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THE BASEL 2 AGENDA FOR 2009:
PROGRESS SO FAR

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PREFACE

As the focal point of the United Nations for the integrated treatment of trade and development and interrelated issues, and in accordance with the Accra Accord adopted at the twelfth session of UNCTAD in 2008, the UNCTAD secretariat supports member States in assuring development gains from international trade, the trading system and trade negotiations, with a view to their beneficial and fuller integration into the world economy and to the achievement of the United Nations Millennium Development Goals. Through intergovernmental deliberations and consensus-building, policy research and analysis, and technical cooperation and capacity-building support, UNCTAD's work on trade negotiations and commercial diplomacy aims at enhancing human, institutional and regulatory capacities of developing countries to analyze, formulate and implement appropriate trade policies and strategies in multilateral, interregional and regional trade negotiations.

This paper is part of a series on "Assuring Development Gains from the International Trading System and Trade Negotiations". The targeted readership is Government officials involved in trade negotiations, trade and trade-related policymakers, regulators and other stakeholders involved in trade negotiations and policymaking, including non-governmental organizations, private sector representatives and the research community.

The objective of the series is to improve understanding and appreciation of key and emerging trade policy and negotiating issues facing developing countries in international trade, the trading system and trade negotiations. The series seeks to do so by providing a balanced, objective and sound analysis of technical issues involved, drawing implications for development and poverty reduction objectives, and assessing policy options and approaches to international trade negotiations in goods, services and trade-related issues. It also seeks to contribute to the international policy debate on innovative ideas and practical solutions to realize a development dimension for the international trading system with a view to the achievement of the Millennium Development Goals. Authors are invited to express their personal opinions and the papers do not necessarily reflect the views of the UNCTAD secretariat.

The series is produced by a team led by Mina Mashayekhi, Head, Trade Negotiations and Commercial Diplomacy Branch, DITC.

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ABSTRACT

The paper examines revisions to the Basel 2, the international standards for bank regulatory capital developed by the Basel Committee on banking supervision to replace the 1988 Basel Capital Accord (Basel 1). It considers these revisions specifically in relation to the mid-2007 credit crisis which revealed shortcomings in the regulatory framework for financial institutions. Two of the major subjects of the revisions discussed in depth in this paper are the rules for securitization exposures and the Market Risk Framework. The author also makes a preliminary assessment of the implications of the Basel 2 revisions for developing countries.

CONTENTS

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I. Introduction

The revisions of Basel 2, the international standards for banks' regulatory capital developed by the Basel Committee on Banking Supervision to replace the 1988 Basel Capital Accord (Basel 1), are now beginning to take shape. The 2006 text of Basel 2, which was the culmination of a drafting process that began at the end of the 1990s, had been considered closed before the onset of the credit crisis in mid-2007.[1] This crisis has revealed major shortcomings in the regulatory framework for financial institutions, which are now the subject of an agenda of wide-ranging reform.[2] Strengthening Basel 2 is an important item on this reform agenda. (An outline of the Basel capital accords can be found in the annex to this paper.)

Two of the major subjects of the revisions of Basel 2, which are discussed in this paper, are the rules for securitization exposures, and the Market Risk Framework. These are covered by consultative documents issued by the Basel Committee on Banking Supervision in January 2009. The documents on the Market Risk Framework follow up the earlier consultative documents from July 2008 concerning the strengthening of the regulatory capital charges for the market risks of banks' trading books. The new documents supplement the July 2008 proposals with recommendations concerning incorporation into the Framework of the proposed rules for banks' securitization exposures, whose strengthening is an important part of the Committee's response to the major part played by such exposures in the recent financial turmoil.

Other revisions of Basel 2 still to come include supplementing the risk-based minimum regulatory requirements of Basel 2 with simpler overall measures (such as banks' aggregate leverage ratios), and the inclusion in the rules or guidelines for banks' capital of "additional shock absorbers" (such as through-the-cycle or countercyclical reserves) (Wellink, 2008).

II. Basel 2's rules on securitization

A. Techniques of securitization

The term "securitization" denotes one of a number of different financial operations involving the substitution of securities for other debt, or the decomposition of large loans into loan shares or participations for distribution among financial institutions. The best-known form of securitization consists of the pooling of loans and other debt obligations by banks and other financial institutions and the sale to investors of interests in the pool (asset-backed securities).

Investment instruments collateralized by pools of mortgage loans have a long history in the United States, going back to the nineteenth century. In the 1980s, asset-backing in securitization was extended to several other kinds of debt, such as computer leases, automobile and truck loans, credit cards, trade receivables, junk bonds, and unsecured consumer loans. Initially, the mortgages

[1] The full text of Basel 2, which is now being revised, is the 2006 version (BCBS, 2006).
[2] Major features of the reform agenda can be found in Financial Stability Forum (2008).

in the pools of asset-backed securities were overwhelmingly prime, i.e. they were made to individuals with good credit histories. With the expansion of markets for assets with greater credit risk in the 1990s, the pools began to include subprime mortgages made to individuals with less highly rated credit histories. The initial development of markets for asset-backed securities took place mainly in the United States, but more recently such markets have also taken off in other developed countries and in some emerging-market countries. (Concerning the development of markets for asset-backed securities in emerging-market countries, see box 1.)

Owing to the different categories of debt obligation included in asset-backed securities and to the development of legal terminology associated with their regulation, securitization is associated with a bewildering number of different acronyms to denote the different instruments. The discussion that follows focuses primarily on Collateralized Debt Obligations (CDOs), used here as a generic term to cover pools of debt instruments serving as the collateral of asset-backed securities.

In cash-flow CDOs, debt instruments are transferred by a bank or another financial institution to a special purpose entity (SPE), a legal structure established to sell shares in the asset-backed securities to investors. Payments due to the investors through these SPEs are made according to various formulas.

The simplest of these formulas is pass through. In this case, investors have a pro rata share in the pooled assets, and a corresponding pro rata share in the cash flows that they generate. Under the pay-through or tranched arrangements that have been a prominent feature of the credit crisis, the CDOs are sold to investors after reconfiguration of the cash flows from the original assets into a number of tranches in the form of structured notes. While each tranche is entitled to payments from the pool, this entitlement is subject to different degrees of seniority. Likewise, losses on the original assets are allocated according to rules under which the first losses up to a specified percentage are borne by the most junior (equity) tranche and subsequent proportions successively by the mezzanine and senior tranches. The rates of return for investors in the tranches reflect the different risk levels, and are thus substantially higher for lower-grade tranches.

