



# IMF Working Paper

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## Emerging Issues in Banking Regulation

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## **IMF Working Paper**

IMF Institute

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May 2003

#### **Abstract**

The views expressed in this Working Paper are those of the author(s) and do not necessarily represent those of the IMF or IMF policy. Working Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.

The paper provides an overview of the profound and rapid changes in banking brought about by technology and deregulation, and discusses the hurdles that will have to be negotiated for putting in place the three pillars—capital adequacy rules, supervision, and market discipline—of the bank regulatory framework envisioned by the New Basel Accord (Basel II). It argues that, especially for developing countries, finding the right balance between regulation, supervision, and market discipline is likely to be difficult. Considerable technical expertise as well as political discipline—which can be viewed as a fourth pillar—will be required to implement Basel II.

JEL Classification Numbers: G2; G21; G28

Keywords: banking; regulation; Basel standards

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<sup>1</sup> An earlier version of this paper was presented as the Quaid-i-Azam Memorial Lecture at the 18<sup>th</sup> Annual Conference of the Pakistan Society of Development Economists, Islamabad, Pakistan, January 15, 2003. The authors are grateful to Tom Cosimano, Connel Fullenkamp, Ishrat Hussain, Sakib Sherani, and T. N. Srinivasan for helpful comments, and to Tala Khartabil for exceptional research assistance.

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## I. INTRODUCTION

Deregulation, technology, and financial innovation are transforming banking. Indeed, banking is no longer the business it was even a few decades ago. The way banking services are provided has changed dramatically, and in many countries they are even offered by institutions that are quite different from traditional banks. As the old institutional demarcations become increasingly irrelevant, increased competition from other intermediaries has led to a decline in traditional banking in which banks took deposits and made loans that stayed on their books to maturity. Banks thus have been moving rapidly into new areas of business.

In this evolving financial environment, the international banking community and the Basel Committee on Banking Supervision of the Bank for International Settlements (BIS) are currently wrestling with pinning down an appropriate regulatory framework. The regulatory response to these changes has been a move away from the increasingly ineffective command-and-control regulations to greater reliance on assessing the internal risk-management systems, the supervision of banks, and more effective market discipline. In the language of the New Basel Accord, this represents a shift in emphasis away from capital-adequacy rules toward supervision and market discipline.

This paper provides an overview of the profound and rapid changes brought about by technology and deregulation, and discusses the hurdles that will have to be negotiated for putting in place a suitable regulatory framework. On the one hand, inadequate resolution of these challenges will create the wrong incentives and lead to banking fragility. On the other hand, overregulation carries the danger that it will retard the development of national financial systems, hinder the best use of available domestic savings, prevent countries from accessing international capital, and ultimately lead to slower growth. Developed financial systems are being challenged by the shift in regulatory focus, and the definition and implementation of appropriate regulatory standards is encountering substantial difficulties. Finding the right balance between regulation, supervision, and reliance on market discipline is likely to be even more difficult in developing and transition countries.

As is well known, banks and other financial intermediaries perform three key functions: channeling funds from savers to investors, providing a payment system for transactions, and distributing risks across space and time to those best able to bear them. While the first two continue to remain pivotal for the functioning of the real economy, the risk-distribution function has become increasingly important as the financial instruments have become more complex.

For the development of the financial system, markets and intermediaries have to function jointly and effectively. Banks and financial intermediaries are seen as crucial to the functioning of markets, since they add value by reducing the costs of participation in markets for individuals and firms. Indeed, this risk trading and management is becoming a central function for financial intermediaries who, in addition, are becoming more adept at bundling and unbundling risks into instruments that other market participants find more convenient to hold and manage. Even as the frictions caused by transactions costs and asymmetric information decline, and financial claims held *directly* by households and securities *directly* issued by firms have become

relatively less important, financial intermediaries have continued to expand (see Merton (1993), and Allen and Santomero (1998)).

In developing and emerging market countries, banks are the dominant financial institutions. Many of these countries are characterized by low per capita income and asset levels, inadequate legal systems, lax accounting standards, and a corporate sector dominated by small, family-owned businesses. In such an environment, individuals and firms have a limited ability to contend with market volatility, and there is a preference for risk-sharing and risk-smoothing contracts; a greater desire for stability, even at the expense of competitive efficiency; and a corporate ownership structure that favors bank finance over the use of capital markets. Equity and bond markets require a degree of transparency to function, and their existence depends on mechanisms to monitor managers of listed and unlisted companies. It is necessary to maintain investor perceptions that all participants are treated fairly, and this cannot be done without reasonably strict standards for information revelation, accounting, corporate governance, and regulatory oversight. Since the required infrastructure is lacking in developing countries, it is not surprising that banks and other financial intermediaries dominate the financial scene and capital markets are slow to develop.

Banks provide ways to deal with the deficiencies in the infrastructure needed for equity and bond markets to flourish. Banks take advantage of scale economies and a concentration of expertise to reduce the costs associated with financial transactions. Besides providing a return, they provide safekeeping, diversification, and liquidity. Importantly, they collect and analyze information on borrowers and their productive opportunities, and use it to monitor relationships with their clients. As delegated monitors, they provide discipline on the functioning of firms and a solution to the free-rider problem that characterizes multiple-stakeholder relationships and the principal-agent problem that arises when ownership is separated from control. Hence, the regulatory framework for banks and the way it evolves, are of fundamental importance to developing countries.<sup>2</sup>

The next section of the paper describes the major changes that are taking place in financial systems around the world and examines the various issues they are raising. Section III analyzes the evolving regulatory response of the international banking community to these changes. Section IV discusses the challenges confronting bank regulators in developing countries, and Section V concludes.

