OECD DEVELOPMENT CENTRE

Working Paper No. 214

(Formerly Webdoc No. 2)

RATINGS SINCE THE ASIAN CRISIS

by

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Research programme on:
Governing Finance and Enterprises: Global, Regional, National

OECD OCDE

November 2003
DEV/DOC(2003)12

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RÉSUMÉ

L'importance accrue des agences de notation pour les marchés financiers des pays émergents a attiré l'attention d'un groupe élargi d'observateurs — et suscité des critiques. Ce document cherche à déterminer si l'influence des notations pour les capitaux des pays en développement a évolué depuis la crise asiatique et si les agences ont ou non modifié leurs critères de notation. Ce texte propose aussi une analyse des dernières propositions du Comité de Bâle sur le contrôle bancaire, déterminantes pour apprécier le rôle futur des notations du risque pays dans le financement des pays en développement par la dette extérieure. Alors que les critères classiques de notation ont perdu de leur pouvoir explicatif depuis la crise asiatique, les dernières notations de l'Argentine et de la Turquie semblent encore suivre l'évolution des marchés, dans la mesure où les variables du dynamisme du secteur financier et les effets endogènes des flux de capitaux sur les variables macro-économiques continuent d'être sous-estimés dans les évaluations des agences. L'impact des notations du risque pays sur le marché devrait décliner avec la décision des agences de modifier leurs politiques de fixation des plafonds-pays, mais aussi avec les tentatives des acteurs du marché de profiter du déphasage des notations pour se livrer à des opérations sur les marchés obligataires. La théorie, étayée par des éléments concrets, présentée dans ce document indique que le deuxième accord de Bâle risque de déstabiliser les flux de capitaux privés vers les pays en développement si la proposition actuelle de lier le niveau obligatoire de fonds propres des banques aux notations du risque pays se confirme : le fait d'affecter un niveau minimal de fonds propres dont la pondération est fonction du risque, qui dépend à son tour de taux déterminés *a posteriori* par les cycles du marché, renforcera la tendance du ratio de solvabilité à fonctionner de manière pro-cyclique.

SUMMARY

The increased importance of rating agencies for emerging-market finance has brought their work to the attention of a wider group of observers — and under criticism. This paper evaluates whether the importance of ratings for developing-country finance has changed since the Asian Crisis and whether rating agencies have modified the determinants for their rating decisions. It also provides an analysis on recent suggestions by the Basel Committee on Banking Supervision as these are very important for gauging the future role of sovereign ratings for foreign debt finance in developing countries. While the explanatory power of conventional rating determinants has declined since the Asian crisis, recent rating performance for Argentina and Turkey can still be qualified as lagging the markets, as variables of financial-sector strength and the endogenous effects of capital flows on macroeconomic variables seem to remain underemphasised in rating assessments. The market impact of sovereign ratings is predicted to decline as agencies have started to modify their country ceiling policy and as market participants try to exploit bond trading opportunities arising from the lagged nature of ratings. The paper presents theory and evidence to suggest that the Basle II Accord will destabilise private capital flows to the developing countries, if the current proposal to link regulatory bank capital to sovereign ratings is maintained: assigning fixed minimum capital to bank assets whose risk weights are in turn determined by market-lagging cyclically determined ratings will reinforce the tendency of the capital ratio to work in a pro-cyclical way.

I. INTRODUCTION

As for foreign finance, the single most important visitor to a developing country was the representative from a western aid agency in the 1960s; the commercial banker eager to recycle OPEC surpluses in the 1970s; the IMF official in the 1980s, the "lost decade". Since then, it has been the sovereign analyst from one of the leading rating agencies, Moody's Investor Services, Standard and Poor's or Fitch.

The rise in private capital flows, and the stagnation of concessional financial assistance, have significantly raised the influence of credit ratings on the terms (and magnitude) at which developing countries can tap world bond markets. Since the bond markets are effectively unregulated, credit rating agencies have become the markets' *de facto* regulators. Indeed, unlike for industrial countries for which capital market access is usually taken for granted, sovereign ratings play a critical role for developing countries as their access to capital markets is precarious and variable. The recent suggestions from the Committee on Banking Supervision for a new Basel Capital Accord may imply an even greater regulatory importance of credit ratings in future decades (Reisen, 2000 and 2001).

The increased importance of rating agencies for emerging-market finance has brought their work to the attention of a wider group of observers — and under criticism. The Mexican crisis of 1994-95 brought out that credit rating agencies, like almost anybody else, were reacting to events rather than anticipating them, an observation reinforced by rating performance before and during the Asian crisis (Reisen, 1998*a*; Reisen and von Maltzan, 1999). Rating agencies were accused (e.g. by the IMF, 1999) and they even acknowledged themselves (Huhne, 1998) of having been guided by outdated rating models, in particular by ignoring liquidity risks and currency crisis vulnerabilities.

This paper will assess whether the importance of ratings for developing-country finance has changed and whether rating agencies have modified the determinants for their rating decisions. It will also provide an analysis on recent suggestions by the Basel Committee on Banking Supervision as these are very important for gauging the future role of sovereign ratings for foreign debt finance in developing countries. Section II looks at rating determinants before and after the Asian crisis, to see what has changed and whether rating models have moved towards identifying factors stressed by the literature on crisis vulnerability. Section III discusses the market impact of rating events and again looks at changes since the Asian crisis broke. Section IV evaluates whether recent regulatory endeavours to strengthen the role of sovereign ratings in setting banks' capital requirements is justified in light of their role in boom/bust cycles in developing-country lending. Section V will conclude.

II. SOVEREIGN RATING DETERMINANTS: WHAT HAS CHANGED?

One of the striking features of the Asian crisis was the so-called rating crisis (Jüttner and McCarthy, 2000), with large rating downgrades of the affected countries — only once the financial crisis had broken. Korea's rating, for example, fell on average by three letter grades and nine rating notches; sovereign rating changes of that magnitude had never been observed before, and they were rarely observed in the long history of rating transitions for US corporate bonds (Bonte *et al*., 1999). The rating instability reflected more than changes in a country's underlying fundamentals; it reflected an instability of the determinants underlying sovereign ratings for emerging markets.