The principles entailed in tranching for a cash-flow CDO can be illustrated by a simple numerical example in which four tranches or structured notes are created from a pool of loans and bonds.[3] The first (equity) tranche is based on 5 per cent of the total pool, and absorbs losses from the pool until they have reached 5 per cent. The second tranche is based on the next 10 per cent of the pool, and absorbs losses in excess of 5 per cent up to a maximum of 15 per cent. The third tranche absorbs losses in excess of 15 per cent of the pool, up to a maximum of 25 per cent. The fourth (or senior) tranche absorbs residual losses in excess of 25 per cent of the pool.

Under the resulting distribution of risks, a 1 per cent loss for the pool as a whole becomes a 20 per cent loss for investors in the equity tranche. The return on their investment, which may be as much as or more than twice that on the second tranche and a much higher multiple of the return on the senior fourth tranche, will henceforth be paid only on 80 per cent of their initial investment. A 5 per cent loss on the pool wipes out the first tranche and with it the return to investors, and a 10 per cent loss also wipes out 50 per cent of the value of investments in the second tranche, and so on.

Various alternatives to classic cash-flow CDOs are also available. For example, in synthetic CDOs, the risks associated with a pool of assets rather than the assets themselves is transferred to the SPE. The payments to investors depend on the structuring of the synthetic CDO. In a funded CDO,

[3] The example is taken from Hull (2006: 516–517).

investors pay in the principal corresponding to their tranches, and this principal is invested in government securities or other highly rated securities. Defaults lead to a write-down of this principal. The returns to investors are generated by the interest payments on the government securities and other highly rated securities, and by the premiums on the credit derivatives (credit default swaps) also held in the portfolio backing the CDO. In an unfunded synthetic CDO, no payments of principal are made by investors, and their returns are generated exclusively by the credit derivatives backing the portfolio. Synthetic CDOs also come in the form of hybrid instruments, of which some tranches are funded but the lowest-risk (super senior) tranche is unfunded. Large banks themselves often hold such super senior tranches in their investment portfolios.

Box 1. Securitization in Asia and Latin America

In comparison with levels in the developed countries of North America and Western Europe, investments in asset-backed securities in emerging markets are still small. According to figures from the Bank of England, outstanding asset-backed securities in mid-2006 in the United States and Western Europe amounted to $10.7 trillion (of which commercial mortgage–backed securities accounted for $0.7 trillion, residential mortgage–backed securities accounted for $6.5 trillion, and non-mortgage asset backed securities accounted for $3.5 trillion (Bank of England, 2007: 20). Issuance of asset-backed securities in United States reached $200 billion in 2000 and subsequently expanded to nearly $800 million in 2005, while issuance in member countries of the European Union rose from a little under $100 billion in 2000 to over $300 billion in 2005 (Gyntelberg and Remolona, 2006: 67–69).

In the emerging-market countries of Asia, only in the Republic of Korea were substantial amounts of asset-backed securities issued to domestic investors during the period 2000–2005, the figures varying between approximately $20 billion and approximately $30 billion. Asset-backed securities in smaller amounts (less than $5 billion a year) by Hong Kong (China), Malaysia, the Philippines, Singapore, Taiwan Province of China, and Thailand, as well as the Republic of Korea, were also issued during this period to international investors. In China, following regulatory initiatives in 2005 aimed at encouraging securitization, domestic issuance of asset-backed securities increased from a negligible amount to more than $2 billion. As of 2006, there had been little use of credit tranching to produce asset-backed securities with different risk profiles (Gyntelberg and Remolona, 2006: 67–72).

In emerging-market countries of Latin America, the market for asset-backed securities was dominated by issuance to foreign investors before 1998. Such issuance fell sharply thereafter, to less than $4 billion in 2006. However, this fall was accompanied by a rise in asset-backed securities issued in domestic markets to a level of $16 billion in 2006. Two countries, Brazil and Mexico, accounted for three quarters of those issued in 2006 (Scatigna and Tovar, 2007: 73–74).

In Asian emerging markets, much of the initial impetus behind securitization was provided by the 1997–1998 financial crisis. Necessary changes in the legal and regulatory framework were spurred by governments' perceptions that securitization could play a useful role in the disposal of the large numbers of non-performing loans generated by the crisis. In both Brazil and Mexico, the growth in asset-backed securities also followed changes in the legal framework. In Mexico, the changes were part of policy initiatives aimed at alleviating a housing shortage, in this case by improving mechanisms for mortgage financing, which had been damaged by the financial crisis of the mid-1990s (Zanforlin and Espinosa, 2008).

B. The approach of Basel 2 to securitization

The lack of rules for banks' securitization exposures in the 1988 Basel Capital Accord (Basel 1) was one of the shortcomings that led to the decision to begin the process leading to Basel 2. The concern of regulators antedated the widespread sale to investors of the more baroque investment instruments just described, and focused on securitization's role as a vehicle for regulatory arbitrage under Basel 1.

More profitable but riskier loans and other exposures were not necessarily associated with higher regulatory capital charges according to the risk calibration of Basel 1. This created incentives to regulatory arbitrage under which banks reduced their holdings of less profitable assets whose risks were overestimated under the capital charges of Basel 1, and increased their holdings of more profitable assets whose risks were underestimated, thus increasing profits without a corresponding allocation of capital to cover the greater exposure to credit risk (losses from which would probably take time to appear). Securitization was one of the techniques used by banks and other originating institutions to manage their exposure to credit risks and regulatory capital charges by choosing which loans to keep on their own balance sheets. They also pocketed fees associated with origination and management.

Faced with various national regulatory approaches to securitization, the Basel Committee opted in Basel 2 for rules based on economic substance rather than legal form, thereby avoiding problems linked to differences in national legal regimes for derivatives. A major objective of the rules was to ensure that securitization exposures were no longer the result of artificial incentives to regulatory arbitrage. But the result in the 2006 version of Basel 2 was a particularly complex set of rules for minimum regulatory capital charges.

In these rules, the reality of risk transfer served as the basis for stringent conditions which had to be met if an operation was to be accepted as a securitization. If these conditions were not met, Basel 2's minimum regulatory capital requirements were set as if the securitization operation had not occurred and the assets were still held on the balance sheet.