## **II. HOW TECHNOLOGY AND INNOVATION ARE CHANGING FINANCIAL SYSTEMS**

Technology has been a phenomenally important engine of change in the banking system and bankers now take this as a fact of life. By the 1970s, technological advances were being used to fundamentally change the delivery and conception of banking services. Automated teller

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<sup>2</sup> See Stiglitz (2001). For a comprehensive look at the historical development of financial systems, see Allen and Gale (2000).

machines (ATMs) began to be seen not just as an additional convenience but also as modes for drastically lowering the costs of simple cash management services and in many essential ways substituting for bank branches. The development of nationwide and international ATM networks made simple bank functions, including foreign exchange transactions, even more convenient. The role of bank branches, which remain useful for corporate customers and the elderly population, continues to be debated.

New high-tech delivery channels have ushered in profound changes in the retail financial services industry.<sup>3</sup> Banking competition has greatly intensified as technology has made it possible for corporate firms to move into banking, and provide credit to its customers to fund purchases. The sales experience of such retail firms and their reputation with customers has helped them compete with banks for customers who are increasingly interested in speedy, convenient, and low cost methods of carrying out banking transactions.

Electronic payment systems have reduced the attractiveness of holding bank deposits. The use of checks as a key mode of payment requires individuals and firms to hold bank deposits, giving banks a stable source of funding. However, the advent of credit and debit cards, ATMs, and point of sale electronic fund transfer systems have increased the speed and efficiency of payments while reducing the need to hold bank deposits.

The improvements in information technology, by reducing the costs of screening and monitoring of risks, have lowered the informational barriers to the development of securities markets. This has resulted in increasing bond and equity issuance by both large and smaller firms. With improvement in valuation technologies, loans and assets that were previously held on the balance sheet of financial intermediaries have become tradable and liquid. Previously opaque assets are now becoming transparent market-traded securities.

Much of this has been facilitated by the ability of banks and other financial intermediaries to unbundle and repackage risks and price them appropriately. Commercial paper and bond markets have grown relative to bank loans taken by large corporations. Highly-rated large firms that previously would have used bank credit lines have shifted to directly accessing capital markets with their banks providing guarantees in the form of back-up lines of credit.

Automated underwriting and credit scoring models have dramatically reduced the cost of issuing credit cards, residential mortgages, and small business loans. Standardization and an increase in the volume of such loans has facilitated asset securitization, and advances in

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<sup>3</sup> Like retail banking, technology has transformed wholesale banking by making it more transparent and providing the prices of a huge variety of products simultaneously to market participants.

financial pricing techniques and computational power have made it easier to evaluate the risk of these pass-through securities created as a result of loan bundling.<sup>4</sup>

The banking system and the bond markets in developing countries also benefit from securitization. For banks, assets suitable for securitization can be moved off the balance sheets. Besides increasing the size of emerging bond markets, securitization improves the overall credit quality as most asset-backed securities have a higher credit rating than the government paper that tends to dominate these markets.

The repackaging of risks has benefited enormously from the development of new financial instruments, such as derivatives, which are now an important part of the international financial markets, and beginning to emerge in many developing countries. The phenomenal increase in the size of derivative markets has facilitated the trading of credit, interest rate, and foreign exchange risks. Deregulation of interest rates and exchange rates has created a demand for these products as firms and individuals hedge or take on risks. The flexibility offered by swaps and other over-the-counter (OTC) and exchange-traded derivatives has lowered the cost of managing balance sheets at financial and non-financial institutions alike. And on the supply side, advances in financial engineering have allowed financial institutions to offer a wider variety of derivatives at lower costs. Real-time pricing and greater familiarity with derivatives continue to increase liquidity in these markets. As the legal and regulatory frameworks allow derivative markets to develop, the use of derivatives is going to expand rapidly in developing countries.

#### **A. Effect of the New Technologies**

Technology has made markets more open and contestable. In the past, depository institutions issued claims to fund the holding of primarily private, information-intensive illiquid loans. Advances in computer technology and the credit scoring methods are diminishing the asymmetries of information and reducing the value of possessing local knowledge. Besides providing considerable flexibility in designing products, the marketing, advertising, and

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<sup>4</sup> Asset backed securitization is the process by which pools of (preferably homogeneous) assets are used to create securities which can be sold in domestic and international capital markets. This process offers an alternative to bank finance, which is proving inadequate to the task of satisfying the escalating demand for capital in rapidly growing emerging markets, especially for infrastructure investments. It is attractive as it can lower the cost of capital (for example, by removing constraints imposed by sovereign ratings), allow access to longer-term finance than would be available to firms in economies with under-developed financial markets, provide financial flexibility by separating corporate risk from asset risk, enable the shifting of risk from the originator to the capital markets, and lead to a risk allocation toward institutions and individuals best able to bear it. In fact, risks in each of the four categories—credit, liquidity, interest rate, and sovereign—can be modified through securitization.



delivery channels have become cheaper and more convenient with the coming of the internet and e-banking. Seeing their franchises being eroded, traditional financial intermediaries have reacted in many ways by:

- Making traditional banking products as attractive as possible (efficient, speedy, convenient, and useful) to maintain traditional lines of business, and by moving into new and riskier lending, for example, real estate loans.
- Increasing fee-based income by pursuing new (off-balance-sheet) activities.
- Becoming loan originators that use their capital to generate loan bundles that are eventually securitized and sold in the debt markets.
- Extending their activities into new lines of business such as insurance, investment banking, and asset management, and also entering into joint ventures with corporate firms that have begun competing with them in retail banking.

