

POLICY RESEARCH WORKING PAPER

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A Capital Accord for Emerging Economies?

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Financial Sector Strategy and Policy Department
March 2002



Abstract

The Basel 1988 Capital Accord is arguably the most successful of all recent financial “standards.” Although it was designed for internationally active banks in G10 countries, more than 100 countries claim to adhere to it, and many apply the Accord to all banks. Significant changes to this Accord are currently under discussion. Powell reviews the current proposals (published in January 2001) from the standpoint of an emerging market. He then addresses how implementation in G10 countries will affect the cost of capital to emerging economies. The new proposals make considerable advances in linking risk and regulatory capital for internationally active banks, especially for their corporate loan book. But the corporate-calibrated internal ratings-based (IRB) approach leads to significant changes in capital requirements and spreads for banks that lend to emerging countries. The author proposes that for sovereign lending, banks should develop internal ratings according to an S&P or Moody’s scale, and capital charges be levied at the corresponding weights

given by the standardized approach. Powell argues that the more detailed and specific the proposals are for G10 internationally active banks, the less relevant the proposals will be for non-G10 countries that wish to implement the new Accord for all banks. Indeed, many emerging countries will implement the ‘standardized’ approach, in which case, given the limited universe of rated risks, little will change. Alternatively, emerging countries will attempt to implement an IRB approach, but with significant problems implementing and calibrating the parameters—or inappropriate use of G10 calibrations. At the same time, banks in emerging economies remain the most important vehicle for financial intermediation and the appropriate regulation of bank capital one of the most important issues for financial sectors. Powell suggests that additional alternatives should be included or, failing that, the time may have come specifically for an Accord for emerging economies.

This paper—a product of the Financial Sector Strategy and Policy Department—is part of a larger effort in the department to study the impact of financial regulation on economic development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Elena Mekhova, room MC9-622, telephone 202-458-5984, fax 202-522-2031, email address emekhova@worldbank.org. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at apowell@utdt.edu. March 2002. (39 pages)

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A Capital Accord for Emerging Economies?

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¹ This paper was completed while the author was Visiting Research Fellow at the Financial Sector Strategy and Policy division of the World Bank and I would like to thank the World Bank for the support received. I have benefited greatly from the many discussions on these issues within the Central Bank of Argentina and in particular wish to thank Verónica Balzarotti, Christian Castro and Matías Girault. I am indebted to members of the *ad hoc* Latin American Group of Central Banks and Supervisors who attended meetings in Buenos Aires to fashion consensus comments on the BCBS proposals. Special thanks are also due to Philip Turner and Betsy Roberts and others at the BIS and Jerry Caprio, Giovanni Manjoni and Larry Promisel at the World Bank for comments. I also wish to thank Hyun Shin and Peter Sinclair and other participants in a joint Bank of England - London School of Economics 'financial stability seminar' held at the LSE in June 2001 and to participants in World Bank, IMF and IDB seminars held during July 2001.

1. Introduction

The Basel 1988 Accord is perhaps the best example of a highly successful financial ‘standard’². Although developed by a committee representing G10 bank supervisors (the Basel Committee of Banking Supervisors – BCBS), and designed with the explicit objective of being applicable to a group of ‘internationally active banks’ it has been applied voluntarily in more than 100 countries and in many of those countries it is applied to all banks and not just those that are internationally active³.

The success of this standard is particularly important in emerging economies. Arguably, in that context the objective of ensuring a safe and sound banking system remains more important than that of establishing a ‘level playing field’ across countries. The 1988 Accord clearly had both of these aspects in mind and the approach is, on the one hand, flexible enough to be adapted to different country characteristics, while on the other hand creating a reasonable yardstick (‘assets at risk’) to compare the levels of capital of different banking systems.

It is easy to criticize the specifics of the 1988 Accord or an over-reliance on such yardsticks. Any simple formula for comparing levels of capital across complex banks let alone across countries will be subject to criticism. The 1988 Accord created certain incentives for regulatory arbitrage. But virtually any simple treatment of credit risk is bound to create such problems. However, the power of the 1988 Accord is precisely due to its relative simplicity. The simple standard brought about a type of yardstick competition or peer group pressure to modernize banking regulations across emerging economies based on simple rules⁴. It is noticeable, for instance, that although the BCBS recommended a minimum ratio of 8% of capital to assets at risk, most emerging economies that applied the Accord chose to introduce the methodology with stricter limits. It is this second set of incentives that has been of over-whelming importance in emerging economies and made the ‘standard’ such a success.

² See the Financial Stability Forum website (www.fsforum.org) for information and numerous examples of financial standards. The other candidate for the most successful financial standard is without question the SDDS created by the IMF. However, arguably this is less voluntary in nature

³. See Barth, Caprio and Levine (2001) and for other useful information and a description of a new comparative database regarding the regulation and supervision of banks.

⁴ This argument is sometimes explicit and always implicit in the recent efforts by the international community to create ‘standards’ – again see information from the Financial Stability Forum.

Having said that, it is precisely some of the specific criticisms regarding the 1988 Accord and, in particular, the way in which different risks are converted into different capital requirements that has motivated a set of quite fundamental proposed changes to the Accord. An initial proposal was published in June 1999 and, after comments, subsequently a second and much more detailed proposal was published in January 2001 for comments by the end of May 2001. The BCBS plans to publish a final version around the end of the year with a final version to be published in 2002 and implementation by 2005. Under the current proposals this new Accord has significant implications for emerging economies.

In this paper, I first review some salient features of the January 2001 proposals from an emerging economy perspective. The proposals are comprehensive covering many hundreds of pages and three main pillars (capital requirements, supervisory responsibilities and market discipline) and several more specific issues (e.g.: operational risk and asset securitization). Moreover, within Pillar 1, three alternative approaches (standardized, internal ratings foundation and internal ratings advanced) are developed. The discussion in this paper is then by necessity highly selective.

In section 2, I provide a very brief guide to the new Accord from the perspective of emerging economies focusing on the central issue of capital requirements (Pillar 1) and the alternatives of a standardized versus an Internal Ratings Based (IRB) approach. There are two broad ways in which these new proposals will affect emerging economies. First, through its effect on the cost of capital from G10+ regulated banks and secondly, through the local implementation of the proposals in emerging countries - assuming that this happens.

In section three, I discuss the potential effects of these proposals on the cost of capital for emerging economies. There has been much discussion on the standardized approach. Specifically, this discussion has centred on the proposed use of external ratings and the potential pro-cyclicality of capital requirements – normally under the assumption that the rating industry works well. It is suggested here that this is just one issue but a potentially more serious one is the industrial structure and performance of the rating industry itself. I suggest that for sovereign claims, an internal rating (IRB) approach might be more appropriate than an approach that relies on external ratings. However, I then develop estimates for the effects on required capital and spreads for BIS reporting banks lending to emerging economies that show that, as calibrated, the IRB approach leads to significantly higher capital requirements for lower rated sovereigns. This

calibration stems from corporate default experience and it is suggested that considerable further elaboration of the IRB approach may be required for the treatment of sovereign risk.

In the subsequent section I then discuss certain issues with respect to the implementation of the new proposals within emerging economies. The overall conclusion is that the internal rating approaches will be difficult to implement and the way these approaches have been calibrated appear to be inappropriate to emerging economies. Most emerging economies will probably implement the standardized approach. However, in this case much of the effort of the BCBS in revising the Accord may have little relevance. The small universe of rated corporations in emerging countries implies that there will be very little change, and the same problems that existed under the 1988 Accord will persist⁵.

In the fifth section, I then suggest that a further alternative is required. This alternative might be seen as intermediate between the standardized approach and the IRB approach. The idea would be that banks should 'rate' borrowers but according to a scale determined by the regulator. The 'rating' would then feed through to a capital requirement. To a significant extent this approach might mirror and build on existing policies in some countries that feed off credit registry information and are typically employed to fix provisioning requirements. It is suggested that such policies, with some adaptation, could also be employed to fix complementary minimum capital requirements. Section six concludes.

2. A short introduction to the proposed new Capital Accord: an emerging economy perspective

The January 2001 proposals to reform the 1988 Capital Accord comprise a comprehensive package that go well beyond simply capital requirements for banks. The package includes a) an overview paper, b) the proposed new Accord itself (which covers the three pillars of requirements, supervisory review and market discipline) and a set of supporting documents on diverse themes and in varying degrees of detail and completeness⁶. In this short description I will concentrate on Pillar 1 - actual requirements.

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⁶ These include documents on a) the standardized approach, b) the internal ratings based approach c) asset securitization d) operational risk e) Pillar 2 (supervisory review) f) principles for the management of interest rate risk and g) Pillar 3 (market discipline).

On levels of consolidation

A first significant change with respect to the Accord of 1988 is related to the level of consolidation under which consolidated supervision should take place. In the new proposals consolidation is to start at the level of a bank holding company where the principal activity of the holding is banking rather than from the level of the bank itself (as in the 1988 Accord). This change implies that banking supervisors will be required to consolidate different types of companies that belong to the same holding company as a banking group even if they are not formally subsidiaries of the bank itself.

