

Basel II and Bank Competition
In Emerging Market Economies:
Background and Recent Developments*

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November 2003

* Paper prepared for the KMFA, KIA conference on the “Consequences of the New Basel Accord for the Korean Banking Sector, and Policy Implications”, December 15, 2003.

1. Introduction

In recent weeks, the timetable for agreement on the new Basel Accord on capital adequacy has suffered a number of setbacks. Originally, the plan was to finalize the agreement by the end of 2003, for full implementation at the end of 2006. However, progress has not been smooth. On October 11th 2003, the Basel Committee for Banking Supervision announced the postponement of the finalization of the agreement for a further several months to the “first half of 2004”¹. To some extent, the delays in the finalization of the agreement reflect the effective campaign conducted by private sector banks who have sought to reopen several key components of the new accord, in particular the treatment of expected losses and the capital requirement on securitized assets. They have also argued that the proposals were overly complex and prescriptive².

More importantly, the delays also reflect problems with the ratification process within the respective member countries of the Basel Committee. In the United States, the Office of the Comptroller of Currency (OCC) – the arm of the U.S. Treasury that has charge over bank supervision – has often expressed caution concerning the rigid implementation of the new accord to the detriment of U.S. banking interests³. The outcome of the internal debates within the U.S. regulatory community has been the decision (in June 2003) to limit to the scope of the new Basel Accord to around twenty of the largest U.S. banks that conduct substantial international activity. For all other banks, the existing Basel rules will continue to apply, although the new rules can be adopted on a voluntary basis. As a consequence, the large banks are likely to reap some reduction in their capital requirement that arises from the adoption of the advanced internal ratings based approach (IRB), while the other banks that continue to adopt the current standards will be spared from the increased capital charge that arises from the operational risk component of the new accord. In other words, the prospect is that few U.S. banks will be disadvantaged in terms of increased capital charges from the advent of the new accord. Those that adopt

¹ See the press release of October 11th 2003, on <http://www.bis.org/press/p031011.htm>.

² See, for instance, the arguments put forward by the Institute for International Finance, which represents the major international banks. See <http://www.iif.com/press/pressrelease.quagga?id=75>.

³ See press release of February 27th, 2003, on <http://www.occ.treas.gov/newsrelease.asp?Doc=3MSW23TK.xml>.

the new rules are likely to see a reduction in their capital requirements, while the smaller banks with a domestic focus will continue to operate under the existing rules.

However, a more serious threat to the new Basel accord has emerged recently from the increasing scrutiny of the legal basis of the Basel process from the U.S. Congress. On November 5th 2003, the U. S. House of Representatives Committee on Financial Services sent an open letter⁴ to Alan Greenspan (chairman of the Federal Reserve), John Hawke (Comptroller of Currency), Donald Powell (chairman of Federal Deposit Insurance Corporation) and James Gilleran (director of the Office of Thrift Supervision). In this strongly-worded letter, the committee members ask for an analysis of the legal basis for the Basel accord, adding that:

“The Committee views Basel II in a similar light as a trade agreement or treaties with foreign nations, which define the relationships between the U.S. and foreign countries. Similarly, Basel II will define how U.S. and foreign financial institutions are supervised on a global level. Trade agreements and treaties are subject to Congressional review and approval as laid out in the Constitution. Consequently, we believe that Basel II should be reviewed by Congress prior to any final agreement that would affect U.S. and U.S.-based financial institutions in such a significant manner.” [U.S. House of Representatives (2003), p. 12].

They end the letter rather ominously with the following statement.

“Inaction on the items outlined above could force the Committee to take additional steps to ensure that the Congressional concerns are addressed.”

The intervention of the U.S. Congress raises the stakes substantially in the whole Basel process, and is likely to delay the new Basel accord by a considerable period of time. The Basel Committee’s revised target of June 2004 for the finalization of the agreement already looks too optimistic.

More seriously, the U.S. Congress’s intervention raises the prospect of a general “escalation” of the negotiation process in which the negotiating powers are taken away from the central bank and supervisory authority representatives that sit on the Basel

⁴ See the press release on <http://financialservices.house.gov/news.asp?FormMode=release&id=425>. The letter itself is posted on http://financialservices.house.gov/media/pdf/ANPR%20Comment_001.pdf.

Committee, and instead the Finance ministries and legislatures of the other member countries take direct charge of the Basel negotiations. A bill is currently in progress in the U.S. Congress that would do precisely this⁵. The purpose of the bill is to

“... create an interagency committee chaired by the Treasury Department and include federal banking regulators. If the members cannot reach consensus on a position, the position of the Treasury would prevail. It is important that the Secretary, as part of the elected Administration, sets U.S. policy.”⁶

If this escalation takes place more broadly across all the member countries of the Basel Committee, the negotiations are likely to be conducted much more explicitly on the basis of narrow national interests (rather like trade negotiations). For instance, the U.S. Congressmen’s letter cited above raises many of the same concerns as raised by the OCC, but is more explicitly couched in the language of protecting the interests of the U.S. banking industry against hasty and overly complex rules.

Of course, it would be naïve to suppose that national interests have not figured in the Basel negotiations up to now – they have, as we will see below. However, the composition of the Basel Committee – whose members are central bankers and financial regulators – has ensured that the main focus of the discussion has been on the commonly shared interest of financial stability and the harmonization of financial regulation. Indeed, the original 1988 Basel accord illustrates well the interplay between concerns over financial stability and the protection of national interests, but how the two can be reconciled. It also illustrates well the effectiveness of rapid negotiations conducted by like-minded central banks and regulators. Although the 1988 Basel Accord was negotiated by G10 regulators and intended for implementation there, it has been adopted by over 100 countries worldwide as the basis for banking regulation.

The plan of the paper is as follows. In the next section, we argue that financial regulation can best be analysed as a “common agency problem” in which the task is to balance banking sector interests and financial stability concerns. We look back at the origins of

⁵ H.R. 2043, June 2003.

⁶ Opening statement by Congressman Bachus, <http://financialservices.house.gov/media/pdf/061903ba.pdf>, page 3.

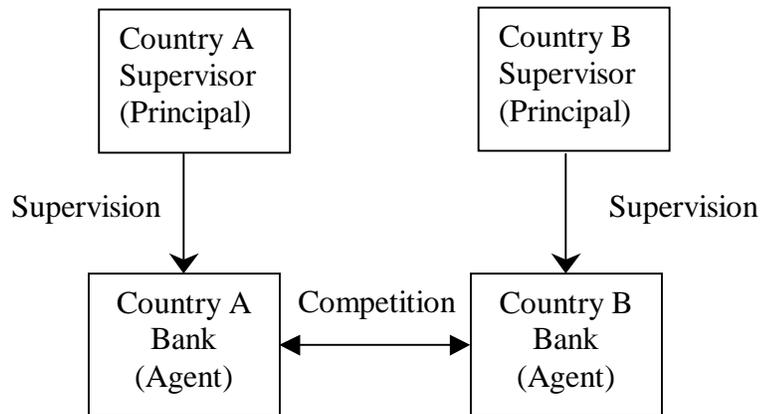
the 1988 Basel Accord as an illustration of this balance, and draw out some conclusions that are of general relevance now. In section 3, we will review the main features of the proposed Basel II accord. In section 4, we discuss the likely competitive impact of the new Basel accord for the G10 banking sector, especially with regard to banking competition and banking industry structure. In section 5, we review the likely impact of Basel II on the banking sector of emerging market economies, and especially for Korea. In sections 6 and 7, we address the widely discussed issue of pro-cyclicality in the new Basel accord, and also discuss the possible endogeneity of the risk profile and the possible dangers of using backward looking data, calibrated to G10 economies, for application to emerging market economies. We conclude in section 8 with some policy implications.

