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Alternatives to Basel II

Chapter 5 revealed both potential benefits and significant problems associated with the advanced internal ratings–based (A-IRB) approach as a paradigm for domestic banking regulation. Chapter 6 concluded that the problems are likely to be magnified by the international character of the arrangement, while the potential benefits of international coordination are unlikely to be substantially realized. This bifurcation of the domestic and international merits of the A-IRB approach may have seemed somewhat artificial, given that one of Basel II's notable features is that it has generated domestic capital rules from an international process. But it is at least possible that the most favorable mixture of advantages and problems lies in a regime that does not attempt this degree and method of harmonization among national regulatory requirements.

Thus, the search for plausible alternatives involves two questions. First, is there a different approach to capital regulation that could be substituted for the A-IRB approach in a harmonized international regime? Second, might the best option instead be a regime that takes a different approach to the relationship between domestic capital regulation and an international arrangement? The possibilities range from eschewing any effort at substantive harmonization to establishing simpler international rules that coexist with more sophisticated domestic rules all the way to displacing domestic capital regulation entirely in favor of a supranational system for supervising capital levels in internationally active banks.

This chapter begins by considering three possible alternative regulatory models: retaining a standardized risk-based capital approach, substituting market-based discipline for regulatory capital requirements, and

instituting a precommitment approach to regulatory capital. At least at present, none seems promising as a self-contained domestic regulatory model for maintaining minimum bank capital levels, much less as the basis for a harmonized international standard. The chapter continues with brief consideration of the first and third possibilities mentioned in the preceding paragraph for reworking the relationship established in Basel II between domestic capital regulation and an international arrangement. Not surprisingly, these seem unpromising as well.

In short, no single regulatory model or straightforward institutional mechanism presents an obviously better alternative to Basel II. The remaining inquiry, then, is whether some mix of substantive features and a realigned relationship between the domestic and international spheres might be a better—though obviously less elegant—solution. The next and final chapters proposes such a mix. However, it is worth noting here that this proposal comprises what are, in essence, variations on many of the self-contained alternatives discussed here. In part for economy of presentation and in part because policy books should generally not have surprise endings, these variations are introduced in this chapter.

Retaining a Standardized Approach

For the same reason physicians are enjoined "first, do no harm," so policymakers should be particularly careful in changing the regulatory scheme of the last two decades. Sound policy analysis requires consideration of whether, in spite of its widely recognized shortcomings, a standardized approach to risk-based capital requirements is nonetheless the best of an inevitably imperfect set of alternatives. Until recently, the Basel I regulatory regime was associated with unusual stability in the banking systems of Basel Committee countries, other than Japan. As implemented by national banking authorities, Basel I raised bank capital levels, which presumably contributed to overall stability among major banks that is all the more noteworthy considering the dramatic changes in the structure of the industry and the various shocks suffered by the financial system during this period (Asian crisis, Long-Term Capital Management, subprime debacle, etc.).[1]

1. Needless to say, the coexistence of Basel I and higher capital levels, on the one hand, and general banking stability, on the other, does not itself establish a causal relationship. It is, for example, highly likely that more sophisticated risk management and the wider availability of such risk-mitigating devices as credit derivatives contributed to the greater stability of banks during the recent shock than during 1990–91, before Basel I was fully implemented. Still, the correlation between a fully operative Basel I and banking stability should at least make policymakers pause to consider whether there *is* a significant causal relationship.

There are several extant variants on a standardized approach. One, of course, is Basel I itself, as modified formally with the market risk capital requirement and a series of more modest amendments. A second is Basel I as supplemented by national authorities. In the United States, for example, regulators have added extensive provisions on, among other things, the treatment of derivatives and the use of collateral or other devices to mitigate credit risk. A third variant is the standardized approach of Basel II, which incorporates changes similar to those heretofore applied unilaterally by the United States, as well as the other features described in chapter 4. The most significant of these other changes is the use of ratings by external agencies for allocation of specific exposures into the various risk buckets.

Among these variants, it seems reasonably clear that Basel I is the least preferable. As to the Basel II standardized approach, there is much to applaud. However, the wisdom of its reliance on external rating agencies was always questionable. To the objections raised during the negotiations, as discussed in chapter 4, must now be added the experience with ratings of mortgage-backed securities during 2007. Whatever the reasonableness of the agencies' ratings given their purpose and constraints, the limitations of external ratings as a basis for regulatory capital requirements have again been highlighted. Thus, it is possible that the best variant on a standardized approach would exclude the external ratings feature, even at the cost of less risk sensitivity.

In the end, though, the differences among the standardized variants are not dispositive. It seems unlikely that any form of a static, risk-bucket model is the best practical approach to capital regulation of large banks today. The trouble with Basel II lies predominantly in its technical and institutional implications, not in its premise that the changing business profiles of internationally active banks, financial product development, and risk management technology have together created both challenges to the current regulatory system and some promising avenues to help address those challenges. The reliance on periodic snapshots of capital ratios based on the historic value of assets is a potentially dangerous anachronism in a world of large banks that regularly securitize and sell a significant proportion of their loans, write and purchase large amounts of credit derivatives and interest rate swaps, and in general turn their assets over more rapidly than in times past. While Basel II may not be the best available means to link state-of-the-art risk assessment with bank supervision, the Basel I method as refined in the standardized approach of Basel II does not even play in this game.

The widely recognized shortcomings of Basel I, detailed in chapter 3, were themselves the impetus for the reform efforts that culminated in the revised framework. Whatever the flaws of the A-IRB approach, reversion to a standardized approach would effectively signal surrender by banking supervisors in their efforts to successfully adapt to risks presented by

the contemporary financial system. Some form of the standardized version that dealt with the more easily correctable problems in Basel I might have been a preferable interim measure, even for large banks, while work continued on an appropriate new approach.[2] This was the reasoning of some regulators and outsiders—this author included—when implementation of A-IRB was bogged down in the United States. But that reasoning never contemplated more than an interim role for a standardized approach while the Basel Committee worked on regulatory approaches that either improved or substituted for the A-IRB method.

If a standardized risk-based approach to capital regulation is too insensitive to the nature and pace of change of credit risks assumed by internationally active banks, a simple leverage ratio would hardly seem worth considering. Indeed, as the foundation of a domestic regime to ensure adequate capitalization, it would be a curious reversion to pre-Basel I days. However, its very simplicity makes it deserving of consideration as one element of an international capital regime.

Under current US and Canadian practice, the leverage ratio is an adjunct to the risk-based capital requirements of Basel I. In the United States, its most important role is as a trigger in the system of prompt corrective action instituted following the widespread savings and loan failures of the 1980s. As the leverage ratio declines, meaning that the proportion of capital to assets is shrinking, it provides an indication of just how close to insolvency a bank is. When the leverage ratio drops below 4 percent, supervisory intervention must ensue. When it drops below 3 percent, stronger supervisory measures are required. If the ratio drops below 2 percent, the bank is considered "critically undercapitalized" and must in most circumstances be shut down.

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2. In the summer of 2006, following dissemination of the US banking agencies' joint notice of proposed rule making, four large US banks proposed that all US banks be allowed to adopt any one of the three Basel II methods for calculating capital. They accurately pointed out that the United States would be in full compliance with the letter of Basel II in allowing this scope for election of methodologies, since the revised framework does not explicitly require any specific bank—no matter what its size or complexity—to adopt any specific capital method. The motivation of the banks in making this proposal was not obvious. It was clearly a response to the indication by the banking agencies that the leverage ratio would be retained in the United States, that more conservative transition floors would be used, and that a presumptive limit of a 10 percent decline in aggregate capital for all covered banks would be established. What is less clear is whether the banks were simply indicating that, with these limits on regulatory capital reductions, the expense of what is essentially an artificial risk management exercise was simply not worth it. The alternative explanation was that the banks were trying to pressure the Federal Reserve Board and the Office of the Comptroller of the Currency to convince the other two regulatory agencies to drop the leverage ratio and other features of the proposed US regulations that would be stricter than the text of Basel II itself. As described in chapter 4, the compromise reached among the four US banking agencies in 2007 dropped the 10 percent aggregate decline floor but retained the leverage ratio and the more conservative transition floors.