Sovereign risk reflects the ability and willingness of a government issuer to meet its future debt obligations. In the absence of a binding international bankruptcy legislation, creditors have only limited legal redress against sovereign borrowers, which may also default for political reasons. Both qualitative and quantitative factors are examined to form a view of overall creditworthiness. Measures of economic and financial performance are used in the quantitative assessment while political developments, especially those which bear on fiscal flexibility, form the core of the qualitative evaluation. While the rating agencies periodically update the list of the numerous economic, social and political factors that underlie their sovereign credit ratings, part of them are not quantifiable and there is little guidance as to their relative weights.

The *locus classicus* for quantitative evidence on sovereign rating determinants is Cantor and Packer (1996). Using cross sectional data for 49 countries, the authors estimate which quantitative indicators are weighed most heavily in the determination of (September 1995) sovereign risk ratings by Moody's, Standard & Poor's and their average ratings. Per capita income (+), GDP growth (+), consumer price inflation (-), foreign debt as percentage of exports (-), dummy for economic development (+), dummy for default history (-) are generally significant with the expected sign, while fiscal balance (+) and external balance (+) do not enter significantly the authors' multiple regression estimates. The adjusted R^2 is above .90 for average ratings as well as Moody's and Standard and Poor's ratings. The results confirm that sovereign ratings have been to a large extent explained by a limited number of key macroeconomic variables before the Asian crisis.

Moreover, some of the rating determinants identified above, such as GDP growth and fiscal balances, are to a certain degree endogenous to capital inflows. To ignore the endogeneity of such rating determinants risks to introduce a pro-cyclical element into the rating process and to intensify boom-bust cycles in emerging-market lending, by underpinning the build-up of unsustainable inflows with improved sovereign ratings. Note

further, that there seems little concern for the allocation of flows: the debt-cycle hypothesis would require that inflows are invested in trade-related areas and that marginal savings rates exceed the average savings rate upon receipt of capital inflows (Ffrench-Davis and Reisen, 1998).

The pre-crisis rating determinants identified by Cantor and Packer have little in common with the domestic roots of financial crises (banking, currency and debt) in developing countries during the 1990s (see, for example, Reisen, 1998*b*; Goldstein, 1999): weak national banking and financial systems, along with premature and poorly supervised financial liberalisation; poor public and private debt management, with inadequate liquidity defences against shocks; and vulnerable exchange rate regimes. In other words, sovereign ratings leading up to the Asian crisis seem to have been driven by an outdated rating model.

Table 1. **Explanatory Power of Conventional Determinants of Sovereign Ratings**
(Adj. R^2 of Cantor-Packer Model)

	Average Rating	Moody's Rating	S&P's Rating
1995	0.924	0.905	0.926
1996	0.902	0.884	0.902
1997	0.913	0.909	0.893
1998	0.856	0.863	0.834

Source: Cantor and Packer (1996); Jüttner and McCarthy (2000).

Table 1 shows that the explanatory power of the Cantor-Packer model has deteriorated, in particular in 1998 — one year after the Asian crisis broke — with the adjusted R^2 dropping from over .90 to .86 for Moody's and .83 for Standard & Poor's. The model deteriorates during 1997 due to a structural break (Jüttner and McCarthy, 2000), but the addition of new rating determinants help improve the explanatory power. In addition to the determinants used in the Cantor-Packer model, Jüttner and McCarthy add five rating determinants stressed in the literature on crisis vulnerability to the eight determinants identified by Cantor and Packer:

- short-term interest rate differentials vis-à-vis the US as a proxy of currency risk,
- range (1-5) of problematic assets as a percentage of GDP (S&P's assessment of banks),
- estimated contingent liability of the financial sector as percentage of GDP,
- rolling 4yr growth rate of credit to the private sector as percentage of GDP, and
- percentage deviation of the real exchange rate from the 1990s averages.

For emerging markets, Jüttner and McCarthy use a process of variables-selection to identify which out of the total twelve variables yield the highest explanatory power for sovereign ratings. Mid-1998, consumer price inflation (-), external debt as percentage of exports (-), dummy default history (-), and only two of the new variables, the interest rate differential and the real exchange rate, enter significantly in the regression as rating determinants, with an adjusted R^2 of 91.2 per cent. Neither the interest rate differential

nor the exchange rate variable were significant determinants of the ratings in mid-1997, indicating that these variables were overlooked by the agencies before the crisis. Note also that the financial-sector variables were not reflected in rating differentials, neither 1997 nor one year later. This indicates that differences in the strength/fragility of financial sectors between emerging markets were still not emphasised in rating decisions one year after the Thai baht plunged. Jüttner and McCarthy conclude that there is "no set model or framework for judgement which are capable of explaining the variations in the assignment of sovereign ratings over time (p. 22)".

The impression that, despite lessons specific to the Asian crisis, variables of financial-sector strength do not seem to play an overriding role in the determinants of sovereign ratings, seems supported by rating developments in Latin America over the last two years. While Mexico, generally held to suffer from a weak domestic banking sector, moved up to investment-grade rating level (Moody's), Argentina — often praised for the strength of its domestic financial sector — nevertheless suffered several downgrades in recent years. The agencies justified these divergent rating trends by emphasising rather conventional indicators such as fiscal flexibility and external solvency (Grandes, 2001).