2. Financial regulation as a common agency problem

Financial regulators have the role of supervising the activities of the domestic financial institutions under its charge. The regulator and domestic institutions are in a principal-agent relationship, where the regulator is the principal and the domestic financial institutions are the agents. The regulator oversees the actions of domestic financial institutions, protecting the interests of uninformed depositors and other interested parties who do not have the market power or disciplining device to influence the actions of the managers. The regulators are also concerned to maintain systemic stability of the financial system.

However, the principal-agent relationship is not an isolated one to each jurisdiction. At the same time as the regulators wanting to limit the freedom of action of the domestic financial institution, it cannot ignore the competitive forces that domestic financial institutions face from the financial institutions from other countries. Thus, in regulating the domestic banks, the regulators are facing a balancing act between curtailing the activities of the domestic banks as part of its regulation mission and providing enough support to the domestic banks so as to ensure that they are not disadvantaged in the competition for market share. The regulation of financial institutions is more in the nature of a *common agency* problem in which many principals are regulating the banks

under its jurisdiction, but where the banks themselves are competing with each other. The regulators' motives are mixed. They want to limit the actions of their banks, but not so much as to handicap them in international competition. The diagram below illustrates the mixed motives underlying international regulation.



Both the initial Basel Accord of 1988, and aspects of Basel II (and the current delay in negotiations) cannot be understood without this wider perspective. Indeed, the 1988 Basel accord was successful precisely because the motive for prudential regulation happened to coincide with the motive to limit competition between banks – especially from the Japanese banks that were widely viewed as being unfairly aided by capital regulations that were too lax.

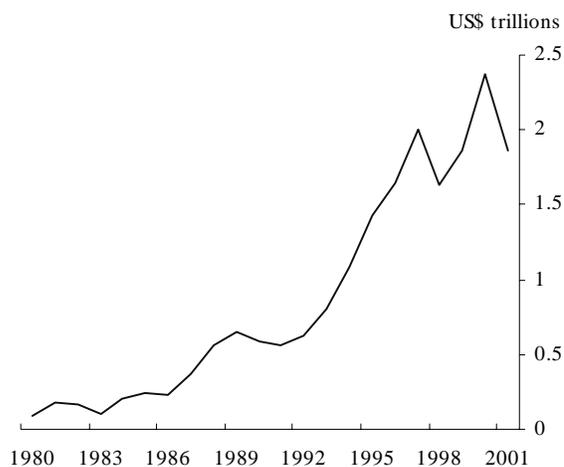
The Basel Committee on Banking Supervision was established in 1974 by the G-10 countries (plus three others) in response to the failure of the Herstatt Bank in Germany that had adverse implications for both foreign exchange markets and banks in other countries.⁷ The Committee's role was in facilitating and enhancing information sharing and cooperation among bank regulators and developing principles for the supervision of internationally active large banks. As the Latin American debt crisis imposed strains on the internationally active banks, the Committee became increasingly concerned that the

⁷ Current members countries are Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

potential failures of one or more of these banks could have serious adverse effects not only for the other banks in their own countries, but also for counterparty banks in other countries. The Committee feared that large banks lacked sufficient capital in relation to the risks they were assuming and that the inadequacy in large part reflected the reluctance of national governments to require higher capital ratios for fear of putting their own banks at a competitive disadvantage relative to banks in other countries.

In the 1980s, this concern was particularly directed at Japanese banks, that were rapidly expanding their global reach. Japanese banks with foreign branches or subsidiaries were required to satisfy a capital ratio of 6% by the Japanese regulators, but they were permitted to include as capital the unrealized capital gains on their holdings of equity. Throughout the 1980s, Japanese equity prices advanced rapidly, in the upward trajectory of the equity bubble that was to burst at the end of the decade. The portion of Japanese banks' capital consisting of unrealized gains on equity was very large, and Japanese banks were widely perceived as having an unfair advantage over banks from other countries. These concerns were emerging just when the competitive pressures between the major banks had grown substantially with the development of the syndicated loans market where the big international banks competed head to head.

Chart 1. New syndicated loans (dollar equivalent)
(source, Jackson (2001))



The highly competitive nature of the credit market led to continual downward pressure on spreads and there was a concern that there was a link between pricing and capital. It was felt that banks which held less capital to back the loans were prepared to price them more aggressively, forcing other banks to reduce their pricing or lose market share in what was seen as an important strategic market. Domestic markets for loans to large corporates were also becoming more contestable. In effect, for large corporates, an international market was growing even for loans in the domestic currency of the borrower. For instance, by 1986, 39% of loans to the UK non-bank private sector by banks operating in the United Kingdom were accounted for by foreign-owned banks and in terms of domestic currency loans the percentage was 27% (Jackson (2001)).

The Japanese banks' competitive advantage also showed itself in estimates of the cost of equity of the banking industry across countries. Zimmer and McCauley (1991) estimate the cost of equity for the period 1984-1988, and report the following numbers.

Table 1

Comparison of cost of equity for banking and other industrial sectors (1984-1988) Source: Zimmer and McCauley (1991)			
	Cost of equity for all industries (%)	Cost of equity in Banking (%)	Banks' advantage (%)
Japan	4.5	3.2	1.3
US	11.2	12.0	-0.8
UK	6.4	10.0	-3.6

Regulators in Europe and the United States thus faced a dilemma. Either they could impose prudential regulations independently (but see the erosion of market share of their home country banks), or they would have to relax regulation, and risk the stability of the banking system. The 1988 Basel Accord was the solution to this dilemma. By imposing a common requirement across all major internationally active banks, the regulators could collectively arrest the slide to the bottom in bank competition. The rapid adoption of the 1988 accord was in large part due to the coincidence of the interests of the major countries – in particular, the U.S. and U.K., who were the two most active members of the Basel Committee. The rapid pace of negotiations leading to the conclusion of the

agreement was made possible because the alignment of interests of the leading members of the regulatory community.

The contrast with the slow pace of negotiations for Basel II is notable, but the basic underlying political economy is inescapable. As long as the regulations are aligned with broad national interests, there are few impediments to rapid agreement. However, as we have seen with the U.S. banks and their regulators, as soon as the proposed regulations begin to be perceived as being detrimental to the interests of a large section of the banking industry in a particular country, the mixed motives of the regulators in the common agency game – pursuing both financial stability but also the interests of its domestic banking sector – lead to tensions in the multilateral negotiations. In the case of Basel II, the tensions are now finally beginning to surface more explicitly with the active intervention of the U.S. Congress that is much less reluctant to maintain the fine balance between regulation and banking interests. Its emphasis is very much on the latter.

