	89.02%	9.76%	0.61%	0.00%	0.00%	0.00%	0.00%	0.00%	0.61%
AA	0.00%	89.95%	7.79%	0.00%	0.00%	0.00%	0.00%	0.00%	2.26%
A	0.17%	0.67%	90.52%	6.66%	0.17%	0.00%	0.00%	0.00%	1.83%
BBB	0.00%	0.82%	5.16%	82.07%	5.71%	0.54%	0.54%	0.54%	4.62%
BB	0.00%	0.00%	0.00%	7.14%	73.95%	7.14%	1.68%	2.52%	7.56%
B	0.00%	0.34%	0.00%	0.34%	4.80%	68.15%	3.77%	13.01%	9.59%
CCC	0.00%	0.00%	0.00%	1.52%	4.55%	6.06%	45.46%	30.30%	12.12%

**Table 9:
1998 S&P One-Year Transition Matrix**

<i>Rating</i>	<i>AAA</i>	<i>AA</i>	<i>A</i>	<i>BBB</i>	<i>BB</i>	<i>B</i>	<i>CCC</i>	<i>D</i>	<i>N.R.</i>
AAA	90.30%	6.06%	0.00%	0.61%	0.00%	0.00%	0.00%	0.00%	3.03%
AA	0.18%	89.64%	5.71%	0.18%	0.00%	0.00%	0.00%	0.00%	4.29%
A	0.09%	1.46%	87.22%	5.11%	0.18%	0.00%	0.00%	0.00%	5.94%
BBB	0.32%	0.00%	2.79%	84.93%	4.46%	0.67%	0.22%	0.34%	6.59%
BB	0.00%	0.16%	0.16%	5.33%	75.44%	5.98%	2.75%	0.65%	9.21%
B	0.00%	0.00%	0.15%	0.62%	6.16%	76.27%	5.09%	4.47%	7.24%
CCC	0.00%	0.00%	3.33%	0.00%	0.00%	20.00%	33.33%	36.67%	6.67%

Reisen (2002) believes that agencies are, in fact, behind markets because the agencies primarily use publicly available data in making their ratings. By only using public information, the agencies will remain behind the markets if the markets follow the strong-form efficient market hypothesis.¹⁴ The transition matrices in Tables 8 and 9 show the ratings movement after one year. The first matrix is during the 1991 recession while the second matrix is during the 1998 expansion. Although not conclusive, we see a greater percentage of downgrades during the recession, especially from ratings at and below BBB.

The Asian Crises is one of the most frequently cited examples of rating agencies having been procyclical. From June of 1997 to November of 1998 several Asian countries received downgrades ranging from four to eight levels. Critics argue that the agencies should have foreseen the economic problems and downgraded the countries before and not during the crisis. The agencies responded by arguing that only after start of the crisis did the ability and willingness of the countries deteriorate substantially.

Empirical evidence on whether ratings agencies are indeed procyclical have been mixed. Ferri, Lui and Stiglitz (1999) concluded that rating agencies are procyclical. Based on Cantor and Packer's paper of sovereign rating determinants, Ferri, Lui and Stiglitz used a sample of ten countries from 1989-1999 to create a model to explain ratings. The outcome was that before the crisis, ratings on the East Asian countries were on average higher than those based on a model of economic fundamentals. After the crisis the ratings were much worse than what their model predicted. Korea and Thailand which were given ratings of Ba1 (the top speculative grade for Moody's) should have never have fallen below investment grade (Baa3 lowest investment grade for Moody's) according to the model. The authors concluded that the rating agencies must have given more weight toward the qualitative factors in the agencies' assessments and these qualitative factors are what cause the procyclical nature.

¹⁴ Strong-form efficient market hypothesis states that markets price in all available public data as well as private information

A study by Kraussl found the theory of ratings being procyclical to be misguided. Kraussl studied the interactions of credit ratings, short-term international liquidity positions,¹⁵ yields on a country's Eurobonds and yields on U.S. treasury bonds. Kraussl chose these variables because previous studies have shown that 80% of the variation in credit ratings can be attributed to the international liquidity position and the yield spread. Eurobonds were used to remove currency risk from the analysis. Then a vector autoregressive system was used to adjust for the interactions between the yields, international liquidity positions and ratings. Kraussl next applied this approach to the Mexican and Korean crises. He found that the dramatic ratings downgrades, as in the case of Korea, did not intensify the financial crisis, and that a gradual decline, as in the case of Mexico, intensified the crisis. He concluded that the ratings agencies did not initiate boom or bust cycles in developing countries.