On balance this change is to be welcomed. The motivation stems from the possibility under the previous regime of regulatory arbitrage across financial groups with different supervisory rules reducing the overall level of capital and hence solvency of the diversified financial group. At the same time it should be remembered that several emerging countries are yet to include consolidated supervision in their respective legislations. This change then opens the breach between the level of consolidation required in G10 countries and the actual degree of consolidation employed in practice by many emerging economy supervisors. Consolidated supervision is also a requirement of the Basel Core Principles and it is important to underline the fact that I am not suggesting here that this should be removed as an objective. It is a very important objective and moreover the proposed change in the level of the consolidation is also to be welcomed. The point here is that it is unrealistic to expect many emerging economies that have not yet accepted basic consolidated supervision to be able to fully implement this new level of consolidation rapidly. The recent postponement of the deadline from 2004 to 2005 is then to be welcomed although this may still imply difficulties in some jurisdictions⁷.

On related lending

There are also new rules suggested in this proposal regarding 'related lending'. In the 1988 Accord there were no specific rules on this issue. The rules suggested include a limit on lending to non-banking activities as a percentage of bank capital such that if credit is extended beyond that limit it should be deducted from bank capital. However, in many emerging economies the problems regarding related lending have been so acute that such lending is actually forbidden altogether or much stricter limits already apply. On this issue, from the standpoint of emerging economies, the proposals from BCBS are not strict enough.

⁷ The previous version of this paper called for a postponement in the original 2004 deadline for these motives.

Regarding capital requirements, as discussed above, the new proposals include three alternatives: (1) a standardized approach, (2) a 'foundation' internal ratings approach and (3) an advanced internal ratings approach.

The standardized approach⁸

Under the standardised approach one of the main innovations relative to the 1988 Accord is the use of external ratings agencies to set the risk weights for corporate, bank and sovereign claims.

More specifically, the new proposals include tables defining 'buckets' of ratings for corporate and for sovereign credits to translate a particular rating into a risk weight. Table 1 illustrates the basic approach. The approach is most clear for corporates. For sovereigns, there are slightly different buckets in the basic approach but there are also some special rules that apply.

For example, at national discretion, there is a special rule for claims on the sovereign of the country where the bank is incorporated where the claim is denominated in the currency of the sovereign and also funded in that currency (i.e.: loans to sovereigns funded and lent in the domestic currency). At first sight this allows banks in emerging countries to lend to their governments (or hold bonds in an investment account) with a zero or low capital charge. However, in many emerging countries such loans and bonds are often expressed in dollars or other non-local currencies, and these would not then attract this special treatment. In this case, credit extended to a government of an emerging country would attract the capital charge given the rating of the sovereign⁹.

The rules for claims on banks are slightly more complex than those of corporates. One alternative allows banks to be rated one notch worse (i.e.: one risk weight category higher) than the sovereign but with a cap at a risk

⁸ At the time of writing informally the BCBS have let it be known that a simplified version of the standardized approach may be developed for publication in late 2001 particularly with low income developing countries in mind.

⁹ It is not entirely clear what the treatment would be in Ecuador, El Salvador or Panama (3 dollarized countries) or for that matter for the countries of EMU. If the special treatment exists because the 'credit risk' of a local currency claim will, in general, be less than that of a foreign currency claim when there is a devaluation or sharp depreciation of the local currency then this suggests the special treatment should not be extended to dollarized countries or members of EMU and this takes as a given that any currency risk mismatch is treated in an appropriate manner separately. The view that local currency claims are different because of the existence of a lender of last resort appears to confuse 'credit risk' with liquidity considerations and suggests that banks' capital requirements should explicitly reflect the fact that governments would deflate away debts that goes against any credible commitment to, say, an inflation target.

weight of 100% (except for banks incorporated in countries with a rating lower than B- where the risk weight is 150%).

**Table 1: Risk Weights Given External Credit Ratings
Basel Committee on Banking Supervision
January 2001**

	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to B-	Below B-	Unrated
Sovereign	0%	20%	50%	100%	150%	100%
Bank						
Alternative 2^a	20%	50%	100%	100%	150%	100%
Bank						
Alternative 2^b	20%	20%	20%	50%	150%	20%
	AAA to AA-	A+ to A-	BBB+ to BB-	Below BB-	Unrated	
Corporate	20%	50%	100%	150%	100%	

a: refers to rating of sovereign

b: refers to rating of bank - for loans of less than 3 months, lent and funded in domestic currency.

A second alternative allows for a risk weighting that is one notch better than that of the bank itself (i.e.: one risk weight category less) but this alternative is only for claims of less than 3 months original maturity and does not apply to banks rated below B- that then have a 150% risk weight. Where the national authority has applied the special rule mentioned above for claims on sovereigns in domestic currency ('clause 24'), a special rule can also be applied to short-term (less than 3 months) claims on banks denominated and funded in domestic currency. In this case, the proposal allows for a rating that is one notch worse (i.e.: one category of risk weighting higher) than that of the sovereign of incorporation itself (subject to a 20% floor).

The ratings for corporates and for banks are not subject to a sovereign floor as under the original proposals (i.e.: the first set of proposals for the new Accord) of June 1999, allowing for claims on corporates in some countries to have lower capital requirements than a claim on the sovereign itself.

Standard and Poor's and Fitch both have some corporates rated higher than their respective sovereigns – Moody's does not¹⁰.

A second significant innovation in the standardised approach is the change and increased sophistication of the rules on credit mitigation techniques and in particular the rules on the use of collateral. These appear to be a significant advance over the 1988 Accord. I do not go into detail in this paper on these changes.

The Internal Ratings Based Approach: a very selective introduction

Under the internal rating approach banks may employ their own opinions regarding borrowers in setting capital requirements. More specifically, there are a set of basic parameters that banks may estimate and then feed into a formula to determine actual risk weights. Two crucial parameters required are the Probability of Default (PD) and the Loss Given Default (LGD). Box 1 includes some of the details of the formula involved.

Two alternative approaches are proposed (1) a foundation and (2) an advanced approach. Under the foundation approach banks determine the probability of default and all other parameters are essentially set by supervisory rules. Under the advanced approach, banks may also determine the Loss Given Default (LGD). Other parameters also important for the calculation of the actual risk weight, including in some cases the Maturity of the Transaction (M) and the Exposure At Default (EAD) are determined by supervisory rules under both alternatives.

The proposals reflect the significant advances in credit risk measurement in some G10 private sector banks, central banks and other supervisors and academia. The proposals translate the estimates of the parameters listed above to a particular risk weight via specified formulae. These formulae may be thought of as approximations to the results from more complex models. The calibration employed attempts to ensure that the capital required, for an individual loan, is broadly consistent with the capital required, for a 'standard' loan in a well-diversified portfolio, stemming from one of these more complex models¹¹.

¹⁰ It is the understanding of the author that Moody's is currently seeking to revise this rule.

¹¹ We are informed in the text that the formulae are consistent with Riskmetrics' "Creditmetrics" program and a reasonable estimation to CSFB's "Creditrisk+" program. However, for those 'not in the know', the precise calibration and scaling process is not fully explained. The interested reader may wish to consult Carey (2000), Crouhy, Galai and Mark (2000) and Gordy (2000) for an analysis of different credit risk models and Jackson and Perraudin (2000) on 'back-testing' and hence calibration and regulatory implications.

The proposals make explicit that required capital is calibrated such that it covers both the expected and unexpected loss stemming from a potential loan (the expected loss plus the unanticipated loss is frequently referred to as the Value at Risk). The unexpected loss is defined with respect to a probability tolerance value (taken to be 99.5%). Adjustments are then made to the requirement given the maturity of the actual loan and the presence of any collateral. A ‘granularity’ adjustment is then made for all non-retail lending in an attempt to approximate the results of a portfolio model of credit risk.

Box 1: Some of the Mathematics of the Internal Ratings’ Approach

There are two crucial formulae to calculate the risk weight for a loan with probability of default (PD) and loss given default (LGD):

$$BRW_c(PD) = 976.5 * N(1.118 * G(PD) + 1.288) * \left(1 + 0.0470 * \frac{(1 - PD)}{PD^{0.44}} \right) \quad (1)$$

Equation 1 yields a benchmark corporate risk weight BRW_c where $N(x)$ is the cumulative normal distribution function and $G(x)$ is the inverse cumulative normal distribution function. The intuition behind the formula is explained as follows:

- the first term $N(1.118\dots)$ represents the sum of expected and unexpected losses for a 1 year loan with LGD of 100% following a Merton-style risky debt model, lognormal credit risk and subject to a 99.5% tolerance value (VaR) within a hypothetical infinitely granular portfolio with an average correlation between assets of 0.2.
- the second term $(1+0.470\dots)$ is an adjustment such that BRW_c is calibrated for a 3-year maturity (whereas the PD’s are for 1 year).
- 976.5 is a scaling factor such that a loan with $PD=0.7$ and $LGD=50\%$ has a risk weight of 100%.

$$RW_c = \text{Min} \left\{ \frac{LGD}{50} * BRW_c(PD), 12.5 * LGD \right\} \quad (2)$$

Where RW_c is the corporate risk weight. The cap implied by this expression assures that setting aside capital given the risk weight is never worse than deducting the actual exposure from capital.

A counter proposal is that provisions should reflect expected losses while capital should reflect only unanticipated losses subject to the tolerance value. The rationale for the proposals as they stand appears to be that general provisioning in most countries (and under the current Accord) can be counted towards regulatory capital and specific provisioning on particular loans is normally determined by accountancy concepts of ex post loss rather than related to the economic concept of expected future loss. Moreover, there is no international agreement on how to set provisioning requirements. Hence, the proposal to calibrate capital to the expected loss plus the unexpected loss is clearly a conservative approach and for most G10 countries only risks minor double counting.