3. Basel II – Key Elements

The overall objective of Basel II is to refine the risk-sensitive capital charges that were introduced in the 1988 Basel accord. The aim is to maintain the same level of overall average regulatory capital in the banking system, but make capital requirements much more finely dependent on the risks of banks' assets.

On April 29th 2003, the Basel Committee published its third consultative paper (commonly known as CP3) that refines its earlier proposals. The aim is to establish regulatory capital requirements that more closely match the true economic risks that banks face – in other words, aligning *regulatory capital* to the underlying *economic capital*. Basel II is not intended to increase the aggregate level of capital in the system. Rather, the proposal aims at reallocating capital requirements so that riskier activities attract greater capital requirements. The underlying philosophy of Basel II is that the safety and soundness of banks in the complex and rapidly evolving financial system can be achieved only by the combination of effective bank-level regulation, supervision, and market discipline. The new accord thus has “three pillars”.

Pillar I. Minimum capital requirements.

The rules contained in Pillar I set out the minimum regulatory capital to risk-weighted assets. The definition of capital remains the same as the 1988 accord, and the 8% minimum also remains the same, but the definition of risk-weighted assets has changed to become more risk-sensitive. In simple terms,

$$\text{Regulatory Capital} = 0.08 \times \text{Risk weighted assets}$$

The risk weights can be calculated in one of three ways:

- Standardized approach
- Internal ratings based (IRB) foundations approach
- IRB advanced approach

The standardized approach is a ratings based approach similar to the current accord, but which introduces more categories of risk weights. For example, the 1988 accord provides only one risk weight category for corporate lending (100%), but Basel II will have four categories (20%, 50%, 100% and 150%) depending on the credit rating of the borrower. Unrated borrowers will have the 100% weight, unchanged from current rules. However, non-investment grade borrowers (BB and below) will attract the higher 150% weight. Both IRB approaches are more sophisticated methods that allow banks' internal estimates to serve as inputs into the determination of capital. The foundation IRB uses the bank's own estimate of the probability of default (PD), but imposes the Basel Committee's numbers for the loss given default (LGD) and the exposure at default. The advanced IRB method allows the bank to use its own figures for all parameters.

Under the IRB approach, the required capital is computed from a simple one-factor version of the Merton model (used by CreditMetrics). The formula used is:

$$\text{Capital required} = LGD \times \Phi \left(\frac{\Phi^{-1}(PD) + \sqrt{\rho} \Phi^{-1}(C)}{\sqrt{1-\rho}} \right) \times EAD$$

Where LGD is loss given default, EAD is exposure at default, $\Phi(\cdot)$ is the cumulative distribution function for the standard normal, PD is the probability of default, C is the confidence level, and ρ is the correlation with the single factor assumed in the model. So, as an extreme case, if the correlation is zero, the capital requirement is just

$$\text{Capital required} = LGD \times EAD \times PD$$

At the opposite extreme, if the correlation is 1, the requirement is

$$\text{Capital required} = LGD \times EAD$$

Depending on the correlation coefficient imposed, the required capital as a function of the probability of default can varied. For corporates, sovereigns and interbank assets, the correlation is calculated as a convex combination of 12% and 24% as follows.

$$\rho = 12\% \left(\frac{1 - e^{-50 \times PD}}{1 - e^{-50}} \right) + 24\% \left(1 - \frac{1 - e^{-50 \times PD}}{1 - e^{-50}} \right)$$

For small and medium sized businesses with turnover of T million euros,

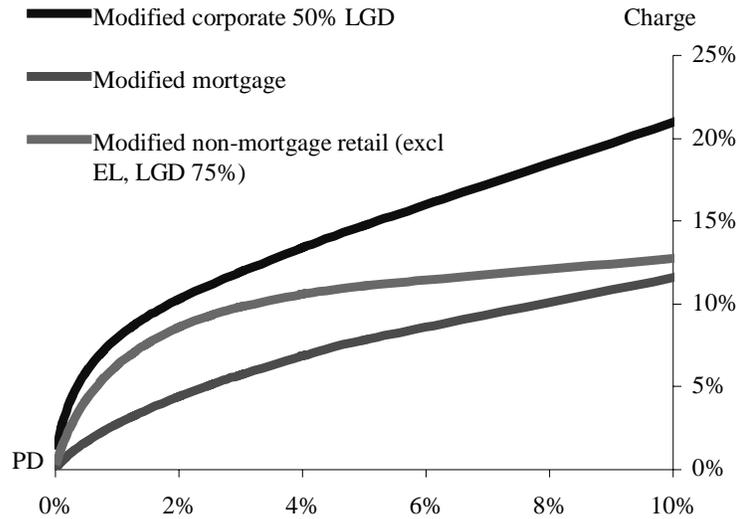
$$\rho = 12\% \left(\frac{1 - e^{-50 \times PD}}{1 - e^{-50}} \right) + 24\% \left(1 - \frac{1 - e^{-50 \times PD}}{1 - e^{-50}} \right) - 4\% \left(1 - \frac{T-5}{45} \right)$$

For retail loans, the correlations are much lower. For retail mortgages, it is fixed at 15%.

For revolving retail credit (e.g. credit cards)

$$\rho = 2\% \left(\frac{1 - e^{-50 \times PD}}{1 - e^{-50}} \right) + 15\% \left(1 - \frac{1 - e^{-50 \times PD}}{1 - e^{-50}} \right)$$

and for other retail, it is the convex combination of 2% and 17%. The overall shape of the capital charge as a function of the probability of default can be mapped as follows.



The treatment of market risk is unchanged from the 1996 Market Risk Amendment to the original accord. However, the new element (introduced into Pillar I) is an explicit charge for operational risk. The third Consultative paper (CP3) described operational risk as

“the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. This definition includes legal risk, but excludes strategic and reputational risk.” (Basel Committee (2003, paragraph 607)).

There are three ways of calculating the capital requirement for operational risk. The Basic Indicator approach requires 15% of the revenues of the last three years. The Standardized approach requires 12-18% of revenues from 8 main activities. There is also an Advanced Measurement Approach that calculates the loss from operational risk from past data.

Pillar II: Supervisory review.

The second pillar has provision for supervisory review of banks' capital adequacy and their internal assessment procedures. National supervisors will be responsible for evaluating the banks' internal procedures, and can impose additional capital requirements.

Pillar III: Disclosure and market discipline.

Basel II aims to promote market discipline through enhanced disclosure requirements for banks. The increased transparency is intended to give market participants a better assessment of a bank's risk profile and its capital cushion.

4. Impact on Bank Competition in G10 Countries: Lessons from QIS3

The implications of Basel II go well beyond the mere determination of regulatory capital. Basel II will have a significant impact on the competitive landscape of the banking sector, both domestically and internationally. The impact on emerging market country banking sectors will be particularly far-reaching.