Other studies have looked at the credit spreads¹⁶ before and after a rating agency does downgrade to evaluate the market impact of rating agencies. Cantor and Packer (1996) found that announcements of rating changes are followed by significant changes in spreads in the expected direction, and that 92% of the variation in credit spreads can be attributed to ratings. The effect is even stronger for speculative-grade sovereigns, a group composed mostly of developing countries. The lack of liquidity in emerging market debt is a possible explanation to why the effect is larger. Reisen and von Maltzan (1999) came to a slightly different conclusion. The authors found that changes in ratings do not have a significant effect on credit spreads but the rating change does reinforce the credit spread possibly due to investors selling bonds once they fall below a certain rating in accordance to regulation or investment policies.

Although the credit ratings are for debt issued by the sovereign government, credit ratings can affect private debt markets in developing countries. Many investors associate sovereign risk with country risk, and this is especially the case when investors know little about the country. Very few individual firms in developing countries have a credit rating assigned to them. Only 25% of rated firms outside the U.S. are in developing countries. Even if the individual firm is rated the agencies have in place "country ceilings" that prevent firms, especially banks, from being rated higher than their country of residence. There are some rare exceptions. The rationale for such a ceiling, according to Moody's, is that governments in the midst of an external payment crisis can limit currency outflows on private debt. Moody's has recently revised their policy to make rare exceptions to issuers in countries where the government would allow the issuer to continue payment because a default by the issuer would inflict severe damage to the domestic economy. Firms in developing countries are less likely to receive such an exception due to their lack of international integration. These policies are unlikely to change even given the possibility of the establishment of a sovereign debt restructuring mechanism (Chambers 2002).

¹⁵ International liquidity position is defined as total international reserves minus short-term debt

¹⁶ A credit spread is the difference between the interest rates an issuer can borrow at and the interest rate on a risk-free bond denominated in the same currency with a similar time to maturity.

Due to the lack of information and credit rating ceilings, investors often make decisions about their investments in private firms based on the credit rating assigned to the government. On average bond yields increase by 3 percent and stock returns decline by 1 percent after a downgrade. These effects can even affect neighboring countries' bond yields and stock returns (Kaminsky and Schmukler. 2001). Trading activities with these neighboring countries will then be adversely affected. The ratings process again adds to the business cycle by increasing corporate rates, lowering stock returns, and hampering trade.

REGULATORY ENVIRONMENT

Another way in which credit ratings influence capital flows to developing countries is through capital standards for banks and other financial institutions. One especially important – and controversial – policy along these lines has been proposed by the Bank for International Settlements (BIS). Their proposal is to set worldwide capital standards for banks based on the credit ratings of their assets. Presently, banks are required to back up their balance sheet assets and the present value of their off-balance sheet positions with a certain amount of capital. The amount of capital is "risk weighted" by the creditworthiness of the asset or counterparty. Some assets such as U.S Treasury securities are considered risk-free and are assigned a zero weight. Other assets are assigned weights up to 100%. Bank are required to hold capital in amounts equal to 8% of the risk-weighted value of their assets.

The more credit risk a bank holds in its portfolio, the more capital it must hold. The purpose of this policy is to protect banks from becoming insolvent in the event of bankruptcies and other credit problems in the economy. Capital requirements function to limit the amount of a bank's lending or investing by assigning a capital charge to the bank's assets based on their degree of credit risk. This point has been identified by Reisen (2002) and Griffith-Jones, et al (2002).

The new proposal by the BIS would require banks to hold additional capital against their assets from lower rated debt such as that from developing countries. The amount of additional capital can be based on either an internal ratings approach with BIS approval or a standardized approach (see Exhibit 3 below). For example under the standardized approach a bank with a portfolio of U.S. Treasury debt needs to hold no capital since the weight on U.S. debt (AAA) is zero. But a bank that holds a portfolio of \$100 million of sovereign debt with ratings of BB+ to BB-, just below investment grade, has to hold \$8 million in capital because the weight on these ratings is 100% and the bank has to hold 8% of its risk-weighted assets as capital. The effect is to discourage banks from lending or holding bonds from developing countries. If the proposal is adopted, banks will either sell off their developing country debt or demand higher interest rates on emerging market debt in order to compensate them for the additional cost of capital.