However, from the standpoint of emerging countries this issue may be more important. In Latin America provisioning requirements tend to be high and in some countries are specifically thought of in terms of covering expected loss (in Latin America provisions as a percentage of gross financing is around 8%). Moreover, in some Latin American countries provisioning requirements stem from highly developed credit bureau policies. I come back to this point below.

It is clear from the proposals that the focus to date for internal ratings has been based on corporate and to some extent on retail lending. Indeed, in the consultative document dedicated to The Internal Ratings-Based Approach some 65 pages are devoted to the methodology for rating corporates while only 3 pages and 4 lines is devoted to internal ratings for sovereigns (and 2 pages devoted to banks). While this comparison may be unfair in that the pages on the corporate approach explain many more general aspects, it is nevertheless striking the apparent lack of independent analysis of sovereign exposure under the IRB proposals. The reader is left with the suspicion that the proportion of attention devoted to the analysis of the risks in lending to sub-investment grade sovereigns may be closely related to the proportion of such lending on G10 internationally active bank portfolios.

In the introduction to the chapter devoted to internal ratings for sovereigns it is stated that most banks rely substantially on external ratings and that internal-rating systems for sovereigns are in general not very well developed. At the same time the proposals make clear that banks with material exposure to a sovereign should not simply rely on external ratings but should have their own independent capability of analysis for sovereign risk and should augment the information provided external rating agencies with their own independent analysis.

The proposals dictate a set of minimum requirements for banks that wish to use the internal ratings' approach. These minimum requirements differ slightly between the different portfolios (corporates, retail, banks and sovereign) but are in fact variations on the minimum requirements for corporates. Hence I devote the discussion to this part of the overall portfolio.

The minimum requirements for the Foundation approach are listed under 9 headings; (1) meaningful differentiation of credit risk, (2) completeness and integrity of rating system, (3) oversight of rating system and processes, (4) criteria of rating system, (5) estimation of the probability of default (PD), (6) data collection and IT systems, (7) use of internal ratings, (8) internal validation and (9) disclosure (which make up part of Pillar 3 – Market Discipline). For the advanced approach, the to these requirements are also added requirements for Loss Given Default (LGD) and Exposure at Default (EAD) estimation and additional requirements to factor in the use of guarantees and credit derivatives.

Here I focus on the central issue of PD estimation. One year PD estimates form the basis of the internal ratings approach although the proposals are careful to point out that such one-year estimates should be thought of as a conservative view of long run PD's. The implication is that the PD estimate should be the maximum of the currently estimated one-year PD and the long run 'through the cycle' PD for each borrower. The proposals indicate that banks will be expected to use more than one source of data for their PD estimates including (1) internal default experience, (2) mapping to external data and (3) statistical default models. The proposals are careful to point out that there will be many judgmental decisions that will be required to arrive at particular PD estimates. In an attempt to limit the errors from such processes, the proposals lay down that:

- a. The population of borrowers represented in the data set used should be comparable to the data set on each required portfolio.
- b. The lending standards used to generate the exposures should be comparable to those used by the bank.
- c. The economic or market conditions under which the historical experience took place should be relevant.
- d. The number of loans and sample period should be sufficient to provide robust statistical estimates.

Irrespective of the data source(s) employed, the proposal states that the minimum historical period for the data employed should be 5 years and that this should be very much seen as a minimum.

The internal rating approach is essentially based on the current practice of large G10 private banks. The survey evidence of current methodologies has been translated into a set of best practices and these best practices have been laid down as a set of minimum standards. Having said that, the focus has not been to fix one particular methodology but rather to attempt to lay down general principals, which any appropriate methodology should follow. I argue below that this approach may be very appropriate for the set of large private internationally active banks that have been developing such methodologies over recent years, and hence the standard may well be an appropriate one for those banks in G10 countries. Many emerging countries, however, will find these new proposals on internal ratings extremely difficult to implement and will consider that the laid down requirements do not fit well the kinds of methodologies that they have been following in other areas, for example to set provisioning requirements.

3. The new Basel Capital Accord and the Cost of Capital for Emerging Economies

In this section we review the proposals for the revision of the 1988 Capital Accord and how this is likely to affect the cost of capital to emerging economies. We note that the BCBS claims that the new proposals (specifically the standardized approach) will be neutral in terms of the overall capital requirement for banks while adopting an Internal Ratings (IRB) approach should carry with it some incentives in terms of reduction in capital charges. This does not of course mean that it will be neutral for one particular class of lending (e.g.: sovereign lending) or a particular subclass (e.g.: lending to emerging economies). In this section I discuss first the use of the standardized approach and then the IRB approach and their respective implications for the cost of capital for emerging economies.

3.a The standardised or IRB approaches for sovereign risk ?

In this subsection, I assume that there is value in attempting to link capital requirements more closely with the riskiness of particular loans (see Milne 2001 for an alternative view). Hence the question addressed here is not whether but rather, how, with particular reference to sovereign risk. I focus on a set of particular issues that have been raised.

External ratings and pro-cyclicality

First, it has been noted that ratings are pro-cyclical and may also follow rather than lead country (and market) developments. The argument goes that this may then lead to an exacerbation of economic cycles as during a downturn a country's cost of capital may rise.

However, having said that it is difficult to argue that in the absence of such rules bank lending will not be pro-cyclical. Indeed, regulatory requirements must always be considered as minimum requirements and it is likely that lending institutions will adopt a more conservative position than the minimum requirements during a downturn and will either restrict credit or increase the cost of credit or both independently of the current constant minimum requirement. Some G10 countries today also have complementary provisioning rules for their banks lending to emerging economies and these are already pro-cyclical in nature. Hence, although the introduction of the use of external credit ratings will almost certainly introduce pro-cyclicality in minimum requirements it is less obvious whether this will introduce any greater pro-cyclicality in actual bank capital and reserve policies.

Indeed, the proposed change may be more significant to the cost of credit during the good times rather than the bad times. In other words it may reduce the effective cost of credit during the good times where competition between lenders is likely to be strongest exacerbating 'over-lending'. Where I share the view of those who stress is pro-cyclicality as an important theme is in the boom. It is then that capital and provisions should be raised and hence might then subsequently be reduced when the bubble bursts. If the recession has already begun and requirements were not increased during the good-times, it is most likely to be dangerous to advocate reducing them.

Circularity and just getting it wrong !

However, the use of external ratings raises other issues apart from pro-cyclicality. It is notable that in the explanations of certain downgrades, rating agencies have cited reduced market access as one factor explaining a downgrade decision. If capital requirements and the cost of lending to a particular country depend on a country's rating and this depends on market access, then there is a potential circularity, not just pro-cyclicality.

Moreover, the rating industry is a highly concentrated one and arguably there are very strong economies of scale in information gathering. There has also been a notable increase in concentration recently¹². This does not necessarily lead to a lack of competition between agencies but it does imply that there are very few (independent) opinions on what the risk of a sovereign actually is from this source. At the same time, the analysis of sovereign risk is a very subjective issue with political risk being one of the most important factors and yet very difficult to model and quantify and the weights of different risk factors in the overall level of risk being quite controversial.

The combination of few opinions and a highly subjective analysis leads inevitably to a higher probability of wrong answers – categorising countries as riskier than they actually are or vice versa. An incorrect rating could, depending on country characteristics have substantial effects on the cost of capital. For although, to some extent, the risk rating buckets might reduce this problem, these buckets also imply that there are cliff faces and if a country is rated incorrectly at the top of one bucket and not at the bottom of the next category, this could lead to substantial costs especially if this provokes some type of vicious cycle¹³.

Or a rat(ing) race to the bottom ?

In this discussion I have implicitly assumed that G10 countries will only allow ratings from one of the few ‘big’ and ‘credible’ credit rating firms. Another concern is that this will not be the case and that there will be a more liberal interpretation of the rules regarding which credit rating agencies banks’ will be allowed to use - which is at national discretion but subject to a set of minimum laid down ‘eligibility criteria’¹⁴. However, this brings its own concerns, namely that there may be a race to provide ‘convenient’ ratings or in other words a race to the bottom in terms of the quality of the rating which even the ‘big’ agencies might then find it difficult to resist for competitive reasons¹⁵.

¹² The rating agency Fitch was created out of the original Fitch, IBCA, Thompson and Duff and Phelps. Standard and Poor’s and Moody’s have expanded substantially internationally and in the process have forged alliances or taken over local rating agencies in several countries.

¹³ In fairness the document itself notes that the use of external rating agencies is problematic and that rating agencies do not have an untainted record. The defence of the approach is that it is an advance over the current ‘OECD’ rule. However, this does not mean that it is the best feasible approach available. I return to this point when we consider the use of internal ratings.

¹⁴ Eligibility criteria include objectivity, independence, international access/transparency, disclosure, resources and credibility.

¹⁵ This concern has been highlighted by the Latin American Shadow Regulatory Committee (see Statement No 2, 30/4/2001, Caracas, Venezuela).

Export Credit Agencies : a solution ?