The 2006 version of Basel 2 specified a number of alternative ways of measuring the credit risk of securitization exposures. Under the Standardized Approach to securitization exposures, the rules follow lines similar to those for the attribution of risk weights under the Standardized Approach to the credit risk of non-securitized positions, but prescribing higher capital charges for securitization exposures with low credit ratings than for non-securitized exposures with equivalent ratings. Thus, for long-term securitization exposures to corporate rated BB+ to BB- (according to the scale of Standard and Poor's) the risk weights are 350 per cent, as opposed to 100 per cent for non-securitized exposures to similarly rated corporates.[4]

Under the Internal Ratings-Based Approach to securitization exposures, there were three options. The Ratings-Based Approach (like the simpler Standardized Approach) maps external ratings of exposures into weights for credit risk, but on the basis of a finer calibration of risk than for non-securitized exposures and of rules which also take account of the seniority of the tranche of asset-backed securities and of concentrations of risks in the pool of underlying assets (the "non-granularity" of the pool, to use Basel 2's term). The Internal Assessment Approach applies mainly

[4] The capital charge for the exposure is estimated by multiplying the standard or benchmark ratio of 8 per cent by the risk weight. Thus, a risk weight of 350 per cent corresponds to a capital charge of 28 per cent of the value of the exposure, while a risk weight of 100 per cent corresponds to a capital charge of 8 per cent of the value of the exposure. A risk weight of 1250 per cent corresponds to a capital charge of 100 per cent of the value of the exposure. Such a weight is equivalent to deducting the value of the exposure from a bank's capital under Basel capital rules.

to exposures due to sponsorship of securitizations where investments are liquid asset-backed commercial paper (ABCP) and where a bank's own internal ratings of the exposures can be mapped into the external ones of a credit rating agency.

The Ratings-Based Approach can be illustrated for an exposure with an AAA (according to the scale of Standard and Poor's). For a senior securitized exposure the risk weight is 7 per cent; for a non-senior securitized exposure the risk weight is 12 per cent, so long as it meets the granularity criterion (i.e. is sufficiently diversified), and 20 per cent if it does not meet the granularity criterion. (Concerning the relation between seniority and risk, see the example of a tranched CDO discussed in section II.A.)

When neither the Ratings-Based Approach nor the Internal Assessment Approach is possible, recourse is to be had to a third option, the Supervisory Formula. Owing to its complexity, this last option was expected to be used only by sophisticated banks.

In the context of subsequent developments, two points about these rules deserve emphasis. Firstly, most of the rules depend directly or indirectly on credit ratings and thus on the integrity of the rating process. Secondly, the rules assume that the different forms of securitization as such are an inevitable part of modern banking practice.

However, at the national level, regulatory approaches more restrictive of securitization have in fact been tried. Spain, for example, has adopted rules that mandate the same regulatory capital requirements for securitized and on-balance-sheet exposures, thus removing a major incentive for banks to participate in the "originate and distribute process" for securitized assets whose dysfunctioning was at the origin of the subprime crisis (Tett, 2008). The Spanish approach is consistent with the supervisory guidelines for securitization exposures under Pillar 2 of Basel 2 (the minimum regulatory capital charges being part of Pillar 1). Pillar 2 of Basel 2 provides considerable scope for supervisory discretion, and in a section entitled "significance of risk transfer" the text states that: "If the risk transfer is considered to be insufficient or non-existent, the supervisory authority... may deny a bank from obtaining any capital relief from the securitizations" (Basel Committee on Banking Supervision (BCBS), 2006: para. 786).

C. Securitization and the credit crisis

Although the 2006 version of Basel 2 covers the different dimensions of banks' exposures to securitization, developments during the credit crisis have led regulators to decide that further strengthening of the rules is nonetheless necessary. The proposed revisions of Basel 2 concerning securitization are complemented by the Basel Committee's rules for the management and supervision of liquidity risk which are not part of Basel 2 but are closely connected to several of its rules (BCBS, 2008c).

Features of the credit crisis especially noteworthy in this context have involved the financing of the SPEs used for securitization, and the pricing, rating and valuation of structured investment products.[5]

Problems associated with financing have arisen in connection with two vehicles commonly used in securitizations. The structured investment vehicle (SIV) is an entity whose assets consist of highly rated medium- and long-term assets such as mortgages and CDO tranches financed with short-term, highly rated commercial paper. The bank or other financial institution sponsoring a SIV

[5] The discussion that follows makes extensive use of the account of the subprime crisis in Scott (2008: chapter 12).

makes money through management fees and the spread between the funding cost and the return on its assets. In addition to the usual credit, market and interest-rate risks, the SIV is exposed to liquidity risk, owing to the maturity mismatch between its short-term liabilities and its longer-term assets. In the typical SIV, the sponsor does not provide credit enhancement through backup liquidity.

ABCP (asset-backed commercial paper) conduits have balance sheets similar to SIVs but are usually backed by liquidity commitments, often from the sponsoring institution, i.e. pledges by a financial institution to provide funding when alternative sources are not available.

The credit crisis affected SIVs and conduits in various ways. Losses due to the subprime crisis reduced the return on their assets. The contraction of liquidity adversely affected their refinancing. In these circumstances, the sponsoring banks and other financial institutions found themselves constrained to provide backup financing or to consolidate the SIVs and conduits on their own balance sheets. This applied to the sponsors of SIVs and of conduits, despite the lack of legal liability owing to the reputational risk that would be entailed by the insolvency of entities with which their names were associated. Purchase or consolidation could lead to losses for sponsors as a result of a shortfall of the fair (accounting) value of the assets of the SIVs and conduits, in comparison to when they were still on the books of the original operating companies.

The pricing and marketability of securitized investment products has to depend on disclosure regimes and credit ratings, which have proved to be subject to serious shortcomings. For example, in the United States, detailed disaggregated information on the loans in the portfolio backing securitized investment products is not publicly available, and there is no obligation regarding public disclosure for synthetic CDOs. In consequence, for initial valuation and pricing of CDOs, investors must rely on the ratings of credit rating agencies. But such reliance is believed to have reduced the incentives not only to investors but also to institutions participating in the originate-and-distribute procedures for structured products to monitor properly the quality of the debt in portfolios backing CDOs.