Technological innovations are also leading to consolidation of the financial industry through increasing scale economies in acquisition, storage, and analysis of data. Financial intermediaries essentially make money from having information and expertise. The powerful new technologies require huge fixed costs for setting up the information, marketing, and customer servicing infrastructures and running the electronic payment systems. Once in place it allows these contributors to carry out a variety of banking and financial tasks.

Deregulation has also contributed to this process. To improve efficiency, governments have fostered competition through facilitating entry by suitable players. Many big players have entered, since they have the financial muscle and the expertise for combining retail and wholesale banking, insurance, and asset management. The blurring of institutions is being further accentuated by the fact that as technology makes available suitable substitutes for claims on deposit institutions it reduces the privileged status of banks. The uniqueness of banks is beginning to vanish or at least erode significantly. Technology is in this sense also contributing to demolishing the regulations that once defined and differentiated financial institutions.<sup>5</sup>

## **B. Policy Consequences**

The decline in the franchise value of banks, the blurring of distinctions between financial intermediaries, and the emergence of large consolidated financial institutions is complicating the conduct of antitrust policy and the definition and operation of the financial system's safety net.

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<sup>5</sup> See Mishkin and Strahan (1999).

Specifically, antitrust policy has been complicated in two ways. Technology, by reducing the barriers to entry, has expanded the market for any given financial instrument. In fact, financial engineering has made it hard to even define financial instruments, since repackaging risks has become so flexible. Regulators would have to impose heavy-handed regulations to prevent markets from creating synthetic instruments that mimic the payoffs from “instruments not allowed by regulations.”

The blurring of distinctions, combined with increasing returns inherent in the new technologies, is fostering consolidation and hence higher concentrations of market power. The very definition of market size has become problematic. How does one define market power when geographical boundaries become meaningless, and the boundaries between institutions are hard to pin down. How does one redefine the boundaries of institutions? What combinations should or should not be permissible? Recent experience with Chinese walls within institutions has not been very encouraging. Antitrust policy has to navigate between fostering competition by preventing too much concentration and putting in place regulations that penalize large, but efficient and innovative banks.

On the safety and soundness front, a major issue of concern is overseeing a system of banks that, in the face of increasing competition, may be tempted to take imprudent risks in existing or new lines of business. Essentially, for the design of regulation there are four key challenges:

- There is a need to redefine risk-based capital standards to more accurately reflect the risks that are actually being borne, particularly when operating with some of the new financial instruments.
- The complexity and rapidity with which the balance sheet of financial intermediaries can change (especially their trading book) has made the traditional capital standards less appropriate as a regulatory tool. This has resulted in a shift in regulatory emphasis away from capital standards and toward assessing incentive mechanisms, the risk management processes in institutions, and market discipline.
- The blurring distinctions across instruments and across institutions has created a greater need for defining a level playing field to prevent regulatory arbitrage. This is not easy because from an efficiency perspective the concern is with making sure that financial functions are performed, whereas from a stability perspective the focus is on the solvency and health of institutions.
- Consolidation is creating more institutions that may be “too big to fail.” It is therefore imperative that the regulatory framework and supervision be designed to prevent moral hazard on the part of large intermediaries, and regulators explore new ways to provide a safety net for financial institutions.

### III. BANK REGULATION AND ITS EVOLUTION

Changes in bank regulation in the 1970s and 1980s came about as a response to three factors. First, the deregulation of interest rates and exchange rates occurred at the time when the macroeconomic environment changed. High and variable inflation generated a demand for new hedging products, made savers seek higher yields, and generally intensified banking competition. Second, as argued above, advances in information and communications technology began breaking down what at that time was considered a natural segmentation of the financial industry into banks and nonbanks. Importantly, banks began to look a little less special. Third, the globalization of banking made domestic banks compete with foreign ones, and initiated a global debate on comparing the efficacy of regulatory frameworks.

The tenuous situation of some money center banks during the debt crisis of the 1980s galvanized the international banking community to search for global best practices and define banking standards. The push for global capital adequacy ratios came from the concern that in the absence of coordination countries would be tempted to relax capital standards or indulge in regulatory forbearance to protect and possibly enhance the competitiveness of their domestic banks. To remove such temptations and minimize risks to the global payments system the Basel committee of the Bank for International Settlements (BIS) formulated the first Basel Accord.

The original accord, or Basel I, signed in 1988 emphasized the importance of adequate capital.<sup>6</sup> Capital was categorized into two tiers: Tier 1, or core, capital was defined as the sum of common stock, retained earnings, capital surplus, and capital reserves; Tier 2 or supplementary capital consisted of loan loss allowances, preferred stock with maturity greater than 20 years, subordinated debt with original debt of at least 7 years, undisclosed capital reserves, and hybrid capital instruments. Basel I required core capital to be at least 4 percent and total capital (Tier 1 plus Tier 2) to be no less than 8 percent of risk-weighted total assets.

Basel I also strived to be more comprehensive in its risk assessment by extending the capital requirements to Off-Balance-Sheet positions, by translating such exposures to their equivalent On-Balance-Sheet ones. This was done to force banks to recognize exposures that previously went unnoticed or tended to be overlooked for estimating capital requirements. The original accord signed in 1988, however, mostly dealt with credit risk, and as a result, was not well suited to deal with the other types of risks, such as market, interest rate, and operational risk.

Banks reacted to Basel I by finding ways to economize on capital. Since the risk categories used in the calculation of risk-weighted assets were relatively crude, banks found it profitable to load up on the riskiest assets in a particular category. Also, since the Basel capital standards focused on credit risk and did not effectively charge for other risks, banks took on more market and interest rate risk. Further, by using the bank capital to originate loans, they also found it profitable to securitize part of their balance sheet and generate fee income. This resulted in

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<sup>6</sup> See Santos (2001) for a recent survey on bank capital regulation.

banks keeping the lower quality assets on their balance sheet because through securitization it was easier to off-load their higher quality (less risky) assets.

