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Why have Official Rating Agencies Failed in the Past, and Will They in the Future?

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Reforms of bank-capital rules by the Basel committee (Basel II) are due to come into force in 2007. They will require bank regulators to use agencies' ratings as a basic measure of the riskiness of a bank's credit portfolio, or else the banks have to implement internal rating measures, which have been approved by government regulators. Ratings of the official agencies are like benchmarks in credit worthiness of companies and government entities – both of them tapping the capital market as well as looking for private or institutional investors. We will look at three aspects of rating agencies: (1) How can one deal with incentive problems like moral hazard, adverse selection based on asymmetric information and the principal-agent problem? (2) Sovereign risk has been prominent in the past, especially for emerging markets. By applying country risk analysis, we will analyse the performance of official rating agencies during the Asian crisis of 1997/1998. (3) Corporate risk became prominent lately (Enron). What were the reasons for the misguided credit risk assessment?

Incentive Problems, Rating Agencies, Sovereign and Corporate Risk Analysis, Asian Crisis, Enron

Introduction

Reforms of bank-capital rules by the Basel committee (Basel II) are due to come into force in 2007. They will require bank regulators to use official agencies' credit ratings as a basic measure of the riskiness of a bank's credit portfolio, or else the banks have to implement internal rating measures, which have been approved by government regulators. These ratings are like benchmarks in credit worthiness of companies and government entities – both of them tapping the capital market as well as looking for private or institutional investors. Three aspects of rating agencies are of major interest to us: Chapter 1 describes the general incentive problems of financial markets; may they be moral hazard and adverse selection based on asymmetric information as well as the principal-agent problem. We also discuss the role of official rating agencies as financial market participants. Chapter 2 takes a close look on sovereign risks that have been prominent in the past, especially for emerging markets. By applying country risk analysis, we analyse the performance of official rating agencies during the Asian crisis of 1997/1998. In addition, we compare the official ratings with the results of our student risk analysis based on a simple teaching tool. In chapter 3, we discuss the corporate risks that became prominent recently (Enron). What were the reasons for the misguided credit risk assessment? In our conclusions, we will give some clues on how to reduce these general problems concerning sovereign and corporate ratings.

1. Incentive Problems of Financial Markets and Rating Agencies

The essential function of a financial system is to provide efficient ways to transfer economic resources through time, across borders and among industries. Thus, financial markets are supposed to channel funds to those individuals or companies that have productive investment opportunities. This function implies the capability of making judgements about which investment opportunities are more or less creditworthy. Therefore, financial markets must struggle with incentive problems of asymmetric information, in which one party to a financial contract has much less accurate information than the other party. Asymmetric information leads to two basic problems in the financial system:[1]

- **Adverse selection** occurs before the financial transaction takes place. The 2001 Nobel Laureate in Economics, George Akerlof, mentioned it first in his classic "lemons problem" (1970). Buyers and sellers of used cars have different information, explaining the high volatility of automobile purchases (Akerlof 2002 413). In the case of capital markets, only partially informed lenders - about the quality of borrowers - may steer away from making loans at high interest rates, because they fear that someone willing to borrow at a high interest rate is more likely to be a low-quality borrower, who is less likely to

[1] Mishkin (1999 4); Bodie/Merton (2000 24) distinguish six core functions performed by the financial system: besides ways to transfer economic resources and dealing with incentive problems, financial markets provide ways of managing risk, of clearing and settling payments, of pooling resources and of giving price information.

repay the loan. Lenders will therefore ration their loans, especially to small businesses. In addition, they will try screening out good from bad credit risks.[2]

- **Moral hazard** occurs after the transaction takes places. This problem exists when having insurance against some risk causes the insured party to take greater risk or to take less care in preventing the event that gives rise to the loss.[3] In capital markets, a borrower has incentives to invest in projects with high risk in which the borrower does well if the project succeeds, but the lender bears most of the loss if the project fails. In addition, the borrower has incentives to misallocate funds for personal use. To increase the likelihood of being payed back on time, lenders often impose restrictive covenants – though these might be costly to enforce and monitor. The potential conflict between lender and borrower stemming from moral hazard implies that many lenders will lend at suboptimal (low) levels (Mishkin 1999 5).
- The **principal-agent problem** arises when critical tasks are delegated to others. For example, shareholders in a corporation usually delegate the running of the company to its managers. The shareholders (principals) bear the risks associated with the decisions of management (agent). Due to the incentives – e.g. payment schemes - set, major conflicts of interest may arise (Bodie/Merton 2000 33).