Moody's (2001*a*) has recently released the first edition of its Country Credit Statistical Handbook, with a list of "quantitative measures" that flow into its sovereign rating decisions. The agency acknowledges that *"the relevance of specific economic and financial variables can vary according to the broad level of development of countries. … For example, more detail on fiscal policy indicators is provided for the more advanced countries, while a larger range of indicators in the external debt and balance-of-payments areas is provided for the developing (emerging market) countries"* (p. 3). The quantitative indicators fall into four broad categories:

Economic Structure and Performance, with various measures of GDP (growth), inflation, unemployment and trade. Moody's emphasises among these GDP growth (+) and export growth (+) in the handbook.

Fiscal Indicators, with general government revenue, expenditure, financial balance, primary balance and debt as a percentage of GDP. Moody's stresses *"the fiscal balances and debt stocks of the various levels of government are among the most important indicators examined by sovereign risk analysts. The ability of government to extract revenues from the population of taxpayers and users of services, the elasticity of revenue with respect to the growth or decline of national income, and the rigidity of the composition of government expenditures are key factors that determine whether central and local governments will be able to make full and timely payments of interest and principal on outstanding debt"* (p. 6).

External Payments and Debt, where Moody's provides measures for the real effective exchange rate (percentage change), relative unit labour costs (percentage change), current account balance ($ and percentage of GDP), foreign currency debt ($, percentage of GDP, and percentage of exports), and the debt service ratio (as percentage of exports). Here it is noteworthy that Moody's states that *"historically, foreign currency debt has been the central indicator of sovereign risk analysis* …but that …*is not a meaningful category in developed countries with low inflation, high monetary credibility,*

and deep capital markets and/or universal banks that allow governments and corporations to borrow long term at fixed rates in domestic currencies … an additional factor is "dollarization" or "euroization". In countries that are effectively operating without a domestic currency, the borderline between "domestic" and "foreign" debt becomes quite fuzzy" (p. 8).

Monetary and Liquidity Indicators, including short-term interest rates (percentage), domestic credit (percentage change), domestic credit/GDP, M2/foreign exchange reserves, foreign exchange reserves ($), short-term external debt and currently maturing long-term external debt/foreign exchange reserves, and a liquidity ratio (external liabilities of banks/external assets of banks. Moody's still seems a bit lukewarm on the importance of these indicators as it presents these as *"of use in evaluating a country's vulnerability to a currency or banking crisis"* (p. 9). The agency refers to econometric models as *"only partially successful, with the best of the models being able to account for only some of the actual crises that occurred and predicting too many that did not"* (p. 10).

It is fair to argue that the set of indicators emphasised by Moody's prepares them better to warn ahead of first-generation currency crises (where domestic (1) macro fundamentals trigger a financial crisis) than ahead of second-generation (where inconsistencies between external and internal imbalances matter) or of third-generation crises, where illiquidity and financial-sector weaknesses play a central role. Standard & Poor's (2001) for example seems to put more weight on liquidity and financial-sector variables in their assessments; they explicitly list the importance of banks as contingent liabilities of the sovereign in their ratings methodology profile. The difference in emphasis observed here — which can only be casual — suggests that Moody's has a comparative advantage in detecting crisis vulnerability in Argentina, while Standard & Poor's was better prepared to warn about Turkey's problems. This impression is supported by the recent crises in Turkey and Argentina (see Figures 1 and 2).

In February 2001, another exchange-rate based stabilisation scheme failed in Turkey when the Lira plunged by more than 30 per cent. A weak banking system, in acute crisis at the latest since late November 2000, and an overreliance on hot money inflows had made the country vulnerable to a financial crisis (OECD, 2001). The crisis was a variety of the now-classic *tablita* failure experienced famously in the Southern Cone of Latin America 20 years earlier. As seen in Figure 1, Moody's downgrade came, once again, after the crash while S&P's downgrade came only slightly earlier.

At least since early 2000, Argentina's currency board failed to deliver sustained reductions in devaluation and sovereign risk. This was rooted in three major causes (Braga de Macedo *et al*., 2001). First, the currency board had ceased to confer sufficient fiscal discipline from 1995 on. This has set in motion a vicious circle of rising country risk and depressed growth, in turn fuelling the public deficit through lower tax receipts and higher debt service cost. Second, initial inflation inertia, wage rigidity and an inappropriate anchor currency have implied real effective overvaluation of the peso. Business cycles in the US (to which just 8 per cent of Argentine exports are directed) and Argentina have been asynchron for much of the 1990s, while Brazil's devaluation early 1999 strongly weakened Argentina's competitiveness. Third, high liquidity requirements were imposed on the country's financial system (to make up for the lack of the lender-of-last resort function in a currency board). Just like any reserve requirement, high liquidity

needs drive an important wedge between lending rates and saving rates, discouraging both savings and investment. This again, by constraining growth and fuelling the need for foreign savings, led to a gradual deterioration of Argentina's debt dynamics. Again, rating agencies were fairly late to warn ahead of deteriorating fundamentals, but they had arguably a better performance as in Turkey in downgrading ahead of the Argentinean bond crash (the peso remained fixed), the better part of which occurred in 2001 (see Figure 2).

