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## A Critique on the Proposed Use of External Sovereign Credit Ratings in Basel II

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## **A Critique on the Proposed Use of External Sovereign Credit Ratings in Basel II**

Roman Kräussl\*

August 2003

### **Abstract:**

This paper deals with the proposed use of sovereign credit ratings in the “Basel Accord on Capital Adequacy” (Basel II) and considers its potential effect on emerging markets financing. It investigates in a first attempt the consequences of the planned revisions on the two central aspects of international bank credit flows: the impact on capital costs and the volatility of credit supply across the risk spectrum of borrowers. The empirical findings cast doubt on the usefulness of credit ratings in determining commercial banks’ capital adequacy ratios since the standardized approach to credit risk would lead to more divergence rather than convergence between investment-grade and speculative-grade borrowers. This conclusion is based on the lateness and cyclical determination of credit rating agencies’ sovereign risk assessments and the continuing incentives for short-term rather than long-term interbank lending ingrained in the proposed Basel II framework.

**JEL Classification:** E44, E47, G15

**Keywords:** Sovereign Risk, Credit Ratings, Basel II

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## I Introduction

*“The effect of the capital requirements could be to encourage banks to lend more in the good times and discourage them from lending in hard times. That in turn could mean that economic cycles are more severe: the peaks of the booms will be higher, because credit is easy, and the thorough of the busts lower, because no one can borrow.”<sup>1</sup>*

The severe financial market turbulences that erupted directly after Russia’s sovereign default and its currency devaluation in mid-August 1998 have raised various questions about the adequacy of the existing lines of defense against systemic risk in international financial markets (see, for example, STIGLITZ (1999)). FRANKEL AND ROUBINI (2003) observe that the three lines of defense against systemic risk, i.e., market discipline, prudential supervision and regulation, and macro-prudential surveillance, had proved inadequate to forestall a build-up in emerging markets’ vulnerabilities. Furthermore, the INTERNATIONAL MONETARY FUND (2001a) notices that market participants were flabbergasted by the sharp increase in institutional investors’ risk aversion which led to the rapid process of de-leveraging and portfolio rebalancing. Even in some of the deepest international capital markets, liquidity pressures appeared.

In such a financial market environment there are two possibilities still available to stabilize international financial markets: either the reduction of existing distortions or the induction of borrowers and lenders to internalize these distortions. An example of this view is expressed by Federal Reserve Chairman Alan Greenspan when he proposed the imposition of reserve requirements on foreign commercial bank loans as a possible means of enforcing market participants’ discipline on today’s global financial markets: “Alternatively, the issue of moral hazard in interbank markets could be addressed by charging banks for the existence of the sovereign guarantee, particularly in more vulnerable countries where that guarantee is more likely to be called upon and whose cost might deter some aberrant borrowing”.<sup>2</sup>

The revised “Basel Accord on Capital Adequacy” by the Bank for International Settlements’ (BIS) Basel Committee on Banking Supervision (BCBS), published in January 2001, has intensified general interest in the credit rating industry. Under the “standardized approach to credit risk” credit ratings would be regarded as fundamental determinants of the

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<sup>1</sup> This quotation is taken from a comment by the FINANCIAL TIMES (2001) on the Basel II proposal.

<sup>2</sup> Remarks by Chairman Alan Greenspan taken from his speech on May 7, 1998 before the 34th Annual Conference on “Bank Structure and Competition” of the Federal Reserve Bank of Chicago.

risk weights attached to bank exposures to governments and other borrowers. However, not all market participants are convinced that the risk assessments by the credit rating agencies are reliable enough to act as a basis for those regulatory capital requirements. Therefore, this paper considers the proposed use of sovereign credit ratings in the “Basel Accord on Capital Adequacy” (Basel II) and its potential effect on emerging markets financing. It investigates in a first attempt the consequences of the planned revisions on the two central aspects of international bank credit flows: the impact on capital costs and the volatility of credit supply across the risk spectrum of borrowers.

The remainder of this paper is organized as follows. Section II discusses the general issue of why commercial banks need to be regulated, by reflecting on the arguments of systemic risk and moral hazard in international financial markets. In addition, the existing framework (Basel I) is presented and it will be analyzed why the current Accord of 1988 failed. Section III explains the proposed first pillar of the standardized approach to credit risk: “minimum capital requirements”. Additionally, the reactions by the credit rating agencies faced with Basel II are examined and the major shortcomings of the proposed framework are presented. Section IV investigates the potential pro-cyclical role of sovereign credit ratings in international financial markets and analyzes the potential impact of the proposed revisions on commercial banks’ capital adequacy ratios on emerging market countries. Section V concludes and presents an outlook.

## **II Capital Regulation of Commercial Banks**

Traditionally, commercial banks take deposits that can be withdrawn unconditionally at a fixed value at a very short notice and lend these deposits over a long-term horizon to industrial companies. In ordinary times, only a small fraction of financial assets need to be held in liquid reserves to meet customers’ deposit withdrawals. However, as it is shown, for example, in the model by DIAMOND AND RAJAN (2001), this frictional reserve holding can lead to illiquidity and even to the commercial bank’s bankruptcy when exceptionally high withdrawals take place and the long-term loans to industrial companies cannot be liquidated, even though the commercial bank might be fundamentally solvent in the long-term.

## **II.1 The Necessity for Commercial Banks to Be Regulated**

According to the BANK FOR INTERNATIONAL SETTLEMENTS (1999a), the primary function of liquid capital at a commercial bank is to serve as a buffer to absorb potential losses. Therefore, capital regulation seeks to ensure that this safety measure is large enough to preserve the soundness of individual banks and thus also the domestic and international banking systems.<sup>3</sup> In the case that liquid capital is insufficient to cover commercial bank's unexpected losses, unsatisfied claims by depositors would ultimately lead to the bank's insolvency. TREACY AND CAREY (2000) emphasize that the amount of capital that an individual bank upholds should be determined, among other factors, by the probability that losses of specific magnitudes will be experienced. In other words, the greater the probability of large losses, the greater should be the total of a commercial bank's liquid capital in relation to its (short-term) liabilities.

DE BANDT AND HARTMANN (2000) point out that the health of a commercial bank depends not only on its success in selecting profitable investment projects for lending but also on the confidence of its depositors in the value of its loan book and, most importantly, in their faith that other savers will not "run the bank". The authors mention that it is obvious that the more the commercial bank's customers are sheltered through some deposit insurance system, the less probable it is that depositors' confidence crises will emerge.

The effective prudential regulation and supervision of commercial banks is fundamental to the financial market stability and to an efficient functioning of any economy, since the banking system plays the central role in the payments system and in the mobilization and allocation of saving. The INTERNATIONAL MONETARY FUND (1998) notes in this context that the task of such financial market regulation and supervision is to ensure that commercial banks operate in a cautious way and that they hold sufficient liquid capital and reserves to defend against potential risks that occur in their business. Weaknesses in the banking system of a country can jeopardize financial market stability, both in that country and internationally. Therefore, capital adequacy requirements, which oblige commercial banks to set aside sufficiently finances to safeguard their depositors, are one of the fundamental instruments in achieving global financial market stability.

The justification for any capital market regulation generally comes from a market failure such as information asymmetries among borrowers and lenders. However, GOODHART,

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<sup>3</sup> CAREY (2002) notes that differences in opinions exist about the proper definition of "banking soundness", but nowadays most financial market regulators seem to view a low rate of commercial bank insolvencies as the central component of banking soundness.

HARTMANN, LLEWELLYN, ROJAS-SUÁREZ AND WEISBROD (1998) notice that in the case of international banking there is still no conformity in whether commercial banks need to be regulated and, if so, which way their financial market behavior should be restricted.<sup>4</sup> This reflects to some extent the lack of consensus on the nature of the market failure that leaves unrestricted commercial banking not optimal.<sup>5</sup> Nonetheless, the authors observe that there are at least two justifications that are often offered for the case for regulating commercial banks: the risk of a systemic crisis in global financial markets and the incapability of depositors to monitor commercial banks, which alludes to the problem of moral hazard.

### **II.1.1 Systemic Risk**

As shown in the theoretical framework by DIAMOND AND DYBVIK (1983, 1986) commercial banks are vulnerable to depositors' bank runs, because they need to operate with a balance sheet where the liquidation value of their financial assets is less than the value of liquid deposits in order to offer liquidity services to their customers. DE BANDT AND HARTMANN (2000) indicate that given that depositors' expectations about the value of their deposits depend on the so-called "first come – first served" rule, a bank run can arise without the publication of adverse information about the commercial bank's financial health. In the case that bank customers attempt to withdraw their funds out of anxiety that other depositors will do so first, they can force an otherwise solid commercial bank into bankruptcy.