Both the performance and the independence of the credit rating agencies have attracted adverse comment during the credit crisis. Under the first heading, critics have focused on deficiencies in the agencies' procedures for taking account of events causing the clustering of defaults and of the impact of credit migrations leading to the downgrading of the rating of structured investment products. Under the second heading, critics have emphasized the potential for conflicts of interest due to the combined role of the agencies as advisers and as raters of these products.[6]

Traditional credit ratings are based solely on the intrinsic qualities of issues and issuers. However, the dependence of the ratings of structured notes not only on the quality of the debt instruments in the underlying pool but also on default correlations and on the seniority of the tranches in CDOs has typically left them more vulnerable to rapid ratings changes. During the credit crisis, such changes have contributed to the often extreme price volatility of super senior and other highly rated tranches.

This price volatility, in turn, has been associated with large accounting losses for banks and other financial institutions carrying structured products on their balance sheets. Under United States and international accounting rules, investments in the trading book (financial instruments and

[6] The importance of structured-products business to credit rating agencies can be illustrated by the example of Fitch. Revenue from the rating of structured products accounted for 51 per cent of the agency's revenue in the first quarter of 2007 (Westlake, 2007).

commodities held either with trading intent or to hedge other positions in the trading book) are revalued according to their fair value (the amount for which the assets could be exchanged between knowledgeable, willing parties in an arm's-length transaction). Resulting losses (or gains) are reflected in reported income. Fair value is estimated on the basis either of market prices for these or similar investments, or of models of the cash flows which the investments are expected to generate. In illiquid markets, it is questionable whether either of these procedures is capable of serving as a basis for reasonable estimates of investments' fair value.

In Asia, the direct impact on developing countries of the collapse in the values of asset-backed securities, which began in the United States in 2007, has been limited by the size of the exposure of their banks to such securities in relation to their equity. This can be illustrated by selected data from mid-2007 (Fitch Ratings, 2007; Tucker, 2007).

(a) The largest Chinese banks had exposure to subprime-related assets that were mostly small in relation to their equity. The largest such exposure was that of Bank of China, at 17.7 per cent of shareholder equity.

(b) Banks in Hong Kong (China) had some limited exposure to subprime-related assets through their investments in SIVs. Bank of East Asia had holdings of CDOs amounting to 20 per cent of its equity, which, however, were not backed by subprime mortgages.

(c) In India, the available information suggests that subprime-related investments were unlikely to be material in relation their capital.

(d) Indonesian banks had no significant exposures to subprime-related assets.

(e) The exposure of the Republic of Korea's banks to subprime-related assets was likely to have been well below 1 per cent of their equity.

(f) A selection of large Malaysian banks reported no direct and only small indirect exposure to subprime-related assets.

(g) Banks in the Philippines held in aggregate CDOs amounting to about 1.5 per cent of their equity, but these CDOs were not backed by mortgages.

(h) Three large banks in Singapore reported holdings of CDOs (backed only partly by subprime-related assets) varying from 0.5 to 2 per cent of their equity. Exposures to CDOs elsewhere in the banking sector were too small to be capable of seriously reducing institutions' capital.

(i) The banks of Taiwan Province of China had aggregate exposures to subprime-related assets that were likely to be well below 2 per cent of their equity.

(j) In Thailand, BankThai had subprime-related exposures amounting to 21 per cent of equity, but other major banks had exposures to CDOs amounting to, at most, 6 per cent of their equity.

In other developing countries, banks' holdings of foreign currency–denominated assets are mostly small, so there was little scope for exposure to asset-backed securities in North America or Western Europe.

D. Proposed revisions of Basel 2

The Basel Committee's proposals for strengthened rules on securitization under Pillar 1 (Minimum Capital Requirements) of Basel 2 cover both the requirements that must be met if exposures are

to be removed from a bank's balance sheets, and the capital charges for the exposures that remain.

In the 2006 version of Basel 2, the requirements that had to be met if the removal of assets from a bank's balance sheet was to be recognized by its supervisors concerned such subjects as the absence of residual control by the transferor over, or residual obligations connected with, the transferred exposures, and the autonomy of the transferee SPE with respect to exchanging or pledging the assets involved. Under the strengthened rules, banks would also have to meet requirements designed to ensure that they conduct their own due diligence concerning the assets being securitized, and not simply rely on the ratings of credit rating agencies. These requirements are intended to reduce failures regarding risk management and due diligence in connection with the originate-to-distribute model during the credit crisis, to which the consultative document (BCBS, 2009c) draws repeated attention.

For the purpose of estimating capital charges, the calibration of securitization exposures has been refined to take better account of the risks connected to such exposures. To the categories used as part of the attribution of risk weights in the 2006 version of Basel 2 (senior, non-senior, and granular securitization exposures), the category of resecuritization exposures has been added. These are defined as securitization exposures for which one or more of the assets backing structured investment products are themselves securitization exposures.

This definition would classify as resecuritization exposures CDOs whose asset backing included other CDOs. Resecuritization exposures would mostly be subject to higher capital charges than other securitization exposures to which equivalent ratings have been attributed under Basel 2 rules. Resecuritizations themselves are classified as senior or non-senior, according to conditions which exclude from the senior category those which are themselves resecuritizations. The document of the Basel Committee itself provides an extreme instance of the sort of practices that are the target of the new rules. "This would preclude the situation whereby a bank took a mezzanine (non-senior) resecuritization exposure, created two tranches (e.g. a junior tranche of 0.1 per cent and a senior tranche of 99.9 per cent), and claimed that the senior tranche should qualify for the senior column of resecuritization weights" (BCBS, 2009c: 3).

Other new rules concern the capital charges for a bank's exposures in the form of backup liquidity support for securitizations (liquidity facilities). Under the simpler Standardized Approach to credit risk of Pillar 1 of Basel 2, the capital charge for such off–balance sheet exposures meeting certain conditions is estimated by multiplying them by a credit conversion factor (CCF) of less than 100 per cent to convert them to their on–balance sheet equivalents. Under the new rules for securitized exposures, the CCFs are standardized at a single level of 50 per cent, and the 20 per cent CCF for short-term exposures, which was previously part of the rules, is suppressed. The rules for CCFs in other approaches to securitization exposures are tightened too, and various options permitting low CCFs are suppressed. This applies now in particular to market disruption lines, which are liquidity facilities available to support securitizations only in the event of general market disruptions. The suppression of the low CCF here is clearly a response on the part of the Basel Committee to heightened awareness of the risks associated with market disruption lines revealed by the credit crisis.