The Basel Committee published the results of its third Quantitative Impact Study (QIS3) on May 5th 2003. The study was a major undertaking, involving more than 360 banks from over 40 countries. The banks were asked to quantify the impact of the proposed capital adequacy rules on their existing portfolios.

On average, large G10 banks, referred to in QIS3 as "Group 1 banks" would face an overall increase of regulatory capital under the Standardized approach and the IRB Foundation approach (+10.5% and +2.6% respectively), but a slight decrease when using the IRB Advanced approach (-1.6%). Smaller "Group 2 banks" would see their regulatory capital increase by 3.4% (Standardized approach) and decrease substantially (-19.4%) when using the IRB Foundation approach, mainly reflecting the importance of retail portfolios for these banks.

Table 2

World-wide Results									
Overall percentage change in capital requirements									
	Standardised			IRB Foundation			IRB Advanced		
	Average	Max	Min	Average	Max	Min	Average	Max	Min
G10 Group1	11%	84%	-15%	3%	55%	-32%	-2%	46%	-36%
Group2	3%	81%	-23%	-19%	41%	-58%			
Other ⁸	12%	103%	-17%	4%	75%	-33%			

Source: QIS3

However, for the group of countries under the “other” category, QIS3 reveals substantial increases in capital requirements given the current portfolio of assets. This group of countries consist of non-G10, and non-EU countries. It includes a group of emerging market countries, but also includes Norway, Australia and Hong Kong, which are relatively more developed in their banking and financial sectors. The increased capital requirement for the “other” category of countries almost certainly understates the increased capital requirements for the subset of emerging market countries in the sample. This is because the “other” group includes countries such that have relatively more mature financial institutions and banking sectors. In the case of Korea, the increased capital requirement is likely to be far higher than is suggested by Table 2, as we will describe below.

We may make a number of observations based on the QIS3 results on the likely impact of Basel II on banking competition, and the future landscape of the banking industry for the G10 countries and other countries with mature financial and banking sectors.

First, when applying the Standardized approach, the new operational risk charge more than offsets any reduction in credit risk requirements. With this, the Committee achieves

⁸ This category includes a very diverse group of countries. The countries are Australia, Brazil, Bulgaria, Czech Republic, Chile, China, Hong Kong, Hungary, India, Indonesia, Korea, Malaysia, Malta, Norway, Philippines, Poland, Russia, Saudi Arabia, Singapore, Slovakia, South Africa, Tanzania, Thailand and Turkey.

its objective of maintaining the overall minimum regulatory capital in the banking system at roughly the same level as at present.

Second, even though smaller G10 banks appear to benefit substantially from the IRB Foundation approach, such banks will lack the necessary financial resources and technical skills to develop the internal systems. Instead, the majority will be using the Standardized approach.

More striking are the results of QIS3 on the asset categories held by the G10 banks.

Table 3.

	Standardized		IRB Foundation		IRB Advanced
	Group1	Group2	Group1	Group2	Group1
	% change in capital requirement				
Portfolio					
Corporate	1	-10	-9	-27	-14
Sovereign	19	1	47	51	28
Bank	43	15	45	-5	16
Retail (total)	-25	-23	-45	-44	-49
Residential Mortgages	-27	-20	-53	-44	-58
Non-mortgage retail	-23	-20	-34	-26	-41
SME (total)	-4	-6	-15	-17	-13
SME corporate	1	1	-11	-3	-3
SME retail	-13	-12	-26	-24	-31
Securitized assets	86	51	104	62	130
Overall credit risk	0	-11	-7	-26	-13
Overall change	11	3	3	-19	-2

Source: QIS3

The table above illustrates a number of important findings.

The first is the importance of **retail activity**. The QIS3 report states that “banks with a large proportion of retail exposures generally have significantly lower capital requirements in the new approaches relative to current levels, reflecting the generally lower risk in this portfolio”. On average, Group 2 banks have a higher proportion of retail activity. These results also suggest that the current rules under Basel I apply high

risk-weight to retail activity. Thus, retail banking is likely to gain most from Basel II since overall risk weightings for retail activity under the IRB approach – which many important banks will adopt initially – will fall by around 50%. Retail mortgages, unsecured loans and credit card business will all see significant reductions in required capital. Under the Standardized approach, “qualifying retail loans (e.g. unsecured loans and certain SME loans) will see a drop in weightings from 100% to 75% and a reduction in mortgage weightings from 50% to 35%. Banks lending mainly to the **small and medium sized enterprises** will similarly benefit from Basel II.

Under Basel II, **securitized asset** portfolios will carry a higher capital charge, and will trigger increased capital requirements for the same pool of assets. Among the G10 countries, the impact will be felt most in the United States, which has led the way in the securitization. Currently, securitization is a cornerstone of many important markets, such as in residential mortgages, consumer credit card balances, and automobile loans, among others. The approximate size of the U.S. securitization market today is USD 2.7 trillion. It can be argued that securitization made certain business lines possible (e.g. student loans in the United States). When Basel II is introduced, the prospects for further financial innovation through securitization looks less bright.

The new **operational risk charge** also plays an important role in explaining dispersions. The capital requirement for some specialized banks (e.g. banks specializing in asset management) will see substantial rises in capital required. As the new charge for operational risk is mainly revenue-based, large banks with significant capital market activity are put at a disadvantage. This is the case under the IRB Foundation Approach. Capital market banks will be further penalized by higher capital due to securitization exposures, and the fact that they can only reap modest benefits from relatively limited exposure to retail credits. In general, banks specializing in areas such as asset management and custodial services will be among the main losers of Basel II, and these banks have been especially vocal in their lobbying efforts to remove the operational risk charge, or to move it from Pillar I to Pillar II (to supervisory review), in which case the operational risk charge would be at the discretion of the national regulators.

Banks with large **sovereign debt** exposures are likely to see large increases in required capital, especially for the riskier emerging market borrowers. We will return to this issue later in connection with the cost of Basel II for emerging market economies.

We may expect some important shifts in the strategies pursued by G10 banks in response to Basel II.

First, G10 banks are likely to push more capital into retail activities to take advantage of lower capital requirements.

More broadly, Basel II will alter the relationships surrounding commercial lending in fundamental ways. The increased risk sensitivity brought about by Basel II will promote the use of risk-adjusted pricing and will also put pressure on the practice of cross-subsidizing across different debtor classes. Loans to borrowers with a higher credit rating will require less capital, resulting in lower capital costs. This will result in strongly differentiated conditions for corporate clients. Good credit ratings will trigger lower interest rates, while borrowers with lower ratings will have to pay higher interest rates. The strongly differentiated conditions for corporate clients will improve the competitive situation for companies with high creditworthiness. Companies with lower ratings will increasingly come under pressure to improve their creditworthiness through increased innovation and higher-value products and processes. It is conceivable in the future that, against the backdrop of differentiated loan conditions, commercial lending will become less important in terms of corporate financing and that companies will increasingly turn to capital markets or other financing sources for their capital needs. This shift will, in turn, add to the significance of the market for high-yield bonds (CSFB (2003))

In addition, the fact that Basel II will bring regulatory capital more in line with economic capital is likely to affect the strategic decision-making at banks relating to which business lines to pursue. One can expect banks to streamline their business line portfolios and focus their activities on where they have a competitive advantage. This is likely to have substantial consequences for the industry and will offer financial institutions opportunities to reposition themselves. Basel II will thus accelerate structural change and

the associated process of consolidation and concentration. More merger and acquisition (M&A) activity can be expected. Unsophisticated banks facing a potential increase in their capital charge could be bought by more sophisticated banks. The New Accord will thus provide a significant incentive to domestic consolidation. Enhanced disclosure on risk and capital position through Pillar III requirements is another likely driver of M&A activity since it helps potential buyers to screen targets.