The new proposals also allow for the use of export credit agency (ECA) ratings to be used by banks instead of ratings from private rating agencies. Again, the use of this different type of 'ratings' is subject to minimum laid down requirements including that such ratings must follow an agreed OECD procedure and that they must be published. To some extent this idea addresses the concerns above but only partially and also it raises its own issues. On the one hand, given that currently there are very few eligible ECA ratings available that meet the laid down criteria it does not change substantially the points made regarding the concentration of the industry. And even if there were more, given that they must follow a common methodology, it is not clear whether there is a very significant gain in terms of an increase in the number of independent opinions available. On the other hand, while such 'official' ratings may avoid the competitive pressures on private rating companies, these ratings may suffer from other pressures.

The proposal is much less problematic when it comes to the use of corporate ratings. Rating a corporate is a less subjective art and hence the standard deviation attached to any risk rating for a corporate is likely to be much lower than the corresponding measure for a sovereign rating.

The IRB approach for sovereign and external ratings for corporate ?

There is also an economic efficiency argument in favour of the use of external ratings for corporates that does not necessarily carry over to sovereigns. There are many corporates in the world and there are many banks lending to those corporates. The number of sovereigns is much lower in number and hence, the economies in 'contracting out' the rating process in this case is much lower. The document is very careful to point out that any bank that has a 'material exposure' to a sovereign should have its own capability to independently assess the relevant risk even if it is using an external rating approach to fix capital requirements. This raises the question that if such an independent opinion is required anyway, perhaps an internal rating should be required for any bank that has a 'material exposure'.

The proposals reference survey evidence that most international banks rely heavily on external ratings for their own internal sovereign credit analysis and it is suggested that this might be because banks have little additional information with respect to sovereigns (implicitly it is suggested that a

bank may have superior information on a corporate borrower). However, an alternative view is that sovereigns are simply very difficult to ‘rate’ whether the rating is done by a bank or by an external rating agency and that banks rely more on external rating agencies for sovereign exposures simply because there is no agreement on the correct methodology. If this argument is correct and sovereigns are very difficult to rate, due to the high degree of subjectivity involved, it follows that it is even more important to develop and employ internal bank rating systems for sovereigns and generate more independent opinions, rather than to rely on the opinions of very few external-rating agencies.

An important consideration in this debate is whether banks’ internal ratings are more or less pro-cyclical than those of rating agencies. The BCBS claims implicitly that banks’ ratings are likely to be more cyclical in that while rating agencies claim that they tend to adopt a ‘through the cycle approach’ (i.e.: not taking into account the current economic conditions that might be attributed to the cycle). Currently, banks’ ratings typically reflect a ‘point in time’ approach and indeed survey evidence suggests that the point in time may be as little as one year out. The proposal however suggests that PD estimates should ‘represent a conservative view of long-run averages’ which sounds more akin to the ‘through the cycle approach’. On the other hand there is strong statistical evidence of serial correlation in rating agencies’ sovereign ratings. While this might be explained by other properties, this might suggest that rating agencies are more influenced by the ‘cycle’ than they admit¹⁶.

This suggests a trade-off. While the use of internal ratings may imply greater pro-cyclicality in requirements (although not necessarily in capital), the use of internal ratings may generate more independent opinions regarding actual credit risk. In turn this may lower the risk of a systemic error between the general level of banks’ requirements and the actual risk of a sovereign.

These arguments raise a further issue in that the proposal suggests that if a bank employs a internal rating approach for one class of exposures (say sovereign), it should move ‘aggressively’ to an internal rating approach on all exposures. The justification for this is to attempt to curb ‘cherry picking’ between an internal rating and an external rating. However, given the arguments presented here, assessing a sovereign may be quite different to assessing a corporate and it appears that using internal ratings for sovereigns (where there is material exposure) and external ratings for

¹⁶ See Cruces (2001) for a discussion.

corporates should be thought of as a perfectly reasonable equilibrium position.

3.B Estimating the effect of the new standard on bank capital requirements

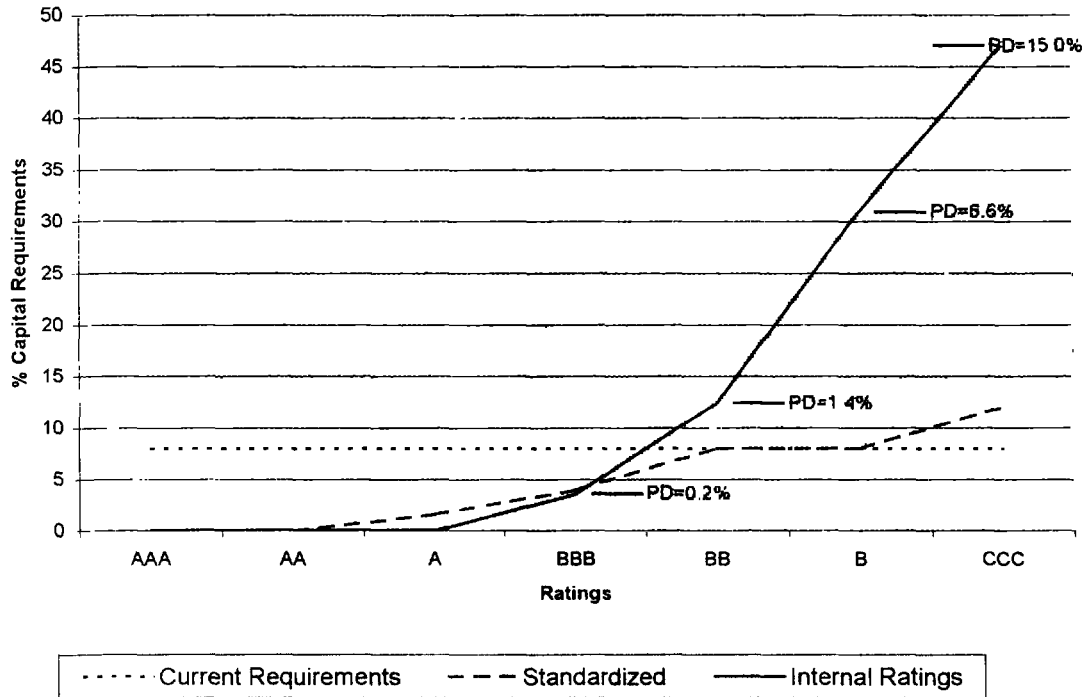
Much of the discussion to date has centred on the use of the standardized approach for the ratings of sovereigns. However, we show below that if the standardized approach is adopted for sovereigns then this, by itself, will tend to reduce the minimum capital requirements for developing countries especially those that have the better ratings. On the other hand we estimate that the IRB approach will increase capital requirements for BIS reporting banks lending to developing countries and substantially so for lower rated countries.

To fix ideas, in Graph 1 we plot the capital requirements for the current rules, for the standardized approach and for an IRB approach for different ratings¹⁷. The figures in the body of the graph are the assumed probabilities of default (PDs) for each ratings grade as taken from Jackson (2001) but adapted for sovereign risk which implies that capital requirements for a rating of A and above are set to zero. The other PDs are exactly as those following the assumption that the PD of a sovereign is the same as the PD of a corporate of equal rating (following the proposals). The relevant PD's are converted to a capital requirement following the formulae presented in Box 1 above and assuming a Loss Given Default of 50% and a maturity of 3 years and no 'granularity' adjustment (Jackson 2001 also provides these capital requirements).

¹⁷ We use the phrase 'an IRB' approach as the implied assumptions here include that 1. banks agree with the mapping of the rating to a particular PD and 2. Loss Given Default is 50% and Exposure at Default estimates is 100%. Naturally varying these parameters will give different results.

Graph 1

Ratings and Capital Requirements



The shape of the relevant curves gives the game away immediately. Given the default probabilities, the relationship between rating and capital requirement for the IRB approach is highly convex. While at high ratings the IRB approach gives lower capital requirements, at higher capital requirements the IRB approach can give very significantly increased capital requirements. Lending to a BB rated sovereign (e.g.: India and Colombia – Brazil is BB-) would imply a raised minimum capital requirement from 8% to 12.5% and for a B rated sovereign (e.g.: Argentina - Indonesia and Russia are B-) to over 30%. Ecuador, which is CCC, would attract a capital requirement of 47%¹⁸.