Figure 1. **Turkey's Exchange Rate and Sovereign Ratings**

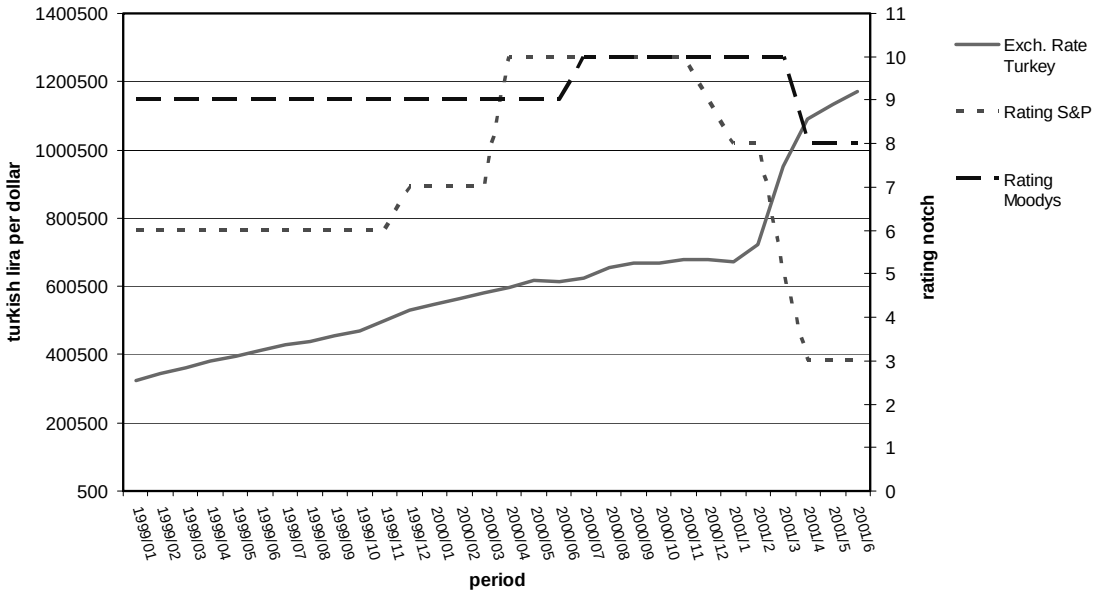
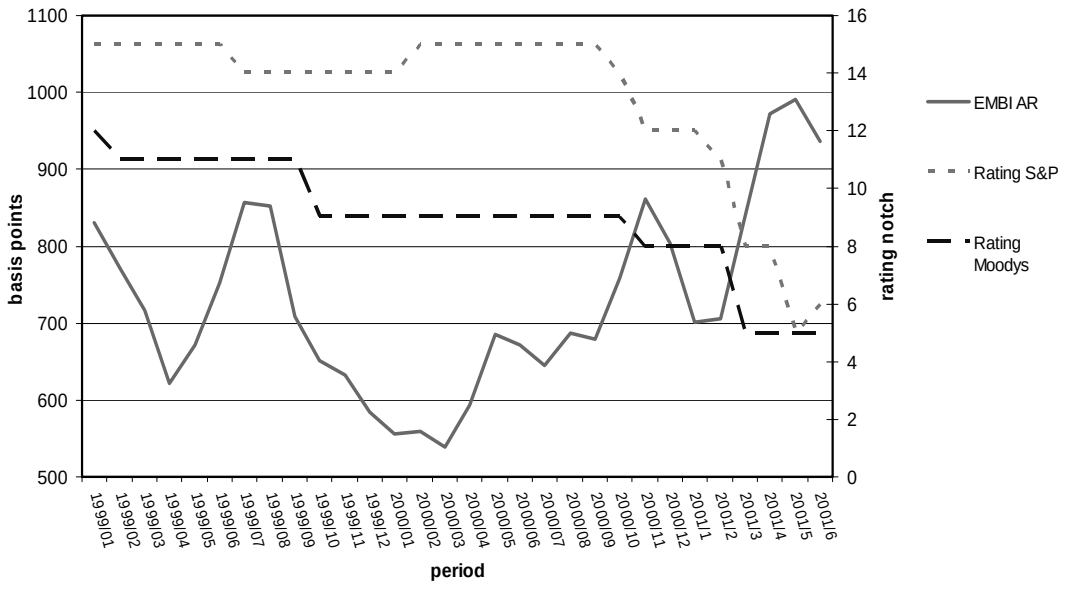


Figure 2. **Argentina's Sovereign Spreads and Ratings**



III. THE MARKET IMPACT OF SOVEREIGN RATINGS

Why is it important, in the context of the global financial architecture, to explore the market impact of sovereign rating events? Answer: because ratings may have an impact on boom-bust cycles in lending to developing countries. In principle, sovereign ratings might be able to help attenuate boom-bust cycles in emerging-market lending. During the boom, early rating downgrades would help dampen euphoric expectations and reduce private short-term capital flows which have repeatedly been seen to fuel credit booms and financial vulnerability in the capital-importing countries. By contrast, if sovereign ratings had no market impact, they would be unable to smoothen boom-bust cycles. Worse, if sovereign ratings lag rather than lead financial markets but have a market impact, improving ratings would reinforce euphoric expectations and stimulate excessive capital inflows during the boom; during the bust, downgrading might add to panic among investors, driving money out of the country and sovereign yield spreads up. For example, the downgrading of Asian sovereign ratings to “junk status” reinforced the region’s crisis in many ways: commercial banks could no longer issue international letters of credit for local exporters and importers; institutional investors had to offload Asian assets as they were required to maintain portfolios only in investment-grade securities; foreign creditors were entitled to call in loans upon the downgrades.

If guided by outdated crisis models, sovereign ratings would fail to provide early warning signals ahead of a currency crisis, which again might reinforce herd behaviour by investors. However, as far as sovereign ratings are concerned, there are several reasons why a significant market impact cannot be easily established. First, sovereign-risk ratings are primarily based on publicly available information (Larraín *et al*., 1997), such as levels of foreign debt and exchange reserves or political and fiscal constraints. Consequently, any sovereign-rating announcement will be “contaminated” with other publicly available news. Rating announcements may be largely anticipated by the market. This does not exclude, however, that the interpretation of such news by the rating agencies will be considered as an important signal of creditworthiness. Second, in the absence of a credible supranational mechanism to sanction sovereign default, the default risk premium — unlike in national lending relationships — is determined by the borrower’s willingness, rather than his ability, to pay (Eaton *et al*., 1986). Again, it is not easy for the rating agencies to acquire an information privilege in this area that could be conveyed to the market through ratings.