The efficacy of this role for the leverage ratio is supported by empirical work showing a fairly robust correlation between declines in the leverage ratio below 2 percent and near-term bank failure (Estrella, Park, and Peristiani 2000). The bluntness of the leverage ratio makes it of considerably less value in comparing healthy banks. Thus, it would surely not provide a useful "common language" for supervisors and market actors. But it could serve as a common minimum capital level for all internationally active banks. To be a useful indicator, the leverage requirement would have to be set high enough to provide time for home supervisors to react and for supervisors from other countries to take any necessary measures to protect their own financial systems from the potential ill-effects of the foreign bank's failure. Thus it could be set at a level that is considered, in US regulatory terms, "adequate" capitalization.[3] In countries in which markets believe that the government safety net is so strong as to make bank insolvency unlikely in any case, the leverage requirement could also serve a very rough competitive equality purpose, since it would partially mitigate the capital cost advantage derived from the safety net.

The leverage requirement is not only simple, it is about as transparent a capital calculation as one can imagine, easily derived from a bank's balance sheet. It is also considerably more difficult to manipulate, certainly when compared with the A-IRB approach. The elements of tier 1 capital and the total assets of the bank are central to a bank's statement of financial position, as certified by its accountants. Misstatements of those numbers would likely indicate that a bank's shareholders, as well as supervisors, were being misled. The leverage ratio thus avoids most of the issues of discretion and monitoring that will bedevil Basel II, as described in the preceding chapters.

A significant shortcoming of the US leverage ratio, even for the limited purpose suggested here, is that it does not take account of the off-balance-sheet activities that constitute an important portion of the aggregate credit risk to which a large contemporary bank is exposed. While the leverage ratio will never be more than a blunt regulatory instrument, it would be considerably more useful if it were able to incorporate some off-balance-sheet exposures. There are several possible methods for doing so. First, the leverage ratio might borrow from the Basel I methodology for converting off-balance-sheet exposures into balance-sheet equivalents.[4] The advantages of

3. In the US regulatory scheme, a bank must be "well capitalized" in order to be affiliated with insurance companies, merchant banks, and certain other kinds of financial firms. One requirement for being well capitalized is a minimum 5 percent leverage ratio.

4. The Canadian Office of the Superintendent of Financial Institutions includes the notional amounts of certain off-balance-sheet items in its "assets to capital multiple," which is its version of a leverage ratio. However, it also includes an adjusted amount of tier 2 capital, whereas US law limits the numerator in the ratio to tier 1, or truly core, capital. Canada also permits netting adjustments to the off-balance-sheet items to be included as assets.

this approach are that it is known to banks and supervisors and that it is relatively straightforward.[5] However, as described in chapter 3, the Basel I methodology has presented significant opportunities for regulatory arbitrage. It remains to be seen whether the changes made in the standardized version of Basel II will eliminate these opportunities. Moreover, while not conceptually complicated, this methodology still requires exposure-by-exposure classification and calculation. Thus, some of the simplicity and transparency of the leverage ratio would be lost.

Second, the leverage ratio might incorporate a more sophisticated methodology for determining the asset equivalent of off-balance-sheet exposures that would limit the potential for regulatory arbitrage. The methodology of this sort that comes first to mind is that used in the A-IRB approach under Basel II, which permits banks to use their own estimates of appropriate credit conversion factors to transform the off-balance-sheet exposures into asset equivalents. Obviously, though, to use the complex Basel II approach would be to defeat the purpose of using a minimum leverage ratio in the first place. Whatever the technical merits of other methodologies for measuring off-balance-sheet leverage, such as that suggested by Breuer (2002), they share the same disadvantages in the context of devising a readily calculated and observed metric.

Third, rather than try to modify the leverage ratio, supervisors might supplement it with an equally simple calculation that at least roughly captures the magnitude of off-balance-sheet exposures. Estrella, Park, and Peristiani (2000) identified just such a complementary measure in their examination of capital ratios as predictors of bank failure. They found that the ratio of capital to gross revenue of a bank is, like the capital/assets ratio, about as good a predictor of failure over one-to-two-year time horizons as more complex, risk-weighted measures. They note that a capital/gross revenue ratio reflects off-balance-sheet activities as well as conventional bank assets. They further suggest that gross revenue includes a crude measure of risk, in that riskier activities are likely to be undertaken by a bank only if they yield larger revenue streams. Like the simple leverage ratio, the capital/gross revenue ratio is readily calculated from a bank's financial statements and thus conveniently transparent.

A capital/gross revenue ratio is not without its own difficulties. Many banks may engage in fee-generating activities that pose very low, or even zero, credit risks. Moreover, as Estrella, Park, and Peristiani (2000) acknowledge, gross revenues may be even more sensitive to changes in the business cycle than total assets. Finally, of course, the very novelty of this measure means that it has not been calibrated over time in response

5. This appears to be the approach that US regulators had in mind when they tabled the possibility of a "modified" leverage ratio for smaller US banks (US Department of the Treasury Office of the Comptroller of the Currency et al. 2000).

to supervisory assessments of its significance at different values. Even the empirical work of Estrella and his coauthors is of only limited use in evaluating the utility of the capital/gross revenues ratio, since that work examined the correlation between the ratio and failure of all US commercial banks between 1989 and 1993. In a Basel Committee context, the relevant observations would be of large, internationally active banks in a more recent period, so as to cover the mix of off-balance-sheet activities characteristic of such banks today.

Of course, many of these problems are analogous to those associated with the leverage ratio itself. Like that measure, it is a very blunt metric. As part of a simple, transparent rule for minimum capital levels, it would seem promising enough to pursue. Basel Committee agencies could easily calculate the capital/gross revenue ratio for their banks over the last decade or more, compare those results with other indicators of bank soundness, and determine if this ratio does in fact satisfy the need for a simple indicator that reflects off-balance-sheet exposures.

Market Discipline: Mandatory Subordinated Debt

Perhaps the best-developed alternative to capital adequacy as a bank regulatory paradigm is a set of proposals that banks issue subordinated debt of specified characteristics and a minimum amount. The core idea is to enlist market forces in pursuit of the regulatory end of bank safety and soundness. Holders of subordinated debt are presumed to have interests in the bank similar to the interests of depositors (or, more realistically in most cases, the insurer of deposits). They stand to lose some or all their investment if the bank becomes insolvent and, unlike equity investors, their potential return is contractually capped. Holders of subordinated debt should, accordingly, prefer relatively conservative strategies by bank management, since they have no hope of upside returns from higher-risk strategies. If the regulatory requirements for subordinated debt are artfully constructed, the incentives of investors owning this debt may be roughly aligned with the public interest in containing the moral hazard created by the system of bank safety nets. Proponents of mandatory subordinated debt expect that some combination of the monitoring, lobbying, and trading strategies of debtholders will achieve this end.

There are numerous variations on the mandatory subordinated debt idea, reflecting different judgments as to the most effective combination of direct and indirect market discipline.[6] *Direct* market discipline refers to

6. Many of these proposals are summarized and compared in Board of Governors of the Federal Reserve System and the US Department of the Treasury (2000). Some proponents of mandatory subordinated debt also posit the goal of increasing the capital cushion of banks.

the impact on bank managers' behavior of either corporate governance actions by bondholders or unfavorable movements in the price of the required debt issues. *Indirect* market discipline refers to the incorporation of changes in the price of the subordinated debt into the bank regulatory system—whether by generating additional data for supervisors to consider, by making the price changes into triggers for supervisory intervention, or both. In its more robust forms, the proposed mandatory subordinated debt requirement would invert the three pillars in Basel II. Supervisory efforts would remain important, but market discipline would displace minimum capital requirements at the top of the regulatory system. As a result, the regulatory complexity of the A-IRB approach would be avoided.