The proposal also will have a strong impact on inter-bank lending. Reisen (2002) argues that modifications are needed to the current standards. Currently, the determinant for risk-weights is the classification of being OECD and non-OECD. Furthermore, the

weight assigned to lending to banks in non-OECD countries is 20% if the maturity is within one year but maturities longer than one year are assigned the 100% weight. This has created incentives for more short-term flows in developing countries while discouraging long-term investments.

The current proposal has important procyclical elements. There are two options for the treatment of lending to banks. The first option is to assign a weight to the bank one category below the sovereign in which the bank is incorporated. The other option is to have a weight based on an external assessment of the bank's individual creditworthiness. The trouble with the second option is that very few banks in developing countries have individual ratings. Even if the bank does have a ratings, it has been shown that in developing countries, financial institutions' ratings are highly correlated with the sovereign rating due to the high amounts of sovereign debt typically on the financial institutions' balance sheets. In non-OECD countries firms are downgraded in connection with a sovereign downgrade; the correlation in non-OECD countries is near 0.7 but there is no similar connection in OECD countries (Ferri, Lui and Majnoni. 2002). Unfortunately, the opposite does not hold true. An upgrade in the sovereign rating in a non-OECD country does not necessarily lead to an upgrade in a firm's rating. This effect penalizes banks with higher capital charges when they lend to developing countries, and a rating downgrade will have the dangerous effect of contracting lending.

Opponents of the proposal suggest that instead capital bank standards should be linked with stress tests on the bank's portfolio. A stress test shows how much a bank can lose in their portfolio under different outcomes of economic variables. The benefits would be that the stress test incorporates the gains received from international diversification and does not single out developing countries. It is difficult, however, to establish a standardized method for stress testing a portfolio.

POLICY PROPOSALS

Not all problems dealing with rating agencies can be easily solved or reconciled. Ratings from NRSRO agencies are still the best independent source of credit risk and thus have value in capital markets. Consequently, more attention should be placed in modifying the process to reduce unwanted side effects rather than eliminating them all together.

The effects of procyclical behavior in ratings can be reduced through more frequent ratings updates. More frequent announcements will reduce the impact of downgrades and will reduce the time-lag by which ratings fall behind market events. It will also induce rating agencies to invest more in analysts and coverage. Additionally, a more frequent approach to rating changes and announcements will reduce the tendency of rating changes to cause yields to overshoot from a change in a *stale* rating. Investors will know that ratings should reflect current economic fundamentals.

An additional measure to reduce the impact of ratings is more transparency and public disclosures. Greater transparency on behalf of the agencies will let investors become aware of the details that influence the agencies' decisions. Investors can then more

accurately reconcile the agencies' ratings with their own opinion and not have to be blindly led by the agencies. In addition to the benefits accruing to investors, an increase in transparency will also assist banks and governments in planning to prevent a downgrade or to reduce the impact of a downgrade. For example, a bank can anticipate a ratings downgrade of its assets by issuing capital or reducing capital charges elsewhere. This will hopefully reduce or prevent a capital crunch or a liquidity crisis. Investors and institutions that have prepared for a downgrade will need to react less when it occurs and this will mitigate the forces of contagion.

Furthermore, the SEC and the rating agencies need to communicate with investors more clearly that ratings do not indicate price risk or market risk of the security. Doing so will reduce the weight investors place on ratings in their assessments. Ratings are merely a forward looking assessment, based on current information, of the ability and willingness of the debtor to fulfill its payment obligations – it is not a forecast of future performance. For example, exogenous shocks that might occur in the future are not reflected in the ratings. Investors should be informed through disclosures that unforeseen policy changes in other countries can affect a sovereign's ability to pay. Changes in U.S. monetary policy, such as that in 1994 which had a strong impact on Mexico, can adversely affect several countries but these countries' ratings do not incorporate forecasts of future U.S. monetary policy.

Another policy recommendation concerns the need to assure equal access to information by all investors while also protecting against the conflict of interest caused by debtors and debt issuers paying for ratings. While charging an issuer for a rating is not ideal, charging users creates other problems of asymmetric information between those with more and less information about the rating decisions. It also can create problems with free-riders since the ownership of the information cannot easily be protected and it is easily disseminated to non-subscribers. The better policy is to charge the debtor or debt issuer but require a "Chinese Wall" to separate marketing and sales from research and the decision making process that assigns ratings. Also, rating agencies should not consult and should have limits on other outside services to firms they are rating. Finally, senior management of credit rating agencies should not be allowed to sit on boards of companies that the agency rates.