There are various intermediaries within a financial system, like commercial and investment banks, insurance companies, pension funds, mutual funds, asset management fims and information services. Their primary business is to provide customers with financial products and services that cannot be obtained more efficiently by transacting directly in securities markets. Banks are the most important financial intermediaries. In general, they have the ability and the economic incentive to address problems of asymmetric information relative efficiently. They collect information at the time when they consider making a loan, and this ability increases when banks engage in long-term customer relationships and credit line arrangements. They also have the advantage in preventing risk-taking by borrowers since they can use the threat of cutting of lending in the future to improve a borrower's behavior. Though, if banks fail to work successfully, it occurred quite often in history that a weakened banking system lead to a full blown financial or economic crisis. Shocks to the financial system that make adverse selection and moral hazard problems worse, will lead to a dry up in lending, since it becomes harder to distinguish borrowers with productive investment opportunities from ones with risky projects. The lack of credit leads individuals and companies to cut their spending, resulting in a severe contraction of economic activity. Mishkin (1999 6-9) states four main reasons for financial instabilities.

- Deterioration in financial sector balance sheets: A typical response of banks with weakened balance sheets is a contraction in their lending. If the deterioration is severe enough, it can even lead to bank panics, causing even healthy banks to fail.
- Increase in interest rates: Due to adverse selection higher interest rates can lead to pronounced credit rationing by lenders, when they interpret them as a dilution in the quality of borrowers. In addition, bank balance sheets are negatively affected due to a decline in net worth of a bank's assets – typically the assets have a longer duration than the liabilities.
- Increases in uncertainty making it more difficult for lenders to screen out good from bad credit risks.
- Deterioration of nonfinancial balance sheets: Both, adverse selection and moral hazard problems in financial markets are worsened, if borrowers suffer a widespread deterioration of their balance sheets. Collateral reduces the consequences of asymmetric information problems, but a fall in asset price usually also reduces the value of collateral. The same is true for a fall in net worth of a company. In addition, a rise in interest rates as well as unanticipated exchange rate developments often increase the debt burden of firms. The latter is especially a prominent feature, when a substantial amount of debt is denominated in foreign currency, while assets are mainly denominated in domestic currency.

Let us briefly reflect, which role rating agencies play within the financial system, and how they help to stabilize it. In general, rating agencies are firms that have specialized in providing (price) information, which is a core function of the financial system. A credit rating reflects the rating agency's opinion of the creditworthiness of a particular company, security or obligation. Within the last thirty years, the importance of these opinions to investors and other market participants, and their influence on securities markets, have increased substantially. This is due to the increase in the number of issuers (e.g. emerging market government entities) and the advent of new and complex financial products. At the same time, globalization of the financial markets lead to an international expansion of the role of mainly US credit rating agencies. The US Securities and Exchange Commission (SEC) currently recognizes three Nationally Recognized Statistical Rating Organisations: Moody's, Fitch and Standard Poor's. The ratings by these offical rating agencies are widely used as benchmarks in state

[2] A nice numerical example is provided by Emons (1997). By introducing low market interest loans allowing for collateral assets of the borrower, low risk (good) versus high risk (bad) borrowers are self-selected. Thus, collateralization of loans – giving the lender the right to seize specific business assets in the event of default – is widely used for reducing this incentive problem.

[3] The classic example is a fire insurance, as the existence of this insurance reduces the incentive of the insured person or company to spend money to prevent the fire (Bodie/Merton 2000 30).

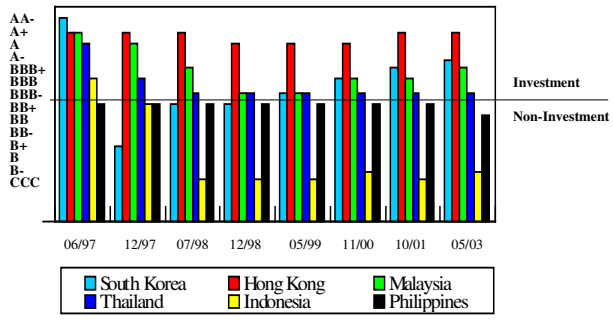
legislation, rules issued by financial and other regulators, foreign regulatory schemes, and private financial contracts (SEC 2003 5). The new Basel Capital Accord (Basel II) is due to come into force in 2007. It will require bank regulators to use official agencies' credit ratings as a standard measure of the riskiness of a bank's credit portfolio, or else the banks have to implement internal rating measures, which have been approved by government regulators.[4] External ratings by official rating agencies of sovereigns and their entities including the corporate sector essentially represent an assessment of each issuer's ability and willingness to service its debt in full and on time. "A rating is a forward-looking estimate of default probability" (Standard&Poor's 2002a). Credit ratings are supposed to provide objective and consistent measures of creditworthiness. As such, they improve the flow of information between institutional borrowers and lenders (investors). At same instance, they reduce the asymmetry of information between both parties involved. Thereby increasing the potential market for issuers, while also reducing investors' costs of gathering, analyzing, and monitoring the financial positions of borrowers because rating agencies provide scale economies and specialization in performing these functions. In aggregate, credit ratings should lower the costs of borrowing and lending and increase overall market efficiency (Moody's 2002 5). If this is true in general, what went wrong in the assessments of sovereigns in Asia as well as of Enron?