SANTOS (2001) demonstrates that if there is no aggregate uncertainty in the economy since financial institutions could lend to each other and if each commercial bank's investment in short-term financial instruments is visible, then depositors would be entirely insured against the liquidity risk faced by their financial institutions. However, when there exists in the financial markets asymmetry of information about the commercial banks' assets, the interbank market will not generally be able to supply depositors with full liquidity insurance against the possibility of the commercial bank's bankruptcy.

DE BANDT AND HARTMANN (2000) mention that information asymmetries about the institutions' financial health cause commercial banks that are also vulnerable to suffer an additional source of bank runs. They argue that a bank run that is set off by depositors losing their nerves or by the release of information signifying meager performance by the

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<sup>4</sup> See also the discussion in MISHKIN (2001).

<sup>5</sup> See, for example, the contradictory explanations for the existence of such market failure by BENSTON AND KAUFMAN (1996) and DOWD (1996).

commercial bank will be damaging, because it forces the premature liquidation of financial assets, and thereby upsets the banks' expected benefits. Even worse, it may generate contagious bank runs, which may ultimately terminate in a system failure and the breakdown of the whole financial system.

### **II.1.2 Moral Hazard**

Since the seminal work by ROTSCHILD AND STIGLITZ (1976) it is a well-known fact that by guaranteeing that the commercial banks' depositors are not at risk to potential losses, the provider of this deposit insurance bears the whole risk of a potential market failure. SANTOS (2001) argues that this results in moral hazard, since it diminishes the depositors' inducement to closely watch the commercial banks' behavior and to persist on an interest payment corresponding with the risk of the bank's potential bankruptcy. Moreover, he argues that when the insurance system charges the commercial bank only a flat rate premium, the bank does not internalize the full costs of risk and as a result has the motivation to undertake even more risky financial transactions.<sup>6</sup> This implies that unreasonably priced deposit insurance provides commercial banks with a motivation to boost their risk of bankruptcy which they can achieve by increasing the risk of their assets and/or their leverage.

DELONG AND EICHENGREEN (2001) highlight that the South Korean financial market experience during December 1997 was a classical example of such a bailout problem. For every US dollar of official money that was pushed by the central bank authorities into the weakening South Korean banking system, the commercial banks could take one US dollar of their money out. The authors argue that this did not only emasculate endeavors to bring the liquidity crisis to an end, but it also generated unfavorable political consequences and reinforced market participants' apprehension about moral hazard. However, EICHENGREEN AND MODY (2000) indicate that compelling the financial institutions to leave their funds in the crisis-ridden country would have been ineffective in these circumstances which were surrounded by collective action problems. They mention that, in such financial market

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<sup>6</sup> MERTON (1977) established the application of the arbitrage pricing method, originally developed for pricing options on ordinary stocks, to investigate the deposit insurance distortion on commercial banks' incentives for risk-taking. He indicates that the deposit insurance can be considered as a put option on the value of the commercial banks' assets with a striking price equivalent to the promised maturity value of its debt. In the case that the insurance premium is risk-insensitive, the commercial bank can increase the value of the put option by raising the risk of its assets and decreasing its capital-to-assets ratio. Additionally, MATUTES AND VIVES (2000) prove that the commercial bank's appetite for risk is further increased with a growing competition in the banking sector.

conditions not only might various commercial banks decline to participate in concerted action, but also individual governments.

This existing trade-off between ruling-out depositors' bank runs at the expense of moral hazard has been one of the central justifications for the regulation of bank capital. The financial market experiences in the second half of the 1990s have further motivated suggestions to modify the design of the deposit insurance system and to establish corresponding rules intended to moderate moral hazard while preserving the protection of commercial banks' depositors (see ROGOFF (1999)). According to the STEERING COMMITTEE ON REGULATORY CAPITAL (2000), the most common proposals concerning the financial market dilemma of moral hazard caused by deposit insurance were to charge commercial banks risk-related insurance premiums and to regulate their capital structure.

## **II.2 The Existing Framework: Basel I**

The SHADOW FINANCIAL REGULATORY COMMITTEE (2000) remarks that the attempts to inaugurate international banking standards commenced shortly after the 1974 financial market failure of the Bankhaus Herstatt, a German commercial bank whose unfulfilled foreign currency obligations to primarily US commercial banks triggered widespread critical dislocations in foreign exchange and interbank markets. In consequence, in 1975 the G-10 countries plus Luxembourg and Switzerland formed the BCBS, whose original task was to develop principles for the supervision of internationally practicing commercial banks.<sup>7</sup>

SANTOS (2001) points out that in the 1980s numerous international banks suffered under the burden of non-performing loans to emerging market economies. These experiences during the Latin American Debt-Crisis provoked financial supervisors in the BCBS member countries to become more and more alarmed that a further weakening in liquid bank capital might endanger the stability of the global financial system. They were anxious that the bankruptcy of one or more of those financial institutions in emerging market economies might adversely distress the financial health of other countries' commercial banks, since major international banks operated worldwide and were linked through payment systems and interbank deposits (see WHITE (2002a)).

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<sup>7</sup> The BCBS is a committee of banking supervisory authorities which consists of senior representatives of commercial bank supervisory authorities and central banks from Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Sweden, Switzerland, the United Kingdom and the US. The BCBS usually gets together at the BIS in Basel, Switzerland, where its permanent secretary's office is located.

GOLDSTEIN (1997) mentions that as US bank regulators acted to refine the global banking system and considered tightening bank capital standards in the 1980s, there was growing apprehension that unilateral increases in capital requirements might leave US commercial banks at a competitive disadvantage relative to financial institutions in other industrial countries that were subject to more laissez-faire capital rules. In particular, concerns were raised on Japanese commercial banks' behavior, since they had grown very rapidly in the 1980s and were beginning to achieve major advances in the US banking market (see SHADOW FINANCIAL REGULATORY COMMITTEE (2000)). US bank regulators were afraid that unless some effort was made to harmonize capital standards around the globe, individual countries might relax their standards in a way of improving the competitive positions of their commercial banks.

While all BCBS member countries regulated the capital of their own commercial banks during the 1980s, each country followed a different approach. Therefore, the BCBS began to seek out ways to promote international convergence of capital adequacy measurement and standards. Santos (2001) points out that the BCBS tried to accomplish primary goals such as eliminating inducements for excessive risk-taking by commercial banks in their loan and securities portfolios, broadening capital requirements to off-balance-sheet positions and eradicating discrepancies in the definition of capital as a source of competitive imbalance in international banking among the member countries. The BCBS considered that these ambitions could best be achieved by implementing minimum capital requirements for internationally practicing commercial banks.

### **II.2.1 The Resulting Compromise**

The resulting framework, Basel I, on which a concord was reached in July 1988 and which was established in January 1993, takes into account merely the credit risk of commercial banks.<sup>8</sup> The BANK FOR INTERNATIONAL SETTLEMENTS (1988) argues that this construction should penalize commercial banks for taking on excessive credit risk, as it has been experienced during the “savings and loans crisis” in the 1980s, when troubled international financial institutions intensified their risk-taking in the hope of returning to solvency. The Basel I framework compels internationally practicing financial institutions to retain an eight percent minimum capital which is measured in different ways according to the credit risk of the respective financial instruments. The definition of capital is expressed broadly in two

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<sup>8</sup> See BANK FOR INTERNATIONAL SETTLEMENTS (1988) for a detailed discussion of the Basel I framework.

tiers, with Tier 1 concerning the banks' shareholders equity and retained earnings and Tier 2 dealing with the available additional internal and external resources.

The BCBS specified a risk-weighting framework to attach commercial banks' capital requirements to the perceived credit risks of assets and off-balance-sheet obligations. A portfolio approach have been adopted to measuring credit risk, with assets classified into four "buckets", namely zero, 20, 50, and 100 percent. Government bonds of OECD member countries were given a zero risk weight, while claims on other commercial banks were assigned a 20 percent risk weight, which translates into a capital charge of 1.6 percent. However, practically all claims on the non-bank private sector received the standard eight percent capital requirements. This implies that all corporate obligors were assigned, notwithstanding their domicile or their credit quality the same risk weight of 100 percent.

Santos (2001) mentions that the two salient objectives of Basel I were to guarantee an adequate level of liquid capital in the international banking system and to establish a "more level playing field" in competitive terms so that commercial banks could no longer "build business volume" without an adequate capital backing. Further, the BCBS supervisors deemed that all jurisdictions represented in the Basel Committee would need to implement the new capital standards concurrently in order to abolish potential regulatory arbitrage. These three purposes were realized when the G-10 countries signed the accord in July 1988. Although Basel I was intended originally for internationally practicing commercial banks of the BCBS member countries, the framework has been considered applicable to various financial institutions worldwide. During the 1990s well over 100 industrial and emerging market countries adopted these capital adequacy rules. Additionally, since Basel I was implemented, five emerging market economies have joined the OECD, thus benefiting from lower risk weights on government debt from 100 percent to zero percent, and for their commercial banks from 100 percent to 20 percent with a lingering lending maturity of over one year.