It is important to note at the outset that, like most proposals for increased "market" discipline on banks, the subordinated debt idea is not an example of laissez-faire thinking. Government action would be necessary to mandate the issuance of debt instruments with the requisite characteristics. As with mandated public disclosures of information, the proposal is to require certain standardized corporate practices that will induce actions by self-interested market participants to restrict bank risk taking. The intended consequence (intended by the regulators, not the market participants) is the enhancement of the broader public interest in bank safety and soundness.

Once again, this alternative presents two questions. First, is some form of market discipline on balance superior to the A-IRB approach of Basel II, or to risk-weighted capital requirements generally, as the principal means of safety and soundness regulation? Second, should mandatory subordinated debt or some other market disciplining device be required as an element of an arrangement addressing the safety and soundness of internationally active banks? As with standardized capital measures, the answers suggested here are negative for the first question and affirmative for the second.

Direct Market Discipline

Although market discipline might be exerted in a truly direct fashion through the enforcement by bondholders of covenants in the debt contract, this seems unlikely as a routine matter. Enforcement of covenants entails substantial transaction costs, along with free rider problems, which makes it a less-than-practical governance device. Most proposals

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However, as explained below, most large banks (or the holding companies that own them) already issue subordinated debt in excess of 2 percent of their assets, the minimum level around which most proposals for mandatory debt seem to have converged. Thus, a requirement of this magnitude may have a negligible effect on capital cushions in the largest banks.

claiming significant benefits from direct market discipline instead argue that price mechanisms will link market assessments of bank riskiness to managerial behavior. If investors judge the bank excessively risky, they will demand higher interest rates or, perhaps, decline to purchase subordinated debt at all. The resulting pressure on the cost of capital would then, it is hoped, force management to change its behavior.

Thus, proposals for mandatory subordinated debt typically include features designed to enhance this kind of pressure. Some would require that the subordinated debt be issued at regular intervals.[7] This requirement of periodic issuance is expected to force bank management to follow prudent risk management practices so as to keep the interest rate on the debt at a reasonable level. Other proposals go further and would cap the interest rates that banks could pay on the mandatory debt.[8] Banks unable to issue debt at or below this rate would be subject to regulatory consequences. Another approach would give the bondholders a put option that, if exercised, would trigger significant consequences for the bank. One proposal, for example, would force the bank to issue new subordinated debt in order to meet its regulatory minimum as puts are exercised. If it could not do so, the debt holders would automatically obtain equity positions and the prerogative to sell or liquidate the bank.[9]

The efficacy of direct market discipline depends to a great extent on some of the same assumptions that underpin the rationale for mandatory subordinated debt as a source of indirect market discipline. Important qualifications on these assumptions are discussed below. There are, in addition, both theoretical and empirical reasons more specific to direct

7. See, for example, US Shadow Financial Regulatory Committee (2000), Evanoff and Wall (2001); and Litan and Rauch (1997).

8. See, for example, US Shadow Financial Regulatory Committee (2000). The idea is to prevent management from paying high premiums and, as a result, being tempted to engage in even riskier behavior in hopes of high returns (Calomiris 1997). A variation on this theme is the proposal by Kupiec (2002) to impose a maximum ex ante probability of default on the mandated debt. In practice, this would translate into an interest rate cap (e.g., no interest higher than that paid on investment-grade debt).

9. The reissuance/equity conversion variation is in Evanoff (1993). Other proposals would use puts differently. For instance, Cooper and Fraser (1988) suggest giving bondholders a put option at 95 percent of face value. The put would be exercised not against the bank but against the Federal Deposit Insurance Corporation, which would be compensated with nonvoting equity shares that the bank would have to repurchase within a certain time or else lose its charter. One concern with giving bondholders put options is the possibility that the exercise of puts by some bondholders would cascade into an exercise by all bondholders, leading to liquidity problems for the bank. This kind of "run" on unsecured debt could itself be destabilizing (Board of Governors of the Federal Reserve System and the US Department of the Treasury 2000, 53).

market discipline to be skeptical that this form of discipline can be the centerpiece of bank regulation.

There are significant threshold questions at the theoretical level. First, as has been pointed out by Levonian (2001), an increase in subordinated debt that came from a shift away from equity would increase leverage and hence might also increase the propensity for risk taking. Second, while the interests of subordinated bondholders are roughly congruent with the public interest, they are not identical. The bondholders' interest lies in preserving the value of their fixed-income investment. The public interest in bank regulation also includes containing systemic risk and, at least to a limited degree, preserving the going concern value of banks. These additional considerations will, in some circumstances, call for supervisory discipline more stringent than the market discipline that would be exerted by rational investors even in the absence of information or other transactions costs.

There is, in any case, relatively little empirical work to back up the theoretical claim that the price of subordinated debt will actually discipline bank managers with anything like the potency that would be necessary if market discipline were to replace capital adequacy regulation. Bliss and Flannery (2002) note the contrast between the substantial amount of empirical work suggesting that market prices reflect the risk profile of banks and the paucity of empirical studies demonstrating direct influence on managers, particularly outside extreme situations such as bankruptcy. Their own effort to conduct such a study yielded inconclusive results.

A study by staff of the Federal Reserve System (1999) concluded that there was evidence of direct market discipline during periods of financial difficulty, based on the finding that banks with unfavorable accounting-based risk measures did not issue subordinated debt during a period of bond market volatility in 1989–92. Yet even this conclusion must be qualified, insofar as the study did not directly examine the impact of market discipline on the relative riskiness of strategies pursued by bank management during this period. That is, the temporary inability or disinclination of a bank to issue subordinated debt does not itself show how much of an effect capital market constraints had on bank practices. One does not know, for example, whether banks were able to substitute other sources of capital—including insured deposits—during this period. Similarly, while Ashcraft (2008) finds that an increase in the amount of subordinated debt in regulatory capital is associated with bank recovery from financial distress and infers the exercise of positive influence by debt holders, he does not specify the mechanism by which this influence is exerted.

Some of the more thoughtful proposals for direct market discipline may, by packaging mandatory subordinated debt with other regulatory devices (including relevant indirect disciplinary effects), be implicitly ac-

knowledging its limitations.[10] A degree of direct discipline may be a welcome byproduct of requirements for subordinated debt, disclosure, or other market-enlisting regulation.[11] Requiring regular issuance of subordinated debt, rather than leaving to the banks' discretion when to access that part of the capital markets, would enhance this salutary effect. But as a substitute for capital requirements, a mandatory debt proposal premised on direct disciplinary effects seems too much a leap of faith and too little grounded in experience.[12]

Indirect Market Discipline

Recent proposals for mandatory subordinated debt have rested more on indirect disciplinary effects than on direct discipline. As debt holders reach adverse conclusions about the condition of a bank, the primary and secondary prices of its debt issues should decline. In the more modest versions of indirect discipline proposals, these price movements add to the data available to supervisors, signaling that market actors have detected significant problems with the bank. The hope is that this additional data will facilitate timely supervisory intervention.[13] More muscular proposals would use the increasing spread of the bank's subordinated debt over a specified benchmark to trigger regulatory interventions similar to those currently in effect for capital levels under the US system of prompt corrective action.

10. See, for example, US Shadow Financial Regulatory Committee (2000).

11. The incremental amount of market discipline to be gained from instituting regulatory requirements such as subordinated debt issuance depends, of course, on the existing state of discipline imposed on banks from both market and supervisory sources. It is doubtless more difficult to get significant additional market discipline in the United States and other Basel Committee countries—where both capital markets and bank supervision are relatively well developed—than in many developing countries with undeveloped capital markets and limited supervisory capacities.