2. Sovereign Risk Analysis Applied to the Asian Crisis of 1997/1998

The main reason why the crisis of 1997/1998 came as such a surprise was East Asia`s long track record of economic and social success. Indonesia, Korea, Malaysia and Thailand registered annual GDP growth rates of 6-7 percent between 1965 and 1995. Thus, average incomes climbed from 10 percent of the US average (1965) to almost 30 percent at the outbreak of the crisis. This economic success was widely shared throughout the population. The share of population living under the poverty line declined sharply, while life expectancy as well as literacy rates improved steadily.[5] Due to this success, the long-term prospects of East Asia was ment to be very promising indeed. The most advanced country, Korea, joined the club of industrial countries (OECD) in 1996 - just the year before the crisis outbreak. At the same time, the ratings of the Asian countries by official rating agencies were raised subsequently over time.[6] Except for the Philippines, the other five Asian countries were rated investment grade before the outbreak of the crisis in June 1997. Within half a year, a substantial (shocking) down-grading had taken place (Chart 1), by which the investors as well as the governments and their people were caught off guard.

Chart 1

Standard & Poor's Credit Rating of the Asian Crisis Countries
(1997-2003)



Source: Long Term Foreign Currency Souvereign Credit Rating; Standard&Poor's (2002b, 2003)

2.1 Origins and Course of the Asian Crisis

While the East Asian economies achieved rapid economic growth up to 1997, there were growing imbalances and weaknesses within the countries both at the microeconomic and macoreconomic levels. Most importantly, there was a rapid buildup of short-term external debt into weak and immature financial systems. On the one hand, economic success attracted foreign credits to the private sector. On the other hand, market liberalization

[4] Basel II introduces qualitative and quantitative minimum requirements for banks' internal rating systems where these are required for measuring regulatory capital.Two internal rating-based (IRB) approaches exist. If the IRB approaches are used, the probability of default, loss given default and exposure at default, as well as the maturity, are estimated for every loan on the basis of the ratings. The regulatory capital requirement is calculated from these risk parameters and on the basis of a regulatory risk function. It is the goal to achieve a meaningful differentiation of risks wihtin the institution's loan portfolio. IRB systems must analyse, in two separate dimensions, borrower's creditworthiness and any collateral. As Basel II does not prescribe specific risk factors, it gives credit institutions extensive methodological leeway (Bundesbank 2003 49-50).

[5] E.g. in Indonesia, the share of the population living under the poverty line fell from 60 percent in the 1960s to under 15 percent in 1996 (Radelet/Sachs 1998 11).

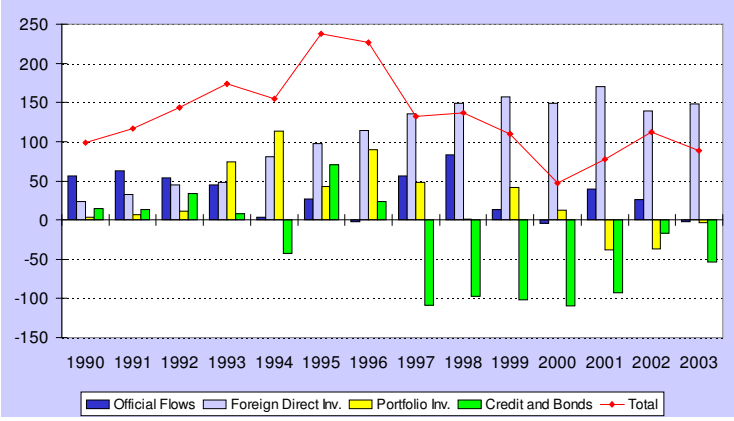
[6] Standard&Poor's first foreign currency long term sovereign credit rating for Indonesia was in 1992 (BBB-), for Korea in 1988 (A+), for Malaysia in 1989 (A-) and for Thailand in 1989 (A-) (Standard&Poor's 2002b).

opened new channels for foreign capital to enter into the Asian economies. These inflows led to appreciating real exchange rates and a rapid expansion of bank lending financing an exceptional investment boom. The opening of the capital account increased the countries' vulnerability to a reversal in capital flows. When capital flows waned in early 1997, a financial panic erupted following a series of missteps by the Asian governments, market participants and the international community (Radelet/Sachs 1998). The following aspects of the buildup to the crisis are worth highlighting:

- In the second half of 1997, an extended period of easy access by emerging market economies to international financing came to an abrupt end. Since the early 1990ies, **private sector capital inflow** – Foreign Direct Investment, Portfolio Investment, Bank Credits and Bonds – had surged to an average of more than 6% of GDP p.a.. By late 1997, the outflows, especially the reduction in bank claims, had become twice as large (Graph 2). Due to complex channels of transmission and contagion, international investors have in general become more risk averse, drying up investments in Emerging Markets to pre-1990 levels. Creditor banks continue to reduce their exposure, while foreign direct investments by the corporate sector remain substantial.[7]

Graph 2

Net Capital Flows to Emerging Market Economies
(Billions of US dollars)



Source: IMF, World Economic Outlook 2003; estimate for 2003.