By examining the links between sovereign credit ratings and dollar bond yield spreads, Reisen and von Maltzan (1999) aimed at broad empirical content for judging whether the three leading rating agencies — Moody's, Standard & Poor's and Fitch IBCA — can intensify or attenuate boom-bust cycles in emerging-market lending. The observation period was from 1989, when emerging market ratings started to gain momentum, to 1997, the year when the Asian crisis broke. The authors produce an event study exploring the market response (changes in dollar bond yield spreads) for 30 trading days before and after rating announcements; three results emerged from the event study that deserve to be emphasized:

– While generally rating "events" from each of the three leading rating agencies do not produce a statistically significant response in sovereign yield spreads, the aggregated rating announcements of the three agencies can produce significant effects on yield spreads in the expected direction, notably on emerging-market bonds.

– Implemented rating downgrades widen yield spreads on emerging-market bonds. While the rise in yield spreads precedes the downgrades, it is sustained for another twenty trading days after the rating "event".

– Imminent rating upgrades of emerging-market bonds are preceded by significant yield convergence. Subsequent to the rating "event", however, there is no significant market response.

However, both rating "events" and yield spreads may be jointly determined by exogenous shocks; this calls for analysis which corrects yield determinants for fundamental factors.

Reisen and von Maltzan (1999) therefore ran a Granger causality test, by correcting for joint determinants of ratings and yield spreads, to find that changes in sovereign ratings are mutually interdependent with changes in bond yields. The Granger test suggests that sovereign ratings by the three leading agencies do not independently lead the market, but that they are interdependent with bond yield spreads once ratings and spreads are corrected for "fundamental" determinants. While the results suggest that rating announcements are considered as a significant signal of creditworthiness, their impact may be due to prudential regulation and internal guidelines of institutional investors which debar them from holding securities below certain rating categories[1].

1. In particular, upgrades to investment grade open up a much wider investor base to emerging and developing countries. As they become eligible for inclusion in benchmark investment-grade indices, portfolio managers would have to consciously justify a country's exclusion rather than start from the presumption that the country will not be included in investment-grade portfolios. Such portfolios are particularly held by long-term contractual institutions, such as pension funds and insurance companies. An upgrade to investment grade will therefore result in higher and more stable demand for a developing-country bond, as the demand for country's bonds will not be limited to unconstrained investors, such as high-yield managers and hedge funds, that are able to trade opportunistically in and out of speculative-grade bonds.

The two-way causality between ratings and spreads observed over the past decade may also suggest that the criticism advanced against the agencies in the wake of the Mexican and the Asian currency crises still holds truth when it is based on more observations than just those surrounding these prominent crisis episodes. While the event study suggests that rating agencies do seem to have the potential to moderate booms that precede currency crises, the Granger tests may justify the concern that this potential has not yet been productively exploited by the agencies through independently leading the markets with timely rating changes. As seen in the latest crisis cases Argentina and Turkey and as confirmed by more recent studies that strech the observation period beyond 1997 to the year 2000 (Kaminsky and Schmukler, 2001), rating agencies can still be seen as late rather than early warning systems.

But are they “guilty beyond reasonable doubt”? No, according to a recent paper by Mora (2001). Her findings confirm that ratings move in a procyclical way, but finds the causal effect from sovereign ratings to both higher cost of borrowing and to capital-flow reversals remain ambiguous to discern, after controlling for macroeconomic variables and lagged spreads (a variable which stands for the passive response of sovereign ratings to changes in market sentiment). But note, instead, that Mora (2001) has another puzzling finding: higer rating *levels* mean a higher probability of currency crashes once other factors are controlled for. The finding is explained by the amount of capital flows that countries with better ratings could obtain and which made them more vulnerable to capital-flow reversals.

What about the future market impact of sovereign ratings? In a very recent revision to its *country ceiling* policy, Moody’s (2001*b*) announced that it will allow certain borrowers to “pierce” the country ceiling, i.e. to obtain better ratings than foreign-currency bonds of the government in their respective domiciliation. The traditional rationale for country ceilings has been that governments confronted by an external payments crisis had the power and motivation to limit foreign currency outflows, including debt payments. As sovereign ratings serve as a ceiling for private-sector ratings of any given country, their influence stretches far beyond government securities. Several months earlier, Standard & Poor’s (2000) had announced enhanced ratings for private-sector issuers from subinvestment-grade countries if transfer and convertibility insurance was utilised.

Pointing to recent experience with defaults on government debt — notably Ecuador, Pakistan, Russia and Ukraine, Moody’s feels that *“large, internationally recognized entities that have relied significantly on access to international capital markets and whose default would inflict substantial damage on the economy”* (p. 1) are allowed to go on to service foreign currency debt. Consequently, the agency placed in June 2001, 38 energy companies, financial institution and telecommunications companies from emerging markets, many from Brazil and Mexico, on review for upgrade. The change in the country ceiling approach should not only allow the ratings of private-sector debtors to exceed their country ceilings, but it should also diminish the market impact of sovereign rating events as less borrowers will be immediately concerned by them.

Indicators of credit rating pressure as instruments for trading emerging-market bonds, such as developed by Deutsche Bank (2000), may increase anticipation and hence decrease the measured market impact of rating events. Rating actions are delivered in discrete, and as documented above, late fashion while credit fundamentals move continuously. Yet rating events excert an impact on spreads. This can be exploited by bond traders. Referring to Larraín *et al.* (1997) and Reisen and von Maltzan (1999), Deutsche Bank has built a regression model to explain credit ratings and calibrates twelve months forecasts to arrive at a current *fitted* rating. *Rating pressure* is then defined as the difference between the *fitted* and the *actual* rating for a given country. Long and short positions can then be engaged according to whether the rating pressure indicator is positive or negative. When the rating action finally hits the market, these investment bets can be dissolved ("sell the news"), which may trigger perverse measured market responses to rating changes. As Deutsche Bank (2000) declares to have profitably used indicators of rating pressure for their trading strategies, other investors may have started to play rating events in the same way.