5. Implications for Banking Sector Competition in Emerging Market Countries

The challenges of Basel II for the emerging market economies will be important in determining the future shape of the banking sector in these countries. We will examine the three topics in particular.

- The choice of standardized approach versus the internal ratings based approach
- Competitive structure of the banking industry in EME (emerging market economy) countries
- The cost of borrowing by EME banks from G10 banks.

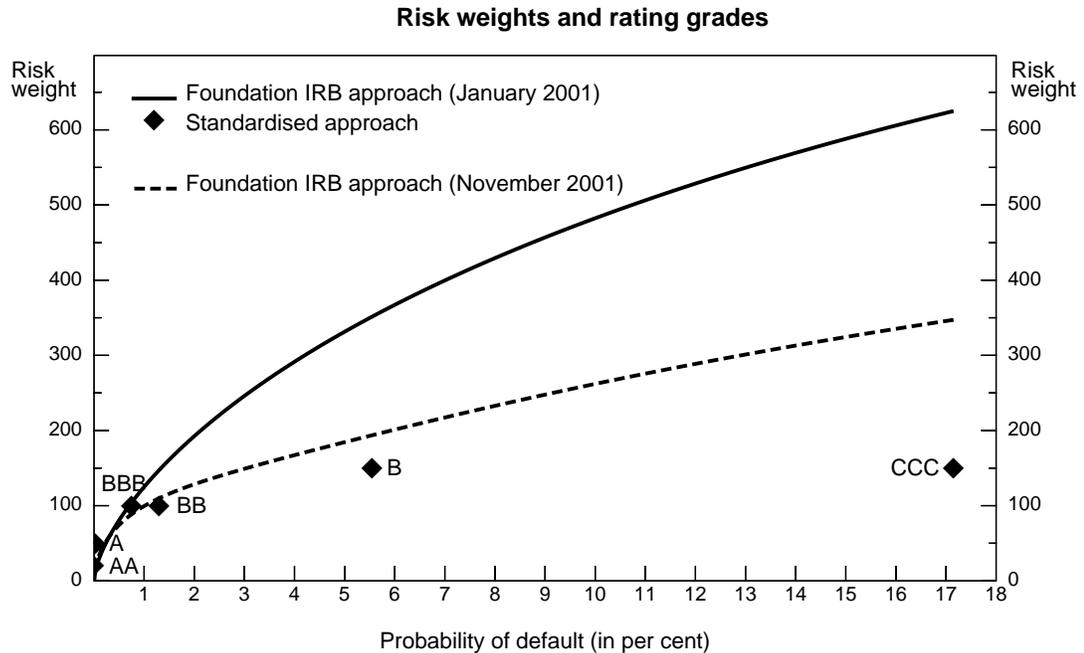
5.1 The choice of standardized approach versus the internal ratings based approach.

For the G10 countries, the internal ratings based approach (both the foundations approach and the advanced approach) results in a substantially lower capital requirement than the standardized approach (see table 3). For G10 banks, the main choice is whether they are better off incurring the large *fixed cost* of setting up the costly infrastructure for the internal ratings based approach. In the U.S., for example, one of the main concerns expressed by the U.S. Congressional Committee's letter of November 5th 2003 is that the large fixed costs of moving to the internal ratings based approach will deter the small banks from adopting it. The fear is that this will lead to a "two tier" banking industry, in which the large banks will adopt the IRB approach and reap the benefits of the lower

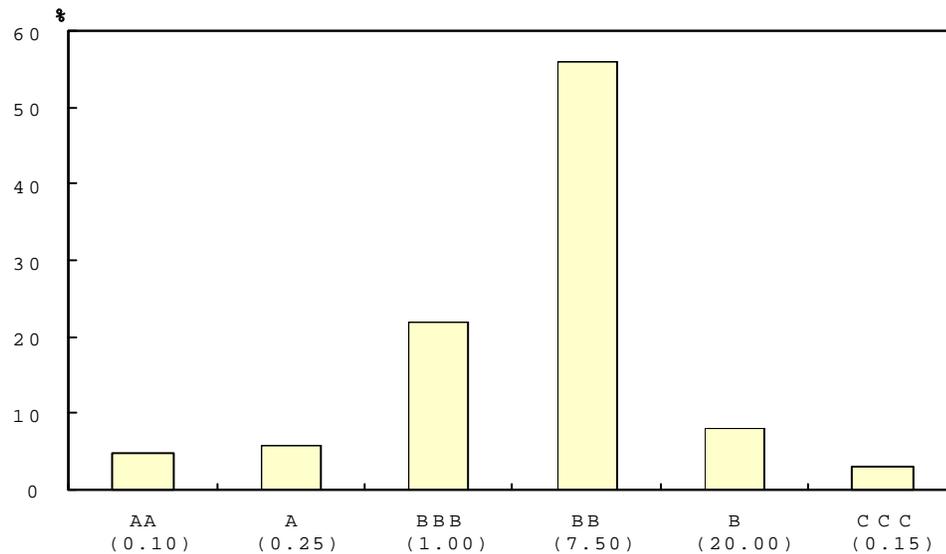
capital charge, but that the small banks will not be a competitive force that can challenge the larger banks. Instead, the market will be segmented into two tiers.

For emerging market economy (EME) banking systems, the concerns are quite different. The internal ratings based approach suffers a *double disadvantage* in EME country banking systems. Not only will the *fixed costs* be large in adopting the IRB approach, the actual *capital charge* is also likely to be higher if a bank adopts the IRB approach, as compared to the standardized approach. This is due to several reasons.

(1) The *credit quality* of the corporate borrowers in EME economies will be lower than in the G10 economies. For unrated corporates, the existing risk weight of 100% will be applied. The rated borrowers will often have credit ratings that are considerably lower than those in G10 economies. The IRB approach implies lower capital requirements than the standardized approach for investment-grade borrowers. The reverse is true for non-investment grade borrowers. The crossing point comes at the BBB level.



For emerging market economy banks, very few of their borrowers will be in the investment grade category. A large proportion of their borrowers will have no credit rating, and the existing 100% charge will be applied. Thus, the substantial benefit enjoyed by G10 banks in reducing the capital charge on their corporate loan book will be unavailable to the EME banks. For Korea, the proportion of investment grade borrowers is very small, with over 60% of rated entities being BB or lower (see below).