The deficiencies of Basel I sent the Basel Committee back to the drawing board to improve on the earlier rules by making the risk assessments more accurate and comprehensive. In 1999, it formalized Basel II in a consultative paper and put forward a three-pillar approach to regulating banks: the first pillar (Regulations) is the rules imposed by the official regulators; the second pillar (Supervision) is the monitoring and enforcement of regulations; and the third pillar (Market Discipline) is enforcement of good behavior by financial markets and institutions.<sup>7</sup>

Given the changes in the way banks operate, the weight of regulation has shifted from the first pillar to the second and third pillars. Direct regulation of risks is seen as increasingly difficult and regulators are indirectly regulating them by approving the banks' risk-management processes. This shift in emphasis is in part due to the recognition that financial engineering can be used by banks and other intermediaries to escape regulation. It also reflects the realization that given the complexity and rapidity of balance sheet changes, and the limited availability of regulatory resources, continuous surveillance of banks is a formidable undertaking.

#### **A. Pillar I: Regulations**

A key aspect of the first pillar is the refinement of the risk weights assigned to different assets to more accurately reflect the risks in the banking and trading book. There are two approaches to measuring credit risk—a Standardized Approach and an Internal Ratings Based Approach (IRB). The first approach is more likely to be used by smaller and less sophisticated banks that lack the expertise to develop their own technical models to evaluate credit risk. Such banks are expected to use external ratings-based risk weights, consisting of separate schedules for sovereigns/central banks, commercial banks, and the corporate sector. In contrast, the IRB lets banks, subject to the approval of supervisors, develop their own credit risk models.

Market risk standards set by Basel II cover the risk in the “trading book,” and put capital charges on foreign exchange and commodity contracts, debt and equity instruments, and related derivative and contingent items. The committee provides some flexibility in terms of measuring risk. Banks can use either an Internal Model or a Standard Model. The internal model of choice is a Value at Risk (VaR) model that estimates how much the value of a portfolio could fall due to an unanticipated change in market prices. Such VaRs can be used, for example, to set exposure limits for traders and to allocate capital to different activities.

With respect to a bank's exposure to interest rate risk, the Basel principles require that banks hold capital that is proportionate to the risk exposure of the “banking book.” The recommendations also stress the need for banks to disclose the level of interest rate risk and their risk management approach. The role of supervision is important in that supervisors are

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<sup>7</sup> See Basel Committee on Banking Supervision (1999a, 1999b).

required to assess the internal models used by banks to measure interest rate risk. Supervisors are encouraged to deal with banks that do not hold the appropriate level of capital, by requiring that these banks either reduce their risks, or hold additional capital, or both.

Operational risk, a “catch all” category, is defined to include transaction risk (e.g., execution errors), control risks (e.g., fraud, money laundering, rogue trading), systems risk (e.g., programming errors, IT failure), and event risk (e.g., legal problems and natural disasters). This risk can be substantial and some estimates indicate that operational risk accounts for about 20 percent of the economic capital held by banks.

In the context of pillar I, regulators have also argued that capital adequacy standards should be supplemented by other prudential standards. An example would be standards that cover reserves as a form of ex-post protection. These reserves would include loan loss provisions and liquidity ratios. In addition, there is a need for standards that cover exposure limits, which would act as a form of ex-ante protection. Such limits are meant to deal with risks involving related parties, large exposures, and foreign exchange.

## **B. Pillar II: Supervision**

Given the problems in measuring risk embodied in complex balance sheets, this pillar seeks to ensure that banks have sound internal procedures to assess the risk and calculate the required amount of capital to hold. It provides incentives for banks to develop their own internal models for risk evaluation. The role of the supervisor is seen as making sure the systems in place and the capital held are appropriate for the bank’s balance sheet and environment. It also envisages a continuing dialogue between banks and their supervisors, with the latter having the authority to review and intervene when necessary.

## **C. Pillar III: Market Discipline**

The growing reliance on market discipline is driven by the realization that examiners have a limited time to devote to each institution, whereas effective market discipline keeps a continuous watch. Hence, the aim of this pillar is to enhance market discipline through greater disclosure by banks. To this end, it puts forth a core set of disclosure recommendations for timely information revelation to supervisors and the public. The market also requires instruments (for example, equity or subordinated debt) which serve as a means of disseminating the market’s evaluation of financial institutions, and as a vehicle for rewarding well-run entities.

There has been a large and ongoing effort by international bodies and organizations to enhance the quality, frequency, and quantity of information available to increase market discipline. For example, the International Accounting Standards Committee (IASC) has recommended accounting and disclosure standards and the BIS best practices of July 1999 cover loan accounting and credit risk disclosure. These standards recommend that information be disclosed on: revenues, net earnings, and returns on assets; assumptions underlying models, and policies and practices of risk management; exposures by asset type, business line, counterparty, and geographical area; significant risk concentrations; current and future potential exposures;

qualitative and quantitative information on derivative and securitization activities; impaired loans and allowances for impairment by asset type; cash flows that ceased because of deterioration; and a summary of exposures that have been restructured.