### **II.2.2 Refinements to Basel I**

Over time, Basel I has been fine-tuned to take into account financial innovations and some of the financial risks that were not well thought-out at the outset, while most of these changes were related to the handling of commercial banks' off-balance-sheet activities. For example, in April 1993 the BCBS initiated an effort to enhance the initial capital requirement standards by recommending commercial banks to keep capital against market risks in their trading

book, and against potential losses that might stem from adverse changes in asset prices. Several major commercial banks, however, considered this proposal as too primitive and far too different from their internal market risk models (see SHADOW FINANCIAL REGULATORY COMMITTEE (2000)).

The BANK FOR INTERNATIONAL SETTLEMENTS (1999a) points out that instead of insisting on a “one-size-fits-all” approach, the BCBS suggested that the amount of capital needed for market risk requirements should be based solely on the commercial banks’ internal models. This approach was implemented with the 1996 “Amendment to the Capital Accord”, which allows commercial banks the utilization of their own internal market risk models, provided that these models act in accordance with several qualitative and quantitative criteria such as successful backtesting. Furthermore, the 1997 “Core Principles for Surveillance of Banking and Financial Systems” established five categories of standards for sound supervision and successful regulation. These principles were negotiated by the BCBS in collaboration with financial market authorities from emerging market economies and were approved by the BCBS member countries in mid-1997.<sup>9</sup>

### **II.3 Failure of Basel I**

The SHADOW FINANCIAL REGULATORY COMMITTEE (2000) argues that the 1988 capital adequacy framework has made an invaluable contribution to the substance of international commercial bank capital regulation. Basel I has been honored by many market participants as supporting the international convergence of capital standards. Nevertheless, RISK (1999), for example, observes that notwithstanding these advantages, Basel I was criticized for its failure to encompass major comprehensions of the theory of finance such as VaR modeling.

These conceptual limitations went in conjunction with financial innovations that created opportunities for regulatory capital arbitrage, which led consequently to a weakening of the Basel I framework effectiveness. Additionally, the financial market experiences in the latter half of the 1990s have shown that the indicative power of the Basel I capital adequacy ratios for emerging market economies was by and large misleading. For example, ESTRELLA, PARK AND PERISTIANI (2000) reason that mainly as a consequence of inadequate loan-loss provisions, numerous commercial banks in these financial crisis-ridden emerging market

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<sup>9</sup> See BANK FOR INTERNATIONAL SETTLEMENTS (1999a) for a detailed discussion of the “Amendment to the Capital Accord” and also for an overview of the “Core Principles for Surveillance of Banking and Financial Systems”.

economies reported affluent capital adequacy ratios just before the outbreak of their financial market turbulences.

### **II.3.1 Capital Adequacy Ratios**

The simplicity, comparability, and verifiability of the Basel I capital adequacy ratios might have given market participants an incorrect impression of financial market protection, particularly as the capitalization of the majority of worldwide banking systems exceeded the eight percent minimum. Therefore, an emerging market's commercial bank with a nominally high liquid capital ratio of 12 percent would be generally considered as well-capitalized. Nevertheless, such a 12 percent capital ratio may still be insufficient in the commercial bank's operating environment and for its risk profile, which instead may call for a capital ratio of almost 20 percent in the economic sense. Indeed, KARACADAG AND TAYLOR (2000) mention that prior to the Asian crisis of 1997-98, many of the emerging market economies' banking systems were believed as well-capitalized on the basis of their capital adequacy ratios, which evidently distorted the solvency of their commercial banks to manage the arising economic stress.

The risk-weighting framework of only four risk buckets has been accused by both academics and practitioners of being too rudimentary, concerning the potential threat of a borrower's default. Furthermore, the capital ratio minimum of eight percent has been disapproved of by many financial market observers as being purely arbitrary. For example, ALTMAN, BHARATH AND SAUNDERS (2002) make the case that the commercial banks' capital requirements were by some means linked but not correlated closely enough to economic risk. They argue that the capital requirements are homogenous within each of these four risk buckets but the economic risk may be substantially different, which ultimately leads to an underlying construction of "perverse lending incentives".

CAREY (2002) emphasizes in this context that regulatory capital requirements that are not sufficiently sensitive to existing financial market risks cannot endorse international banking system soundness in the long-term as such obligations encourage commercial banks to discard low-risk assets while holding high-risk assets. Moreover, the author points out that if the regulatory capital requirement for a financial instrument is well above its economic capital requirement, an unregulated financial bank institution will find this asset much more lucrative than a commercial bank since it can be financed more inexpensively. This implies that, in the long-term, the majority of low-risk assets will disappear from commercial banks'

balance sheets and only the relatively riskier assets for, which the regulatory capital requirement is equal to or below the economic capital requirement, will remain in the banks' portfolio.

As a consequence, commercial banks do engage in substantial arbitrage among loans whose market risks are significantly higher than the credit risk weights assigned by the Basel I framework. Moreover, as ALTMAN, BHARATH AND SAUNDERS (2002) indicate, these troubles are further exacerbated by the fact that the capital requirements for different financial instruments are determined by the book-value instead of market prices. Additionally, accounting practices differ considerably among the BCBS member countries and repeatedly generate results that deviate strikingly from financial market assessments. Furthermore, JONES (2000) demonstrates that the Basel I risk measurement framework does not offer a capital advantage for commercial banks with well-diversified portfolios, even though standard finance theory indicates that these portfolios should be considered less risky than concentrated portfolios.

### **II.3.2 OECD Membership**

RISK (2001a) observes that the Basel I capital requirement standards have also been denounced for failing to assign accurate risk weights and to support the safety of the banking system, because they do not take into consideration market risks, liquidity risks and operational risks which are all principal sources of commercial banks' insolvency. Although the capital adequacy risk weights make the attempt to reflect credit risk, they are not based on financial market assessments but instead favor claims on financial institutions headquartered in OECD member countries.

Without a doubt, this distinction plays a central role to make membership of the OECD a superseding goal of some middle-income emerging market economies by encouraging them to implement the economic, political and financial reforms considered necessary for OECD membership in an improvident fashion (see INTERNATIONAL MONETARY FUND (1999)). An often cited example in the literature is South Korea, which removed many capital market controls in the mid-1990s to match OECD entry requirements. The weaknesses of this OECD membership distinction approach are also illustrated by the fact that Mexico endured in a major financial market crisis shortly after it became a member of the OECD.

It is widely agreed among market participants that cross-border lending has confronted regulatory distortions through the Basel I framework. For instance, short-term bank lending to emerging market economies has been promoted by a fairly low 20 percent risk weight, while commercial bank lending to non-OECD commercial banks with a residual maturity of over twelve months has been discouraged by a 100 percent risk weight. This in turn has encouraged short-term cross-border interbank lending, which has been regarded in the literature on the Asian financial crisis of 1997-98 as a major shortcoming of the international financial system.

REISEN (2000) argues that these significantly lower risk weights encouraged numerous major internationally practicing financial institutions to provide too many short-term loans to Southeast Asian commercial banks. The domestic banks re-loaned these additional finances in domestic currency at substantially higher interest rates and took upon themselves an enormous foreign exchange rate risk. Standard finance theory indicates that such financial market distortions would be most detrimental for commercial banks that are capital-constrained. Therefore, it is not surprising that Japanese commercial banks, which had been weakly capitalized throughout the 1990s, had amassed the largest concentrations of claims on wobbly Southeast Asian crisis-ridden commercial banks.

### **II.3.3 Modern Risk Management Practices**

THE ECONOMIST (2001) mentions that Basel I has also come under intense pressure because financial market innovations which in some cases had the intention of circumventing the capital adequacy requirements, have eroded its effectiveness. These days, international financial markets are driven by worldwide practicing financial institutions that rely on modern financial techniques and instruments. Recent risk management practices, such as marking to market, margin calls, dynamic hedging and frequent portfolio rebalancing are causing immediate reassessments of financial market risk in response to new information.

For instance, the mounting utilization of OTC derivatives and structured notes increases the capability of financial institutions to leverage their capital positions. These high levels of leverage may result in financial market systems that are capable of generating expensive blunders throughout periods of investors' sentiment excitement by intensifying the boom-phase. On the other hand, such activities can also enlarge the adverse consequences of negative financial market distress and/or a wide-ranging reassessment of credit risk. Additionally, the WORKING GROUP ON CAPITAL ADEQUACY (2001) emphasizes that with the

same large worldwide practicing financial institutions operating in numerous different markets and countries, modern risk management practices are also creating the potential for spillovers between seemingly unrelated financial markets.