Credit rating of S&P Rated Entities in Korea (Source: Hong and Kim (2003)).

However, the capital charge arising from the *operational risk component* of Pillar I will have a big impact on the EME banks, without any compensating reduction in capital charge flowing from the reduction in corporate-lending capital charge.

- (2) For G10 banks, the large proportion of *retail lending* compensates for the increased operational risk charge. The required capital for retail lending is substantially below the required capital for corporate lending. However, in many EME countries, the retail credit market is small relative to the corporate credit market. Thus, the reduction in capital charge resulting from retail lending will not be large enough to compensate the increase in capital charge on corporate lending, and the operational risk charge.

Capital charge on Retail Lending (%)			
	Current (Basel I)	Standardized	IRB Foundation
Mortgage Retail	50	35	3 ~ 48
Other Retail	100	75	5 ~ 52

(3) The capital charge on *securitized assets* will increase markedly. For Korea, this effect will be a particularly hard blow to the capital requirement of banks, since the asset backed securities (ABS) market has been an important element in the restructuring of distressed companies, and constitute an important part of the financial landscape in Korea. The capital charge on asset backed securities in Basel II is very high. The Basel Committee has taken the view that for the lower rated asset-backed securities, the capital charge will be equivalent to the notional value of the asset itself. In other words, under Basel II, the amount of the asset-backed security will be *deducted from capital*. This is equivalent to a capital charge of 1,250% (since 12.5 is the reciprocal of 0.08, and the risk weight of 12.5 is necessary to set the capital charge equal to 8% of risk-weighted assets). The capital charge on securitized assets under Basel II is presented below.

Risk weight on Asset Backed Securities (%)				
Credit Rating	Standardized		Internal Ratings Based	
	ABS	Corporate	ABS	Corporate
AAA	20	20	12	14.75
AA	20	20	15	14.75
A	50	50	20	17.53
BBB	100	100	75	47.24
BB	350	100	425	96.66
Below BB-	1,250	150	1,250	> 182.98

(4) Thus, for EME banks, the net effect of Basel II will be to increase their overall capital charge compared to the current rules, and this increase will be larger for banks that choose the IRB approach. Thus, in contrast to G10 banks, the IRB approach will be a *double handicap* for EME banks – the fixed costs are large, and the capital charge is also larger.

5.2 Competitive Structure of the Banking Industry in EME countries

The likely overall increase in capital requirements from Basel II (arising primarily through the operational risk charge and greater risk weights on corporate and ABS lending) will have far-reaching implications for banking sector competition and market structure of the banking industry in EME countries.

- (1) For corporate loans, there will be *market segmentation* between local banks and the branches and subsidiaries of international banks. For branches (and some subsidiaries) of the large international banks that operate in EME countries, they will be operating under the IRB approach since their parent bank will be certain to adopt the IRB approach globally. For branches of international banks, Basel II will impose a very large capital requirement penalty for them to lend to the local corporates, or to engage in ABS activity. In contrast, the domestic banks in EME countries will be operating mainly under the standardized approach, and hence will have a comparative advantage in lending to domestic corporates. Hence, *domestic corporate lending will migrate to the domestic banks, away from the branches of the international banks*. Thus, for domestic corporate loans, there will be market segmentation. The market for all but the highest-rated corporate borrowers will be captured by the domestic banks, at the expense of the branches (and to an extent the subsidiaries) of the international banks.
- (2) However, although this market segmentation is to the competitive advantage of the local banks in the short run, the market segmentation has the potential to be damaging to the adoption of credit risk management techniques and the development of an overall credit risk management culture.
- (3) Most importantly, the very large differences in capital requirement between retail lending and corporate and ABS activity will induce fundamental changes in bank strategies and behaviour. The lower capital requirement on retail lending is likely to induce a shift in bank strategy towards retail lending. The capital-adjusted returns to retail lending will look very much more attractive compared to corporate lending or

ABS assets. Indeed, the types of internal management reforms mentioned in connection with G10 banks will accelerate this process. For banks that employ some type of internal resource allocation scheme such as the Risk Adjusted Rate of Return on Capital (RAROC), the retail sector will look very much more attractive. The shift into retail lending will have very major financial stability implications – this will be discussed in the next section. The indebtedness of the household sector is likely to increase, and will be an unwelcome complication in the conduct of domestic stabilization policy for the government. In Korea, there are two adverse implications. First, the explosion of credit card debt and the recent losses and write-downs for some of these operations give cause for concern of a big shift into retail lending. Second, an expansion of mortgage lending will have implications for the overheating residential property market. Both will have macroeconomic implications.

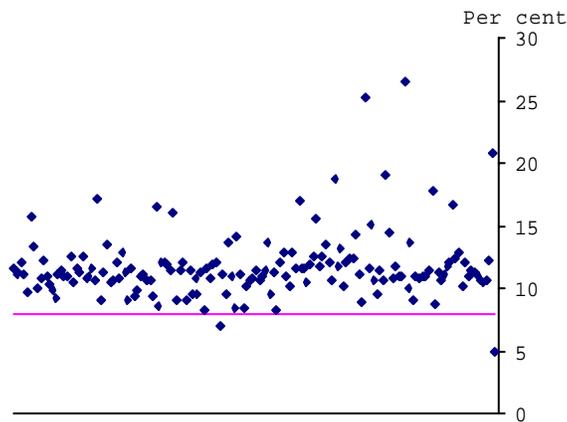
5.3 The cost of borrowing by EME banks from G10 banks

Basel II will affect the market access to the interbank market for EME banks. The extent to which EME banks will be adversely affected in the interbank market by Basel II is the topic of some controversy.

On the one hand, the credit rating of many EME banks are below investment grade, and hence will attract a large capital charge for a G10 bank that lends to an EME bank.

Risk weights for lending to banks (%)			
Credit rating	Prob. of default (lower bound = 0.03%)	Current rules for OECD banks (1988 accord)	Basel II (Foundation IRB)
AAA	0.03	20	14.75
AA	0.03	20	14.75
A	0.04	20	17.53
BBB	0.22	20	47.24
BB	0.98	20	96.66
B	5.30	20	182.98
CCC	21.94	20	367.66

For borrowing banks rated lower than BBB, there will be a substantial increase in the required capital from current levels. Authors such as Griffith-Jones and Spratt (2001) have argued that the increased regulatory capital requirement on the G10 banks for lending to EME sovereigns and banks will deter them from doing so, and that this will lead to an overall fall in the supply of credit to EME countries.



G10 Banks Capital Ratios. (Source: Jackson (2001)).

In contrast, others (such as Hayes and Saporta (2002) and Jackson, Perraudin and Saporta (2002)) have argued that the impact of Basel II on lending to EME countries will not suffer from such effects. Their argument is that banks base their lending decision on the *economic capital* required relative to riskiness, rather than the *regulatory capital*. When required economic capital is larger than the regulatory capital, then the regulatory capital is not a binding constraint on the G10 banks. Thus, the argument is that when regulatory capital is not a binding constraint, an increase in regulatory capital will not affect the behaviour of G10 banks in their lending to EME countries. Powell (2001) recognizes the potential increase in required capital, but does not believe the increase to be as large as claimed by Griffith-Jones and Spratt (2001).