IV. REVISIONS TO THE BASEL ACCORD AND SOVEREIGN RATINGS

The Basel Committee on Banking Supervision has released two consultative papers on the New Basel Capital Accord (Basel Committee, 1999 and 2001), which sets a standard for regulatory bank capital provision; both intend to grant rating agencies an explicit role in the determination of risk weights applied to minimum capital charges against different categories of borrowers. Risk weights determine the banks' loan supply and funding costs, as banks have to acquire a corresponding amount of capital relative to their risk-weighted assets.

It is widely agreed that cross-border lending has faced regulatory distortions through the 1988 Basel Accord. Most importantly, short-term bank lending to the emerging markets has been encouraged by a relatively low 20 per cent risk weight, while bank credit to non-OECD banks with a residual maturity of over one year has been discouraged by a 100 per cent risk weight. This has stimulated cross-border interbank lending, which has been described as the "Achilles' heel" of the international financial system. And, OECD-based banks and governments have received a more lenient treatment, even if they constitute sovereign risks equivalent or inferior to non-OECD emerging markets. Hence, a reform of the Basel Accord should be welcome.

While the proposed revisions to the Basle Accord on capital adequacy will maintain the 8 per cent risk-weighted capital requirement, the Committee initially proposed revisions to the calculation of risk weightings which would substitute credit ratings for a split between OECD and non-OECD as the main determinant (Reisen, 2000). The Committee is now proposing two main approached to the calculation of risk weights: a "standardised" and an "internal ratings-based" (IRB) approach (Griffith-Jones and Spratt, 2001; Reisen, 2001). One of the main changes from the Committee's 1999 Consultative Paper (Basel Committee, 1999) is the clear intention that leading banks will be able to use the IRB approach to set risk weights. The major change compared to the 1988 Basle Accord is that for sovereign exposures, membership in the OECD will no longer provide the benchmark for risk weights.

Table 2. **The New Basel Capital Accord**
Risk Weight under the Standardised Approach (%)

Agency Rating	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to BB-	B+ to B-	Below B-
Sovgn. ECA Risk Score	1	2	3	4-6	4-6	7
Sovereigns	0	20	50	100	100	150
Banks - Option 1[a]	20	50	100	100	100	150
Banks - Option 2[b]	20	50[c]	50[c]	100[c]	100	150
Corporates	20	50	100	100	150	150

Notes:

a) Risk weighting based on risk weighting of sovereign in which the bank is incorporated. The rating shown thus refers to the sovereign rating.

b) Risk weighting based on the rating of the individual bank.

c) Claims on banks with an original maturity of less than 3 months would receive a weighting one category more favourable than the risk weighting shown above subject to a floor of 20 per cent.

Source: Basel Committee on Banking Supervision, The New Basel Capital Accord: An Explanatory Note, Second Consultative Paper, Basel, January 2001, www.bis.org .

Table 2 summarises the proposals for risk weights under the *standardised approach*. The proposed risk weights will substitute credit ratings by "eligible external credit assessment institutions", not just rating agencies as under the 1999 proposal but also export credit agencies (ECA)[2], for a split between OECD and non-OECD as the main determinant. Risk weights will continue to be determined by the category of the borrower — sovereign, bank or corporate — but within each of those categories, changes have been made. Under the proposal, a sovereign with a AAA rating (or 1 ECA risk score under the OECD 1999 methodology) would receive a 0 per cent risk weight; lower ratings translate into a jump in risk weights via 20, 50, 100 to 150 per cent for sovereigns weighted below B- (or ECA risk score 7). For the treatment of claims on banks, there are two options. The first option requires that banks be assigned a risk weight that is one category less favourable than that assigned to the sovereign of incorporation. National supervisors in low-rated developing countries may opt for the second option which bases the risk weight on the external assessment of the bank. For claims on corporates, a more risk-sensitive framework is now proposed by moving away from the uniform 100 per cent risk weight for all corporate credits under the 1988 Accord.

Both theory and evidence suggest that the Basle II Accord will destabilise private capital flows to the developing countries, if the current proposal to link regulatory bank capital to sovereign ratings is maintained. This hypothesis contains two elements: First, theory suggests that linking bank lending to regulatory capital through a rigid minimum capital ratio acts to amplify macroeconomic fluctuations. Second, evidence summarised in the preceding section suggests that sovereign ratings lag rather than lead the markets; it seems that there is little scope to improve on that performance. Thus, assigning fixed minimum capital to bank assets whose risk weights are in turn determined by market-lagging ratings will reinforce the tendency of the capital ratio to work in a pro-cyclical way. The Basle II proposals reinforce that tendency further as a strong discontinuity in

2. See Griffith-Jones and Spratt (2001) for a discussion on the use of export credit agencies in regulating bank capital and the potential impact on developing countries.

treating A and below-rated assets will make banks' loan portfolio more liquidity-hungry, hence raising the vulnerability of the financial system to liquidity risk.

The theory: Assuming a non-Modigliani-Miller world where investment demand depends on the ability of firms to retain earnings or to obtain bank loans, Blum and Hellwig (1995) show how capital adequacy regulation for banks may reinforce macroeconomic fluctuations. If negative shocks to aggregate demand reduce the ability of debtors to service their debts to banks, such reduction in debt service lowers bank equity which in turn reduces bank lending and investment because of capital adequacy requirements. Linking bank lending to bank equity thus acts as an automatic amplifier for macroeconomic fluctuations: banks lend more when times are good, and less when times are bad. Moreover, the minimum capital ratio can also be shown to raise the sensitivity of investment demand to changes in output and prices.

An important assumption that underlies the Blum-Hellwig model is that the capital adequacy requirement is binding. With a binding requirement c, an additional dollar of bank profits induces 1/c additional units of bank lending. As the bank minimum ratios have been hovering pretty much around the required 8 per cent in the major advanced countries, they can generally be considered as binding; the logic of the Blum-Hellwig model is thus of more than purely academic interest.