### **III Basel II: The Standardized Approach to Credit Risk**

Following the financial market turbulences in the latter half of the 1990s, in June 1999 the BCBS released a consultative paper concerning the suggestion for replacing the Basel I framework. The proposal recommended a new capital adequacy framework built on three pillars: minimum capital requirements, supervisory review and the effective use of market discipline through enhanced transparency (see BANK FOR INTERNATIONAL SETTLEMENTS (1999b)). In January 2001, the BCBS issued a revised version of its reform proposal for the new capital adequacy framework but as RISK (2001b) remarks it will probably not come into force before the year 2004.

Under the Basel II framework, the commercial banks' minimum capital requirements will be assessed according to their exposure to credit risk, market risk and operational risk. Within this context, the BCBS has proposed two different methods to fine-tune the commercial banks' capital charges to better reflect financial risk diversities among individual credit exposures: a standardized and an internal ratings-based (IRB) approach to credit risk. The standardized approach to credit risk is based on externally provided risk assessments such as the rating assignments by credit rating agencies, while the IRB approach relies on commercial banks' internal risk assessments.

The BANK FOR INTERNATIONAL SETTLEMENTS (2001b) recognizes that the reliability of credit rating agencies is crucial for the standardized approach to be effectual and argues, thus, that financial market regulators must certify these external credit assessment institutions (ECAIs). As a consequence, the following minimum criteria are proposed in selecting financial institutions eligible of generating credit risk ratings for utilization in the new Basel II risk weighting scheme: objectivity, independence, transparency, credibility, international access, resources and recognition. Table 1 presents a detailed description of these minimum criteria.

**Table 1:** *Criteria for Eligible External Credit Assessments Institutions*

|                             |  |
|-----------------------------|--|
| <b>Objectivity</b>          | The methodology for assigning credit assessments must be rigorous, systematic, continuous, and subject to some form of validation based on historical experience. Moreover, assessments must be subject to ongoing review and responsive to changes in financial condition. Before being recognized by supervisors, the Committee proposes that an assessment methodology for each market segment, including rigorous backtesting, must have been established for at least one year, while recognizing that a three-year period would be preferable. |
| <b>Independence</b>         | The methodology should be as free as possible from any external political influence or constraints, or economic pressure from assessed entities.   |
| <b>Transparency</b>         | For validation purposes, the individual assessments should be publicly available.  |
| <b>Credibility</b>          | To some extent, credibility will be derived from the criteria above. This criterion should not be used as a barrier to the entry of new institutions, but, at the same time, any new institution that emerges following this change in the supervisory framework would need to be carefully evaluated. The credibility of an institution would also be underpinned by the existence of internal procedures to prevent the misuse of confidential information.  |
| <b>International Access</b> | The institution is not required to assess firms in more than one country, but its results should be available to non-domestic parties with legitimate interest on the same basis as to equivalent domestic parties.  |
| <b>Resources</b>            | The institution should have sufficient resources to allow substantial ongoing contact with senior and operational levels of assessed entities.   |
| <b>Recognition</b>          | National supervisory authorities will be responsible for recognition of institutions based on the above criteria. It is proposed that the Secretariat to the Committee will serve as a clearing house of information on the institutions recognized by national supervisory authorities.   |

*Source:* BANK FOR INTERNATIONAL SETTLEMENTS (2001b)

The following analysis concentrates on the major element of the proposed standardized approach to credit risk: minimum capital requirements. The focus lies on the suggested capital adequacy ratios since the risk weights applied to commercial bank assets and other financial instruments are of primary consequence for commercial banks' credit and bond pricing.<sup>10</sup>

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<sup>10</sup> See BANK FOR INTERNATIONAL SETTLEMENTS (2001b) for a discussion of the two other pillars. A detailed description of the IRB approach is given in BANK FOR INTERNATIONAL SETTLEMENTS (2001a). See, for

### **III.1 Minimum Capital Requirements**

The BANK FOR INTERNATIONAL SETTLEMENTS (2001b) argues that to enhance risk sensitivity without making the standardized approach too complex, the BCBS suggests that commercial banks should be obliged to apply predetermined risk weights for various types of financial instruments based on external risk assessments, such as credit risk ratings by S&P and Moody's. HAWKINS AND TURNER (2001) emphasize that Basel II is designed to bring capital requirements more closely into line with a commercial bank's risk profile and to take into account financial innovations, while maintaining in general the eight percent risk-weighted capital requirement in the financial market system.

In contrast to the June 1999 proposal which suggested that the proposed risk weights for claims on governments, commercial banks and corporates, have to be benchmarked against the sovereign long-term foreign currency obligations by ECAIs, Basel II abandons this sovereign ceiling. Moreover, the BCBS no longer recommends the fulfillment of the IMF's SDDS and the BCBS's "Core Principles of Effective Banking Supervision" as preconditions for favored capital adequacy risk weights.

The proposed standardized approach markedly modifies the extent of different capital requirements used to classify borrowers' credit risk. In particular, the current system of a zero risk weight for members of the OECD and 100 percent risk weight for all other countries is replaced by five new buckets based on the credit rating agencies' risk assessments. In the case of by the agencies' unrated entities, Basel II proposes to assign a risk weight of 100 percent leading to a capital adequacy ratio of eight percent. Table 2 portrays the suggested risk weights for commercial banks' claims on sovereign borrowers, commercial banks and corporates.

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example, CAREY (2001) for a comprehensive analysis of the potential implications of the IRB approach on financial markets.

**Table 2:** *The Proposed New Capital Adequacy Risk Weights*

| <b>Borrower</b> | <b>Assessment</b> |          |              |           |      |         |
|-----------------|-------------------|----------|--------------|-----------|------|---------|
|                 | AAA to AA–        | A+ to A– | BBB+ to BBB– | BB+ to B– | < B– | Unrated |
| Sovereigns      | 0%                | 20%      | 50%          | 100%      | 150% | 100%    |
| Banks (1)       | 20%               | 50%      | 100%         | 100%      | 150% | 100%    |
| Banks (2)       | 20%               | 50%      | 50%          | 100%      | 150% | 50%     |
| Banks (2-S)     | 20%               | 20%      | 20%          | 50%       | 150% | 20%     |
| Corporates      | 20%               | 50%      | 100%         | 150%      | 100% | 100%    |

*Source:* BANK FOR INTERNATIONAL SETTLEMENTS (2001b)

Table 2 illustrates that the highest rated sovereigns ranging from triple-A to AA– achieve a zero percent risk weight and governments that are assessed by the credit rating agencies as lower than B– obtain a 150 percent risk weight, while unrated sovereign borrowers would be assigned a flat 100 percent risk weight regardless of their credit quality. This implies that in contrast to Basel I that encompassed a maximum capital requirement of eight percent, under Basel II, capital requirements could be as high as 12 percent for an emerging market economy with a weak sovereign credit rating.

Within the proposed standardized approach to credit risk, the BCBS recommends two options to measure risk weights on lending to commercial banks. Table 2 indicates that, under the first scheme, claims on commercial banks would be given risk weights based on their respective government's credit rating. In this case, the risk weight applied to the commercial bank would be one category less favorable than the sovereign credit rating, while a ceiling of 100 percent would be imposed, except for commercial banks in emerging market economies rated below B–, where a restriction of 150 percent would operate. Under the second option, claims on commercial banks would be designated the risk weights as given in Table 2, based on the credit ratings assigned directly to commercial banks by an ECAI.

Table 2 demonstrates that the proposed Basel II framework also differs from Basel I in its treatment of short-term claims on commercial banks (2-S). Furthermore, the BCBS made the decision to lower the threshold for the favored treatment of short-term debt to three months since the upper maturity bound in the short-term interbank market is also three months.

Under Basel II, corporate borrowers rated by the credit rating agencies between triple-A and AA– would get assigned a risk weight of 20 percent which results in a capital adequacy ratio of 1.6 percent, which is much lower for high-quality loans than under the current capital requirements since under Basel I the risk weights are as high as 100 percent for all corporates regardless of their creditworthiness. Nonetheless, corporates assessed by the credit rating agencies as below BB– obtain a risk weight of 150 percent, implying a capital ratio of 12 percent.

With regard to the level of overall capital, the BANK FOR INTERNATIONAL SETTLEMENTS (2001b) argues that the BCBS's primary objective is to provide a more risk-sensitive capital requirement approach and on average neither increases nor decreases commercial banks' regulatory capital. In particular, lending to high-rated sovereigns, commercial banks and corporates would benefit from the Basel II framework, regardless of their countries' OECD membership. This implies that, thus, apparent inducements will exist towards the implementation of measures which are likely to enhance the borrower's credit rating, rather than a simple overriding motivation towards gaining OECD membership.

## **III.2 Shortcomings of the Standardized Approach**

Despite the appeal of the BCBS's suggested utilization of external credit risk assessments, the Basel II proposal has been subject to manifold criticisms by both market participants and credit rating agencies themselves, ranging from fundamental challenges to technical disapprovals of the suggested standardized approach to credit risk.