12. Lang and Robertson (2002) offer another reason to be skeptical that a mandatory debt requirement on the order of 2 percent of assets, or risk-weighted assets, will lead to materially more market discipline. They point out that the ratio of insured deposits to total bank liabilities has been steadily declining for the last decade. Banks with more than $1 billion in assets now hold barely a third of their liabilities in insured deposits. Hence, they reason, any mandatory debt requirement will likely lead these banks simply to substitute one form of uninsured debt for another (uninsured deposits). While they believe that indirect discipline might be enhanced, they doubt that the amount of direct market discipline will increase significantly.

13. It has also been suggested that subordinated debt holders have an incentive to pressure regulators to intervene promptly with capital-deficient depository institutions because, if an institution is saved from insolvency or closed at the exact time of insolvency, only stockholders lose, and the investments of subordinated debt are saved (Board of Governors of the Federal Reserve System and the US Department of the Treasury 2000).

One could either substitute yield spreads for risk-based capital ratios or add yield spreads as an additional trigger.[14]

A proposal to substitute bond yield spreads for capital ratios presents an alternative regulatory approach, particularly where—as proposed by the US Shadow Financial Regulatory Committee (2000)—risk-based capital requirements would be entirely eliminated, not just displaced as triggers for prompt corrective action.[15] The arguments for this alternative are several. First, the risk-weighted capital requirements are thought to be fundamentally flawed. In their Basel I form, they are too crude and invite regulatory arbitrage. Calculated on the basis of historic value of assets on the banking book, Basel I ratios are likely to lag significantly in revealing problems as assets deteriorate (and thus "real," as opposed to regulatory, capital shrinks).[16] In their Basel II form they are thought by critics to be too complicated and of uncertain administrative feasibility, for some of the reasons explained in chapter 5. By contrast, the use of subordinated debt would be relatively simple: Although the optimal configuration of debt features (e.g., amount, maturity, frequency of issue) may be somewhat elusive, once banks are actually issuing the debt, there is an attractive automaticity to the process.

Second, some proponents of subordinated debt-spread triggers believe that opportunities for regulatory forbearance will be reduced. Even if capital ratios are established as "automatic" triggers for supervisory action, regulators retain considerable discretion to accept a bank's self-serving calculations of loan-loss reserves, qualifying capital, classification of loans, and other factors relevant to capital ratios. Market prices of subordinated debt are, obviously, less susceptible to manipulation through short-term, confidential supervisory judgments.

Third, substitution of yield spreads for capital ratios would broaden the triggering stimulus for prompt corrective action to include all significant risks. At their best, capital ratios capture only a limited part of the bank's risk profile. The controversy over operational risk capital requirements in Basel II and the liquidity problems of financial institutions dur-

14. The US Shadow Financial Regulatory Committee (2000) would eliminate risk-weighted capital requirements entirely, including from the prompt corrective action system, but would retain simple leverage ratio requirements, perhaps at higher levels than in current US regulatory practice. Evanoff and Wall (2001) do not make an explicit policy proposal but suggest reasons for "supplementing" the capital triggers under the prompt corrective action system.

15. In a later statement, the US Shadow Financial Regulatory Committee (2001) spoke of its subordinated debt proposal as a "supplement to the existing Basel capital framework." But the more comprehensive 2000 statement explicitly included a proposal for elimination of regulatory risk weights on capital.

16. The US General Accounting Office (1996) found that asset quality and management tend to deteriorate well before capital levels are adversely affected in troubled banks.

ing the subprime crisis bear out this observation. Subordinated debt yields, on the other hand, will reflect all information about the bank that is material to the risk of default on the bonds. Consequently, the prompt corrective action trigger will be more closely aligned with the overall safety and soundness aims of bank regulation.

Fourth, there is considerable empirical work establishing that yield spreads are sensitive to banks' risk profiles.[17] At least one study finds that those spreads are considerably *more* sensitive to risk than risk-weighted capital ratios. Evanoff and Wall (2001) compared subordinated debt spreads, simple leverage ratios, and risk-based capital ratios as predictors of later supervisory ratings by US regulators.[18] Yield spreads were slightly better predictors than simple leverage ratios but substantially better than any of the risk-based capital ratios. The most arresting finding was that a bank's capital classification under the current prompt corrective action system was essentially unrelated to the examination rating it would subsequently receive. Another notable finding was that yield spreads identified more banks as high-risk than did subsequent supervisory examinations. In a follow-up study, Evanoff and Wall (2002) conclude, albeit tentatively, that at least some of the banks received higher ratings than warranted by their actual condition. They suggest that these results are a sign of regulatory forbearance and thus further indication that spreads are preferable to capital ratios as triggers for supervisory action.[19]

A related line of empirical work examines the disclosure practices of banking organizations that issue subordinated debt. Covitz and Harrison (2004) find that bank managers issue public debt in part to convey positive information not previously disclosed and refrain from issuance in part to hide negative information. They suggest that the incentives for disclosure or withholding of information are particularly strong among banking firms because of their enormous reliance on various forms of borrowing (bonds, commercial paper, federal funds, eurodollar, etc.). Further, the relative opacity of banks may increase the potential payoff of measures to induce disclosure or create incentives for due diligence. The latter factor seems particularly important, in that rating agencies and others appear to focus more intensively on issuers at the time they issue

17. Much of the literature is reviewed in Flannery and Nikolova (2004), Bliss (2001), and Federal Reserve System (1999).

18. Three risk-based ratios were examined: the total risk-based capital ratio (i.e., incorporating both tier 1 and tier 2 capital); the ratio of tier 1 capital to risk-weighted assets; and the ratings assigned banks under current prompt corrective action regulations, which assign a capital category (well-capitalized, adequately capitalized, etc.) based on both leverage ratios and risk-weighted ratios.

19. A chronic problem in such studies is finding appropriate surrogates for the "true" condition of a bank. Evanoff and Wall used a variety of surrogates, including various accounting measures and subsequent examinations.

securities.[20] These findings—again subject to confirmation in subsequent research—reinforce the case for regular, mandatory subordinated-debt issuance in order to force negative private information into public view and thus strengthen market discipline.

There are also numerous questions about the potential effectiveness of indirect discipline. The importance of at least some of these questions is directly proportional to the degree of reliance on market signals to trigger mandatory regulatory intervention.

First, markets—whether for subordinated debt, uninsured deposits, or even equity—will price in any perceived safety net protections for the issuing banks. If, for example, all transactions of a bank were believed to be implicitly guaranteed by the government, then the interest rate demanded by purchasers of debt or certificates of deposit would not much exceed the risk-free rate of return for an instrument of similar maturity. More realistically, if markets perceive a reasonable probability that certain banks will be protected from insolvency by the central bank or other government entities, the prices of subordinated debt will not reflect the entire risk actually associated with the bank's operations.[21] A study by Nier and Baumann (2006) based on their large cross-country panel data set involving 32 countries over 1993–2000 provides some support for this hypothesis. They found, among other things, that the effects of market discipline are reduced when banks enjoy a high level of government support.[22]

As discussed in chapter 2, the strength of market suspicions of the existence of a too-big-to-fail policy and the potential for confining expectations of too-big-to-fail bailouts are among the most important, and con-

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20. Covitz and Harrison place secondary emphasis on the disclosures required of issuers of new securities under the Securities Act of 1933. In practice, this increment of mandated disclosure may be relatively modest, insofar as the Securities Exchange Act of 1934 and associated regulations of the Securities and Exchange Commission already require substantial ongoing disclosure by any issuer whose securities are held by more than 500 investors. Obviously, this criterion captures all large banks in the United States. The incremental value of legal requirements for disclosure may, however, be greater in other countries, which tend not to have requirements for ongoing disclosure as extensive as those of the United States.