In support of their argument, Jackson, Perraudin and Saporta (2002) point to the market discipline exerted by the rating agencies in the interbank swaps market. They argue that banks feel obliged to maintain high levels of capital beyond the regulatory minimum in

order to obtain sufficient access to credit markets, including swap and interbank markets for their everyday business. Banks are seen to “target” a particular credit rating (A or above), and they maintain a high capital level to achieve this target. (See scattergraph above of the capital ratios of a sample of G10 banks in 2001).

An alternative explanation for the reason why many G10 banks maintain a capital level above the regulatory minimum is the so-called “buffer view” (e.g. Milne (2001)). The argument is that when a bank gets close to its regulatory minimum capital ratio, it loses freedom of action in its daily business, and will be forced to raise new capital or curtail loans. These activities are costly. Hence, banks have an incentive to maintain a cushion of capital above the regulatory minimum so that the additional safety margin will protect them from going too close to the regulatory minimum. A bank’s rating will reflect the value of the capital buffer. Thus, the argument of the “buffer view” is that the market discipline exerted by the market and the credit rating of a bank is, itself, an endogenous response that takes into account the regulatory minimum. The upward drift in the capital held by the G10 banks following the 1988 Basel Accord (rising from an average of 9.3% in 1988 to 11.2% in 1996) provides some support for the “buffer view”.

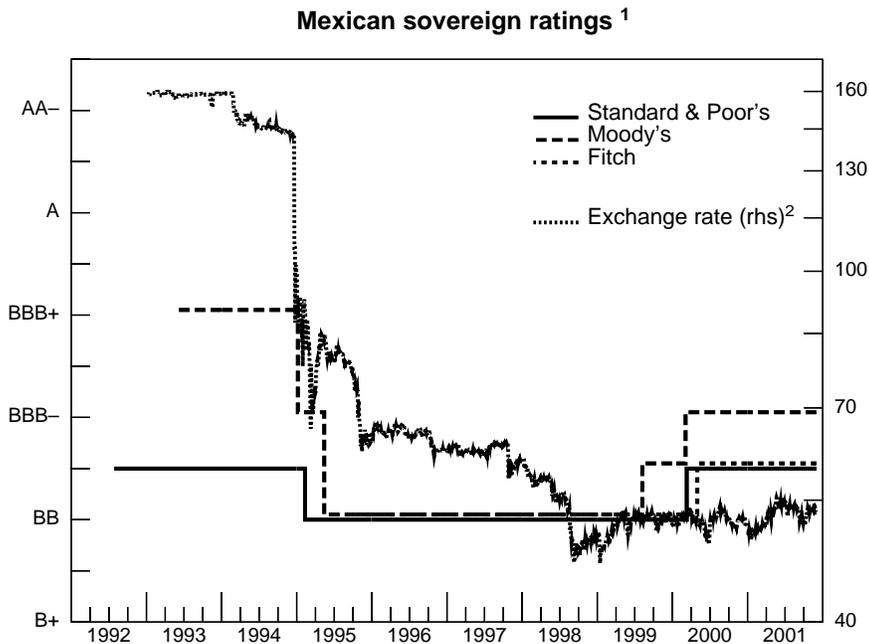
If the buffer view is correct, then the increased regulatory requirement for lending to EME sovereigns and banks will increase the economic capital necessary for achieving the requisite credit rating, and hence will raise the cost of borrowing by EME banks and sovereigns.

6. Macroeconomic Implications and Procyclicality

In an economic downturn, banks suffer two adverse shocks to its required capital under Basel II. First, the *level of capital itself* (equity capital, plus reserves) will fall due to losses resulting from loan write-downs in the downturn. Second, the *level of required capital* will increase, as the quality of the loan book will deteriorate in the downturn. The first channel is present in the current rules. However, the second channel is a new element introduced in Basel II. The steeper is the curve relating the level of required capital to the probability of default, the stronger will be the effect of Basel II in

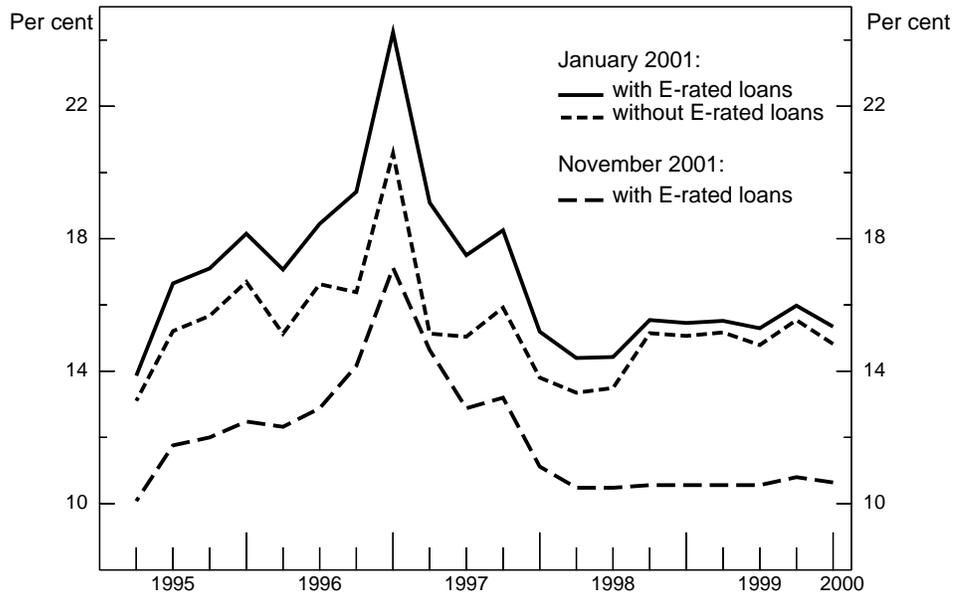
amplifying the macroeconomic cycle. The supply of credit to the economy will be hit precisely when the economy is weak, thereby exacerbating the effect of the economic downturn.

Segoviano and Lowe (2002) examine the hypothetical impact of Basel II on the Mexican banking sector during the 1990s – a period that includes the Mexican financial crisis of 1994/5. Their major conclusions can be summarised as follows. First, if capital requirements in Mexico had been based on internal ratings over the second half of the 1990s, the required amount of capital for the banks examined in this study would have risen steeply after the crisis in 1994 and then declined as the economy recovered (see graph below). Second, capital requirements would have been very high for banks with poor-quality loan portfolios, reflecting the high default experience even for the highest-quality loans. Third, calibration and verification are likely to be difficult, particularly in emerging market economies that are subject to business cycles with relatively large amplitudes. Default rates vary considerably not only across time but also across banks for a given rating grade. This variability poses a challenge to banks, supervisors and analysts in comparing the adequacy of capital both across banks and through time.



Source: Lowe and Segoviano (2002)

Capital requirements, Foundation IRB



Source: Lowe and Segoviano (2002). The E-rated loans refer to the lowest credit quality category.