### **III.2.1 Reliance on External Credit Ratings**

Relying on external credit rating agencies to set regulatory risk weights effectively obliges commercial banks to subcontract their assessments of borrowers' creditworthiness to other financial market institutions. However, the core competency of commercial banks has always been borrowers' risk assessment and intermediation of credit risk in financial markets which experience asymmetric information. For instance, TREACY AND CAREY (2000) point out that as a result of their close relationships with customers, commercial banks typically possess more comprehensive information than external credit rating agencies.

SANTOS (2001) argues that the *raison d'être* of optimal profitability forces commercial banks to persistently improve their internal risk assessment models. Since the bank own financial health is at risk, its management is best positioned to evaluate the financial risk that an individual borrower represents on a stand-alone basis as well as in relation to the bank's portfolio composition. Additionally, a growing reliance on credit rating agencies could sooner or later undermine the credit risk analysis expertise within the banking community, since portfolio managers and controllers could become increasingly habituated to relying on external risk assessments rather than on their own investigations.

Furthermore, there is the market participants' growing unease about how accurately agencies' credit ratings reflect underlying financial risks. For instance, The SHADOW FINANCIAL REGULATORY COMMITTEE (2000) argues, that in the case of sovereign credit ratings, the ambition of the agencies seems to be to encapsulate default risk rather than unexpected loss. But such focus on potential governments' default offers an important argument for questioning the employment of credit rating agencies' risk assessments for capital adequacy requirements since defaults are exceptionally vulnerable to financial contagion. In contrast, the center of capital adequacy ratios should lay in covering commercial banks' unexpected loss with a sufficient high probability, thereby safeguarding their soundness and limiting their likelihood of insolvency.

The STEERING COMMITTEE ON REGULATORY CAPITAL (2000) criticizes that the regulatory dependence on credit rating agencies' risk assessments entails the possibly flawed supposition that bond credit ratings generate suitable appraisals of broader financial market risks. Nonetheless, the distribution of losses in a commercial banks' loan portfolio could be fundamentally different from that in a bond portfolio since default rates on publicly issued bonds may vary systematically from loan default rates.

Additionally, the credit rating agencies' coverage of obligors is far from being good enough to encourage their application in a global regulatory capital adequacy framework. For example, S&P and Moody's have dedicated the majority of their efforts to more developed economies, where marginal and fixed expenses related to the coverage of issuers are lower and where the request for their credit risk assessments is higher. Furthermore, in the US credit ratings are prevalent, for example 94 percent of the S&P500 firms are assessed while in European financial markets credit ratings are not as widely spread: only 53 percent of all German DAX-30 firms have obtained a credit rating (see WHITE (2002b)).

### **III.2.2 “Rating Shopping”**

Another underlying shortcoming of the standardized approach to credit risk is that financial market regulators fundamentally change the nature of the credit rating agency’s product by using external ratings as a tool for determination of commercial banks’ capital requirements. Issuers would then pay rating fees, not to facilitate access to international capital markets, but to pay for a privileged treatment for their securities within the Basel II framework.

The credit rating industry is subject to a sinister form of moral hazard since every agency has an inducement to assign issuers high-quality credit ratings, because issuers are free to decide on which agency they will select and pay for their risk assessments. PARTNOY (2002) emphasizes that this incentive towards upwardly biased risk assessments has generally been compensated by a credit rating agency’s superseding necessity to preserve its financial markets reputation with investors since they ultimately drive the issuer’s request for credit ratings. However, by certifying the risk assessments of all recognized credit rating agencies as being of similar quality, regulators will force credit rating agencies to compete on the basis of price and level of credit rating assigned. As a result, BCBS-licensed credit rating agencies will have a product to sell regardless of its quality and its credibility. GRIEP AND DE STEFANO (2001) argue that, thus, issuers could be attracted to engage in “rating shopping”, that is a process in which the issuer seeks the least costly or least demanding credit rating.

CANTOR AND PACKER (1997) show that secondary credit rating agencies have a consistent bias towards higher credit ratings when compared to the major credit rating agencies S&P and Moody’s. This observation is consistent with the intuitive impression that the credit rating agencies’ reputation and the incentive to assign higher credit ratings are inversely correlated. This implies that to the extent that a credit rating agency already has earned a reputation in financial markets, it is doubtful that the agency would trade-off its status for short-term benefits in market share and revenue. On the other hand, a credit rating agency with no reputation has less to lose by assigning non-justified superior risk assessments to increase market share, and therefore has a stronger motivation to do so. Furthermore, CALOMIRIS AND POWELL (2001) reason that because US credit rating agencies currently dominate the rating business, regulatory authorities in other countries would be enticed to approve new domestic credit rating agencies without necessarily fully taking into account the

quality of their risk assessments, thereby undermining the effectiveness of external credit ratings in the regulatory process.<sup>11</sup>

### **III.2.3 The Proposed New Risk Weights**

The SHADOW FINANCIAL REGULATORY COMMITTEE (2001) emphasizes that the proposed capital adequacy risk weights do not match the characteristics of credit risk for high-quality borrowers which exhibit only modest increase in risk but then rises sharply as obligors' credit quality weakens. In sharp contrast, the proposed Basel II risk weights increase in large steps but remain flat and static at just the point at which credit quality is worsening most rapidly. For example, ALTMAN, BHARATH AND SAUNDERS (2002) demonstrate in an empirical study that the proposed BB+ to B- range contains substantial deviations in obligors' credit quality. Assigning all borrowers in this range the same risk weight of 100 percent emasculates one fundamental objective of Basel II, which is, according to the BANK FOR INTERNATIONAL SETTLEMENTS (2001b), "to encourage banks to increase granularity of their credit assessment systems". If the aim of the proposed new capital adequacy framework is to improve the relationship between regulatory capital and credit risk, then the number of risk-weighting categories should be extended.

Besides, ALTMAN, BHARATH AND SAUNDERS (2002) criticize that the proposed risk weight for commercial banks' lending to corporates rated in the range between triple-A and double-A is at 20 percent, even though their empirical results indicate that corporates with such a high credit rating never defaulted over a one-year horizon between 1981 and 2000. Another major shortcoming of Basel II is that, as Table 2 shows, in the case of sovereigns and commercial banks, the risk bucket partition is selected between BBB+ to BB- and below BB-, rather than a more intuitive splitting of commercial banks' lending between investment-grade and speculative-grade.

A fairly apparent inconsistency of the proposed Basel II framework is the fact that it imposes a lower capital requirement on commercial banks' loans to not rated obligors with eight percent than it does to borrowers assessed by the credit rating agencies as of below B- with 12 percent. While there may be particular circumstances in which this distinction is justified, it is doubtful whether it is, in general, reasonable.

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<sup>11</sup> For example, the Indian central bank's response to the Basel I framework was that capital requirements should only be based on domestic credit rating agencies' risk assessments since international agencies do not understand emerging market economies (see MOODY'S INVESTORS SERVICE (2000)).

The SHADOW FINANCIAL REGULATORY COMMITTEE (2000) indicates that most commercial banks benefit also from lending to developing small businesses that have the propensity of being not evaluated by the credit rating agencies. However, a regulatory capital framework that favors good quality rated borrowers over good quality unrated loans would harm the commercial banks' ability to provide credit to unrated borrowers on competitive terms. This means that the implementation of Basel II might place commercial banks at disadvantage since good quality unrated borrowers might find it less expensive to obtain funding from other financial sources.

Moreover, since unrated obligors experience a lower risk weight than obligors rated BB– or below, Basel II creates the motivation for hazardous borrowers to forego credit ratings altogether in order to achieve inexpensive commercial bank loans. Such activities are even encouraged by the recent appearance of credit rating instruments such as Moody's "Rating Assessment Service" which allows borrowers to obtain a confidential prediction of its credit rating without having to commit the public distribution of its risk assessment.<sup>12</sup>

It is not obvious why the proposed risk weights for equivalently rated issuers in different markets differ to such a large extent. For example, Table 2 shows that a commercial banks' credit to a single-A rated sovereign would obtain a 20 percent risk weighting, while loans to single-A assessed commercial banks and corporates would be charged with a 50 percent risk weight. However, from an anticipated frequency of default perspective, these loans would be considered equivalent by the credit rating agencies. While the financial support for governments in times of financial market turbulences from the IMF, other multilateral institutions and/or central banks may affect the sovereign's credit risk, GRIEP AND DE STEFANO (2001) advise caution in building moral hazard into the proposed capital adequacy rules. For instance, in circumstances where it is less complicated for the sovereign to gain access to commercial bank financing than it is for likewise rated domestic banks, the government could be encouraged to borrow to strengthen those banks. However, this could have unfavorable consequences for the sovereign's own credit rating and it would further raise the issue of moral hazard by questioning how the domestic banks are managed.