¹⁸ We note as an aside that the implementation of this approach may have significant implications for multilateral guarantee programs. In particular, a World Bank (AAA) partial guarantee for a lower rated sovereign would have significantly higher ‘leverage’ in a world where private lenders set capital according to the IRB approach as explained above relative to one where capital or other reserves did not differentiate between default probabilities. Of course, the attractiveness of the guarantee would nevertheless depend on the pricing policy of the World Bank and critically whether the World Bank differentiates between ‘client countries’ on the basis of estimated default probabilities. If the World Bank

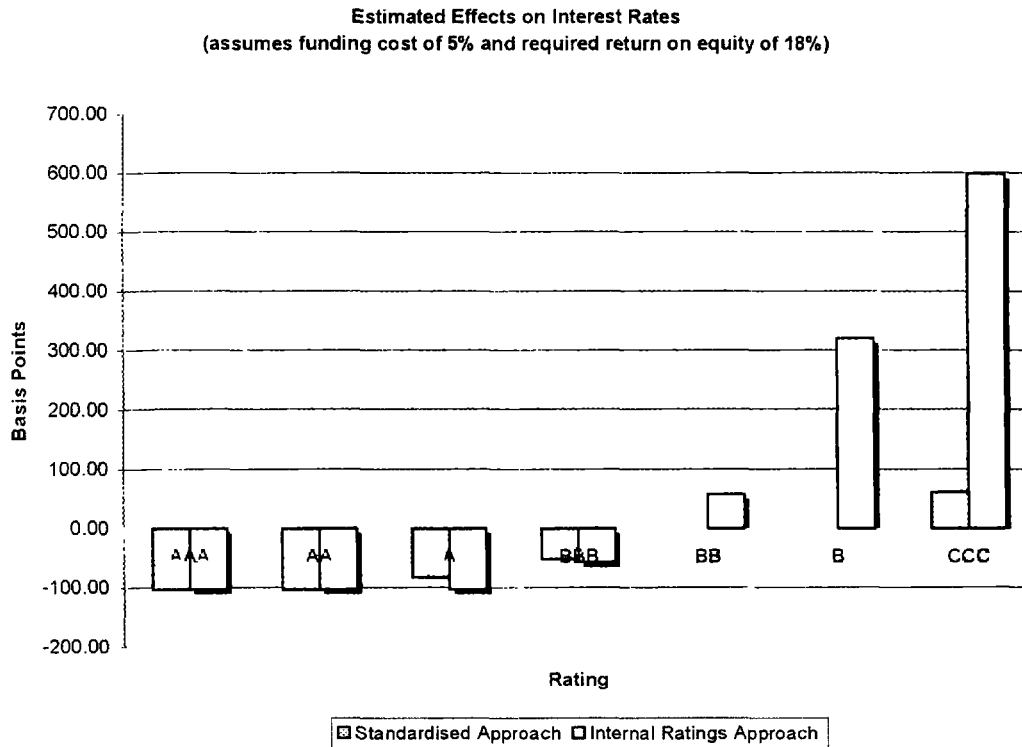
The standardized approach also clearly introduces a relationship between the capital requirement and risk but as compared to the IRB approach the slope is fairly gentle. This sets up some potentially perverse incentives among banks¹⁹. In particular, the more sophisticated banks that employ the IRB approach will have incentives to shed the higher risk credits off their balance sheets while the less sophisticated banks will have the incentive to take on those risks. Hence, the relative slopes of the standardized IRB approaches may imply risky clients with less sophisticated banks and less risky ones with more sophisticated lenders - a somewhat perverse result.

However, it should be noted that it is to be expected that most large, internationally active US and European banks will, over time, be expected to adopt the IRB approach so the 'arbitrage' will most likely be not between this group of banks. Smaller European and US banks do not tend to lend large amounts to emerging economies, so the magnitude of the problem may be smaller than first imagined. Where there may still exist an arbitrage is across the banks of different countries. For example, if Brazil's regulators allow only the standardized approach for Brazilian banks, then it is likely that Brazilian corporates with international ratings lower than say BBB, and certainly of B and lower, will find credit from European and US banks significantly more expensive and will thus presumably tend to find more and more credit domestically.

did not differentiate between 'client countries' according to estimated default probabilities as much as the schedule indicated above (and clearly if it did not discriminate at all on that basis), then it would follow that World Bank guarantees will become much more attractive instruments for client countries attempting to obtain funding from such regulated institutions.

¹⁹ I am indebted to comments from Hyun Shin and others highlighting this point.

Graph 2



The capital requirements graphed above can be quickly converted into an estimated change in lending spreads assuming a current treatment of 8% capital charge, a competitive loan market and a particular required return on equity and assumed cost of other funds. Graph 3 plots the effect on spreads as a function of the rating for both the standardized and this IRB approach. Thus, assuming a required return on equity of 18% and a cost of other funds of 5%, India and Colombia (BB) would face an increase in spreads of about 57 basis points and Argentina (B) an increase of about 320 basis points. Naturally other assumptions would give different results²⁰.

²⁰ Reisen (2001) and Griffith Jones and Spratt (2001) in similar analyses claim much larger effects on spreads (larger by an order of 10 roughly speaking). It appears that these authors calculate required returns on equities using market spreads for borrowers of different ratings in a so-called RAROC (risk adjusted return on capital) calculation – see also Deutsche Bank (2001). This approach would give, for example, a required return on equity of 75% for a sovereign trading currently at 600 basis points over a US treasury assuming that the US treasury rate was also the appropriate cost of funding for the institution in question. While such required returns on equity appear unrealistic (and do not concord with those informally reported to the author by several international banks operating in emerging economies), this

However, these estimates assume that all lending to developing countries takes the form of loans to the sovereign, which is clearly not the case. In order to understand better the potential increase in the cost of funds to developing countries more generally we need to consider the composition of lending (sovereign versus bank versus corporate). This is a more complex task and while comparative data sources have improved considerably, here, we proceed with some assumptions.

We employ a combination of the joint BIS/OECD/World Bank/IMF database on external debt and the BIS's own data and Standard and Poor's ratings for the standardized approach and also for the IRB approach together with the mapping described already above between ratings and PD's²¹. In other words the assumption is that banks think that the S&P ratings are correct and that the mapping produced by Jackson (2001) is also correct. We use the BIS consolidated data as the best approximation to the exposure of BIS reporting banks to a set of countries²².

We consider claims on sovereigns and claims on banks - implicitly assuming that claims on corporates are at the same capital requirement levels as lending to the sovereign (this most certainly underestimates the effects especially for the IRB approach). For banks we take capital requirements to be one 'bucket' worse than the sovereign both for the standardized and the IRB approach where our buckets for the IRB approach are AAA, AA, A, BBB, BB, B and CCC (in other words we assume that for sovereigns that are say BBB, that country's banks are then rated BB etc). This implies the use of option 1 under the standardized approach.

We also attempt to take into account the significant tightening in the rules on the preferential treatment of short term lending to banks. We consider those liabilities of less than one year and assume that all of that proportion of liabilities on developing countries' banks currently attract a capital requirement of 20% of the minimum 8% i.e.: 1.6%. However, in the new proposals we assume that no lending to developing country banks from BIS reporting banks will attract the new preferential treatments. While this overestimate to some degree the effect of this tightening, we do not think that this is very far off the mark as those loans that are made to developing

approach does serve to remind us that market spreads for sovereigns tend to exceed dramatically the market spreads for similarly rated corporates in the US or in other G10 countries.

²¹ The ratings are available on www.standardandpoors.com.

²² The BIS consolidated data has some particular features and includes, for example, dollar exposure in emerging economies when funding is local which might not be considered by some as cross-border.

country banks from BIS reporting banks in the currency of the developing country and funded in that currency must be very small indeed.

We attempt to include all developing countries that we have both rating information from Standard and Poor's and information from both the joint database and the BIS (this is then our definition of 'developing', although we tend to exclude offshore centres).

There are two special cases that deserve special mention (Korea and Mexico) who are both included in the joint database but who are also OECD members. Both will move, under the new proposals, from a zero risk weight to a positive one corresponding to their respective rating. In the case of S&P, the Mexico rating is currently BB+, at the top of one of the rating buckets, although we note that this may well change before the implementation of these proposals in 2005 (moreover Moody's currently has Mexico rated at a higher equivalent grade).

Table 2

**Estimated Effects on Capital Requirements and Spreads
For BIS Reporting Banks Lending to Developing Countries**

Rating	Number of Countries	BIS Consolidated Liabilities \$bn	Change in Cap. Requirements		Change in Spread	
			Standardized \$bn	IRB \$bn	Standardized bpts	IRB bpts
AAA	1	100.1	-4.1	-4.4	-53.3	-57.4
AA	1	28.5	-2.1	-2.1	-96.6	-97.4
A	11	193.6	-8.1	-10.3	-54.3	-69.3
BBB	16	186.3	-2.4	0.5	-16.8	3.3
BB	14	178.6	0.9	15.0	6.7	111.1
B	17	228.2	1.7	62.9	10.6	383.7
CCC	1	1.6	0.1	0.6	68.3	604.2
Unrated (UR)	96	111.5	1.6	1.6	20.2	20.2
Total	157	1028.4	-12.4	63.8	-16.0	82.7
Excl. UR	61	916.9	-14.0	62.2	-20.2	90.0
Below BBB	32	408.4	2.7	78.6	9.0	261.6
Korea (BBB)	1	58.8	3.4	4.7	74.8	104.8
Mexico (BB+)	1	63.7	5.0	9.4	104.5	194.9
Total	159	1150.9	-4.0	77.9	-4.6	90.2
Excl. UR	63	1039.4	-5.6	76.3	-7.1	97.3
Below BBB	33	530.9	11.1	92.7	28.3	235.4

Table 2 gives estimates of the effect on capital requirements and spreads given the assumptions made above with countries grouped according to rating category (here we assume for example that A+, A and A- are all in the same IRB default probability grading)²³. As is to be expected there are reductions in capital requirements for highly rated borrowers and increases for less well rated borrowers. Singapore (the country with a AAA in our sample), obtains an estimated \$4bn+ reduction in capital requirements

²³ Suppose that R_k is the cost of equity, R_f is funding cost and dK is the % change in the capital requirement (i.e. : as a percentage of the original capital requirement), k_0 is the original capital requirement as a percentage of total claims and d is the probability of default then the calculated change in the spread is simply $(R_k - R_f) * dK * k_0 / (1 - d)$.