21. It is worth noting, in this regard, that Sironi (2002, 2003) found the spreads for public sector banks in Europe to be significantly lower compared with private banks judged by independent rating agencies to have roughly comparable risks. Benink and Wihlborg (2002) explain the limitations created on the potential effectiveness of subordinated debt as a disciplining device by market perceptions that European regulators have close relationships with their banks.

22. Similarly, Covitz, Hancock, and Kwast (2004) found that the risk sensitivity of spreads associated with the subordinated issues of US banks increased beginning in the late 1980s, as the Federal Deposit Insurance Corporation shifted its bank resolution policies toward mechanisms such as purchase and assumption transactions, which could effectively rescue a bank's ongoing deposit and lending functions without protecting all its creditors. However, they also found that, even where implicit government support is assumed to be strong, there is some risk sensitivity reflected in subordinated debt prices.

troversial, issues in contemporary banking regulation (Mishkin 2006). Some infer from the very sensitivity of subordinated debt prices to bank riskiness that holders of this debt must not believe it to be implicitly guaranteed (Federal Reserve System 1999). Others believe that the existence of *some* perception of investment risk does not indicate the elimination of *all* expectation of a too-big-to-fail bailout, particularly in light of other evidence of such expectations (Stern and Feldman 2004).[23] One distinguished commentator regards investor expectations of government support for troubled large banks as a sufficiently serious consideration that he doubts subordinated debt issues would actually yield the market discipline intended by their proponents.[24]

Second, the spreads between a particular bank's subordinated debt issue and some benchmark rate will be affected by more than just the relative riskiness of the bank's operations. The "noisiness" of the spreads reflects liquidity constraints, surpluses and shortages of particular issues, and general macroeconomic conditions (Board of Governors of the Federal Reserve System and the US Department of the Treasury 2000).[25] The body of evidence finding a correlation between spreads and measures of riskiness might be read to suggest that the noise does not drown out all messages from changes in spreads. Still, the impact of these other factors may limit the reliability of spreads as an indicator of bank riskiness, particularly in turbulent market conditions where secondary market bond prices are overwhelmed by macroeconomic factors. Indeed, the capital market turmoil attendant to the 2007–08 subprime crisis raises the prospect that banks would simply be unable to reissue specified amounts of subordinated debt, as contemplated in various policy proposals. Under these conditions, information about a specific bank's risks may be completely drowned out by broader market fears and uncertainties. A related problem is addressed in a study by Krishnan, Ritchken, and Thomson (2005) that focused specifically on the degree to which *changes* in bank risk are reflected in changes in credit spreads. While not dismissing the idea that

23. Morgan and Stiroh (1999) conclude from an examination of bond issues between 1993 and 1998 that the relationship between spreads and the riskiness of portfolios is weaker for larger banks, a finding they interpret as a reflection of a perceived implicit insurance phenomenon.

24. See Flannery (2005). He proposes that banks instead be required to issue reverse convertible debentures, debt instruments that would automatically convert to common equity if a bank's market capital ratio falls below some stated value. This ingenious proposal, which would reduce leverage and increase core equity at times of stress, raises its own issues, some of which are identified by Flannery himself and by Raiv (2004). But it is another idea that would bear more extensive inquiry by academics and regulators.

25. For a summary of studies finding influence on bond spreads by nondefault, risk-related factors, see Bliss (2001, 30–31).

there may be such a correlation, the authors did not find "strong and consistent evidence" of its existence.[26]

Another possible problem is the reliability of the price data from which subordinated debt yields in the secondary market are calculated. Many subordinated debt issues are not publicly traded or otherwise authoritatively priced on a regular basis. Hancock and Kwast (2001) found that price data from the two principal available sources—Bloomberg and Interactive Data Corporation—varied in statistically significant ways. Of course, as suggested by Evanoff, Jagtiani, and Nakata (2007), implementation of comprehensive subordinated debt requirements would make relevant markets deeper and information flows better.

Third is the question of exactly what information about bank risk is included in subordinated-debt yield spreads. More specifically, given the opaqueness of banks' assets and activities, do markets have adequate information to see early signs of trouble? Some cross-sectional studies seek to determine if supervisory judgments are reflected or anticipated (before those judgments have been made public) by bond markets. Others compare spreads with various accounting measures of riskiness, such as nonperforming loans, that are also available to supervisors. The former kind of study tells us nothing about what markets could *add* to the information already available to supervisors. Indeed, Bliss (2001) suggests that the studies he surveyed show only that bond yields provide redundant information. The latter kind of study, however, may reveal something about the ability or willingness of supervisors to incorporate available information into their supervisory judgments. This point is emphasized by Evanoff and Wall (2001), who worry about regulatory forbearance.

It is also possible that investors could rely on ratings of subordinated debt issues provided by external rating agencies, rather than expend resources for direct monitoring activities. As revealed in the unhappy experience with ratings of debt issued by structured investment vehicles, agency ratings may themselves be seriously flawed evaluations of the risk associated with a particular issue. While we might expect sophisticated investors to alter their reliance on rating agencies—at least pending convincing evidence that the latter have become substantially more predictive—the possibility of investor reliance on conflicted or unreliable third parties remains.

There is some limited evidence for the proposition that market participants may develop information that is not reflected in supervisory judg-

26. The authors did find that credit spreads tend to reflect firm-specific risks more for banks regularly issuing subordinated debt, though changes in market variables continued to be the dominant source of change.

ments but would be useful in predicting future performance by banking organizations (Berger, Davies, and Flannery 2000). If borne out in additional research, this fact may be explained by the more forward-looking perspective of market participants compared with regulators, a comparative advantage of market participants in quickly assimilating large quantities of information, or other factors. As of now, however, even one of the authors of this study subsequently concluded from a review of all available studies that "market information adds rather little to the explanatory power of models that rely exclusively on accounting information" (Flannery and Nikolova 2004, 93).

Fourth, there have been various concerns about the cost of requiring banks to issue mandatory debt, along with other practical considerations. Underwriting and other issuance fees are apparently significantly lower for subordinated debt than for equity issued by banks or bank holding companies (Board of Governors of the Federal Reserve System and the US Department of the Treasury 2000; US Shadow Financial Regulatory Committee 2000). More significant may be a potential liquidity premium for issues of less than about $75 million, which the Federal Reserve staff found to be the minimum size necessary to assure adequate liquidity. Depending on its size, a bank required to issue such subordinated debt regularly may not reach this dollar threshold and, accordingly, will be forced to pay a higher interest rate for non-risk-related reasons.

A somewhat different cost concern is that of false positives—circumstances where changes in yield spreads trigger supervisory inquiries or interventions that prove to have been unnecessary. That is, markets may mistakenly perceive problems that are not in fact present in the bank, or nonrisk factors may drive prices enough to force an intervention. One paper that addressed this problem assessed the resulting costs as modest and, in any case, worth incurring for the benefit of identifying problems that would otherwise have gone undetected (Krainer and Lopez 2003).

These and other considerations have led to considerable debate over the configuration of any mandatory subordinated debt system. For example, while current regulatory requirements for qualifying tier 2 capital create an incentive for banks to issue subordinated debt of longer maturity, some studies find that shorter-maturity debt is more sensitive to bank risk (Hancock and Kwast 2001).[27] Thus, the capital cushion purpose of subordinated debt conflicts somewhat with the potential disciplining purpose of that same debt.

27. Under existing regulations, qualifying tier 2 capital can include a limited amount of subordinated debt with an initial maturity of at least five years. Qualifying capital is reduced by one-fifth in each of the last five years before maturity, a restriction that accounts for the frequency with which bank holding companies exercise call options on outstanding subordinated debt instruments five years from maturity.