The consequences of the proposed revision can be illustrated as follows. In the Standardized Approach for resecuritization exposures rated BB+ to BB- (according to the Standard and Poor's scale) the risk weight is increased from 350 per cent to 650 per cent. In the Ratings-Based Approach for long-term exposures rated AAA (according to the Standard and Poor's scale) there are now two new risk weights for resecuritization exposures, namely 20 per cent for senior

tranches and 30 per cent for non-senior tranches, in addition to the risk weights for less complex securitization exposures (7 per cent for senior granular, 12 per cent for non-senior granular, and 20 per cent for non-granular exposures).

The additional recommendations of the consultative document (BCBS, 2009c) under Pillar 2 of Basel 2 (Supervisory Review) cover the responsibilities of both supervisors and management, not only for better oversight and control of securitization, but also more generally. Implicit in one of the recommendations concerning board and senior management oversight is a criticism of the lack of professionalism displayed during recent events by several boards of directors. As the Basel Committee puts it, "The board of directors should possess sufficient knowledge of all major business lines to ensure that appropriate policies, controls and risk-monitoring systems are effective. They should have the necessary expertise to understand the capital markets activities in which the bank is involved, such as securitization and off–balance sheet activities, and the associated risks" (BCBS, 2009c: para. 17). Hopefully, this recommendation will serve as a clarion call regarding the qualifications of board members, which can be incorporated into the process for selecting them either by law or as part of a code of corporate governance.

The Pillar 2 recommendations also run through shortcomings regarding the risk management of securitization exposures during the credit crisis. Of special interest here is the digest of points raised in the Basel Committee's September 2008 document entitled *Principles for Sound Liquidity Risk Management and Supervision* (BCBS, 2008c). The Basel Committee has often been criticized for not sufficiently integrating its rules for regulatory capital for credit risk on the one hand, and for liquidity management and supervision on the other. (The rules for market risk naturally incorporate liquidity risk, since liquidity determines the marketability and prices of the items in banks' trading books at which these rules are directed.) While the tightening of the rules on CCFs for liquidity facilities described above represents a step forward on this front, the Basel Committee's critics are nonetheless unlikely to be satisfied until liquidity risk becomes part of an overall regulatory framework which integrates macro- and micro-prudential considerations and recognizes more fully the link of liquidity risk to other major banking risks, including those covered by Basel 2.

The recommendations under Pillar 3 of Basel 2 (Disclosure Requirements) cover additional requirements regarding the disclosure of securitization exposures. Particularly noteworthy here are the inclusion of new mandatory disclosures concerning "all securitization activities which the bank sponsors, regardless of whether they are in the banking or trading book, on or off [the] balance sheet, and whether or not they are subject to the securitization framework". In the 2006 version of Basel 2, disclosure of sponsorship activities was encouraged but still voluntary.

III. Market Risk Framework

A. Approaches to estimating market risk

The Market Risk Framework of Basel 2 was the subject of two consultation documents issued in July 2008, namely *Guidelines for Computing Capital for Incremental Risk in the Trading Book* and *Proposed Revisions to the Basel II Market Risk Framework* (BCBS, 2008a and 2008b). These consultation documents were revised in two new consultation documents covering the same subjects, which were published in January 2009 (BCBS, 2009a and 2009b).

The Market Risk Framework is now part of the regulatory rules for banks' capital in developed countries, and in several developing countries and transition economies of Eastern Europe – more than 15, for example, in the sample of developing countries covered in the 2007 Global Survey of the New York–based Institute of International Bankers (Institute of International Bankers, 2007: 8). Banks in the great majority of these countries are also permitted by their regulators to use internal models (see below) to measure market risks for their minimum regulatory capital requirements.

The Market Risk Amendment was added to Basel 1 in 1996. The Amendment is directed at risks associated with banks' trading books, i.e. positions in financial instruments and commodities held either with trading intent or to hedge other positions in the trading book (as opposed to the institutions' banking books, which contain assets such as loans and selected off–balance sheet or contingent positions that were the main target of the 1988 Accord). Positions in the trading book are regularly revalued and actively managed. The greatest risks of these positions are due to movements in their market prices or values.

The Market Risk Amendment was the Basel Committee's response to the increase in banks' involvement generally in trading (particularly of derivatives) and brokerage, as compared to the more traditional business of receiving deposits and other repayable funds from the public and granting credits for their own account. The rules eventually adopted followed a long consultation period in which banks themselves played an active role, and they were designed to incorporate banks' own experiences and practices.

The rules of the 1996 Amendment allow two approaches to calculating the minimum regulatory capital requirement for market risk. The standardized approach uses a series of conversion factors for different instruments and positions. This approach is cumbersome and likely to generate a higher minimum regulatory capital requirement than the alternatives. Under the internal models approach, banks use their own internal risk models to estimate the requirement.

In addition to general market risk, i.e. the risk due to overall changes in financial markets in such indicators as equity prices or interest rates, trading books are exposed to specific market risk, i.e. the risk due to changes in the value of particular instruments such as stocks or bonds. In the 1996 Amendment, capital requirements for specific market risk under the standardized approach vary for different instruments and positions. Under the internal models approach, calculation of specific market risk by means of a bank's own models may be permitted by regulators. If not, capital charges for specific market risk are calculated according to rules given in the standardized approach and are added to those for general market risk.

Under the internal models approach, exposure to general market risk is calculated on the basis of a measure of Value at Risk (VaR). This makes possible a statement of the following sort: the bank is *x* per cent (for example, 99 per cent in the Market Risk Framework) certain that it will not lose more than a specified amount due to general market risk during the holding period, i.e. the period required to liquidate the trading positions, thus stopping further losses. More colloquially, VaR is an answer to the question of how bad things can get (Hull, 2006: 436).

For the purpose of such a calculation, the bank requires a statistical frequency distribution or models for the profits and losses due to factors that its trading book is exposed to. These tools are then used to identify the maximum loss to the bank corresponding to the chosen level of probability for its VaR.

Three alternative techniques are used for this purpose: historical simulation, Monte Carlo simulation, and the model-building approach.

Under historical simulation, a frequency distribution is derived empirically from the effects on the bank's trading book of actual movements in market variables. In Monte Carlo simulation, the frequency distribution of profits and losses in the trading book is generated by sampling values for profits and losses on positions in different instruments which have themselves been generated by statistical modelling. Both of these processes are highly time-consuming, and costly in terms of computer power.

Under the internal model-building approach, the inputs to the estimates of VaR for trading positions in particular instruments are the sensitivity of the value of the positions to changes in market prices or values and hypothetical maximum changes in these prices or values corresponding to the level of probability selected for the VaR. The VaR of trading positions in particular instruments is then combined into an estimate of the VaR of the trading book as a whole, after taking account of reductions in aggregate VaR due to diversification across particular positions.