## **D. Implications of Basel II**

### **Capital Requirements**

Banks were quick to react to the “regulatory tax” imposed by Basel I by engaging in activities that exploited the divergence between the true economic risks and the measure of risks embodied in the regulatory capital ratios. This “regulatory capital arbitrage” allowed banks to minimize the effective capital requirements per dollar of economic risk retained by the bank.<sup>8</sup>

While Basel II is quite flexible and allows banks to choose the risk management methodology appropriate to their level of sophistication, risk measurement raises a number of difficult questions. Even large banks using VaR models have had to face important challenges, such as model uncertainty, parameter uncertainty, and intraday uncertainty when it comes to dealing with trading positions. Regulators also confront difficult issues when examining bank VaR models.<sup>9</sup> How do they assess the accuracy of a bank’s internal risk model? Are the banks’ internal ratings sufficiently independent or do they merely mimic external ratings? What standard should be used to compare such models across banks? Can banks manipulate these ratings to lower capital charges? How are regulators to enforce the ratings or impose sanctions based on the ratings produced by such models? These questions highlight the difficulty of relying solely on regulation to control bank behavior, and underline the importance of bank supervision in the new environment.

Operational risk by its very nature is hard to measure and manage. For example, estimating loss experiences due to operational failure are difficult and usually subjective. Standard insurance contracts meant to cover business interruptions do not provide adequate coverage, due to lack of historical data. The need to deal with such operational risks was a reaction to regulatory capital arbitrage. Banks, having found that activities that involved credit risk and interest rate risk have become less profitable due to the new regulatory tax, allocated more assets to new activities such as, fee-based services and custom-tailored contracts. These activities, because of their general complexity, involve high operational risk.

An important consequence, likely unintended, of the new risk-based capital requirements is the “procyclicality” of bank capital. Several studies have argued that Basel I was partly responsible

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<sup>8</sup> See Jones (2000).

<sup>9</sup> For a critique of the internal model approach, see the proposal on reforming bank capital by the U.S. Shadow Financial Regulatory Committee (2000).

for the “credit crunch” of the early 90s in the U.S. and in emerging countries.<sup>10</sup> A 1999 study covering G-10 countries by the Basel Committee on Banking Supervision found evidence that bank capital responds to the business cycle. Thus, recessions are likely to depress the value of bank capital, which in turn may choke off bank credit. With over 100 countries adopting the Basel framework, there is now widespread concern that the suspected negative impact of higher levels of risk-based capital may be more pronounced in emerging economies.<sup>11</sup>

Banks are the main intermediaries in virtually all developing economies. Thus, capital adequacy standards, by affecting the performance and behavior of these banks, will have an important influence on economic activity. In a recent paper Chiuri, Ferri and Majnoni (2002) present empirical evidence that the new capital adequacy ratios may have contributed to a severe reduction in bank credit and an aggregate liquidity shortage in developing countries. It is likely that such effects are asymmetric across banks and countries. Banks that are capital-constrained are more likely to constrain credit than those that are not.

It is also possible that greater reliance on bank capital will complicate the conduct of monetary policy. In particular, the monetary authorities’ effort to expand liquidity in the market may be constrained by the level of bank capital. For example, suppose the monetary authorities wanted to increase money supply either directly through reserve requirements or indirectly through open market operations. That effort may fail if the banks are capital constrained. Unless banks meet the minimum of 8 percent risk-based capital, or some other regulatory minimum, these banks will not be able to extend loans. Naturally, banks may try to pre-empt such a situation by holding more capital and avoiding being capital constrained. But, capital is costly, and as a result this may affect the level of bank lending and with it, market activity.<sup>12</sup>

Basel II strengthens the link between bank lending and bank capital. A negative shock that hits the balance sheets of borrowers, is also likely to adversely affect bank capital. Thus, the “financial accelerator” effect working through the deterioration in the quality of the borrowers’ balance sheets is likely to be augmented by the negative effect on bank equity due to mounting losses. Together these effects will magnify the procyclical nature of capital adequacy requirements. To the extent that emerging countries are bank-based and are more likely to suffer

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<sup>10</sup> See Bernanke and Lown (1991), Berger and Udell (1994), Peek and Rosengren (1995), and the Basel Committee on Banking Supervision (1999b), among others. Also see, Catarineu-Rabell, and others (2002) who argue that the procyclicality of bank capital will depend on whether the loan rating systems used by banks are designed to be “stable over the business cycle” or conditioned on the “point in the cycle” when loans are made.

<sup>11</sup> See, for example, Ferri and Kang (1999).

<sup>12</sup> See Greenbaum and Thakor (1995), and Chami and Cosimano (2002).

negative shocks, this implies that it may take these economies a lot longer to recover from downturns, and more generally amplify the business cycle.<sup>13</sup>

Under Basel II governments will also be affected. While the new Accord maintains the same minimums regarding risk-weighted capital requirements, external credit assessment of borrowers is suggested for banks that do not have their own internal system of assessment. Thus, if credit rating agencies view the state of government finances as precarious, a low sovereign credit rating would imply a higher capital charge. To avoid a higher capital charge or risk lowering their own credit rating, local as well as foreign banks may reduce lending to the government. This may in turn force governments to seek other ways of financing their needs and pressure them to put their fiscal house in order.

### **Supervision**

Banks engage in information-intensive activities and their profitability also hinges on keeping that information private. This informational asymmetry, however, between banks and other economic agents, such as borrowers, lenders and regulators, can give rise to various problems. For example, informational asymmetry between the bank on one side, and borrowers and lenders, on the other, can result in bank runs and subject banks to contagion type problems. Moreover, the asymmetric information problem between the bank and regulators can also give rise to the well-known agency problem, with the regulator as principal and the bank as the agent. The associated moral hazard problem can be quite severe if the new technologies allow banks to circumvent regulations. Moreover, in countries where the regulatory framework is lacking, and where government guarantees exist, regulations alone have proven to be insufficient to control bank behavior.