Role of Market Discipline

The abundance of proposals to use subordinated debt as a regulatory device testifies to the importance, and potential, of using market disciplines in banking supervision. It also highlights the uncertainty as to how the third, market-discipline pillar of the Basel II framework will work in practice. By enlisting scores, perhaps hundreds, of sophisticated investors—many of them institutions with extensive research capabilities—a mandatory subordinated debt system promises at a minimum to supplement the limited resources of banking supervisors in watching for incipient problems at large banking organizations. Many of the subordinated debt proposals would also facilitate oversight of the performance of the supervisors by creating a visible and standardized gauge of a bank's condition other than that formulated by the supervisors themselves.

The intuitive appeal of *direct* market discipline is undeniable. As the centerpiece of bank regulation, however, market discipline will almost surely fall short. The very factors that necessitate bank regulation in the first place—asymmetric information, high leverage ratios, financial interrelationships, and government deposit insurance—mean that market failures and the divergence of private from social costs will, for the indefinite future, remain significant. Even as an alternative to capital requirements, the direct market discipline associated with subordinated debt is too speculative to serve as a key regulatory tool. There is, at present, little evidence to show that managers of large, complex banking organizations will be effectively constrained by market forces from pursuing strategies that engender societally suboptimal levels of risk, although one can certainly imagine further research and experience leading eventually to an important ancillary role for direct discipline.

The potential effectiveness of *indirect* market discipline is better supported by existing empirical work. It is conceivable that the questions raised in the preceding section might some day be sufficiently answered to make a system of supervisory intervention based solely on changes in yield spreads viable. Of course, almost by definition, indirect market discipline operates as an adjunct to other regulatory and supervisory devices. In its weaker forms, indirect discipline is simply an additional piece of data for supervisors. Even if spreads were to replace capital levels as the triggers for supervisory intervention, the question of what actions the supervisors should take would remain. Presumably, the answer will be to require some combination of increases in capital, changes in bank strategies, and improvement in risk management practices. That is, the substance of bank requirements will either be specified in other regulations or devised on an ad hoc, discretionary basis by supervisors.

Yet this apparent limitation on the role of indirect market discipline may actually be an advantage, since it can be combined with other regulatory and supervisory elements in a variety of configurations. The US

Shadow Financial Regulatory Committee (2000) has, as mentioned earlier, proposed abandoning risk-weighted capital requirements in favor of higher leverage ratio requirements and the use of subordinated debt yield spreads as the trigger for prompt corrective action. This approach has the advantage of being relatively simple without being simplistic. It would retain minimum capital levels as an important piece of banking regulation. The mandatory subordinated debt feature would help signal supervisors when the bank was falling below desirable levels of economic capital and, in the process, make regulatory forbearance more difficult (or at least more obvious). All this could be achieved at substantially less cost than the A-IRB approach, since banks would be relieved of the costs of complying with regulatory requirements that are additional to, or independent of, the costs of sophisticated internal-risk management.[28] Given the extensive questions about the A-IRB approach detailed in chapter 5, the US Shadow Financial Regulatory Committee's proposal has considerable appeal.

Still, there are questions as to how effectively a mandatory subordinated debt system would promote some of the aims of the A-IRB approach, as nested in the larger revised framework. Perhaps the most important are the degree and speed with which change in a bank's risk profile is reflected in the market price for that bank's subordinated debt. If investors do not have access to information giving early signs of problems, or if the noise from broader economic developments drowns out the bank-specific signal contained in a bond price, the utility of the subordinated debt price as a supervisory tool will be limited.

In addition, there is a question of whether, in the absence of the incentives provided by the A-IRB approach, banks will continue to improve their risk management techniques in order to provide management, supervisors, and potentially even markets with a better gauge of bank risk. Of course, as discussed earlier, the tension between this incentive and the possible quid pro quo of lower capital is itself potentially problematic. But the steps taken by banks to improve their risk management systems in preparation for Basel II, while not yet adequate for that specific regulatory model, have undeniably been substantial. An argument can be made that,

28. If the US Shadow Financial Regulatory Committee's proposal were applied only to banks that will use the A-IRB model, the incremental costs associated with the issuance of subordinated debt would be very modest. Each of the large US banks (and, as discussed later in the text, European and Japanese banks) that will likely use the A-IRB approach already has an amount equal to at least 2 percent of its assets in outstanding subordinated debt (Board of Governors of the Federal Reserve System and the US Department of the Treasury 2000, 45–48). Moreover, the size of these banks is such that the apparent optimal liquidity threshold of $75 million should not be a problem. Actually, much of this debt is issued at the holding company level rather than at the bank level. Since the virtues of both direct and indirect market discipline are obviously greater when the debt is issued by the bank itself, there would be costs in converting to issuance by a bank subsidiary that has likely not previously issued securities directly.

with properly mandated disclosure, the indirect market discipline of yield spreads will reflect market assessment of banks' risk management performance and thus motivate managers to commit the necessary resources (and harness operating units with other incentives) to follow best practice. This argument is necessarily speculative. Moreover, the very advantage of yield spreads in reflecting all kinds of bank risks means that this discipline may be less effective in promoting a specific brand of risk mitigation.

Eliminating risk-weighted capital requirements entirely will, by definition, render nugatory the Basel II aim of aligning regulatory capital requirements more closely with actual risk. A higher simple leverage ratio requirement can itself induce regulatory arbitrage, arguably more serious than that prompted by Basel I. This, of course, was an original justification for moving to risk-weighted capital requirements in the 1980s. Again, proponents of mandatory subordinated debt can argue that yield spreads will, with proper bank disclosure, reflect risk capital relationships that may be cause for concern. In theory, this is a reasonable argument and, as indicated earlier, in practice yield spreads have performed better than risk-weighted capital ratios in anticipating bank problems. However, the more precise risk calibration under the IRB methodologies could make the risk-weighted ratios more meaningful and thus somewhat better predictors.

In truth, one's conclusions as to which committee—the Basel Committee or the US Shadow Financial Regulatory Committee—has the better of the argument mean little in immediate practical terms. The A-IRB approach will be implemented in the next couple of years, though likely with ongoing changes induced by the subprime crisis and attendant revealed inadequacies of the original Basel II formulas and standards. Nonetheless, among the recommendations in chapter 8 is a proposal that a mandatory subordinated capital requirement be imposed on all large, internationally active banks, regardless of whether the A-IRB approach is retained. The rationale and proposal are somewhat more limited than that of the Shadow Committee, since—at least for the present—using the subordinated debt spreads as triggers for supervisory action is not part of the recommendation. Instead, the recommendation favors the adoption of a mandatory subordinated debt requirement to help monitor the performance of bank supervisors and to explore further—in a real world context—the potential of market discipline to assume a greater role in bank regulation.

International Implications

Before leaving the alternative of market discipline, it is important to examine the international implications of adopting a mandatory subordinated debt requirement. As a factual matter, there is widespread issuance of subordinated debt by banks throughout the Basel Committee countries (Basel Committee 2003e). Nearly half of all the banking assets in these

countries are held by banks that issue subordinated debt. On average, subordinated debt is held in an amount equal to about 3.6 percent of the risk-weighted assets of the banking organizations, well above the 2 percent limit of subordinated debt that can currently be used for regulatory capital purposes. The market for subordinated debt is about as deep in the rest of the Basel Committee countries as in the United States, although the *public* market for subordinated debt is considerably larger in the United States and United Kingdom than elsewhere.[29]

Thus, the imposition of a subordinated mandatory debt requirement would not require a major and costly innovation in the capital market activities of Basel Committee banks. As in the United States, it would not seem a major difficulty for the large banks that are likely candidates for the A-IRB methodology to issue subordinated debt on a quarterly basis so as to have outstanding an amount equal to at least 2 percent of assets outstanding. Compared with research on US banks, there have been relatively few studies of the sensitivity of European and Japanese banks' subordinated debt spreads to bank riskiness. Thus, one cannot say with assurance that the potential for indirect market discipline is as great elsewhere as in the United States. Perhaps, for example, there is too much noise in the spreads of universal banks to use bond yields as a reliable mechanism for evaluating portfolio riskiness. The relatively undeveloped character of public debt markets in some countries may also be an impediment. Still, these differences in national markets seem no more significant than the banking and regulatory differences relevant to the adoption of the A-IRB approach. Indeed, they appear rather less significant, insofar as research may reveal fairly robust risk sensitivity, and the very mandating of regular debt issues will presumably accelerate the development of public debt markets.