The last recommendation is to formalize the NRSRO process. Although it is uncertain whether the process will in fact create more competition, a more formal procedure does have benefits. Having the exact criteria laid out will have other agencies qualifying or making changes that will eventually allow them to qualify. This can create competition or at least present a credible threat of entry. A more credible threat of entry will force the existing firms to invest more into methods and areas of coverage including developing countries. In order to further stimulate competition, the SEC should modify the NRSRO requirements to allow regional agencies, especially those located in developing countries, and smaller, less recognized agencies that have a historically validated record of judging creditworthiness. Along with a formal process should come the authority to monitor and evaluate the behavior of credit reporting agencies. Currently, the responsibility lies within the agencies to report changes in structure or in the ratings process that could

affect their NRSRO status; the SEC needs to have a more proactive and more formal role in this process.

CONCLUSION

Ratings agencies do serve a purpose in financial markets. Their value in assessing default risk and thereby affecting credit spreads plays a critical role in financial markets and especially the flow of capital to developing countries. Improvements can be made by encouraging more accurate ratings and requiring more timely ratings. Additional improvement can come through investor education about the method and meaning of credit ratings, and greater transparency by the agencies to level the playing field for all investors. Increasing competition may be one strategy to increase investment and more accurate ratings, but its potential negative consequences will need to be monitored and supervised to prevent "rate shopping." Another strategy is to improve the NRSRO designation process; a formal regulation for NRSRO status can provide more stringent criteria for frequency of rating updates, disclosures, transparency and ethical practices.

Appendix

Exhibit 1: Moody's and S&P Notation

MOODY'S	S&P	Fitch	Interpretation
Aaa	AAA	AAA	Highest credit quality, exceptionally strong capacity for timely payment
Aa1	AA+	AA+	
Aa2	AA	AA	Very high credit quality, and very strong capacity for timely payment
Aa3	AA-	AA-	
A1	A+	A+	
A2	A	A	High credit quality, strong capacity but may be affected by adverse changes
A3	A-	A-	
Baa1	BBB+	BBB+	
Baa2	BBB	BBB	Good credit quality, capacity for timely payment is considered adequate
Baa3	BBB-	BBB-	Last rating in investment grade
Ba1	BB+	BB+	
Ba2	BB	BB	Speculative, credit risk is developing due to adverse economic changes
Ba3	BB-	BB-	
B1	B+	B+	
B2	B	B	Highly speculative, credit risk is present but limited margin of safety remains
B3	B-	B-	
Caa1	CCC+	CCC	
Caa2	CC	CC	High default risk, capacity depends on sustained, favorable conditions
Caa3	C	C	
Caa	D	D	Default but there is a prospect of partial recovery in reorganization or liquidation

Note: Similar ratings across agencies are not exact substitutes for each other. Interpretation is from Fitch Ratings.

Exhibit 2: Proposed Weights Under Basal II Capital Accord

Ratings		Interbank Loans			
S&P	Moody's	Sovereign	Option 1*	Option 2**	Corporate
AAA to AA-	Aaa to Aa3	0%	20%	20%	20%
A+ to A-	A1 to A3	20%	50%	20%	20%
BBB+ to BBB-	Baa1 to B3	50%	100%	50%	50%
BB+ to BB-	Ba1 to B3	100%	100%	100%	100%
Below B-	Below B3	150%	150%	150%	150%
Unrated	Unrated	100%	100%	100%	100%
1998 Accord					
OECD		0%	20%	20%	100%
non-OECD		100%	100%	20%***	100%

* Risk weighting based on the weighting of the sovereign of the country in which the bank is incorporated

** Risk weighting based on assessment of individual bank, which is assumed here to be the highest possible. The risk weight is 50% for unrated banks unless capped by the sovereign rate. For short-term claims the risk weight of the individual bank is one category more favorable. The proposed accord defines short-term as six months maximum.