It can be argued that the specific proposal for the Basle II Accord risks reinforcing the pro-cyclical impact of minimum capital requirements. A large discontinuity is suggested in Basle II between risk weights on A and below-rated borrowers. To the extent that a high share of banks' loan portfolio is invested in A-borrowers, the financial system may become vulnerable to a liquidity crisis in a downturn when borrowers become downgraded. This would face banks with higher capital requirements to the same class of borrowers. One dimension of bank response will be to cut back lending to lower rated credits.

Linking regulatory bank capital to agency ratings might move the banks' loan portfolio behaviour closer to their short-term trading pattern. Governed by the mark-to-market rules of the Value at Risk (VAR) approach, banks' trading books have been shown to have first encouraged excessive bank lending and then intensified the global contagion of the 1998 financial crisis (Reisen, 1999). Crisis contagion under VAR is intensified as a volatility event in one country automatically generates an upward re-estimate of credit and market risk in a correlated country. The Basel II proposals reinforce pro-cyclical tendencies further as a strong discontinuity between risk weights on differently rated assets will make banks' loan portfolio more liquidity-hungry, hence raising the vulnerability of the financial system to liquidity risk. To the extent that a high share of banks' loan portfolio is invested in triple-B rated sovereign and corporates (with a 50 per cent risk weight, recall Table 2), downgrades on such assets (implying a 100 per cent risk weight according to the "standardised" approach) will force banks to reserve more liquidity or to cut back lending to the downgraded borrowers. The financial system would become more vulnerable to a liquidity crisis.

The evidence: The determinants and nature of sovereign ratings risk to intensify the pro-cyclical impact of capital adequacy requirements under the Basle II proposals. First, the real rate of (annual) GDP growth has repeatedly been identified as an important determinant for ratings, with a positive sign (see Section II). This implies that during boom

periods sovereign ratings will improve, while they decline during bust periods, hence reinforcing boom-bust cycles. Second, as it is hard for the agencies to acquire an information edge on sovereign risk, they tend to lag rather than lead financial markets (Reisen and von Maltzan, 1999); and their ratings on lowly-rated borrowers are characterised at times by a low degree of durability (IMF, 1999), indicating a weak prediction value. The Basle II Accord would strengthen the market impact of sovereign ratings. However, as long as sovereign ratings fail to convey an information privilege to the markets, improving ratings would reinforce euphoric expectations and stimulate excessive capital inflows to the emerging markets; during the bust, downgrading might add to panic among creditors and investors, driving money out of the affected countries and sovereign yield spreads up.

Moreover, the New Basel Accord still discourages long-term interbank lending to emerging and developing countries. For speculative-grade developing countries, the regulatory incentives for short-term interbank lending thus tilt the structure of their capital imports towards short-term debt. Short-term foreign debt, in relation to official foreign exchange reserves, has been identified as the single most important precursor of financial crises triggered by capital-flow reversals.

Table 3 displays the potential impact of risk weights for short-term (below three months) bank-to-bank lending. Let us first have a look how the current (1988) Basel Accord has discouraged long-term bank lending for banks from developing countries, as opposed to the neutral incentives provided for lending to OECD-based banks. The risk-adjusted return for lending to triple-B rated non-OECD banks is calculated as 12.5 per cent for long, but 62.5 per cent for short maturities; the respective numbers are 50 per cent versus 250 per cent for double-B rated banks, and 87.5 per cent versus 437 per cent for single-B rated banks. The standardised approach suggested in Basel II attenuates the bias towards short-term lending to triple-B and double-B rated borrowers, but does not entirely delete them. By contrast, bank-to-bank lending to single-B rated borrowers would not any longer be distorted by higher risk-adjusted returns on short-term lending under the "standardised" approach[3].

3. Strong incentives, by contrast, continue to be provided under the "internal ratings-based" approach for short-term bank lending, in particular to triple-B banks (Reisen, 2001). The required breakeven spread change is minus 50 basis points on short-term lending under the IRB approach compared to the current Basel requirements, as the corresponding risk weight drops to 10 per cent, assuming a 0.1 per cent probability of default on short-term exposure according to the evidence provided in Moody's (2001*a*). Therefore, while for exposures with a residual maturity of 3 years the corresponding probability of default (0.41 per cent) translates into a risk weight of 40 per cent and a risk-adjusted return of 31.3 per cent (for an assumed spread over LIBOR of 100 basis points), the equivalent risk-adjusted return is much higher, 125 per cent, for short-term exposures to triple-B rated banks.

Table 3. **Regulatory Incentives for Short-Term Interbank Lending**

Basel	Long-term, Option 2					Short-term, Option 2				
Regulation	Assumed Libor Spread	Risk Weight [a]	Capital Required per $100	Risk-Adj. Return, % [b]	Breakeven Spread Change, bp [c]	Assumed Libor Spread	Risk Weight [a]	Capital Required per $100	Risk-Adj. Return, % [b]	Breakeven Spread Change, bp [c]
					Double-A (OECD-based)					
Current	10	20	1.6	6.3		10	20	1.6	6.3	
Standardised		20	1.6	6.3	-		20	1.6	6.3	-
IRB Approach		7	0.6	16.7	-6		0	0	n.a.	n.a.
					Triple-B (non-OECD)					
Current	100	100	8.0	12.5		100	20	1.6	62.5	
Standardised		50	4.0	25.0	-50		20	1.6	62.5	-
IRB Approach		40	3.2	31.3	-60		10	0.8	125.0	-50
					Double-B (non-OECD)					
Current	400	100	8.0	50.0		400	20	1.6	250.0	
Standardised		100	8.0	50.0	-		50	4.0	100.0	+600
IRB Approach		379	30.3	13.2	+1115		60	4.8	83.3	+800
					Single-B (non-OECD)					
Current	700	100	8.0	87.5		700	20	1.6	437.5	
Standardised		100	8.0	87.5			100	8.0	87.5	+2800
IRB Approach		630	50.4	13.9	+3709		400	32.0	21.9	+13300