The U.S., since 1978, has used an early-warning system called CAMELS to assess the health of banks.<sup>14</sup> This regulatory rating system, in principal, allows supervisors to examine individual banks and take action against bank management in certain circumstances. However, with the increased complexity of products, IT systems, and valuation models, the use of the CAMELS ratings system to categorize banks has posed a severe challenge even to the most highly trained supervisors.

Another serious challenge that arises, and which is widespread, is how to avoid regulatory “forbearance and temporizing.” Regulators, under pressure from politicians and the banking industry, and concerned for their reputation and future job prospects in the private sector, may have an incentive to postpone acknowledging and resolving problems in the banking industry.

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<sup>13</sup> See Chami and Cosimano (2002).

<sup>14</sup> CAMELS stands for capital adequacy, asset quality, management, earnings, liquidity, and market risk sensitivity.



Regulators may be “captured” by the industry they are supposed to oversee.<sup>15</sup> This problem arises because the objectives of the regulator and the taxpayer—the ultimate principal—are not aligned. The regulators, possessing private information regarding the health of the banks, may not use it for the common good.

Given that the aforementioned challenges to effective supervision center around informational asymmetry problems, various researchers and policymakers have proposed solutions to reduce the moral hazard and adverse selection issues that can arise. These approaches seek to induce banks to internalize ex ante the costs and benefits of their actions.

A potential solution hinges on recognizing that *regulation should facilitate supervision*. That means there is a need for goals-oriented regulation, or outcomes-based regulation. The focus ought to be on the outcome or goal of regulation, giving banks the flexibility to meet these goals. Of course, this is combined with the understanding that regulators should have the authority to intervene at an early stage to ensure that a bank’s losses do not exceed its capital. Furthermore, the various approaches proposed to solve the problem seek to assess not only the quantitative, but also the qualitative aspects of a bank’s risk management system. In other words, best practice would involve ascertaining the extent to which a bank’s senior management understands the nature of the risks that may be on their bank’s balance sheet.

Advocates of the precommitment approach to supervision argue that the outcomes-based regulation should involve banks precommitting to a maximum loss level, where sufficient reserves are set aside to cover the maximum loss. Examiners would then monitor the outcome and assess penalties ex post if the bank exceeds its ex ante estimated losses. In order to avoid any “game playing” by the banks, penalties would be in the form of monetary fines that increase nonlinearly with successive violations.<sup>16</sup>

The advantages of such an approach are twofold. First, supervisors do not need to know the details of a bank’s internal risk management system. Second, this simplifies many parts of the examination process, allowing for frequent examinations, and enabling regulators to spend more time and effort on dealing with problem institutions. Critics, however, have pointed out problems with this prescription.<sup>17</sup> For one, it is difficult for supervisors to make the penalties credible ex post. It may not be optimal to punish banks when they are down. These difficulties have led some policymakers to advocate early intervention with graduated penalties, as a way to allow for outcome-based regulation, but at the same time, avoid the problems with the precommitment approach.

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<sup>15</sup> See, for example, Kane (1989, 1990).

<sup>16</sup> For more on the precommitment approach, see Kupiec and O’Brien (1995) and Bliss (1995).

<sup>17</sup> See, for example, the U.S. Shadow Financial Regulatory Committee (2000).

Prompt and corrective action by regulators can be fashioned after the U.S. Federal Deposit Insurance Corporation Improvement Act (FDICIA) of 1991. By linking supervision to bank capital, FDICIA defined five capital zones ranging from well capitalized (rating of 1) to critically undercapitalized (rating of 5). A bank whose total capital (Tier 1 plus Tier 2) exceeds 10 percent of risk-weighted assets receives the highest rating of 1, and as a result, is subjected to minimum supervision. On the other hand, for a bank that has less than 2 percent capital and receives a rating of 5, regulators are given 90 days to take action, including placing the bank under receivership.

Prompt corrective action is also meant to reduce the problem of regulatory forbearance by inducing regulators to be more proactive early on, and before the problem bank imposes material costs on the deposit insurance fund. In such cases, FDICIA requires ex post review of the problem bank and the regulator's report is made available to the Comptroller General of the United States, Congress, and the public under the Freedom of Information Act.

Other proposals aimed at inducing regulators to do a better job and to reveal private information ex ante, use the corporate-governance framework to tackle the problem. Kane (2002) argues that part of a regulator's compensation should be deferred until after the regulator's term in office is over. Such compensation can be forfeited if the bank, which having received a good rating from the regulator, were to fail within a period of 3-5 years of the regulator's departure. Also, the new regulator is required to verify the health of the banks that were under the supervision of the outgoing official. Again, the idea is to use reputational and monetary incentives to promote truth telling by the incumbent regulator.

In essence, the above approaches, among others, seek to bring transparency into the process, by allowing third party monitoring of the interaction between the regulator and the industry. This sentiment is clear in the FDICIA provisions that deal with corporate governance of banks. For example, audits are required to be overseen by members of the board (who are not members of the management) and who possess the technical expertise to understand the complex nature of bank activity.

These proposed solutions to the supervision problem try to bring market discipline into the picture, by emulating the sanctions the market would impose on problem institutions. The role of market discipline should be explicitly recognized and made part of the regulatory and supervisory process. Regulators and politicians are privy to sensitive information and as a result have influence over the fate of financial institutions. In the absence of a formal process through which the market can be brought in, these officials are susceptible to being captured by the industry, and are likely to engage in forbearance. As a result, the new proposal by the Basel Committee attempts to shift some weight away from the first two pillars to the third pillar of market discipline.<sup>18</sup>

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<sup>18</sup> See also Barth, Caprio, and Levine (2002).

## **Market Discipline**

Effective market discipline requires functioning markets for equity and debt. Equity is issued primarily as an ownership and control tool. Stocks represent claims on a firm's cash flows, and they confer voting rights on their holders in choosing management. Thus, the stock price is generally considered a sufficient tool for imposing market discipline.