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<sup>12</sup> See MOODY'S INVESTORS SERVICE (2000) for a description of its "Rating Assessment Service".

### **III.2.4 The Reaction by the Credit Rating Agencies**

The credit rating agencies have expressed concern that the utilization of their risk assessments for capital adequacy requirements has the propensity to undermine the objectivity of the rating process and may negatively influence the agencies' independence. MOODY'S INVESTORS SERVICE (2000), for example, emphasizes that it is the agency's task to make autonomous and sometimes controversial risk assessments regarding powerful and prominent issuers. However, agencies' actions which directly affect the issuer's borrowing costs are not appreciated by the issuers (see Kräussl (2003a)). Consequently, credit rating agencies are worried that an increasing application of their risk assessments to the regulatory process will ultimately lead to calls for official supervision and regulation of their business. CANTOR (2001) argues that such regulation would result in conformity and weaken the role of credit ratings as beneficial independent evaluations on financial market risk.

MOODY'S INVESTORS SERVICE (2000) makes the case that an increased reliance on credit rating agencies' risk assessments would require that the recognition criteria must be set at an appropriately high standard. However, Table 1 indicates that the Basel II proposal makes no reference to a credit rating agency's market acceptance, historical performance or scale equivalence. Nevertheless, the focus of any ECAI recognition process should be upon results and not upon the methodological inputs to the risk evaluations. GRIEP AND DE STEFANO (2001) point out that the issue of how well a credit rating agency distinguishes relative credit risk of different obligors can best be judged by the financial markets' recognition of its credit ratings and the default and loss experience by rating level.

While the ECAI recognition criteria request thorough back-testing of the risk assessments before approving a credit rating agency, Basel II sets the minimum time for an ECAI to be in operation at only one year. KARACADAG AND TAYLOR (2000) reason that the BCBS appears reluctant to set a higher threshold from concern of building too high barriers to companies entering the credit rating industry. Nevertheless, as conferred in Kräussl (2003a), it is not feasible to evaluate a credit rating agency's track record established over only one year since robust relationships between issuers' risk assessments and defaults take a longer time to materialize.

Despite those earlier concerns about the utilization of credit ratings in the regulatory process, the credit rating agencies have indicated that the standardized approach to credit risk would also have constructive implications for commercial banks' financial health. For example, MOODY'S INVESTORS SERVICE (2001) argues that the proposed capital adequacy

ratios could result in lower loan-loss provisions to the extent that commercial banks intensify their focus on financial risk at the beginning of the loan contract rather than at a later stage.

## **IV Basel II and Its Effects on Emerging Markets Financing**

This section represents a first attempt to assess the potential implications of the standardized approach to credit risk proposed by the Basel II framework on the volatility and size of commercial banks' lending to emerging market economies.<sup>13</sup> Hence, historical sovereign credit ratings for long-term foreign currency debt are employed to examine the probable effect of the introduction of a linkage between commercial banks' capital adequacy ratios and external sovereign risk assessments assigned by the credit rating agencies to emerging market countries.

### **IV.1 Aggravation of Financial Market Turbulences**

A well-designed regulatory capital adequacy system should lead to rising capital reserves during times of commercial banks' high profitability, which typically coincides with periods of business expansions, and falling capital reserves during financial market downturns as unexpected losses are written-off against capital. In this context, ALTMAN AND SAUNDERS (2001) mention that commercial banks find it more challenging, if not impossible, to increase their capital reserves substantially when the economy is in recession and commercial banks' profits are dwindling. Additionally, as reasoned in Section II.1, capital reserves should be sufficient prior to and not after borrowers' defaults and thus commercial banks' unexpected losses.

The FINANCIAL MARKETS GROUP (2001) points out that the financial risk of assets varies over the business cycle. However, if credit ratings are lagging financial markets, Basel II would generate a pro-cyclicality in capital requirements. Commercial banks would overlend and hold less liquid capital at the peak of the credit cycle, just when the menace of a systemic crisis is largest. On the contrary, commercial banks would underlend and hold too much capital reserves during an economy's downturn when macroeconomic stabilization would

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<sup>13</sup> For an empirical investigation of the potential implications of the IRB approach on the international capital flows to emerging market economies see GRIFFITH-JONES AND SPRATT (2001), GRIFFITH-JONES, SPRATT AND SEGOVIANO (2002), SEGOVIANO AND LOWE (2002) and WEDER AND WEDOW (2002).

necessitates a credit expansion. As a result, capital adequacy requirements à la Basel II could ultimately translate into a higher probability of financial market crisis.

The imperative concern that the implementation of the Basel II framework will raise the volatility of private capital flows to speculative-grade countries, and hence increase their vulnerability to financial crises, is based on two critical components incorporated in the proposed determination of commercial banks' capital requirements: the pro-cyclical role of credit rating agencies' risk assessments and the continuing attraction of short-term rather than long-term interbank lending.

#### **IV.1.1 Tendency of Lagging Financial Markets**

Numerous financial market observers are troubled that sovereign credit ratings would contribute a pro-cyclical element into commercial banks' capital adequacy requirements under the Basel II framework. The major concern that derives from the empirical results in Kräussl (2003b) is that credit rating agencies tend to lag financial market developments by raising sovereign credit ratings throughout times of economic expansion and by lowering their risk assessments in periods of economic distress. As emphasized by REISEN AND VON MALTZAN (1999), this implies that during boom-periods sovereign credit ratings will improve while they decline during bust-periods, thereby contributing to boom-bust cycles in lending to emerging market economies. In addition, the empirical results indicate that sovereign credit rating changes have a powerful impact on financial market dynamics, both within national borders (see Kräussl (2003b)) and across borders (see Kräussl (2003c)).

One major concern is that if a country is abruptly downgraded from investment-grade to speculative-grade in the midst of a financial crisis, then, as discussed in Kräussl (2003a), a number of institutional investors could be confronted with either higher capital charges or prohibition on continued holdings of the government's securities in their portfolios. Furthermore, the resulting portfolio adjustments would limit the finances available to governments and impose higher borrowing costs. Such a credit rating adjustment may accurately indicate to market participants an increased issuer's default risk and hence be a reasonable routine in the context of the traditional role of credit rating agencies, but this practice has an inherent disparaging consequence if integrated into commercial banks' capital requirements.

The experience during the financial crises in emerging market economies in the latter half of the 1990s indicates that sovereign credit ratings can rapidly swing downward. Relying on external credit risk assessments to determine regulatory capital requirements could establish a sizeable liquidity squeeze in the course of financial market turmoil. A credit rating agency's sovereign downgrading would oblige commercial banks to instantaneously enlarge their capital reserves against exposures to the lowered government, at a point where financial institutions should be supported to keep credit lines open to prevent accelerating financial market turbulences. Therefore, the exclusive reliance on credit rating agencies' sovereign risk assessments would introduce systemic risk and result in an enhanced rather than reduced degree of instability in the global financial market system. However, this is precisely contrary to what financial economists suggest being the optimal approach for commercial banks' regulatory capital requirements (see, for example, ALTMAN AND SAUNDERS (2001)).

The evaluation of the credit rating agencies' behavior in Kräussl (2003a) and the findings of the empirical studies in Kräussl (2003b, 2003c) seem to suggest that there is little scope to enrich the credit rating agencies' performance in capturing sovereign risk. The nature of sovereign risk and the reduced public availability of sovereign default determinants make it tricky or even not feasible to obtain an information advantage over financial markets. Nevertheless, the proposed Basel II framework would serve to strengthen the financial market implications of credit ratings. However, as long as the credit rating agencies' sovereign risk assessments fail to convey essential new information to financial markets, an improving sovereign credit rating would fortify market participants' euphoric expectations and fuel excessive capital inflows to emerging market economies.