The large increase in required capital in 1996 and 1997 shows the effect of the Mexican financial crisis of 1994/5. The required capital peaks at 15% at the end of 1996, compared to levels closer to 11% in 1998.

The procyclical effect of risk-sensitive capital requirements is not limited to emerging market countries, and can be studied by examining the migration probabilities across ratings categories as revealed in the estimated transition matrix between the credit rating categories. Caterineau-Rabell, Jackson and Tsomocos (2002) examine the issue of procyclicality. They estimate a transition matrix for the period 1990-1992, that includes a recession in the U.S. based on a Merton-type model that examines the “point in time” estimates of probability of default, then converted into credit ratings. The transition matrix (reported below) shows considerable migration of credit quality across the ratings categories. The increased required capital during downturns would be considerable under such estimates.

%	AAA	AA	A	BBB	BB	B	CCC	CC/C	Def
AAA	88.08	5.30	3.97	1.32	0.66	0.66	0.00	0.00	0.00
AA	41.30	17.39	19.57	8.70	8.70	4.35	0.00	0.00	0.00
A	0.00	5.00	25.00	35.00	30.00	5.00	0.00	0.00	0.00
BBB	11.11	7.41	7.41	7.41	44.44	22.22	0.00	0.00	0.00
BB	18.18	9.09	13.64	9.09	9.09	40.91	0.00	0.00	0.00
B	0.00	0.00	0.00	16.67	50.00	33.33	0.00	0.00	0.00
CCC	0.00	10.00	0.00	0.00	40.00	40.00	10.00	0.00	0.00

Transition matrix for a Merton model
(Source: Caterineau-Rabell, Jackson and Tsomocos (2002))

The potential for Basel II to act in a procyclical way has been one reason why the Basel Committee has flattened the risk-weight curve in the proposals. By flattening the risk-weight curve, the increase in the probability of default requires less of an increase in the required capital, and thus mitigates the amplifying effect of capital requirements.

7. Endogenous Bank Behaviour and Risk Determination

The interaction of the capital requirement and the shifts in bank lending incentives are likely to be important. We have already remarked on the strategic incentive for banks both in EMEs and in the advanced countries to shift more resources to the retail lending business of the bank, in order to take advantage of the lower capital requirements for retail lending. Such a shift will be more accentuated for those banks that adopted more advanced internal management and control systems such as RAROC (Risk Adjusted Rate of Return on Capital) that attempts to align the activities of the bank to its most profitable activities given a limited capital base. For an individual bank, such a move would be entirely natural and rational. However, when the behaviour of the *whole banking sector* is shifted in this direction, the calibrations of the probability of default and other measures of riskiness may change.

Take the example of mortgage lending. Under Basel II, mortgage retail lending is given a very preferential treatment, with risk weight of 35%. This low figure is based on calibrations of probability of default that is based on historical evidence of default and loss given default, mainly in the G10 countries.

However, the low loss rates cannot be seen as a constant of Nature. They may undergo changes when the lending behaviour of the banks changes. For an economy that is experiencing a rapid boom in residential property prices, mortgage lending will play a pivotal part in fuelling the property boom. The low capital requirement of residential mortgages will attract additional entry by banks eager to take advantage of the low capital requirement. Household indebtedness will rise, backed by claims on residential property. However, as property prices rise, and household indebtedness continue to rise, the greater will be the danger that the property boom turns into a property price bubble. The true riskiness of household lending then will be underestimated when only the historical evidence is taken into account. Thus, just at the point where the risk of housing price collapse is increasing, there will be the greatest incentives of banks to enter the market for domestic mortgages, attracted by the low capital requirement. The costs borne by the household borrowers will be very large when the price bubble bursts, and the impact on macroeconomic conditions will also be very large. The economic stability of the country will be affected by the property boom and bust.

The endogenous nature of risk is important when considering the impact of capital requirements on overall economic stability (Danielsson et al (2001)). By calibrating risks based on past data, and encouraging banks to pursue activities that attract a low capital requirement, there is the danger that economic cycles may be amplified. This is a separate argument from the usual argument based on the risk-sensitivity of risk-weights. For emerging market economies that have financial systems that have yet to mature fully, they will be particularly vulnerable to this type of event.

8. Concluding Remarks.

Basel II is likely to have a major impact on the banking sector of emerging market economies. The impact will be felt through the increases in required capital, but also through the endogenous shifts in banks' commercial strategies in response to the differential risk weights on corporate, ABS and retail activities. There are lessons for the monetary policy authorities, and the financial supervisors.

Currently, the negotiations for Basel II have been bogged down due to the increased politicization of the negotiation process. The contrast between the swift agreement of the original 1988 accord (which was concluded quickly because the interests of the major players were aligned with the regulatory rules) and the current round of discussions for Basel II show very clearly the pivotal importance of national interest in international negotiations.

For Korea, the initial impact of adopting Basel II would have both positive and negative elements. The negative elements are as follows.

- Required capital would go up, and hence bank profitability would go down. In a banking system emerging from the financial crisis of 1997/8, the additional burden of Basel II would weigh on the banking sector as a whole.
- The macroeconomic effects of Basel II would be to amplify the economic cycle, both in terms of risk weights that vary with the cycle, but also due to the backward-looking nature of the calibrations that have taken place with respect to certain lines of business (especially retail lending) that have relied on data from G10 economies, rather than taking into account the special circumstances in EME countries like Korea.
- The asset back securities market will be dealt a major blow, and will see a decrease in activity following the penal rates of capital that are applied to asset backed securities. For Korea, ABSs have played an important role in the restructuring of the banking

system following the financial crisis of 1997. The impact on the ABS market will have far-reaching effects for the whole banking sector.

Set against these negative effects, however, there will be important long term positive effects. Above all, the introduction of Basel II will spur the development risk management within the banking sector. This development consists not only in the adoption of new techniques, but more importantly, it will raise the profile of risk management and risk control within the banking organization. Risk management would not simply be the “back office” function of technical staff, but would become an integral part of the everyday operation of the bank at the highest level of its hierarchy, and will be a driving force in the commercial strategy of the bank. The increased emphasis on the appropriate risk management structure and techniques would give a big push to the development of the banking industry in Korea in catching up with the internationally active banks worldwide.

The encouragement toward greater development of risk management, and the increased profile given to risk control in everyday operations can be supported by the regulators and through the governance structures of the banks themselves. The introduction of Basel II would be an additional incentive to accelerate these developments, but these developments should be encouraged irrespective of the adoption of Basel II.

Due to the increased politicization of the Basel II negotiations, it now seems unlikely that Basel II would be implemented on time at the end of 2006. For national supervisory authorities, the additional breathing space that this delay provides can be used to further encourage the development of good practice in the banking industry. Ultimately, however, the final decision on whether (and when) to apply Basel II to domestic banks should depend on the balance of the impact on the domestic banking system. It is a truism that national interests are at the heart of international negotiations, as we are seeing currently with the U.S. Regulators elsewhere will take note.

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