- Governments maintained de facto **stable exchange rates** pegged to the US dollar. In real terms the exchange rates of the crisis countries appreciated during the 1990s. This encouraged capital inflows as well as the shortening of the maturity structure. When the US dollar rose sharply after mid-1995, notably against the Japanese yen, the erosion of international price competitiveness lead to a substantial worsening of the current account.[8]
- **Excessive bank lending**, often highly leveraged, was concentrated in particular areas like property and commercial buildings, but also – especially in South Korea – in important industries (e.g. chip production).[9] This led to over-capacity, unsustainable rises in asset prices, and low returns on investment or even operating losses. This resulted in **severe balance sheet problems** which threatened the viability of both non-financial enterprises and banking systems.[10] At the same time, the **banking regulation** was still too **immature** to successfully monitor the domestic banking systems.
- As a rising share of **foreign borrowing was short-term** debt, the countries – South Korea, Thailand and Indonesia - were highly illiquid before the crisis. They had exceptionally high ratios (>1.5) of short-term debt to offshore banks denominated in foreign currencies to central bank reserves of foreign currencies. A ratio greater than one is not by itself sufficient to spark a crisis, since it can be sustained as long as foreign creditors are willing to roll over their loans. Though, a high ratio indicates vulnerability to a crisis. If something sparks a withdrawl of foreign capital, each foreign creditor has the

[7] BIS 1999 31-35; IMF 2003 9.
[8] Mishkin 1999 10-11; OECD 1998 9-11.
[9] According to Kaminsky/Reinhart (1999) lending booms are an important predictor of banking crisis. The latter often causing balance-of-payments problems.
[10] OECD 1998 9; Radelet/Sachs 1998 14-15. At the onset of the crisis, nonperforming loans as a percentage of total bank loans were already high in all crisis countries: except for the Philippines and Malaysia, nonperforming loans exceeded the 10 percent level (Mishkin 1999 11-12).

incentive to demand repayment quickly, since they each know that there is not enough foreign exchange available to repay everyone (Radelet/Sachs 1998 15).[11]

- The Mexcian crisis of 1994 was the last major emerging market crisis before the outbreak of the Asian flue. The huge financial package (51.6 billions of US dollar) to support Mexico as well as to contain the financial problems before spreading to other Latin American countries, fueled the discussion of **moral hazard** (BIZ 1998 151). Wouldn`t the international community - IMF, World Bank and bilateral offical institutions – step in to provide substantial financial support to other emerging market countries in the future, the moment international financial stability is at risk?[12] Assuming this is the case, international lenders - expecting a bailout - provide to much financial resources to borrowers.

In May 1997 Thailand's baht came under attack by speculators. By July, Thailand was forced to abandon the baht's peg with the US dollar. This triggered the Asian financial crisis. Contagion spread rapidly to other Southeast Asian economies that seemed vulnerable to an erosion of competitiveness after the devaluation of the baht, and to countries that were perceived by investors to have similar financial or macroeconomic problems. By November 1997, contagion spread to South Korea, the world's eleventh largest economy. The possibility of a default by Korea raised a potential threat to the international monetary system. The IMF rescue packages agreed upon had a combined volume of 118 bn of US dollars.[13] The rapid depreciation of the exchange rates lead to an explosion of the domestic currency costs of servicing foreign debt, thereby foreign creditors became more reluctant to roll over existing loans. Domestic debtors had to buy foreign exchange to retire these debts, which put even more pressure on exchange rates. At the same time the offical rating agencies began to downgrade the affected countries, triggering further creditor withdrawls (Radelet/Sachs 1998 16).

The short duration of debt contracts and their denomination in foreign currencies helped this currency crisis to turn into a full-fledged financial crisis as the crisis increased asymmetric information problems in credit markets. First, the currency devaluation led to a sharp rise in the debt burden of domestic firms.[14] Second, the curreny decline provoked a large-scale banking crisis as it led to further deterioration in the balance sheets of the banking sector. The bank balance sheets were squeezed from both the assets and liabilities sides, so that banks cut back their lending significantly.[15] Third, a devalution often fuels higher inflation through an upward pressure on import prices. This was especially the case for Indonesia, followed by a sharp rise in nominal interest rates, leading to huge increases in interest payments by firms; which again weakend their balance sheets and increased adverse selection as well as moral hazard problems (Mishkin 1999 17). Once the crisis began to spread through the region, the affected countries and the international community made some mistakes that accelerated the capital withdrawls and deepened the crisis: e.g. the harsh comments by Malaysian Prime Minister Mahathir about foreign investors as the main culprits and his threat to ban foreign currency trading; imposing capital controls as well as lifting them again (Thailand, Malaysia); Koreas desperate attempt to defend the won up to November 1997 – until no reserves were left; IMF's initial programms focusing on fiscal deficits, restrictive monetary policy and the immediate closures of insolvent financial institutions (banks); Korea's creditors reluctance up to December to debt restructuring (Radelet/Sachs 1998 17).