As an institutional matter, implementation of a subordinated debt requirement is manifestly easier to monitor than the A-IRB approach. In reality, this regulatory requirement would facilitate monitoring by each Basel Committee member of the overall performance of the other Basel Committee regulators, since subordinated yield spreads would be a low-cost means of gauging the condition of foreign banks that is relatively independent of supervisory influence. To be sure, the subordinated debt requirement would not promote the common regulatory language that may come from the extensive time spent by Basel regulators on the revised framework. As discussed in chapter 8, however, there are ways to foster more trust and information sharing among regulators well short of the massive A-IRB undertaking.

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29. Sironi (2002) finds that, controlling for default risk, US banks pay a modest but statistically significant lower average spread on their subordinated debt. Sironi attributes this difference to the greater liquidity of the US market, although on average US banks pay somewhat higher spreads because of the number of public sector banks in Europe that presumably benefit from implicit safety net guarantees.

Precommitment Approach

The precommitment approach to capital requirements had its origins a decade ago in a paper by two Federal Reserve Board economists offering an alternative to the market-risk capital requirement then under discussion, and eventually adopted, by the Basel Committee (Kupiec and O'Brien 1995).[30] While policy development work for the succeeding few years was focused exclusively on market risk, at least one Federal Reserve official suggested at the time that the precommitment approach could also be applied to credit risk.[31] During the Basel II process this suggestion was taken up by Charles Taylor, who characterizes his proposed "new general approach" to capital adequacy as a "lineal descendant" of the original Kupiec and O'Brien proposal (Taylor 2002).

The precommitment approach is an example of an incentive-compatible regulatory scheme. A bank would determine the amount of capital it would hold against market risk for securities in its trading book and commit to manage its portfolio so as to keep its trading losses below that amount during some interval specified by the regulator. The bank could increase or decrease its capital allocation at the end of each interval. If the bank's actual market losses exceeded its capital allocation, a penalty would be imposed on the bank. Various penalties were proposed, including monetary penalties, punitive capital charges, public disclosure of the bank's breach of its loss target, or mandatory initiation of prompt corrective action.

The Federal Reserve Board formally requested comment on the idea at the same time that US banking agencies proposed the rules implementing the Basel agreement on market risk.[32] Reaction was mixed. Perhaps predictably, large New York banks were favorably disposed to the idea, while some regional and smaller banks had reservations. By late 1995, the Fed indicated it had decided to take no action, ostensibly on the basis of the public comments it had received. However, the proposal seemed ill-timed from the outset, insofar as the other Basel Committee countries had just agreed to the value-at-risk (VaR) approach to market risk. European Union countries needed to reach agreement on the EU's capital directive and thus were not disposed to reopen the market-risk question. This incident may thus represent a modest example of the influence of international institutional arrangements on domestic regulatory choices.

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30. The authors refined and elaborated on their proposal in Kupiec and O'Brien (1997).

31. The suggestion was made by Federal Reserve Governor Susan Phillips, then chair of the Fed's committee on bank supervision and regulation. See Jaret Seiberg, "The Fed Considers Sweeping Changes In Risk-Based Capital Requirements," *American Banker*, December 13, 1996, 1. Later, however, Fed Chairman Alan Greenspan explicitly excluded its potential application to the banking book, as opposed to traded assets (Greenspan 1998).

32. The proposal was included in Board of Governors of the Federal Reserve System (1995).

Notwithstanding its abandonment of formal consideration of the precommitment approach, the Fed continued to support intellectual work on the idea.[33] The appeal of such an approach is not hard to understand. Like an internal models approach, precommitment builds on the bank's use of sophisticated risk assessment technologies. Unlike the market risk amendment to Basel I, however, precommitment would have permitted incorporation of the subjective judgments of bank risk managers into their capital calculations. Among other things, this feature would have allowed banks to adjust for the fact that the internal models approach effectively extrapolated the short-term VaR figures produced by the model into a much longer time horizon. Furthermore, proponents of precommitment argued that it could be effectively tailored to each bank's situation, while avoiding the imposition of standardized parameters imposed in an internal ratings approach. At the same time, the inherently difficult task of supervisory validation of internal models would be substantially mitigated, insofar as the penalty scheme created an incentive for banks to make their models as accurate as possible. Finally, the approach can be applied to cover all risks associated with a particular set of assets—operational and legal, as well as market.

The New York Clearing House Association, whose membership at the time consisted of 11 large banks, conducted a one-year pilot study to "provide further information and experience" on the precommitment approach for national regulators in the United States, Japan, and Switzerland (Fuji Bank and Swiss Bank Corporation having also participated).[34] The participating institutions concluded that precommitment was a viable approach and a preferable alternative to the Basel Committee's VaR-based capital requirement for market risk. In particular, the banks argued that the multiplier requirement for the VaR approach—which is applied to compensate for the limited time horizon of the internal model—was shown to be too high.

The most obvious difficulty with the precommitment approach for market risk lies in calibrating the penalty to be imposed when a bank's losses exceed its stated capital set-aside. The penalty must be adequate to offset the incentive of bank managers to set the capital level quite low, but it cannot be so punitive as to cause banks to hold inefficiently high levels

33. For example, a February 1998 conference on capital regulation cosponsored by the Board of Governors (along with the Federal Reserve Bank of New York, the Bank of Japan, and the Bank of England) included several papers addressing the precommitment approach. At that conference, Chairman Greenspan referred to the approach as a "potentially promising" application of the principle that supervisors should incorporate market advances into regulatory policies (Greenspan 1998).

34. The pilot program is described in Considine (1998). Although they conducted the study at their own initiative and expense, the participating banks consulted extensively with their regulatory agencies in deciding on the structure of the pilot program.

of capital that could otherwise be put to productive use.[35] If the calibration is off, the incentives on which the scheme rests will by definition be improperly aligned. Moreover, because there is no ex ante specification of capital levels, a bank that finds itself already in shaky circumstances may be both tempted and able to set a very low capital level for a given interval, betting that it will make rather than lose money.

These problems would be as or more serious if the precommitment approach were applied to credit risk for assets on the banking book. Because banking book assets still account for higher proportions of total assets than traded securities, supervisors would face an exacerbated time-inconsistency problem in the case of credit risk (Jackson and Perraudin 2000). That is, while a bank whose market losses have exceeded its capital allocation may still be fundamentally sound, a bank whose credit losses are substantially above a comparable capital allocation may well be facing serious liquidity or solvency problems. Under these circumstances, a supervisor may be reluctant to impose a penalty (whether monetary or in the form of mandatory disclosure of its above-capital losses), since the penalty could itself tip the bank into insolvency. An additional problem would be the absence of a transparent pricing mechanism to calculate credit "losses" during a given interval, in contrast to the readily available daily prices for traded securities. While write-offs or additional reserves are relatively transparent, the deterioration in credit quality of loans that are still being serviced is essentially opaque. This circumstance, of course, is one of the reasons for turning to credit risk models. Thus, as applied to credit risk, the precommitment approach is in this respect not obviously superior to the Basel II IRB approach.

Charles Taylor, responding to the complexity of the emerging A-IRB approach, attempted to solve the core problem of properly aligning incentives in a precommitment system by creating two yardsticks for regulatory sanctions whose triggering effects are inversely related (Taylor 2002). Each bank would propose a capital threshold for all its lines of business combined. Any bank whose capital fell below this threshold would be subject to supervisory action. At the same time, regulators would establish a loss parameter, denominated as a percentage of a bank's capital threshold. A bank suffering losses above the resulting loss threshold would also be subject to supervisory action.[36] Thus, if a bank proposes to maintain a relatively low capital threshold—thereby freeing up capital for lending—it will be bound by a relatively low loss threshold.[37]

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35. An explication of this problem, presented at the February 1998 conference on capital regulation mentioned in footnote 33, is found in Kobayashi (1998).