Modelling and assumptions about the statistical properties of the distributions of prices or values enter at three stages in the model-building approach: (1) the estimation of the sensitivities of the values of positions to the determinants of changes in market prices or values; (2) the frequency distribution generating the hypothetical maximum changes in prices or values; and (3) the correlations between different positions used to estimate the benefits from diversification.

Estimates of VaR are not infallible guides to market risk so that, for the purpose of calculating capital levels in the 1996 Amendment, a bank's VaR is multiplied by a factor of at least three, which is set by the bank's supervisor on the basis of assessment of its model. A key test of the performance of the bank's model is provided by the results of back-testing, a procedure that compares actual profits and losses with those generated by the model. For VaR corresponding to a 99 per cent confidence level, there should be only 1 period out of 100 for which the loss exceeds that calculated by the VaR model. Under the 1996 Amendment, a failure to meet this standard leads to an increase by the bank's supervisor in the multiplicative factor used to set its capital requirement. A bank is also to have in place a stress-testing programme providing for computer-based scenario analysis of disturbances capable of having a major impact on the market risks faced by a bank. Such scenarios could include the crash in stock markets of October 1987, and the exchange rate crisis in the European Union in 1992–1993.

Several reservations have been expressed about the model-building approach and VaR of the Market Risk Framework. Some of these reservations are primarily technical and concern the models and the hypothetical changes in prices and values used to calculate VaR. Others concern their relation to market stability. Thus, for example, the experience of the impact on financial markets of the Russian default and the collapse of the hedge fund LTCM in 1998 heightened misgivings about the potential of risk management based on VaR to exacerbate markets' procyclicality.

As a senior risk manager at Goldman Sachs characterized the experience of 1998 at the time: "Consider a situation when volatilities rise and there are some trading losses. VaRs would be higher and tolerances for risk would likely be lower. For an individual firm, it would appear reasonable to reduce trading positions; however, if everybody were to act similarly it would put pressure on their common trading positions" (Dunbar, 2000: 203). The increased orders to sell into the market would coincide with a drying-up of buying orders and liquidity.

B. Revisions in response to shortcomings of the 1996 Framework

Recent revisions by the Basel Committee have been directed at some but not all of the Market Risk Framework's perceived shortcomings.

The revisions in 2005 were directed at preventing the gaming of minimum regulatory capital through the shifting of exposures between banking and trading books to reduce capital requirements, at the valuation of trading positions and the need during times of stress to establish special reserves for illiquid positions in the trading book, and at fleshing out the capital requirements for specific risk. In the preamble to the text of these revisions, the Basel Committee acknowledged problems due to the observed assignment by banks to the trading book of an increasing number of instruments related to the management and trading of credit risk and of other structured and exotic products. These practices were the result of financial innovations whose importance had increased during the long process of drafting Basel 2. As the Basel Committee put it: "These products are generally less liquid and give rise to risks that were not entirely contemplated in the market risk framework when it was introduced" (BCBS, 2005: paras. 258–263).

The Market Risk Framework in the revised 2006 version of Basel 2 included, in the internal models approach, a requirement for additional capital in the form of an incremental default charge designed to capture the impact of default risk on trading positions which was not already covered by the charge for specific market risk (BCBS, 2006: paras. 718 (xcii) and 718 (xciii)).

The revisions proposed in the 2008 documents of the Basel Committee are the result of the agreement reached in March 2008 that, reflecting the experience of the credit crisis, the scope of the incremental default charge in the internal-models approach needed to be expanded to become an Incremental Risk Charge to capture the impact on trading positions not only of default but also of other sources of price risk.

As the Basel Committee put it: "The decision [to propose an Incremental Risk Charge] was taken in the light of the recent credit market turmoil where a number of major banking organizations have experienced large losses, most of which were sustained in banks' trading books. Most of those losses were not captured in the 99 per cent/10-day VaR. Since the losses have not arisen from actual defaults but rather from credit migrations [transfers of positions in the trading book between different risk classes in banks' systems for rating credit risk], combined with widening of credit spreads [due to increased credit risks] and the loss of liquidity, applying an incremental risk charge covering default risk only would not appear adequate. For example, the incremental default risk charge would not have captured recent losses of CDOs of ABS and other resecuritizations held in the trading book… the current VaR framework ignores differences in the underlying liquidity of trading book positions. In addition, these VaR calculations are typically based on a 99 per cent/1-day VaR which is scaled up to 10 days. Consequently, the VaR capital charge may not fully reflect large daily losses that occur less frequently than two to three times per year as well as the potential for large price movements over periods of several weeks or months" (BCBS, 2008b: paras. 1–2).

The Incremental Risk Charge is intended to address these shortcomings. But the Basel Committee acknowledged that there is not yet an industry standard for addressing and thus measuring the risks covered by the Incremental Risk Charge. Thus, its guidelines for setting the Charge take the form of high-level principles with considerable flexibility for banks as to how they implement them.

The documents of January 2009 on the Market Risk Framework (BCBS, 2009a and 2009b) contain the results of a consultation process which is still incomplete. The document that provides an overall review of proposed revisions of the Market Risk Framework (BCBS, 2009a) is primarily devoted to extension of the Market Risk Framework to incorporate the new rules for securitization exposures into estimates for specific risk, and to a consolidation of Basel 2's rules for the prudential valuation.

The proposed rules for the capital charges for the specific risk of securitization exposures are prescriptive, as they follow the standardized rather than the internal models approach to market risk. (See the discussion of alternative approaches to estimating capital charges for market risk earlier in section III.) Refusal to permit the internal models approach here is due to the absence in the Basel Committee of a consensus regarding a methodology for such an approach to estimating the specific risks of securitized products in the trading book. As in the case of the new rules for securitization exposures, for the purpose of setting regulatory capital charges the new rules being proposed distinguish between securitization exposures and resecuritization exposures (i.e. those for which one or more of the assets backing structured investment products are themselves securitization exposures), attributing higher capital charges to the latter.

Under prudent valuation, the rules of Basel 2 would be extended to all positions subject to fair-value accounting. Thus, the rules of Basel 2 would apply to fair-value positions in the banking book, as well as those held for trading. The rules for prudent valuation of Basel 2 generally follow the analogous international accounting rules: market-to-market valuation, when feasible, i.e. valuation at market prices in orderly market conditions; and when market prices are not available, marking-to-model, for example, on the basis of market inputs and discounted expected cash flows. However, prudent valuation according to the rules of Basel 2 is also to include – in addition to international accounting rules – adjustments of valuation to allow for illiquidity "which may be in addition to any changes to the value of the position for financial reporting purposes" (para. 718 (xcxx) of the version of Basel 2 that will incorporate post-2006 revisions).