Only when the IMF proposed easier monetary and fical policies to reduce the adverse effects on output and employment, far reaching financial and structural reforms were announced and the private creditors got involved in debt restructuring, did the prospects of the crisis countries lighten up since early 1998.[16] Due to social and political unrest, Indonesia's recession was the most severe one. It's GDP declined by almost 14% in 1998. Unfortunately, contagion did not stop in Asia, Emerging Markets in general were negatively affected. Especially, the Russian moratorium in August 1998 accelerated the distaste of international

[11] For pegged ("fixed") exchange rate systems, the ratio of broad money (M2) to central bank foreign exchange reserves is another measure of illiquidity. A high value for this ratio indicates vulnerability to domestic residents running from deposits to foreign currency if they become concerned that a depreciation of the currency may be in the works (Mishkin 1999 12; Kaminsky/Reinhart 1999 484).

[12] "In particular, international bonds came to be percieved as carrying limited default risk." (BIS 1999 37).

[13] The IMF, together with other institutions, offered US$ 1.1 bn to the Philippines (July 14th 1997), US$ 17.2 bn to Thailand (August 20th 1997), US$ 40 bn to Indonesia (October 31st 1997) and US$ 57 bn to Korea (December 3rd 1997); see OECD 1998 10.

[14] This effect was especially strong in Indonesia, due to its currency decline by almost 80 percent. It increased the rupiah value of foreign-denominated debt by a factor of more than four.

[15] In Indonesia, these forces were severe enough to cause a banking panic in which numerous banks were forced out of business. Until April 1998, 23 commercial banks were effectively shut down, while the Bank Restructuring Agency had intervened in a total of 55 troubled banks – together, they represented a third of all commercial banks in 1997 (Piazolo 1998 281).

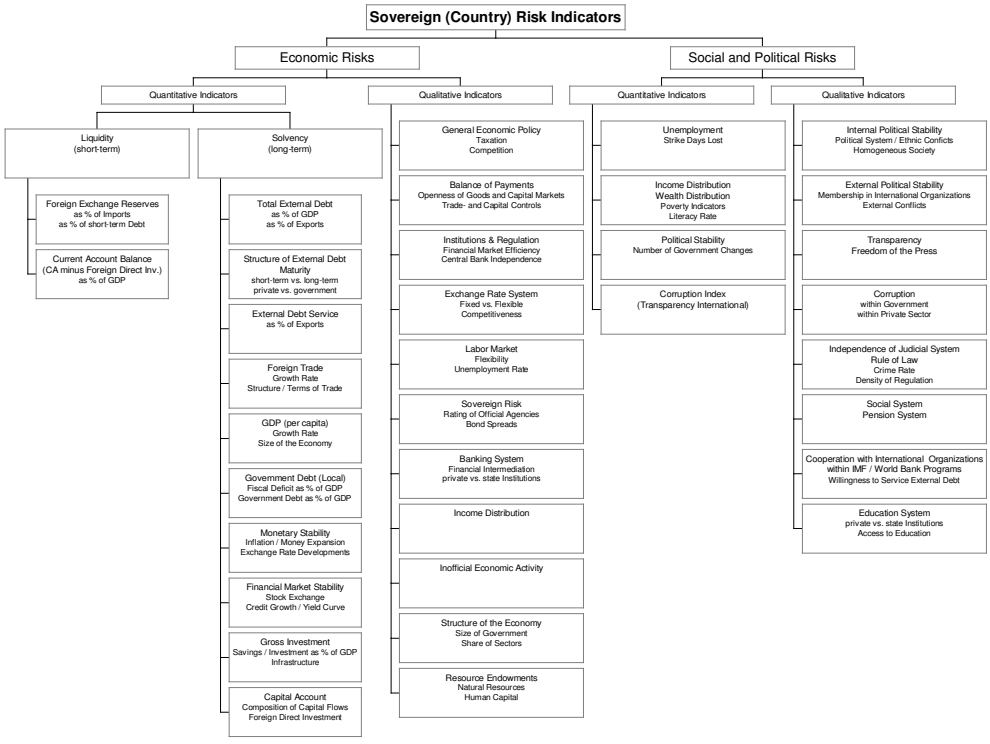
[16] BIS 1999 45; IMF 1998 5.

investors for emerging market investments. This was reflected in widening and more volatile bond spreads as well as the drying up of international capital inflows.[17]