#### **IV.1.2 Short-Term Lending**

The BANK FOR INTERNATIONAL SETTLEMENTS (2001b) emphasizes that the proposed Basel II capital requirement rules for commercial banks' short-term lending are in direct response to the financial crises in the latter half of the 1990s. Nevertheless, imposing large capital charges on short-term lending to financial institutions in emerging market economies, where far-reaching domestic financial market reforms are not undertaken, could strengthen disintermediation rather than promoting financial market stability (see SHADOW FINANCIAL REGULATORY COMMITTEE (2000)). According to the WORKING GROUP ON CAPITAL ADEQUACY (2000), the proposed modifications to the treatment of short-term interbank

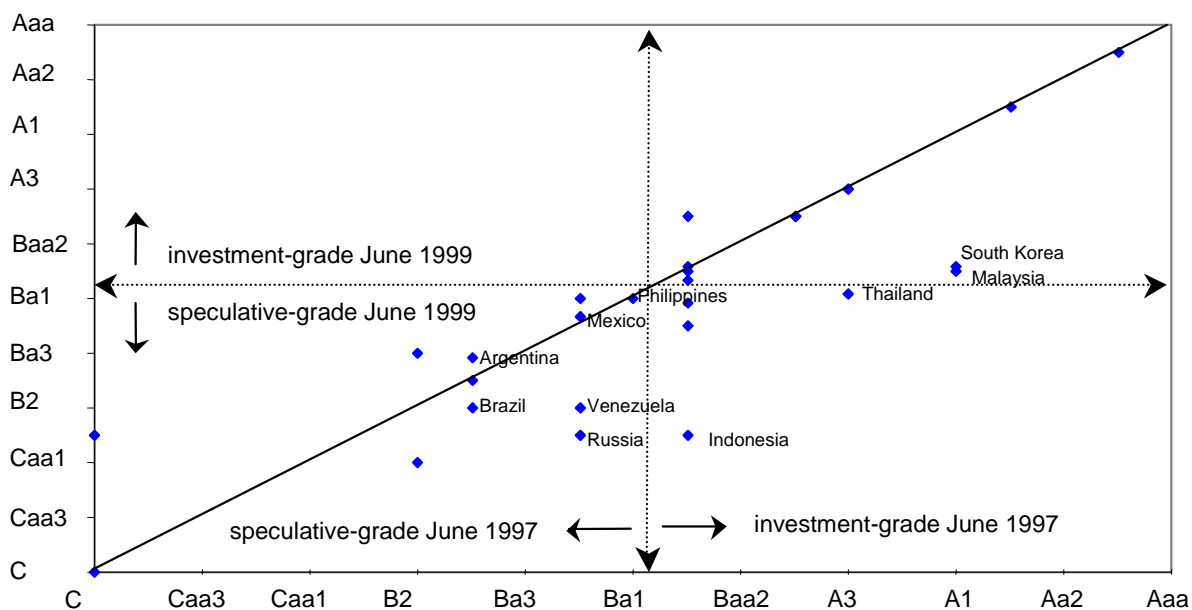
lending would harm crucial interbank money market transactions in emerging market economies.

Furthermore, the proposed Basel II capital adequacy ratios also discourage long-term interbank lending to emerging market economies. For example, commercial banks which suffer from their government's credit rating of below investment-grade have the regulatory incentives for short-term interbank lending. However, a high ratio of short-term foreign debt to foreign exchange reserves has been identified by a number of empirical studies as the most crucial indicator of financial market crises due to capital flow reversals (see, for instance, REISEN (2001)).

The encouragement towards short-term lending is less incorporated in Basel II than in Basel I, and is for that reason a move in a desirable direction, but unfortunately this incentive has not been entirely abolished. Table 2 underscores the fact that rationales for short-term lending remain for commercial banks assessed in the range between A+ and B-. The results of an empirical analysis by DEUTSCHE BANK (2001) point out that a jump in capital adequacy risk weights from 20 percent to 50 percent between double-A and single-A rated securities drastically overstates the increased probability of borrower's default, thereby generating a bias against long-term lending to commercial banks rated below double-A.

## **IV.2 Potential Implications of Basel II during the Financial Market Turbulences of 1997-99**

The experience with sovereign ratings in emerging market economies during the recent financial market turmoil may provide an illustration of how the adjustments of sovereign risk assessments could have had some harmful macroeconomic consequences if they had been linked to commercial banks' capital adequacy requirements. Indeed, as illustrated in Figure 1, the financial crises during the latter half of the 1990s induced credit rating agencies to a long sequence of sovereign risk assessment revisions.



**Figure 1:** *Emerging Market Sovereign Rating Changes by Moody's (June 1997 and June 1999)*

Based on the sovereign ratings by Moody's, Figure 1 reports on the  $x$ -axis the pre-crisis sovereign credit ratings as of June 1997 and on the  $y$ -axis Moody's post-crisis sovereign risk assessments in June 1999 for the 28 countries which are classified by *The Economist* and the *Financial Times* as emerging market economies as of June 1997, with the exception of Israel. Notably, the country sample contains 11 Asian economies (China, Hong Kong SAR, India, Indonesia, South Korea, Malaysia, Pakistan, the Philippines, Singapore, Taiwan and Thailand), eight Latin American economies (Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru and Venezuela), five Eastern European (Transition) economies (the Czech Republic, Hungary, Poland, Russia and the Slovak Republic), three African/Middle East economies (Egypt, Morocco and South Africa) and Turkey.

The diagonal line of Figure 1 contrasts the pre-crisis with the relative post-crisis sovereign credit ratings, the vertical dotted line separates investment-grade from speculative-grade sovereign risk assessments as of June 1997, and the horizontal dotted line divides investment-grade from speculative-grade sovereign credit ratings as of June 1999. This implies that points lying below the diagonal line identify those emerging market economies which suffered a lowering of their risk assessment by Moody's, points lying on the diagonal line refer to those sovereigns whose credit rating did not change, and points above the

diagonal line show those emerging markets whose sovereign credit rating improved between June 1997 and July 1999.

In addition, the horizontal and vertical dotted lines divide the graph into four quadrants. Points in the Northeast quadrant identify emerging market economies holding investment-grade credit ratings in both mid-1997 and mid-1999, while points in the Southwest quadrant indicate governments assessed as speculative-grade in both mid-1997 and mid-1999. Points in the Southeast quadrant refer to sovereigns keeping investment-grade credit ratings in June 1997 and switching to below investment-grade in June 1999, while points in the Northwest quadrant would have shown emerging market economies holding speculative-grade credit ratings in June 1997 and switching to investment-grade in June 1999.

Figure 1 indicates that beside the sovereign credit rating downgrades of Brazil, Venezuela and that of Russia, the sharpest sovereign credit rating adjustments affected the Southeast Asian crisis countries. As discussed in Kräussl (2003a), Indonesia, South Korea and Thailand fell below investment-grade and Malaysia came close to this threshold.<sup>14</sup>

As illustrated in Table 2, under the proposed Basel II capital adequacy framework, the sovereign risk weighting could jump from 20 percent over 50 percent to 100 percent or even 150 percent. This would have a major impact on commercial banks' lending to emerging market economies. ALTMAN AND SAUNDERS (2001) criticize that, for example, a confirmed letter of credit to borrowers in emerging market economies facing financial turbulences would require abruptly increased capital charges which would have direct implications on the costs of credit and the country's access to international capital markets. The empirical results of the study by DEUTSCHE BANK (2001) indicate that the probable commercial bank response would be to curtail lending to lower rated borrowers, thereby raising the vulnerability of the whole financial system to a liquidity crisis.

Even worse, if the new proposed Basel II risk weights had been in effect in mid-1997, they would not necessarily have required commercial banks to hold more liquid capital for lending to emerging market economies on account of their favorable agencies' sovereign credit rating and would have only increased the capital charges after the financial crisis erupted. For example, in the case of South Korea, under Basel I the capital adequacy risk weight was zero before its financial crisis and would have been the same risk weight under the Basel II proposal, because of the high investment-grade credit rating assigned to the

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<sup>14</sup> Figure 1 indicates South Korea as an investment-grade credit, because the sovereign was upgraded from Ba1 to Baa3 by Moody's on February 22, 1999.