The U.S. Shadow Financial Regulatory Committee (2000) has pointed out that bank capital, even under the new capital-adequacy framework proposed by the Basel Committee on Banking Supervision, is still measured using the "book value" rather than the "market value" of capital. To reflect market sentiment, capital should be the difference between the market value of assets and senior bank liabilities. This problem is exacerbated by the fact that under limited liability, shareholders have a "call option" on bank cash flows, and the value of this option increases as the bank's capital shrinks, leading shareholders to favor high-risk investments.

Subordinated debt is another market instrument that can be used to reflect market valuation of the bank's profitability and quality of management. Uninsured subordinated debt has been put forth by some as a good substitute to equity in protecting depositors and the deposit insurance fund.<sup>19</sup> First, debt is cheaper than equity. Second, debt provides bank management with the right incentives to avoid excessive risk taking, since lenders do not benefit from the upside and lose on the downside. Moreover, greater risk taking by management will lead to higher required rates of return by debt holders. And, in addition, debt provides a good incentive for banks to disclose information, since bondholders will demand higher returns from opaque borrowers.

Subordinated debt, however, is not pure debt. It is a hybrid instrument that possesses characteristics of both equity and debt. Depending on the value of bank capital, subordinated debt holders can act either as equity holders (in the case of an undercapitalized bank) or as debt holders (in the case of a well-capitalized bank).<sup>20</sup> Moreover, as Levonian (2000) points out, the presence of deposit insurance provides a put option to subordinated debt holders, offsetting the positive discipline imposed by the subordination of their debt. As a result, risk is shifted away from both the equity and subordinated debt holders to the deposit-insurance fund.

Equity and subordinated debt together should be used to induce market discipline. For example, in countries where the equity market is thin and trading is light, pricing of subordinate debt can be used as a source of information to correct for noise in the pricing of equity. This assumes that in these countries the two instruments are not highly correlated, and that bond markets are liquid relative to the equity markets.

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<sup>19</sup> See, for example, the U.S. Shadow Financial Regulatory Committee (2000) and Benink and Wihlborg (2002).

<sup>20</sup> See Merton (1974), Black and Cox (1976), and Chami, Sharma and Fullenkamp (2002).

The effectiveness of market discipline ultimately depends on how regulators view the role of markets. Recognition of the strategic complementarities between market discipline and regulatory oversight will make both more effective. This implies that the regulator should make greater allowance in letting market mechanisms work, particularly when they lead to (nonsystemic) failures of institutions. The stated objective should be to protect the banking system and not a particular institution. In a sense this is a rejection of the “too-big-to-fail” argument and its associated moral hazard problem, and instead favors the safety and soundness of the system. Regulators can also further enhance the market discipline by using market channels to fulfill the lender-of-last-resort function. This can be achieved by minimizing discount window lending, and using open-market operations (or other indirect monetary instruments) to inject needed liquidity into the system.

Another example of how the regulator and the market can work together to impose discipline is seen in the U.S., where banks maintain capital ratios well above the regulatory minimums. The reason why this is so is quite simple. Market participants (including rating agencies, mutual funds, etc.) look for banks to have capital above the regulatory standards. In other words, banks view the true capital “requirement” as being regulatory minimums plus some margin for error. Thus, even if regulators were to raise capital requirements, banks have to increase their capital to maintain this “market-imposed” spread.

#### **IV. CHALLENGES FOR DEVELOPING COUNTRIES**

##### **A. Implementing the New Standards**

The shift in emphasis from imposing capital adequacy requirements (Pillar I) toward increased and more sophisticated supervision (Pillar II) and market discipline (Pillar III) is encountering considerable difficulties in developed countries. This shift, which is necessitated by technology and innovation, is likely to be even more problematic in developing countries.

Greater reliance on supervision that certifies the risk management of banks is, by definition, heavily dependent on the availability of highly trained regulators, who not only understand new instruments and market practices, but also have the expertise to debate the models, assumptions and views of private bankers. The effectiveness of Pillar II requires a continuous dialogue between banks and regulatory agencies. In developing countries, the dearth of sophisticated regulators and trained personnel in commercial banks is likely to be a key hurdle. Problems in such an environment are more likely to arise and less likely to be discovered and adequately resolved.

In the end, standards are meaningless if they are not fully understood and their enforcement is weak. With the development of the private sector and the increased globalization of the market for talent, many emerging markets have seen a tremendous divergence in remuneration for skilled personnel between the private and public sectors. As deregulation and privatization has proceeded, it has become increasingly difficult for the government to attract and retain experts in financial markets. And this has happened precisely at a time when expertise is much needed in the regulatory agencies.

The characteristics of the financial system in developing countries is also likely to increase risk in the system while making enforcement more difficult. The weaknesses in the accounting and legal system lead to larger asymmetries in information between lenders and borrowers, and between the financial intermediaries and their regulators. These factors are especially important, since a large proportion of the potential borrowers are small- or medium-scale enterprises. Collateral is an important device for overcoming the lack of information on borrowers and their opportunities. However, in economies where property rights are not well defined and access to collateral is limited by legal and cultural obstacles, collateral is unable to perform its role as a guarantor. This leads to greater risk in the system and the higher volatility of market prices can translate into credit risk very quickly.

Banks frequently have a large volume of loans to state-owned enterprises operating under soft budget constraints. Imposing standards on banks makes little sense, if economic criteria cannot be applied to a large proportion of their balance sheet. And since restructuring the state-owned enterprises depends on reform of the labor market and possibly the provision of social security, such banks are unlikely to be put on a commercial footing any time soon.