2.2 Official Ratings and Student Risk Analysis in Comparison

Sovereign ratings by the official rating organizations are forward-looking estimates of default probability. In a strict sense they are not country ratings. Sovereign ratings address the credit risk of national governments, though most frequently, other entities like corporations have the same or lower ratings as the sovereign assigned to. In 2001 Argentina became the fourth sovereign to default on rated debt – the others were Pakistan, Russia and Indonesia (all in 1999).[18] A strong link between private-sector borrowers and sovereigns exists. When there was significant private-sector external debt outstanding in countries where the sovereign defaulted, private borrowers defaulted in 2/3 of the cases (Katz et al. 2001 16). Sovereign risk - or the more general country risk - is assessed by official rating organizations (external ratings) as well as by specialized risk departments of international financial institutions or multinational corporations (internal ratings). The rating agency's appraisal of each sovereign's overall creditworthiness is both of economic and social-political nature. Economic risk addresses the government's ability to repay its obligations in time. Political risk addresses the sovereign's willingness to repay debt. Thereby, one can distinguish quantitative versus qualitative factors. A synopsis of the various criteria that are used to assign credit ratings is presented in the following graph.[19]

Graph 3



Essentially, most of the information on these indicators is publically available to all rating organizations. To assign credit ratings, the organizations have to choose the more relevant criterias, attach different weights to them and rank each sovereign on a chosen scale of e.g. one to six for each of the categories.[20] The weights as well as individual indicators change over time. The ratings, which reflect default probabilities, have to be calculated on a regular basis or in the case of new information and major events. The official rating agencies as well as many of the internal rating departments also distinguish ratings between long-term vs. short-term, foreign currency vs. domestic currency as well as bonds vs. bank deposits. By comparing sovereign foreign currency

[17] Asian and Latin American bond spreads moved in lockstep since fall 1997. By October 1998 they had risen to over 800 basis points for most emerging market countries (BIS 1999 35-36).

[18] More than 30 other rated sovereigns have defaulted in the past quarter century, but prior to being rated by Standard&Poor's (Standard&Poor's 2002c 1).

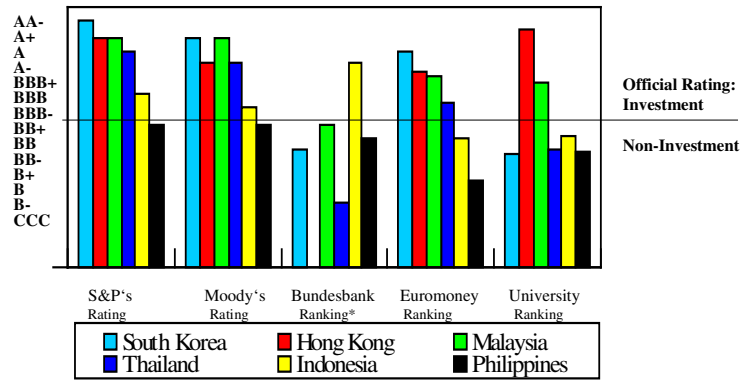
[19] The synopsis is based on the author's work as country risk analyst at Dresdner Bank, Germany as well as on Junge (1988), Johannsen/Steinbeck (1995), Krämer-Eis (1999) and Standard&Poor's (2002a).

[20] Standard&Poor's base their ratings on ten major categories (2002a 2-10); Swiss Bank Corporation chose 25 indicators, al of them, except for one, were of quantitative nature (Junge 1988). Usually, the scales as well as the indicators are different for industrial and developing countries.

ratings with corporate local currency ratings, analysts of Standard&Poor's showed that sovereign ratings are more stable than corporate ratings. Also, there is no systematic bias in subsequent rating movements upward and downward, and they are robust predictors of default (Standard&Poor's 2002c). Though, by focusing on the Asian crisis countries, one has realize that by its very nature, country risk analysis is subject to a certain degree of error. It relates to the assessment of future events and developments under conditions of uncertainty, i.e. a state of the world where the probability distribution of default is hardly known (Junge 1988 1). After the outbreak of the Asian crisis several researchers evaluated ex post the signalling effects of different early crisis indicators. Kaminsky/Reinhart (1999) showed that banking and currency crisis are closely linked in the aftermath of financial liberalization, especially amidst an environment of weak regulation and poor banking supervision. While a banking crisis was signalled for Malaysia, the Philippines and Thailand, a currency crisis was not that probable.[21] Zhuang/Dowling (2002) came to a similar conclusion: The overall composite index - including 38 individual leading indicators - signalled a financial crisis probability for the Asian countries 24 months prior to 1997 of 77 percent. These early warning models, external and internal ratings as well as country ranking undertaken by Euromoney are of sophisticated structure. Over the period of October 1999 until November 2002, the author tested a simple country risk analysis with 395 graduate students of the University of Applied Sciences Kaiserslautern and of the Bankakademie, Frankfurt (Piazolo 2004). They had to choose and construct three sovereign credit risk indicators from a data sheet of 14 macroeconomic variables in 1995 and 1996. The ranking of six Asian countries is based upon these three indicators. Most of the country risk teams included indicators on economic growth, the current account, foreign exchange reserves and external debt. The average University country ranking in spring 1997 is presented in Graph 4, in addition to the official ratings of Standard&Poor's and of Moody's as well as the rankings of the Bundesbank crisis early indicator and the one of Euromoney.