(somewhat over 80% of current requirements) and an estimated reduction in lending spreads overall of about 55 basis points (53 for the standardized and 57 for the IRB approaches, again assuming a cost of equity of 18% and a cost of funds for BIS reporting banks of 5%). We note that the reduction in capital requirements is not 100% in our estimations only due to the effect of the tightening of the rules on banks. If all loans were to a AAA sovereign then the reduction would be 100% of current requirements.

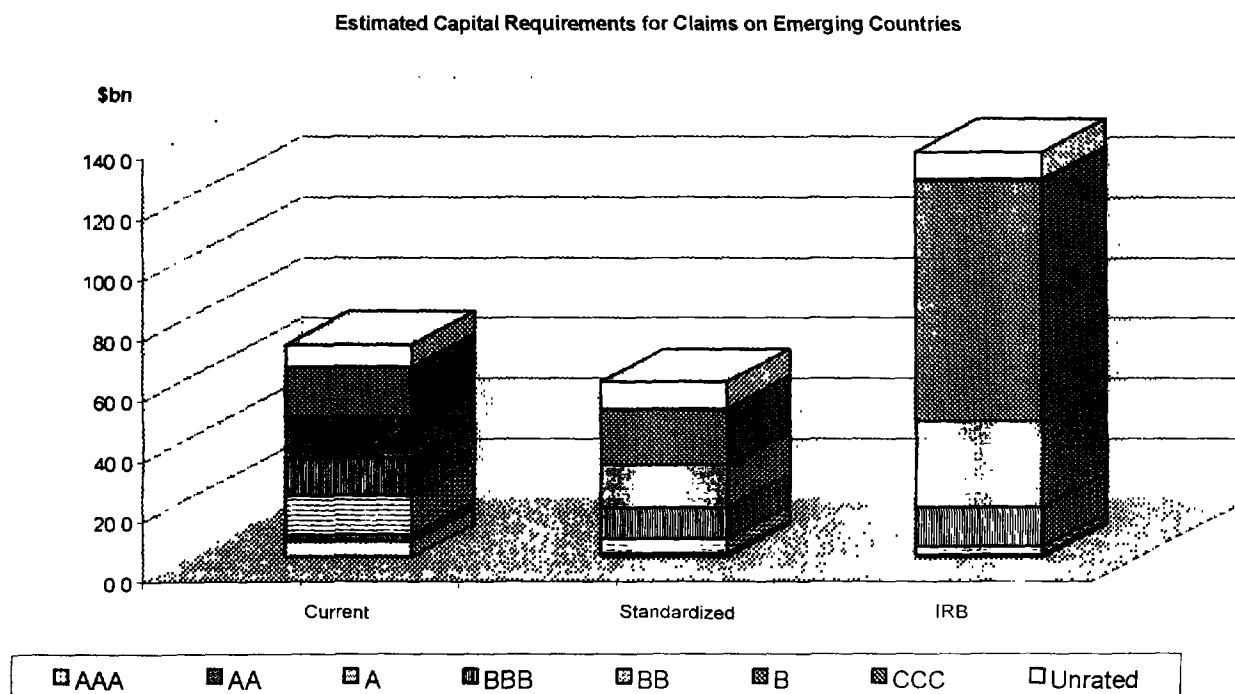
On the other hand, for countries rated below BBB there are increases in capital requirements. For the standardized approach this results in increases in requirements of about \$1bn for BB sovereigns - about 7% of current requirements) and about \$1.7bn for B sovereigns- about 11% of requirements. These increases are entirely due to the tightened rules for banking sector loans. However, we note that this is likely to be an underestimate as we are assuming that corporate lending is at the same rating as the sovereign and we are also using the sovereign scale (note that in the standardized approach a B sovereign gets a capital requirement of 8% whereas a B corporate requires a capital requirement of 12%). Moreover, for the banking systems themselves this may imply a sharply increased cost of funds (i.e. : dividing by the liabilities of the banking sector and not the total liabilities of the country to BIS reporting banks). Under the standardized approach Ecuador (CCC) would face an increase in requirements of about \$170,000 or almost 60%. These increases translate into estimated effects on the overall cost of capital of about 7 basis points (BB), 11 basis points (B) and 68 basis points (Ecuador).

However, our focus here is on the IRB approach, as this is likely to be adopted in one form or another by most internationally active banks. Here, capital requirements increase quite significantly for lower rated developing countries. On average we calculate that the increased capital requirements for countries rated below BBB amounts to about \$93bn on total liabilities of those countries to BIS reporting banks of some \$530bn. Excluding Mexico the relevant figures are about an \$80bn on a stock of just over \$400bn. For countries rated B the increase is some \$63bn on a stock of \$228bn and for Ecuador there is a \$0.6bn estimated increase on a stock of \$1.6bn.

In Graph 3, we show the changes in estimated BIS reporting banks' capital requirements for claims on emerging countries broken down by their 'risk rating'. The graph illustrates the overall effect and the change in the composition of the regulatory requirement across the different country risk categories. The standardized approach results in a slightly reduced capital requirement with the reductions in requirements on the higher rated claims

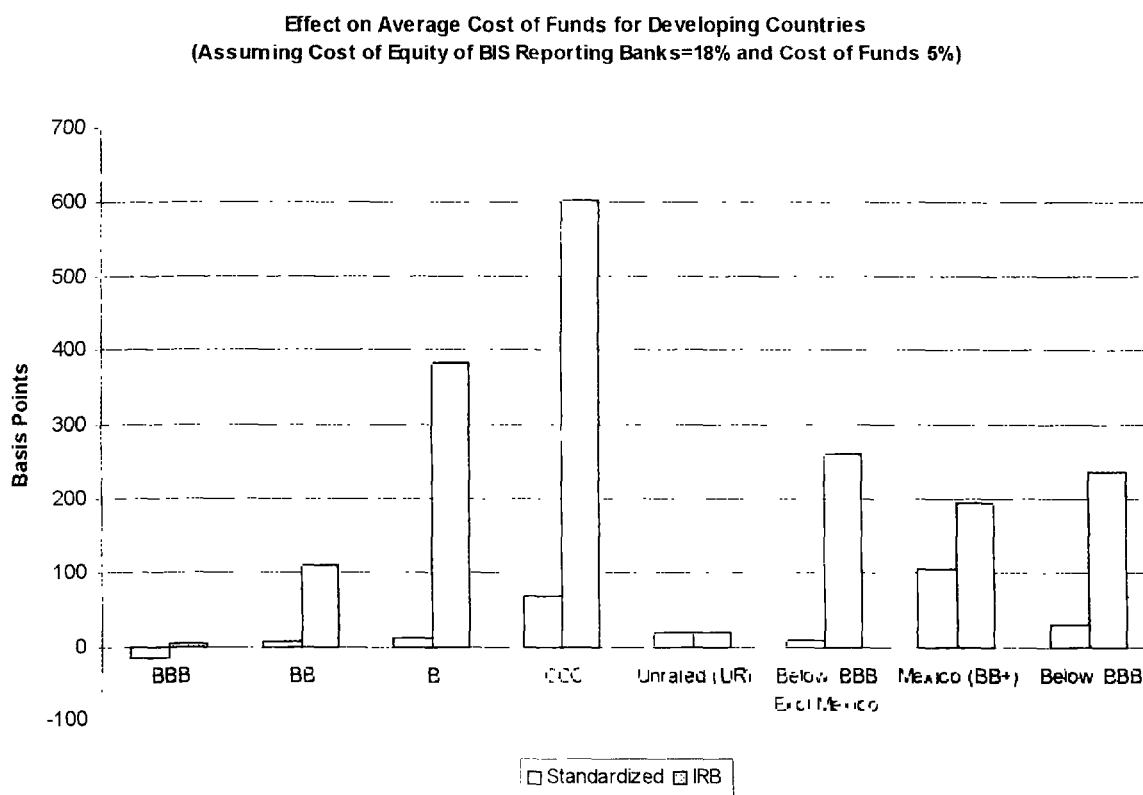
offsetting the increase in the lower ones while the IRB approach implies significantly higher overall requirements (from about \$60bn to over \$120bn). Moreover, it is clear considering the IRB approach how the composition changes with countries in the lower ratings categories – particularly B and BB where there are substantial claims – having proportionally higher requirements.

Graph 3



Graph 4, summarizes these results from the point of spreads. The estimated increase in the cost of funds for those countries rated below BBB is around 235 basis points. Excluding Korea and Mexico this figure rises to, on average, to 260 basis points and those countries rated BB will face a calculated 384 basis point increased funding cost and Ecuador an increased cost of funds of 600 basis points, from BIS reporting banks.

Graph 4



There are then fairly significant potential effects on capital requirements for BIS reporting banks' loan books to developing countries and hence on lending spreads. Of course, this is a natural consequence of a regime that ties capital requirements more closely with risk and, for the IRB approach, it is, to a large extent, a natural consequence of the mathematics of credit risk. Having said that, given that these effects are significant, this does raise concerns regarding the calibration. In particular, as discussed above, the calibration was essentially performed employing the experience of corporate defaults. A first question is that the exact details of the calibration, even for corporates, is not actually known. A second question is whether this corporate calibration serves adequately for sovereigns too. Here, due to lack of data we just simply do not know. Given that the shape of this curve implies substantial sensitivity and potentially quite serious systemic effects for countries that might be 'rated' say between BB and CCC, the suggestion here is that there is a need for a deeper analysis of the IRB approach particularly for sovereign risk.