Enforcement can be a problem because of the structure of the banking sector. The ownership of banks by large industrial conglomerates and the prevalence of connected lending can also pose a serious problem, and the political clout of these domestic industrial giants may shield their affiliated banks from regulatory and market discipline. These problems are further magnified when the state itself has a large stake in the banking system.

Under the new proposal, banks need to have the necessary technical and qualitative expertise to understand, measure, and manage counterparty risks, and are encouraged to have their own internal credit risk rating system. An important question is whether this will place smaller banks at a disadvantage vis-à-vis their larger, better-capitalized domestic and foreign rivals? This may lead to consolidation of the financial industry and reduce competition in the market.

Market discipline to influence the conduct of banks and other financial intermediaries is also likely to be absent when competition among banks is not keen, and equity and bond markets either do not exist or are highly illiquid. Lack of liquid markets for bank shares and subordinated debt and the concentration of ownership in finance and industry is likely to limit the effectiveness of Pillar III. Market discipline is further compromised by the lack of information production by credit-rating agencies, bank associations, and self-regulatory organizations. And many of the current proposals that depend on transparency and well-functioning markets to provide discipline on corporate governance cannot be implemented.

## **B. Rethinking Government Guarantees in the New Regulatory Framework**

In the absence of transparency and an environment characterized by weak supervision and market discipline, generous deposit insurance is likely to create the wrong incentives and actually increase the likelihood of banking crises. There is mounting evidence that deposit insurance has had a negative impact on the behavior of bank stakeholders. Deposit insurance has been blamed for exacerbating the moral hazard problem that already exists between bank

management and the insurance fund and between the bank and its lenders and creditors.<sup>21</sup> Many developing countries are adopting explicit deposit insurance schemes, albeit with different levels of coverage. Some of these countries lack the fiscal capacity to cover such a large contingent liability and do not have the necessary oversight to ensure that the potential agency problems do not result in excessive risk taking.<sup>22</sup>

When dealing with financial stress and in the hope of averting bank runs, countries have a tendency to adopt elaborate deposit insurance schemes. There are two problems with this approach: First, in many instances, the underlying problem is not really in the financial sector, but rather with macroeconomic management. Thus, such a solution provides temporary relief, but does not address the root cause of distress. Second, countries that adopt such generous insurance schemes are typically the ones that are least capable of absorbing the cost of their contingent commitments. Deposit guarantees involve large potential losses, and unless the government has the fiscal capacity and political consensus to live up to its commitment, investors do not perceive them to be credible.

Aside from strengthening Pillars II and III, some thought needs to be given to designing deposit insurance schemes, particularly in developing countries. Funding of such schemes also needs to be considered seriously and bank contributions that are sensitive to the risks on their balance sheets should be examined.

## **V. CONCLUDING REMARKS: A FOURTH PILLAR?**

Bank regulation is necessary because of financial externalities. The system by design is leveraged; banks are intimately involved with the payment system on whose integrity the functioning of a market economy rests; contagion from the failure of any bank is ever present; and there is a need to protect the deposit insurance fund and, in extreme circumstances, limit the losses to the taxpayer. Basel II is an attempt to design bank regulations for the new banking environment.<sup>23</sup>

As the paper shows, surveillance and supervision of banks is going to require a continuous dialogue between banks and their regulators. Moreover, increasingly the focus will not be on accounting rules, but instead on assessing the methodologies and models used for estimating risks, and the stress tests conducted to judge the adequacy of capital cushions. This will require considerable expertise in banks and regulatory agencies. Further, the development of markets and their help in providing discipline on banks is going to require an ingredient that is not emphasized enough, namely, political discipline.

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<sup>21</sup> See, for example, Kane (1989), and, more recently, Demirgüç-Kunt and Detragiache (2002).

<sup>22</sup> See Demirgüç-Kunt and Kane (2002).

<sup>23</sup> The case for an international banking standard is made in Goldstein (1997).

An important lesson from the recent crises in developed and developing economies is that “temporizing” a problem has steep costs. It is imperative that once the problem is identified, authorities waste little time in dealing with the problem head on. While the three pillars discussed earlier will go a long way toward preventing crises, they will not eliminate them. Moreover, when a crisis does occur, there will be the usual pressures to abandon the rules and procedures embodied in the three pillars. Such discretion, as past experience in the United States, Scandinavia, Japan, and a host of developing countries has illustrated, tends to be very costly to the taxpayer and can prolong the economic agony for protracted periods. Thus, in addition to the three pillars being created, there is a need for a fourth pillar—the political discipline to keep the other three pillars standing.

Banks dominate most financial systems, and their lobbies carry considerable political weight. Their political and financial power can be used to persuade regulators and legislatures to deny problems exist in the first place or, in case of trouble, to seek a bailout. Even when not captured by such special interests, regulators and legislators may simply prefer to avoid facing up to the situation, hoping either that the situation will improve by itself or that the problems will come to light only after they have left office. Legislators fear that attempts to deal with banking crises by, say, recapitalizing banks with taxpayer funds may turn out to be unpopular and adversely affect their chances of being re-elected. Potential voter backlash has played a significant role in delaying action during several crises.

The fourth pillar—political discipline—should formalize the expectation that, when confronted with a problem or crisis, government authorities, bank regulators, and legislators take meaningful action quickly. Rules and regulations are supposed to create the right incentives in a fast-changing financial environment. These rules should respond to the changing needs of markets and institutions rather than the other way around. In many countries, especially developing countries, this fourth pillar is either absent or shaky at best. Only with a strong measure of political discipline will countries be able to handle banking problems and contain the devastation they can bring when regulatory frameworks, which perpetually play catch-up with market and institutional changes, fall too far behind.

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