Graph 4

Credit Rating & Ranking of Asian Crisis Countries
(Spring 1997)



* Bundesbanks' crisis indicator without Hong Kong (*Bundesbank* 1999).
The distinction between investment and non-investment grade is only meaningful for Moody's and Standard&Poor's.

The students' ranking differs substantially from the rankings by the official rating agencies and the one of Euromoney. The coefficient of correlation (Bravais-Pearson) as well as the Spearman rank correlation coefficient are low and not significant (Table 1). The opposite is true for the correlation between the two official rating agencies. Interestingly, the correlation between the University ranking and the ratings of the official agencies at the end of 1997 is highly positive and significant. This leads us to the conclusion that the ex post forecast quality of the student ranking of the Asian crisis countries is pretty good – at least much better than the rankings of Standard&Poor's, Moody's, Euromoney as well as the Bundesbank crisis indicator. [22]

[21] The percentage of signals for a balance of payments crisis were between 25% (Indonesia) and 70% (Thailand). Though, Korea was not part of the sample (Kaminsky/Reinhart 1999 195). Schnatz (1998 75-76) included Korea. But the predicted values of his composite index did not show unusual trends for Thailand and Korea as late as six months prior the outbreak of the crisis. The forecasts for Indonesia and the Philippines were closer to the threshold value.

[22] Another example are early warning system (EWS) models to predict currency crisis before they occur. EWS usually include variables like the ratio of short-term debt to foreign exchange reserves, the extent of real exchange rate appreciation, and the current account deficit. The IMF's core model showed that when the EWS signaled a crisis, a crisis occurred 22 percent of the time; when the estimated probabilities were below the threshold, a crisis occurred only 8 percent of the time. Therefore, EWS models remain imperfect tools (Mulder 2002 8-9).

Table 1

Coefficient of Correlation (Bravais-Pearson)								
		S&P 6/97	Moody 6/97	Bundes-bank	Euro-money	Univer-sity KL	S&P 12/97	Moody 12/97
Spearman Rank Correlation Coefficient	S&P 6/97		0,97***	-0,39	0,99***	0,37		
	Moody 6/97	0,93***		-0,39	0,95***	0,30		
	Bundesbank	-0,30	-0,18		-0,29	0,33	-0,04	0,15
	Euromoney	0,99***	0,88***	-0,30		0,40		
	University KL	0,07	0,09	0,60	0,08		0,86***	0,88***
	S&P 12/97			0,50		0,90***		0,86***
	Moody 12/97			0,60		0,80**	0,81**	

***, **, * indicates that the H_0-Hypothesis is rejected at the 1%, 5% and 10% significance level.

3. Corporate Risk Analysis – the Case of Enron

Corporate (bond) ratings by official agencies are essentially opinions of future relative creditworthiness, derived by fundamental credit analysis. The latter incorporates an evaluation of franchise value, financial statement analysis, and management quality.[23] A rating analyst relates patterns of financial behavior with subsequent default or loss experience. Certain financial patterns like in leverage, coverage, liquidity and profitability have been found to be associated with subsequent default and loss experience. In addition, a rating seeks to predict the credit performance of bonds (or firms) across a range of plausible economic scenarios. The agency doesn't forecast these scenarios, but it places some weight on their likely occurrence and on the potential credit consequences. Fluctuations in economic or industrial activity are generally included (Moody's 2002). Emperically, the default rates within five years are strongly correlated with the initial rating category, and there is a greater dispersion of default outcomes at lower rating categories.[24] Thus, a lower credit rating implies a non-linear increase in default probability. If that is the case, then why did the credit rating agencies continue to rate Enron a good credit risk until four days before the firm declared bancruptcy (Table 2)?[25]

Table 2

Enron's Recent Credit Rating History (Standard&Poor's)		
Date of Change To	**Category**	**Outlook**
03-December-2001	D	---
30-November-2001	CC	Watch Negative
28-November 2001	B-	Watch Development
09-November-2001	BBB-	Watch Negative
01-November-2001	BBB	Watch Negative
25-October-2001	BBB+	Negative
02-June-1997	BBB+	Stable

Watch list: rating is under active review for a change; typically in response to important events.