An alternative to the proposed IRB approach for sovereigns would be to ask banks with a material exposure to sovereigns to make an internal rating on a Moody's or S&P or Fitch type scale and then have the capital requirement determined by the much more gradual-sloped, standardized approach relation between rating and capital requirement. Banks with material exposures would be, as currently, expected to substantiate their ratings especially if they differed from those of the ratings agencies. As agencies themselves differ in the case of some countries, such divergences should not be considered necessarily as abnormal. Given the uncertainties around the calibration of the IRB approach for sovereigns this might then be a sensible compromise.

4. On the implementation of the New Accord in emerging countries

The focus of this section, and the original motivation of this paper, is on how an emerging country might implement this new Accord. As discussed above, supervisors will have a choice whether to implement the standardized approach to set capital requirements or whether to allow their regulated banks to employ one of the two internal ratings' approaches. As detailed in section 1 the new Accord also includes proposals on two further pillars (supervisory review and market discipline) and there are also important issues regarding implementation regarding these other pillars. However, in this section the emphasis on Pillar 1 will be maintained.

The Standardized Approach

First consider the standardized approach to setting capital requirements. Under the standardized approach risk weights for retail borrowers will remain the same but external credit ratings are used to set risk weights for corporate, bank and sovereign borrowers according to Table 1 presented above. External credit ratings may exist for many corporate lenders in G10 countries but as of today these are scarce commodities for emerging country corporate borrowers²⁴. To some extent this may reflect the industrial structure of many emerging economies and the relatively high share of small and medium sized enterprises in some emerging economies and/or it may also reflect the relatively low scale of development of local capital markets.

To give an example, in Argentina today, there are about 150 corporates that have a rating. However, the credit bureau of the central bank has of the

²⁴ It might be argued that in many G10 countries the universe of rated claims is also highly limited.

order of some 80,000 corporate borrowers listed. While it may be the case that the 150 corporates with ratings, account for a higher percentage of credit, it is also the case that the real problems of credit risk measurement do not lie in this sector²⁵. Indeed, in the case of Argentina, the implementation of the standardized approach would lead to a substantial reduction in the cost of credit for the currently rated corporates as those companies with ratings tend to have high ratings. This may be beneficial for economic efficiency but at the same time may not be an advance in terms of improving in any significant way the relation between capital and risk for the full spectrum of corporate borrowers.

It has been argued that the new proposals will give a stimulus to the credit rating process and hence will have the effect of more corporates obtaining a rating. However, it is doubtful that the incentives will be such to make a significant in road into the very significant number of small and medium enterprises that borrow in emerging economies. Moreover, given the current and potential level of resources of the rating agencies, if a significant number of such companies quickly sought ratings, then there would be grave doubts regarding the quality of those ratings²⁶.

The conclusion is then that the implementation of the standardized approach – while bringing other benefits such as the treatment of collateral – will leave most capital requirements for emerging country borrowers unchanged and will do little to enhance the relation between capital and risk for emerging country banks. In turn this means that, to a large extent, the problems identified with the 1988 Accord will remain.

Internal Ratings

Now let us turn to the internal ratings approaches. In these approaches, banks may use internal estimates of different parameters (Probability of Default in the case of the foundation approach and also including Loss Given Default in the advanced approach) together with parameters obtained by applying supervisory rules (for Exposure at Default and Maturity and Granularity adjustments) to obtain, via particular formulae, a final risk weight for each claim. The formulae may be thought of as approximations to required capital obtained from one of the recently developed portfolio credit risk models.

²⁵ Indeed, note the relatively low sensitivity of capital requirements to PD's at the low PD part of the IRB curve versus the high sensitivity of the capital requirement to PD at the high PD end of the IRB curve.

²⁶ The concerns of the Latin American Shadow Financial Regulatory Committee are also relevant here (see footnote 13).

It appears that the calibration of these approaches has been effected through consideration of the additional risk of a typical corporate loan in a well-diversified portfolio of G10 corporate loans. Moreover, the calibration has been such that required capital should cover both expected and unexpected losses. In thinking about how such methodologies might be applied in the context of an emerging economy there are various issues that arise. First, the calibration essentially considers G10 corporate loans. It is an obvious point that this might not capture correctly the risks of even a corporate loan book in an emerging country where economic volatility is normally greater. A slightly different but related point is that the systemic risk of a 'well diversified' loan book in the context of an emerging economy is also probably greater. In other words, risks may be less 'diversifiable' in an emerging economy. Another way to say this is that the correlation structure is likely to be different with a higher positive correlation between default probabilities.

The same arguments of course stand thinking about the current (1988) Accord. And indeed many countries have adopted stricter standards (i.e.: stricter than the 8% recommended minimum) presumably because the relevant authorities have thought that risks are greater. A similar approach could be suggested here such that the risk weights are derived using the G10 'calibration' but then the risk weight is applied to a higher minimum requirement (e.g.: 10%) rather than the 8% minimum. However, the models underlying the calibration are highly non-linear. Given the (lack of) degree of detail given regarding the actual calibration process, it is at the least, very unclear what such an approach would actually deliver. At the very least, this would require a significant amount of work at the individual emerging country level to attempt to translate the G10 calibrations to one that might be relevant.

A second issue is whether capital should cover simply unexpected losses or both unexpected and expected losses. On the one hand, given the lack of international agreement on provisioning rules, the actual treatment of provisioning in some G10 countries, the fact that general provisions can count as capital and the desire of the BCBS to err on the side of being conservative, the proposals are understandable. On the other hand, some emerging economies may be quite different to their G10 counterparts in this respect and the proposals as they stand may be quite problematic.

In the case of many Latin American countries, for example, supervisors have much more freedom to set provisioning requirements than capital

requirements that are frequently fixed under law²⁷. This has been one of the drivers for an increase the relative importance of provisions in the region viz a viz capital. Moreover, in some countries, provisions are specifically thought of as covering expected losses. In the case of Argentina, for example, there is a 1% general provision on all new loans (which counts as capital towards capital requirements) but for the corporate loan book (specifically corporate loans above \$200,000), there may be further provisions depending on a 'rating' of each corporate client. These ratings are supposed to be forward looking and based on cash flow projections and income statements and the like. If capital covers both unanticipated and anticipated losses, then there is likely to be some double counting.

Apart from the specifics regarding the analytical aspects, there are also likely to be serious issues regarding the implementation of an internal ratings approach in an emerging economy. The IRB approaches allow banks to estimate important parameters that then feed into the determination of their capital requirements. This would be a significant departure from current practice and is half way towards the use of a more general 'internal model'. There are no assurances within the proposals themselves that different banks have consistent parameter estimates e.g.: that different banks have roughly the same PD or LGD estimates for the same borrower or similar types of loans. It is debatable whether such an approach requires more or less supervisory resources but it is certainly true that the nature of supervision changes and that experienced supervisory staff that also have a knowledge of the analytical issues will be heavily in demand. There are likely to be very few emerging economy regulators that first would contemplate giving such freedom to domestic banks currently and, if they did, there would likely to be shortages of the type of supervisory staff needed to implement such an approach with an appropriate degree of supervisory oversight²⁸.

There are also a set of more specific issues regarding the implementation of an IRB approach that may not 'fit' the context of an emerging economy. The minimum laid down requirements for the rating process and for the minimum amount of data required etc, have all been set with the current practice of internationally active G10 banks in mind. It is quite likely that the data requirements and the rating process itself (e.g.: the number of PD grades) should be adapted for an emerging country context.

²⁷ We note that this is also a serious issue in itself as Pillar 2 calls for supervisors to be independent and to have powers to fix capital requirements independently of their political masters.

²⁸ As an analogy, the BCBS has allowed the use of internal models for market risk for some time now. To the author's knowledge there is not one emerging economy jurisdiction that has 'approved' the use of an internal model.

5. Discussion of the choices facing emerging country regulators

Emerging country supervisors may then face a choice. They may attempt to implement an IRB approach as described in the proposals. In this case they will face several difficulties and, as reviewed above, the calibration may not be appropriate. A sub-alternative may be to attempt to adapt the approach to the particular emerging country circumstances. This is no easy task, in part because the calibration methodology is not described in sufficient depth to understand how it should be changed. One strong recommendation is that the BCBS should publish much more detail regarding the calibration methodology to allow regulators around the world to adapt it to local conditions.

As stated above, it is likely that, given the proposals as they stand, most authorities will choose to implement the standardized approach. In that case, due to the very limited universe of rated corporates, very little will change and the new proposals will not imply a significant advance over the 1988 Accord. From the standpoint of emerging economies, this would be a lost opportunity. Put crudely, the new standard was not designed for them²⁹.

At the same time, in many emerging countries, authorities have already developed interesting policies - in part to control credit risk. For example in several Latin American countries, credit bureau policies have been developed. Miller (2000) reviews Public Credit Registries (PCRs) in a large number of countries³⁰. These databases in some cases cover a significant number of loans and a significant fraction of the total credit outstanding. Indeed 9 countries in Latin America have such a bureau with no minimum loan size implying that all loans must be reported. In addition, Argentina has a policy that all loans above \$50 should be

²⁹ It has been commented to the author that this is also the case for many smaller, regional G10 banks that do not have many 'rated claims' on their balance sheet and that may not seek to get regulatory approval for an IRB approach. The implication of this comment is that the new standard was not designed for these banks either but was then essentially focussed on the large, 'internationally active' banks. This is of course a perfectly valid focus for the BCBS to take but does suggest that the new standard may not have universal application and that either 'new alternatives' could be included or failing that a new standard could be developed for other types of banks.