*** Short-term loans. The 1988 Accord defines short-term as one year maximum.

Exhibit 3: GDP per Capita of Median ratings

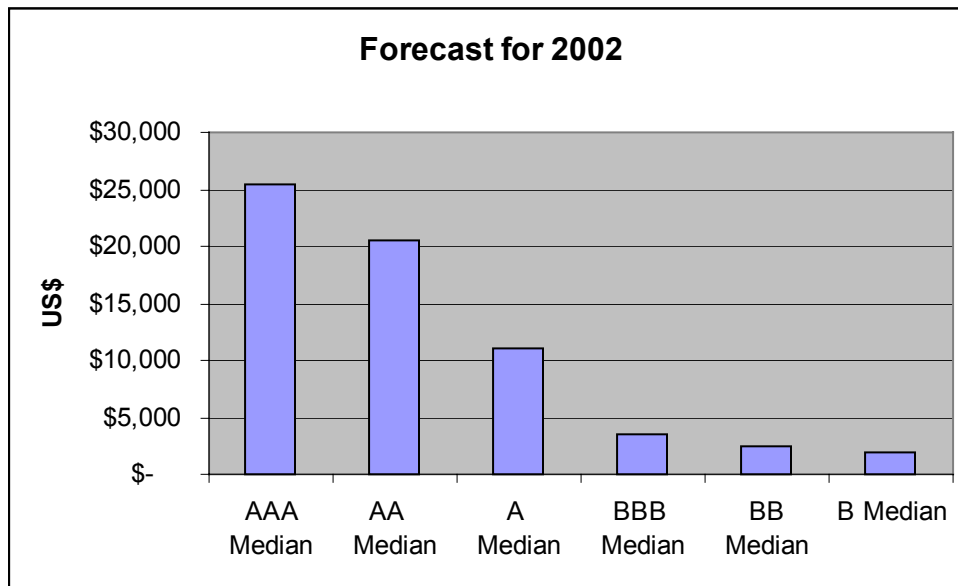


Exhibit 4: Summary Of Sovereign Defaults Rated by Moody's

Date	Country	Default (MM US\$)	Rating Before Month of Default
Jul 1998	Venezuela	\$ 270	B3
Defaulted on domestic currency bonds in 1998 but the default was cured within a short period of time.			
Aug 1998	Russia	\$ 73,336	B1
Russia missed payments first on local currency Treasury obligations, then its foreign currency obligations and finally Russia was unable to pay the principal on MINFIN III foreign currency bonds. Debts were restructured in Aug 1999 and Feb 2000.			
Sep 1998	Ukraine	\$ 1,422	B2
Ukraine issued a moratorium on debt service for bearer bonds owned by anonymous entities. Only those entities willing to identify themselves and convert to local currency accounts were eligible for a distressed exchange.			
Nov 1998	Pakistan	\$ 750	Caa1
After Pakistan was able to meet the payments within the grace period is subsequently defaulted and went through a distressed exchange in 1999.			
Aug 1999	Ecuador	\$ 6,603	B3
Ecuador had a distressed exchange on 90% of its bonds and also defaulted on its domestic debt.			
Jan 2000	Ukraine	\$ 1,063	B3
Ukraine defaulted on US\$ and DM denominated bonds. Its offer to exchange bonds with longer term and lower coupons was accepted by a majority of bondholders.			
Sep 2000	Peru	\$ 4,870	Ba3
Peru paid during the 30-day grace period.			
Jun 2001	Moldova	\$ 145	B3
Moldova missed payment on the bond in June 2001 but cured default shortly thereafter. Defaulted again in 2002 after buying back 50% of the bonds.			
Nov 2001	Argentina	\$ 82,268	Caa1
Declared it would miss payment on foreign debt in November 2001. The largest rated sovereign default in history.			

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

Exhibit 5

Partial List of Ratings-Dependent Regulation in the U.S.

Year	Ratings-Dependent Regulation	Minimum Rating
1931	Required banks to mark-to-market lower rated bonds	BBB
1936	Prohibited banks from purchasing “speculative securities”	BBB
1951	Imposed higher capital requirements on insurers’ lower rated bonds	NA
1975	Imposed higher capital haircuts on broker/dealers below-investment-grade bonds	BBB
1982	Eased disclosure requirements for investment-grade bonds	BBB
1984	Eased issuance of non-agency mortgage-backed securities (MBSs)	AA
1987	Permitted margin lending against MBSs and (later) foreign bonds	AA
1989	Allowed pension funds to invest in high-rated asset-backed securities	A
1989	Prohibited Savings & Loans from investing in below-investment-grade bonds	BBB
1991	Required money market mutual funds to limit holdings of low-rated paper	A1
1992	Exempted issuers of certain asset-backed securities from registration as a	BBB
1994	Imposes varying capital charges on banks’ and S&Ls’ holdings of different tranches of asset-backed securities	AAA BBB
1998	Department of Transportation can only extend credit assistance to projects with an investment grade rating	BBB
1999	Restricts the ability of national banks to establish financial subsidiaries	A

* Source: Cantor and Packer “The Credit Rating Industry” FRBNY Quarterly Review Fall 1994

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