The July 2008 consultative document on guidelines for computing the Incremental Risk Charge (BCBS, 2008b) was somewhat tentative and discursive. The sequel in January 2009 (BCBS, 2009b) clarifies and simplifies the guidelines of the earlier document. "Specifically, for all IRC-covered positions, a bank's IRC model must measure losses due to default and migration at the 99.9 percent confidence interval over a capital horizon of one year, taking into account the liquidity horizons (the times required to sell the position or to hedge all material risks covered by the IRC model in a stressed market) applicable to individual positions or sets of positions" (BCBS, 2009b: para. 13). The model for the Incremental Risk Charge is not to incorporate securitization positions, since in the Basel Committee's judgement, "for the purpose of quantifying default and migration event risks, the state of risk modelling in this area is not sufficiently reliable as to warrant recognizing hedging or diversification benefits attributable to securitization positions" (BCBS, 2009b: para. 10).

IV. Preliminary assessment and implications for developing countries

The proposed new rules for securitization exposures and for the Incremental Risk Charge would refine the calibration of the risks covered by the Market Risk Framework and would lead to higher minimum regulatory capital requirements, and thus reduced leverage, for banks. The new charges would thus meet the commitment in the 2008 reform agenda of the Financial Stability Forum to strengthen the treatment in Basel 2 of structured credit and securitization activities and to issue

specific proposals for the raising of capital requirements for certain complex structured credit products, such as the CDOs of asset-backed securities.

The proposed new rules for securitization exposures, including those that contribute to specific risk in the Market Risk Framework, incorporate credit ratings as an integral part of the estimation of capital charges. Changes in the rating process and in the oversight and regulation of the credit rating agencies introduced as part of the overall agenda of financial reform will thus affect how these rules work out in practice. Progress in the agenda of financial reform in related areas will also affect Basel 2's new rules on prudent valuation, since these rules link the valuation of exposures under Basel 2 to international accounting standards.

In the absence of an industry consensus on the measurement of the risks covered by the Incremental Risk Charge of the Market Risk Framework, implementation of the Charge can be expected to lead to still greater variation in the minimum capital requirements accepted by regulators under Basel 2. The Charge is thus likely to further undermine one of the underlying objectives of Basel 2, namely "maintaining sufficient consistency that capital adequacy regulation will not be a source of competitive inequality among internationally active banks". However, this objective has already been compromised by the multiplicity of options and approaches elsewhere in Basel 2, and would appear to be part of the price that has to be paid to achieve agreement on global capital standards.

From the point of view of risk management generally, special interest attaches to the questioning of the effectiveness of VaR that is implicit in the Basel Committee's acknowledgement that the Incremental Risk Charge is intended to address VaR's shortcomings. Since the early 1990s, VaR has been one of the principal jewels in the crown of quantitative financial risk management. Its downgrading in the Basel Committee's new guidelines may point towards further reassessment of ways of managing and supervising market risk.

For developing countries that introduce the Market Risk Framework, the Incremental Risk Charge will represent a challenge to their supervisors additional to the others posed by the implementation of Basel 2, even though the Basel Committee does also propose in its guidelines a simpler fallback option.

The introduction of Basel 2 is already proceeding – or is about to proceed – in a large number of emerging-market and other developing countries.[7] However, as is evident from the data in box 1, issuance of asset-backed securities is still small in emerging-market countries. Similarly, only a relatively small minority of such countries have introduced the rules of the Market Risk Framework, including those covering the internal model-building approach that is the subject of the proposed revisions discussed in section III. As a result, the main effects on these countries of the revised rules of Basel 2 concerning securitization exposures and the Market Risk Framework are likely to be indirect – in the form of the rules' contribution to greater stability in international financial markets.

Nevertheless, in both cases, the rules proposed by the Basel Committee draw attention to problems that may arise in the future. For example, in the case of securitization, financial institutions in Asia already depend on credit rating agencies for rating of the risks involved (Gyntelberg and Remolona, 2006: 74). Similar dependence can also be observed in Mexico

[7] Evidence on the global introduction of Basel 2 from surveys of the Basel-based Financial Stability Institute and other national sources is discussed in Cornford (2008).

(Zanforlin and Espinosa, 2008: 17–18). The agencies may be domestic ones rather than the international majors. But in either case, the Basel 2 rules are relevant.

Moreover, in the absence of appropriate controls, banks may be exposed to risks associated with cross-border asset-backed investments, as well as investments linked to operations in their own financial markets. As noted in section II.B, the supervisory guidelines of Pillar 2 of Basel 2 provide governments with scope for introducing rules more stringent than those of Pillar 1 for controlling exposures to certain risks, if they judge such rules to be necessary. Thus, Pillar 2 can justify restricting domestic financial institutions' cross-border investments in the opaque and complex financial products that may still be available in the financial markets of industrial countries even after the introduction of the regulatory reforms currently under way.

Annex. The Basel capital accords

Basel 2 is designed to replace the 1988 Basel Capital Accord (Basel 1). Both agreements were drawn up by the Basel Committee on Banking Supervision, a body of banking regulators of the countries of the G10 and selected other developed and emerging-market countries, originally established in 1974 and linked geographically and organizationally to the Bank for International Settlements in Basel (an organization that dates from 1930, whose primary functions are to serve as bank and meeting place for national central banks).

Basel 1 and Basel 2 are agreements on frameworks for assessing the capital adequacy of banks. The framework sets rules for the allocation of capital to banks' exposures to risks through their lending and other operations. The agreements have two objectives. One is prudential, namely to help to ensure the strength and soundness of banking systems. The other is to help to equalize cross-border competition between banks (provide a "level playing field") by eliminating competitive advantages due to differences among countries in their regimes for capital adequacy (a special concern of United States and European banks vis-à-vis competitors from Japan in the 1980s).

As a measure of the difference between the value of a bank's assets and liabilities, capital serves as a buffer against future, unidentified losses. The capital of banks consists of equity and other financial instruments which have the properties of being available to support an institution in times of crisis. Financial instruments classified as capital are usually associated with higher rates of return, and are thus a more costly way of financing banks' assets than other liabilities such as deposits. The rate of return on capital is a determinant of banks' pricing of loans and of other transactions involving exposure to risk, and as such, is a factor in their competitiveness vis-à-vis other banks.