³⁰ In addition, many countries have private credit bureaus (PCBs) that are highly complementary to these Public Credit Registries. In countries with relatively sophisticated PCBs, these frequently 'score out' banks' portfolios (especially for consumer credit) and indeed the distribution of such scores may be used to obtain an overall 'rating' for the portfolio. This is a common procedure for example, if a bank wishes to securitise a particular portfolio. Presumably if a bank obtained an external credit rating for a particular portfolio, it might then use that within the standardized approach to seek a reduced capital requirement. It is not clear, given the way the current proposals are written, whether or how much a bank could 'contract out' its scoring or grading system and still be compliant with the laid down guidelines of the IRB approach. This is an issue that the BCBA will no doubt need to consider in the months ahead.

reported. Typically, (in 21 of the 30 such policies reviewed), the data is organized in a set of grades that might be likened to ratings. In all but one (Haiti), the 'rating' is assigned by the financial institution although in many cases this rating is then scrutinized by the regulatory authorities and there are generally cross controls (i.e.: a consistency check between different ratings of the same debtor). Policies differ with respect to how many such 'ratings' there are (typically 5 or 6) and how the methodologies for how they are determined.

These policies were developed, on the one hand, to share information between lenders, especially regarding bad credits, and frequently to fix appropriate levels of provisions. However, they obviously have very significant potential uses for the measurement of credit risk more generally. In Falkenheim and Powell (2000), the authors develop a simple model for credit portfolio risk and use data from the credit bureau of the Argentine central bank to calibrate it³¹.

This kind of approach opens up different possibilities. Here I list three:

1. One possibility would be to develop a similar Internal Ratings type methodology as developed by the BCBS (i.e.: a new set of Internal Ratings developed by banks according to the BCBS minimum requirements) but use the results from a local portfolio credit risk model and local credit bureau information to calibrate the methodology to local circumstances. This would have the advantage for the authorities of not having to change the current structure of the relevant credit bureau and the local authorities could claim that they were implementing the new Accord but with 'improved' parameters. A disadvantage is that as discussed above this gives a degree of freedom to banks to set critical parameters that then feed into requirements that many emerging economy regulators may find difficult to accept. A second disadvantage is the cost for the banks. Not only would banks continue to be mandated to send the relevant data to the credit bureau but would also, if they wished to use internal ratings, develop a different set of internal ratings following the BCBS proposals (but with different calibration).
2. A second possibility is then to attempt to harness the existing credit bureau policies in emerging countries and use those as a basis for the

³¹ Indeed the Argentine Central Bank has developed a simple scoring model and a credit portfolio model, based on Credit Suisse First Boston's Creditrisk+ program, to analyse credit portfolio risk of banks and in particular estimates of expected losses and unexpected losses subject to different assumptions on crucial parameters and tolerance values.

PD estimates³². This approach is probably less costly from the point of view of the banks. They would be able to use internal ratings for capital, just as they are currently used for provisioning, and both would work off the same set of information. After all, if provisions are already set to reflect expected loss, then estimating the unanticipated loss is simply a different statistic but from the same distribution. This approach would also have the advantage that authorities would be able to supervise more effectively banks' internal ratings. The disadvantage of this approach is it would not satisfy the minimum laid down requirements of the current BCBS proposals.

3. A third possibility is that the credit bureau policy in countries that have developed these instruments is adapted such that it 'fits' the minimum laid down requirements of the BCBS proposals for Internal Ratings. This, depending on the country, would require a very significant amount of investment from the part of the authorities and on the part of the banks to adapt their systems from the current ones to a new system consistent with the BCBS proposals. Under this proposal banks would have to follow similar methodologies to set Internal Ratings but that methodology would aim to satisfy the BCBS rules. It would have the advantages then of simultaneously satisfying the new proposals but also giving the regulators a greater degree of control over the rating methodology. A disadvantage would be cost.

Emerging country regulators will have to review these choices in the coming months. The urgency is that if authorities in emerging economies wish to implement one of the Internal Rating methodologies, and the wish to comply by the 1995 date, then they must start to plan now how such a methodology would be implemented in order to start to obtain the necessary time-series relevant of data. However, each of the three alternatives has very significant costs. In the face of this situation, it is likely that under the current proposals authorities in emerging countries will opt for the standardized approach and that means very little change from the 1988 Accord.

The Internal Rating approach as developed by the BCBS draws on the 'best practice' of large banks in G10 countries. This is of course not necessarily

³² Miller (2000) appears somewhat critical of the rating information contained in some PCRs. To some extent the debate is a little like the use of external ratings discussed above. The danger is that banks may rely too much on publicly available 'ratings' and do not develop their own independent opinions on borrower risks. However, casual evidence in Argentina is that the existence of the PCR has not stopped the development of private credit bureaus nor the development of banks' own internal scoring models.

the ‘best practice’ in emerging countries, and in many emerging countries, authorities have been taking a quite different and more centralized approach with the development of central PCRs. Naturally, each approach has its pros and cons but at the very least a very serious analysis is required as to whether the new proposals from the BCBS constitute the right standard for emerging economies. If emerging countries adopt either the standardized approach or implement an Internal Rating approach inappropriately calibrated, then the conclusion must be that this was not the right standard.

At the same time, banks remain the most important financing source in emerging economies. The correct rules regarding capital requirements and the appropriate supervision of those rules is then one of the most important activities of emerging country financial regulators and the decisions that are made may have a macro-economic impact. It is then about time, that serious consideration is given to the idea of an appropriate standard for capital for emerging economy banks which may differ from the appropriate standard for internationally active banks of their G10 counterparts. This might then attempt to combine some of the advantages of the IRB approach (some degree of autonomy for banks to set ratings and a better link between risk and regulatory capital), but be more standardized than the current IRB proposals from the BCBS and draw on existing policies in emerging economies. This standard may then draw on the current ‘best practices’ of the regulatory authorities in emerging economies.

5. Conclusions

In this largely discursive paper I have presented a review of the new proposals from the Basel Committee of Banking Supervision to reform the 1988 Capital Accord from the standpoint of emerging countries. The 1988 Accord was a tremendous success and is probably the most successful of all ‘financial standards’. Although this Accord was designed by G10 regulators, and with internationally active G10 banks in mind, it has been applied in many countries and for all banks. The new proposals are potentially a very significant step forward. The discussion in this paper centres on Pillar 1 i.e.: actual requirements although the proposals themselves are much wider in scope. The proposals include a ‘standardized’ approach and also two Internal Rating approaches. Most large, internally active G10 banks will no doubt work towards implementing an Internal Rating approach that will link credit risk more closely with actual regulatory requirements.

In an attempt to estimate the effects of the new proposals on the cost of capital for emerging economies, it is found that overall the level of regulatory capital is reduced. However, for countries with poorer credit ratings and the exceptional cases of Mexico, Korea and Ecuador there are sharp increases (although the case of Mexico crucially depends on rating movements in the coming years). Moreover, in general there will be significant increases in capital requirements for G10 banks lending to emerging economy banking systems.

However, the real focus of this paper is to consider how emerging economies might implement the new proposals domestically. The conclusion is that emerging economies face an unpalatable choice. It is likely that most emerging countries will implement the standardized approach. But, given the small universe of rated institutions in emerging economies, this is likely mean very little change on the current situation. Even with an optimistic growth rate of rated enterprises, there will only be marginal effects and an 'optimistic' growth rate of rated enterprises may have as its counterpart a dilution in the quality of those ratings. On the other hand, emerging economies will face substantial difficulties implementing one of the Internal Rating approaches and those approaches have not been calibrated with emerging country risk in mind. Moreover, given the non-linearity of the models it is not at all obvious how increasing the basic level of capital (from say 8% to 10%) corrects that problem. Indeed, emerging country authorities will need with some urgency a lot more details on how the IR methodologies have been calibrated to attempt to make even broad guesses at a reasonable 'correction'. The requirements have also been calibrated using both anticipated and unanticipated losses and in the case of some emerging economies, there is then likely to be serious double counting with respect to provisioning rules that also needs to be taken into account.

More generally, the laid down minimum requirements to arrive at Internal Ratings, which may reflect the 'best practice' among G10 internationally active banks, may not be the right standards for an emerging economy authority to specify for domestic banks. At the same time emerging country supervisors have been moving in a different direction and many have implemented significant Public Credit Registry policies in an attempt to control credit risks more effectively. This more centralized approach has its pros and cons viz a viz the more decentralized approach of letting banks design their own IR systems but subject to minimum criteria but the revealed preference of emerging country supervisors is to move to this more controlled type of IR and this tendency is also clearly evident in, for example, market risk regulation and supervision.

This discussion raises the very serious issue as to whether the new proposals are the appropriate standard for emerging economies and hence whether they will be as successful as the 1988 Accord. It is likely that most emerging countries will implement the standardized approach in which case little will change and the valuable work of the BCBS in developing the IR approaches will be limited in the case of emerging countries. However, banks remain the most important source of finance in such economies and the correct measurement of credit risk is arguably even more important than in the context of a G10 economy. Hence, it seems appropriate to suggest that the time has come to think of a separate standard for capital for emerging economy banks. This standard might attempt to employ the kinds of data that many emerging country supervisors now have available to them through typical (or adapted) credit bureau policies.

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