Official rating agencies publicly comment on their credit ratings on a regular basis. Though, a rating change has to be explained thoroughly. Let us look at some of the statements one month prior to default: (1) On October 25th 2001 the outlook revision was "due to concerns that the significant drop in market capitalization in the past week has adversely affected the company's financial flexibility and could impede management's ability to pursue plans to rebuild its balance sheet" (Shipman 2001a). (2) Six days later, the same analyst argued that Standard&Poor's didn't blieve that "Enron's plan to employ asset sales and other means to repair its damaged balance sheet will be insufficient to restore its long-term credit quality …". Still, he ended his comment with, "that it is unlikely that any significant long-term damage to Enron's fanchise as the premier energy marketer will be sustained as long as Enron continues to provide market participants with the liquidity and price transparency that has allowed the company to maintain and even expand its leading position over rivals in recent years" (Shipman 2001b). One year later, a US government staff report concluded, that the credit rating agencies failed to use their legally-sanctioned power to the public's benefit. Instead, they displayed a lack of diligence in their coverage and assessment of Enron. The agencies did not ask sufficiently probing questions in formulating their ratings, and in many cases merely accepted at face value what they were told by Enron officials (SEC 2003 18).

[23] Common credit considerations are of qualitative and quantitative nature: non-financial criterias include the stability and diversity of markets, competition position and government regulation; financial criteria include cash generation, strength of the balance sheet, debt ratios and interest coverage ratios.

[24] The means of five-year cumulative default rates for annual cohorts formed 1970 through 1997 are as follows: Aaa (0.1%), Aa (0.3%), A (0,5%), Baa (1.9%), Ba (11.5%), B (30.8%), Caa-C (56.6%) (Moody's 2002 10).

[25] Other similar prominent credit defaults in the US were WorldCom and Orange County.

Besides such a harsh verdict, the official rating agencies do understand that their ratings can become self-fulfilling forecasts. In the case of upgrades, that can mean greater market access and interest cost savings for issuers, and improved securities prices for investors. In the case of downgrades, it can mean higher capital costs for issuers, losses for investors. In extreme cases, it can terminate an issuer's access to capital, maybe even leading to default. As rating agencies want to avoid false negative predictions, they are biased against to downgrades. Downgrades may lead to rating triggers,[26] which can severely restrict a company's outcomes and create additional volatility in its creditworthiness. Often, the downgrades are delayed in time to make sure that all the relevant information is considered – sometimes this time-lag is too long. Unfortunately, market participants also desire credit ratings stability. The rating is perceived to be a relatively stable measure of intrinsic financial capacity compared with more market-sensitive mearsures like interest rate spreads. Also, official rating agencies state that the rating of an issuer is neither affected by the existance of a commercial relationship nor by its nature (Moody's 3-4).

The SEC (2003) points at these potential conflicts of interest caused by the fact that issuers pay the agencies for their ratings,[27] and that they offer other advisory services to issuers, thereby heightening the dependence on issuer revenue. To manage these conflicts, the agencies as well as the banks (for internal ratings) have to implement stringent firewalls and independent compensation within their institutions. As long as the advisory services are a small line of business the conflict remains manageable. Confidential non-public information doesn't have to be published, but it should be used for the purpose of assigning ratings.

Conclusions

Credit ratings of corporates as well as of sovereigns by official agencies – external ratings – are inflicted by similar incentive problems. These are moral hazard and adverse selection based on asymmetric information as well as the principal-agent problem. Especially, rating downgrades are often used as a contractual signal of a borrower's creditworthiness: a downgrade can trigger a demand for more collateral, a higher rate of interest on a loan or bond, or even an immediate repayment of debt. Sometimes it leads to an outright default. Due to this possibility, official rating agencies are biased against downgrades, they don't want to be the one, who pulled the trigger on a customer. Unfortunately, we cannot overcome all of the incentive problems, but we might reduce them. In general, more transparency on the basis of improved data/information on sovereigns and corporates could lead to a higher quality of credit risk assessment. As official agencies are looked at closely by all major financial market participants, their market influence is substantial and signalling poses an incentive problem. Internal ratings by major institutional investors (e.g. banks) are a promising risk assessment tool. Within the international financial setting, regulatory improvements to stabilize the financial system are needed, and we have to find an appropriate balance between the role of official financial support and the role of private sector involvement. Official large-scale financing packages that reduce the need for more cooperation with the private sector are counterproductive. They induce moral hazard.[28] Also, the IMF should seek a more orderly and transparent framework for restructuring debt.

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[26] Rating triggers are either due to market reactions to rating changes or due to the use of ratings in agreements between the issuer and investors or other parties (Moody's 2002 7).

[27] Underwriters (investment banks) might be tempted to influence the credit rating process: A large percentage of bond offerings are underwritten by a few large firms, and the potential exists for rating agencies to rate a particular underwriter's clients more favorably in return for future business (SEC 2003 41).

[28] Rogoff (2002 56) denies the IMF's role for inducing moral hazard. IMF loans have the stubborn habit of being repaid in full. At the same time, there were severe losses imposed on the private sector (Asian crisis). Therefore, IMF lending has hardly provided a blanket to private lenders.

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