Notes :

a) For the IRB approach, long-term (3 years) risk weights are obtained from the cubic regression estimate given in Figure 1. The underlying default rates for short-term exposures were obtained from Moody's; they are 0 per cent for double-A; 0.1 per cent for triple-B; 0.6 per cent for double-B; and 6.8 per cent for single-B borrowers (Moody's, 2001; exhibit 16). For the standardised approach, claims on banks rated between A+ and BB- with an original maturity of less than 3 months would receive a rating one category more favourable than the risk weight on longer maturities.

b) Assumes LIBOR flat funding. Risk-adjusted return on capital is 100/regulatory capital required per $100 times spread over LIBOR; quoted as return in excess over LIBOR.

c) Indicates the amount of spread movement needed (in basis points) to produce the risk-adjusted return achieved under the current Basel I environment. Breakeven spread change is difference in risk adjusted return between "current" and "standardised", resp. "IRB approach" times capital required per $100 in "standardized", resp. "IRB approach".

Source: Own calculation based on procedure developed in Deutsche Bank, « New Basel Capital Accord », 17th January 2001, http://research.gm.db.com .

Strong incentives, by contrast, continue to be provided under the "internal ratings-based" approach for short-term bank lending, in particular to triple-B banks. The required breakeven spread change is minus 50 basis points on short-term lending under the IRB approach compared to the current Basel requirements, as the corresponding risk weight drops to 10 per cent, assuming a 0.1 per cent probability of default on short-term exposure according to the evidence provided in Moody's (2001*a*). Therefore, while for exposures with a residual maturity of three years the corresponding probability of default (0.41 per cent) translates into a risk weight of 40 per cent and a risk-adjusted return of 31.3 per cent (for an assumed spread over LIBOR of 100 basis points), the equivalent risk-adjusted return is much higher, 125 per cent, for short-term exposures to triple-B rated banks.

V. SOME POLICY CONCLUSIONS

Unlike for industrial countries for which capital market access is usually taken for granted, sovereign ratings play a critical role for developing countries as their access to capital markets is precarious and variable. The recent suggestions from the Committee on Banking Supervision for a new Basel Capital Accord may imply an even greater regulatory importance of credit ratings in future decades.

In principle, sovereign ratings might be able to help to attenuate boom–bust cycles in emerging-market lending. During the boom, early rating downgrades would help to dampen euphoric expectations and reduce private short-term capital flows which have repeatedly been seen to fuel credit booms and financial vulnerability in the capital-importing countries. By contrast, if sovereign ratings had no market impact, they would be unable to smooth boom–bust cycles. Worse, if sovereign ratings lag rather than lead financial markets, but have a market impact, improving ratings would rein-force euphoric expectations and stimulate excessive capital inflows during the boom; during the bust, downgrading might add to panic among investors, driving money out of the country and sovereign yield spreads up. If guided by outdated crisis models, sovereign ratings would fail to provide early warning signals ahead of a currency crisis, which again might reinforce herd behaviour by investors. This paper has therefore investigated whether rating determinants and market impact have changed since the Asian crisis, when the major rating agencies came under heavy criticism for their failure to warn ahead of the crisis and for their pro-cyclical downgrades.

Alas, rating behaviour around the most recent emerging-market crises in Argentina and Turkey suggest that rating determinants have not been sufficiently modified to put the agencies ahead of market events, although conventional rating determinants have been shown to have lost some explanatory power. Financial-sector weaknesses and illiquidity do not yet seem to get the weight in rating actions that they would deserve. Pro-cyclical rating determinants remain an important ingredient of agencies' notes, and it is suggested that agencies corrected them for the endogenous effects of (short-term) capital inflows.

But even with such improvements, sovereign ratings are bound to lag the markets. First, credit ratings and rating actions are delivered in discrete fashion, with actions being taken when sufficient upward or downward pressure has built up upon the credit fundamentals, which in turn move in continuous fashion. Second, sovereign-risk ratings are primarily based on publicly available information. Consequently, any sovereign-rating announcement will be "contaminated" with other publicly available news. Third, rating

announcements may be largely anticipated by the market. (This does not exclude, however, that the interpretation of such news by the rating agencies will be considered as an important signal of creditworthiness.)

While sovereign ratings have often been seen to lag markets, in particular joint downgrades of emerging-market debt by the leading agencies have had a lasting market impact; upgrades, by contrast, seem largely anticipated. The impact of downgrades may be due to prudential regulation and internal industry guidelines of institutional investors which debar them from holding securities below certain rating categories, and debt contracts that allow creditors withdraw loans when borrower ratings drop below a certain threshold. But, unless prudential regulation, i.e. the Basel Accord, reinforces the market impact of sovereign ratings, their future impact might diminish somewhat. The agencies have started to loosen their country ceiling policy, allowing certain private-sector borrowers better ratings than their sovereigns. And emerging-market bond trading strategies seem to have increasingly exploited the late nature of rating actions by anticipating them.

Finally, this paper has addressed the concern that the Basle II Accord will destabilise private capital flows to the developing countries, if the current proposal to link regulatory bank capital to sovereign ratings is maintained. Assigning fixed minimum capital to bank assets whose risk weights are in turn determined by market-lagging ratings will reinforce the tendency of the capital ratio to work in a pro-cyclical way. Credit spreads will more closely reflect credit ratings as a proxy of default probabilities. While this is exactly what supervisors are aiming at, the calculations provided here indicate that the chasm between investment-grade borrowers, mostly based in OECD and in some of the more successful emerging markets, and speculative-grade borrowers, mostly from the developing world, will deepen. This outcome would clearly run against endeavours of the global development community to broaden the range of developing countries that benefit from private capital inflows. The Basel II proposals risk not only to raise capital cost for speculative-grade developing countries, but they may also increase the volatility of bank credit supply to this group of countries.

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