Capital under the initial version of Basel 1 agreed in 1988 was to serve as a buffer against credit risk, i.e. the risk of the failure of borrowers or parties to the other banking transactions to meet their obligations. Under the accord, capital was to constitute 8 per cent of banks' risk-weighted assets. Measurement of these risk-weighted assets was based on the attribution of weights reflecting the credit risk of different classes of counterparty (sovereign, OECD or non-OECD, other public sector, corporate etc.). Off–balance sheet exposures (such as guarantees, various contingent liabilities, and interest rate and exchange rate derivatives) were converted to their on–balance sheet equivalents by multiplying them by factors specified for this purpose. The resulting figures were then weighted according to the class of counterparty as for on–balance sheet exposures. For example, collateralized documentary credits received a credit conversion factor of 20 per cent, and the resulting on–balance sheet equivalent would be multiplied by the risk weight of the counterparty to which the documentary credit was made available.

The attribution of credit-risk weights (0, 10, 20, 50 and 100 per cent) followed a scheme which favoured governments and certain other entities from countries of the Organization for Economic Cooperation and Development (OECD) over those from non-OECD countries, and banks over other commercial borrowers. Thus, a weight of 0 per cent was attributed to claims on OECD governments and central banks, and a weight of 20 per cent was attributed to claims on banks incorporated in OECD countries and to banks incorporated in non-OECD countries with a residual maturity of up to one year. A weight of 100 per cent was attributed to claims on private sector entities not otherwise specified, such as non-financial corporations and non-OECD governments.

By means of an amendment in 1996, Basel 1 was extended to cover market risks, i.e. risks due to the impact on a bank's portfolio of tradable assets from adverse changes in interest and exchange rates and in the prices of stocks and other financial instruments. The procedures for setting minimum regulatory capital levels under this amendment are described in section III of this paper.

Basel 1 was originally designed for internationally active banks. However, by the second half of the 1990s it had become a global standard, and had been incorporated into the prudential regimes of more than 100 countries. But, owing to its crude calibration of credit risk, and to the growing importance of securitization and other financial innovations, Basel 1 was also the subject of increasingly widespread dissatisfaction among both banks and regulators, therefore a decision was taken to initiate what proved to be the lengthy process of drafting a successor agreement. What was intended to be the definitive version of the new accord, Basel 2, became available in mid-2006. However, as part of the policy response to the credit crisis, this text is now being revised.

Basel 2 consists of three pillars. Under Pillar 1, minimum regulatory capital requirements for credit risk are calculated according to two alternative approaches, the Standardized and the Internal Ratings-Based. Under the simpler of the two, the Standardized Approach, the measurement of credit risk is based on ratings provided by external credit assessment institutions. According to the text of the agreement, export credit agencies as well as credit rating agencies are indicated for this purpose. However, the expectation both of the Basel Committee and of national authorities is clearly that the role will most frequently be assumed by credit rating agencies.

Under the Standardized Approach of Basel 2, entities from OECD countries are no longer favoured over those from non-OECD countries. Both banks and non-financial corporations are now differentiated according to their credit ratings (of which the BCBS uses the scale of Standard and Poor's for illustrative purposes). Thus, non-financial corporate borrowers rated between AAA and AA- are attributed a weight of 20 per cent, those rated between A+ and A- are attributed a weight of 50 per cent, those rated between BBB+ and BB- are attributed a weight of 100 per cent, and those rated below BB- are attributed a weight of 150 per cent. Unrated non-financial corporate borrowers are attributed a weight of 100 per cent.

Under the Internal Ratings-Based approach, subject to supervisory approval as to the satisfaction of certain conditions, banks use their own rating systems to measure some or all of the determinants of credit risk, i.e. the probability of default, loss given default, exposure at default, and the remaining maturity of the exposure. Under the foundation version of the Internal Ratings-Based Approach, banks calculate the probability of default on the basis of their own ratings, but rely on their supervisors for measures of the other determinants of credit risk. Under the advanced version of the Internal Ratings-Based Approach, banks also estimate their own measures of all the determinants of credit risk. Pillar 1 also contains rules for regulatory capital requirements for market risk which follow those of the 1996 amendment of Basel 1.

Unlike Basel 1, Basel 2 contains regulatory capital requirements for operational risk covering losses due to events such as human error or fraudulent behaviour, computer failures, or disruptions from external events such as earthquakes. Under the Basic Indicator Approach – the simplest of the three options in Basel 2 – the capital charge for operational risk is a percentage of banks' gross income. Under the Standardized Approach to operational risk, the capital charge is the sum of specified percentages of banks' gross income or loans for eight business lines. Under the Advanced Measurement Approach to operational risk – the most sophisticated option in Basel 2 – subject to the satisfaction of more stringent supervisory criteria, banks estimate the required capital with their own internal measurement systems. Also unlike Basel 1, Basel 2 contains detailed rules concerning securitization exposures, which are explained in section II of this paper.

Under Basel 2, the minimum regulatory capital ratio remains at the 8 per cent figure of Basel 1. The denominator of this ratio consists of estimated exposures for credit, market and operational risk. The numerator consists of capital as in Basel 1, but after adjustment in certain ways. Conceptually, the most important of these adjustments is the exclusion of risks corresponding to several categories of expected losses from the denominator of the ratio and of banks' corresponding loss provisions from capital in the numerator. This exclusion brings Basel 2 more into line with traditional banking practice according to which expected losses are covered by loss provisions, while capital is intended to cover unexpected losses.

Pillars 2 and 3 of Basel 2 are concerned with supervisory review of capital adequacy and the achievement of discipline in banks' risk management through disclosure to investors. Under the guidelines of Pillar 2, supervisors are to prescribe additional regulatory capital not only for the credit, market and operational risks of Pillar 1, if they judge this to be necessary for supervisory reasons, but also for risks not covered under these three headings, such as liquidity risk (which covers the ability of banks to obtain funding and the prices at which they can sell assets in financial markets), and interest-rate risks due to changes in the margins between the rates at which banks lend and borrow.

Pillar 3 specifies rules for the disclosure of information concerning banks' capital and risk management. These rules are intended to enable financial market participants, such as investors, analysts and supervisors, to subject these to scrutiny, which will reinforce the effectiveness of Pillars 1 and 2.

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