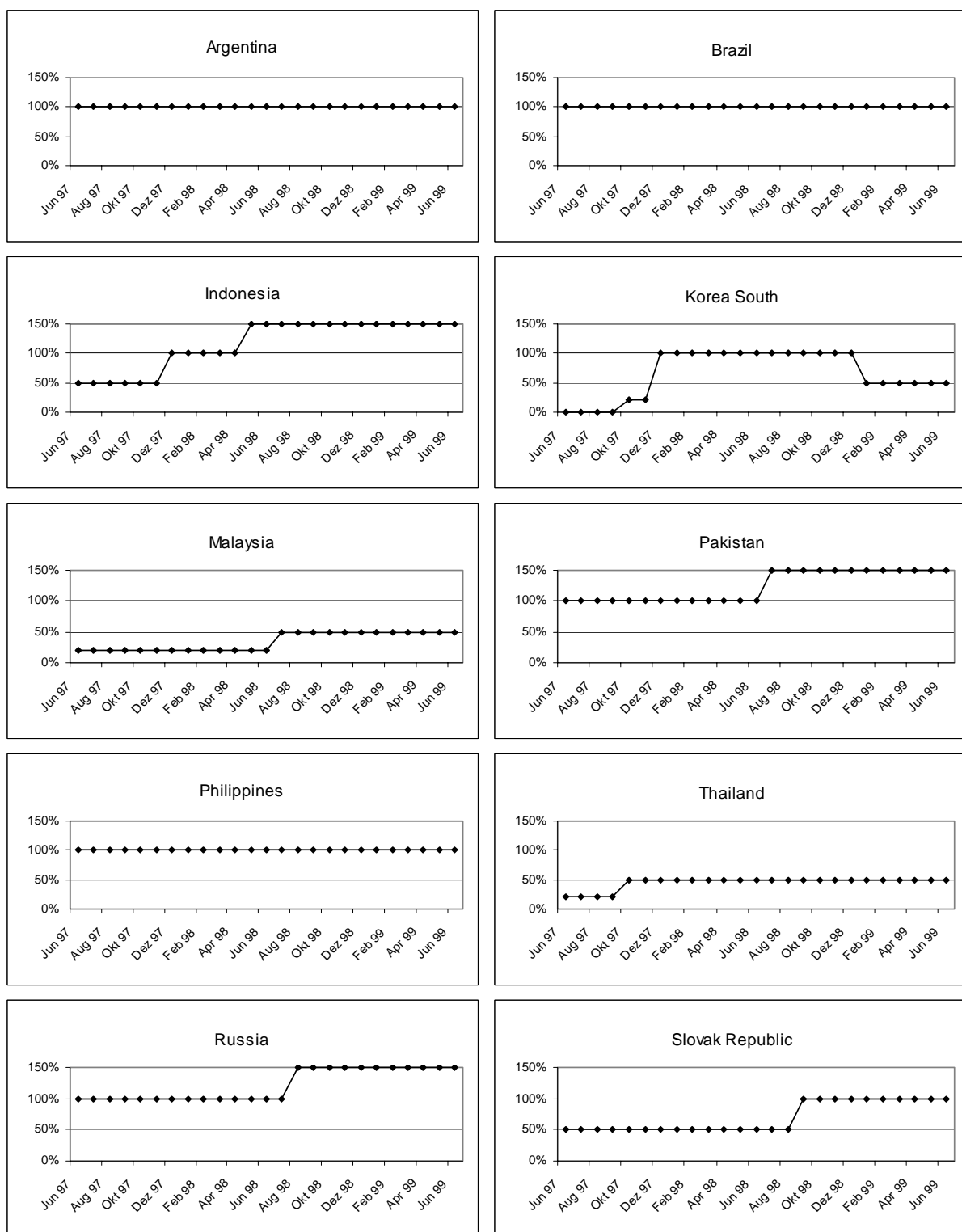
country by the major credit rating agencies. Nevertheless, as South Korea was downgraded by Moody's repeatedly throughout the Asian crisis, the sovereign risk weight would have risen to 100 percent by end-1997.

Following the new risk weights proposed by the BCBS, Table 3 presents the impact of the Basel II framework on commercial banks' capital adequacy requirements for lending to a number of selected emerging market economies based on S&P's sovereign credit ratings during the period between June 1997 and June 1999.

**Table 3:** *S&P's Sovereign Rating Changes and Their Implications on the Proposed Capital Requirements (June 1997 to June 1999)*

| Country         | S&P's Range of Ratings | S&P's Rating Actions   | Basel II Risk Weight Changes |
|-----------------|------------------------|------------------------|------------------------------|
| Argentina       | BB to BB               | —                      | —                            |
| Brazil          | BB– to B+              | 1 negative             | 1 negative                   |
| Indonesia       | BBB to SD              | 1 positive, 6 negative | 2 negative                   |
| South Korea     | AA– to B+              | 2 positive, 4 negative | 1 positive, 3 negative       |
| Malaysia        | A+ to BB–              | 4 negative             | —                            |
| The Philippines | BB+ to BB+             | —                      | —                            |
| Russia          | BB– to SD              | 5 negative             | 1 negative                   |
| Thailand        | A to BB–               | 3 negative             | 1 negative                   |
| Pakistan        | B+ to SD               | 1 positive, 4 negative | 1 negative                   |
| Slovak Rep.     | BBB– to BB+            | 1 negative             | 1 negative                   |

Table 3 suggests that there seems to be little correlation between the number of S&P's sovereign rating actions and the number of changes in risk weights. For example, South Korea, with six rating actions between June 1997 and June 1999, would have had four changes of risk weights while Malaysia, with four sovereign rating changes during the same period, would have experienced no adjustments in its respective Basel II risk weight. The implications of S&P's sovereign rating actions on the proposed commercial banks' capital requirements are shown graphically in Figure 2 for the selected emerging market economies from Table 3.



**Figure 2:** *S&P's Sovereign Rating Changes and Their Implications on the Proposed Capital Requirements (June 1997 to June 1999)*

Figure 2 illustrates that the proposed risk weights can also change very rapidly. For example, South Korea went from the lowest risk weight at zero percent in October 1997 to 100 percent in just about two months in late December 1997.

The suggested removal of the distinction between OECD and non-OECD member countries is likely to have damaging consequences for OECD emerging market economies which are low-rated by the credit rating agencies. As Table 2 demonstrates, OECD member countries currently assessed below AA– would have most to lose under the proposed Basel II framework. For example, risk weights for claims on Mexican government bonds would have jumped from zero to 100 percent, imposing significantly higher borrowing costs for the Mexican economy. Other OECD member countries confronted with higher risk weights under Basel II would have been the Czech Republic, Hungary, South Korea, Poland and Turkey. Conversely, under the proposed standardized approach to credit risk, high-rated non-OECD governments would have gained access to international capital markets on more favorable terms. For instance, Chile and Colombia would have benefited from lower capital adequacy risk weights with their sovereign credit ratings as of December 31, 2000 if Basel II would have been adopted.

Calculations by DEUTSCHE BANK (2001) indicate that the gap between investment-grade borrowers, typically based in OECD member countries, and speculative-grade borrowers, normally from emerging market economies, will intensify even more under the standardized approach to credit risk. However, such an outcome would obviously be against undertakings of the international financial community to enlarge the number of emerging market economies benefiting from international capital markets. Overall, Basel II would not only increase the capital cost for speculative-grade borrowers, but it would also boost the volatility of commercial banks' lending to emerging market economies.

Another crucial issue is that the focus of the standardized approach to credit risk lies in borrowers' default risk rather than commercial banks' unexpected losses, which is particularly problematic in the case of emerging market economies. Default risk for emerging markets is more prone to financial contagion than unexpected loss since these countries are vulnerable to liquidity crises. For example, MONFORT AND MULDER (2000) emphasize that in the absence of a perfect international lender of last resort, a liquidity-related financial crisis could result in a vicious circle. As examined in Kräussl (2003c), an unexpected financial crisis in a major borrowing emerging market economy would imply the credit rating agency's downgrade of that sovereign. This in turn could trigger market participant's expectations of credit rating downgrades in other emerging market economies, as borrowers' default risk in these financial markets increases, which would imply a raise in commercial banks' capital requirements and the ultimately withdrawal of their funds. During such a period of financial contagion, there may be an increased discrepancy between commercial banks' unexpected loss and the

borrower's probability of default which makes the utilization of credit rating agencies' risk assessments a less appropriate instrument for regulatory capital requirements.

## **V Conclusion and Outlook**

Under the standardized approach of Basel II, credit ratings are supposed to become fundamental determinants of the risk weights attached to bank exposures to governments and other borrowers. However, the empirical evidence casts doubt on the usefulness of credit ratings in determining commercial banks' capital adequacy requirements. The findings of a first attempt to assess the potential implications of Basel II on the volatility and size of foreign lending to emerging market countries suggest that the standardized approach to credit risk would lead to more divergence rather than convergence between investment-grade and speculative-grade borrowers. This conclusion is based on the lateness and cyclical determination of credit rating agencies' sovereign risk assessments and the continuing incentives for short-term rather than long-term interbank lending.

The experience during the financial crises in emerging markets in the latter half of the 1990s indicates that sovereign ratings can swiftly turn downward. The observed findings suggest that positive sovereign credit rating actions occur following financial market improvements while negative credit rating actions on the countries' creditworthiness take place after financial market downturns. Relying on external credit risk assessments to determine regulatory capital requirements could create a substantial liquidity squeeze in the course of financial market turbulences. A credit rating agency's sovereign downgrading would force commercial banks to immediately broaden their capital reserves against exposures to the lowered government, at a point when financial institutions should be supported to maintain credit lines open to avoid accelerating financial market crises. Therefore, the exclusive reliance on agencies' sovereign risk assessments might introduce systemic risk and result in an enhanced rather than reduced degree of instability in the global financial market system. However, this is precisely contrary to what an optimal approach for commercial banks' regulatory capital requirements should be.

Nonetheless, the consensus among financial market regulators appears to be that although credit ratings have performed worse than their aim, they are still a second-best solution for enhancing the current Basel I capital adequacy requirements. However, the findings of this empirical study recommend that if Basel II were adopted, the standardized

approach to credit risk should be seen as an interim measure only, put in place while the banking and regulatory communities develop and fine-tune the IRB approach for determining commercial banks' capital charges.

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