36. Taylor eschews monetary penalties in favor of prompt corrective action as the sole sanction for breach of either the capital or loss thresholds.

37. Taylor subsequently recast his 2002 proposal as a "modernized leverage ratio," but his core concept appears unchanged. See Charles Taylor, "For a Better Risk Gauge, Update Leverage Ratio," *American Banker*, May 18, 2007, 10.

Taylor's proposal has significant attractive features. First, it allows banks to make their own decisions on the trade-off between risk and capital, within the regulatory structure constraint created by the loss parameter. Taylor notes that his approach thus avoids the excessive prescriptiveness of Basel II. Indeed, he argues that Basel II does not create an incentive for banks to implement state-of-the-art risk management techniques beyond those required for the A-IRB calculations. Under his approach, by contrast, a bank would have an ongoing incentive to improve its risk management techniques so as to optimize the capital threshold/loss threshold trade-off. Furthermore, because this approach permits diversity in risk management, concerns about herd behavior under Basel II should be mitigated.

Second, as suggested by its characterization as a "general" approach, the Taylor proposal is potentially applicable to all bank risks. This feature greatly simplifies capital regulation. It avoids the kind of artificiality found in the Basel II requirement for operational risk, for example. More fundamentally, it promises to take full account of the complexity of bank operations without creating a regulatory system that is itself so complex as to make compliance costs inefficiently high, effective monitoring difficult, and the accountability of regulators elusive. It also promises that the regulatory system will not have to be more or less continuously revised, in contrast to the apparent intention of the Basel Committee to regularly overhaul A-IRB requirements.

Third, because of its universal applicability and relative simplicity, the new general approach may better promote competitive equality among banks than Basel II. Taylor particularly emphasizes that it does not distinguish between different kinds of financial activities or institutions. It is wholly applicable to everything from a community bank in rural America to a universal bank in Switzerland and should, accordingly, reduce the competitive advantages that might accrue to the latter under Basel II.

Fourth, again because of its relative simplicity, it promises institutional advantages over Basel II. Domestically, it could facilitate the monitoring of bank supervisory authorities, insofar as actual bank losses would presumably be derived from the bank's regularly published financial statements. Similarly, national regulators could monitor relatively easily the performance of foreign banks against their loss thresholds. Taylor acknowledges that national regulators might seek competitive advantage for their banks by implementing the new general approach in an excessively liberal fashion. But he believes that "outlier" loss parameters would soon become apparent to other regulators, who could apply moral suasion against the permissive regulator in the Basel Committee.

Unfortunately, the Taylor proposal—at least in its current form—does not appear to deliver on its conceptual promise. Indeed, closer inspection suggests that it has not solved the key problems identified in the original precommitment proposals. In the earlier versions, calibration of the penalty for excessive losses was essential to creating proper incentives. In

Taylor's approach, calculation of the loss parameter assumes a corresponding importance. While he suggests factors that should be considered in establishing the loss parameter and gives some examples, he has not proposed an actual parameter value. Indeed, he has not even chosen among various possible approaches—a single loss parameter to be applied "globally" within the Basel Committee countries, different national parameters based on local conditions, or even bank-by-bank parameters based on factors such as a specific institution's potential for creating systemic risk. One suspects that, although the parameter itself may be stated as a simple percentage of capital, its derivation will require much work and empirical testing, maybe of the same order of magnitude as has been required for the A-IRB formulas. Without doing this work and then running simulations analogous to the various quantitative impact studies of the A-IRB formulas, the new general approach is obviously not anywhere near ready for adoption.

The problem of the opaqueness of credit "losses" that have yet to be realized as write-offs also afflicts the Taylor proposal, insofar as he postulates the use of "true," rather than historic, capital. Taylor defines true capital as the difference between assets and liabilities valued at fair, or marked-to-market, value. Sound as that choice is theoretically, it requires extensive adjustment to the value of nontraded assets such as loans. Taylor rather downplays the difficulty of making these "common-sense adjustments," but in practical terms the process might require something similar to the very credit risk models that provide the starting point for the A-IRB approach. At the very least, supervisors would need to assess and approve the accounting processes by which banks valued their nontraded assets.

Finally, as Taylor acknowledges, while his dual-trigger approach deters gaming the system in most circumstances, it does not prevent bank management that "wanted to go for broke and gamble the future of the institution" from setting a low capital threshold for a single regulatory period. If management were lucky, the gamble would pay off and the loss threshold would not be breached. But if things didn't turn out so well, the bank's capital could well be inadequate to cushion the losses. Taylor's response is that his approach is not "slavishly mechanical" and that supervisors would need to review the proposed capital thresholds of banks before accepting them. This is a wholly reasonable response, but when added to the complications created by the choice of loss parameter and the calculation of true capital, it suggests that the new general approach is considerably less straightforward than it may at first have appeared. As a result, some of the benefits of transparency, cost effectiveness, and management flexibility will inevitably be lost.

Taylor's effort to give banks maximum incentive to refine risk assessment and management within a manageable regulatory framework is an admirable one. It is in some sense unfair to hold his proposal to the same

critical standard as the revised framework. After all, the latter has been developed by scores of bank supervisors over a period of decades, while the former is one analyst's solo effort to rationalize approaches to capital regulation. Like the subordinated debt proposals, the Taylor approach might—with expenditure of comparable time and resources—have evolved into a superior alternative to Basel II. The Basel Committee may be faulted for failing to develop these alternatives sufficiently to make a more informed choice as among regulatory paradigms. In its present state, however, the new general approach is not an immediate, realistic alternative for bank capital regulation.

Establishing an International Supervisory Role

Thus far this chapter has considered alternatives to the A-IRB approach that rest on different substantive paradigms for the regulation of bank capital levels or, to some extent, bank safety and soundness more generally. Because we are considering optimal *international* bank regulatory arrangements, and because some important shortcomings of Basel II inhere in its specifically international character, it is also worth evaluating alternatives that focus on significantly different relationships between the national and international regulatory systems. It may be that the net benefits of Basel II (or, for that matter, other regulatory paradigms) could be increased by addressing some of the governance problems encountered in chapters 5 and 6—the absence of national expertise in evaluating sophisticated bank models and the difficulties in monitoring the performance of national regulators in an A-IRB system.

One possibility is the transformation of the Basel Committee from a group of cooperating national regulators into an international banking regulator. In its strongest form, this transformation would entail the equivalent of a supranational bank regulatory agency in Basel. Such an agency would directly supervise banks in Basel Committee member countries—or, perhaps, supervise the large banks that will be adopting the A-IRB approach. Simply to state this possibility is to reveal how farfetched it is under present circumstances. The political hurdles to national governments ceding direct regulatory authority over their banks are simply insuperable in the foreseeable future. If the nations of the European Union—with their shared institutions and substantial harmonization of financial law—are unable to agree on consolidation of supervisory authority in a single regulator, prospects for an international innovation of this sort seem exceedingly dim.

Furthermore, it is by no means clear that, even were such a consolidation of regulatory authority within the realm of political possibility, the change would be desirable as a policy matter. In the context of efforts to achieve substantive harmonization, concerns have been expressed over

the loss of regulatory flexibility to respond to local conditions (including macroeconomic conditions), the suppression of possibly healthy regulatory experimentation or competition, and the removal of regulatory authority further away from points of democratic accountability. All these concerns would apply to an international bank supervisory body. Coupled with the enormous operational uncertainty attendant to a leap from national to international supervision, these considerations would almost surely and substantially outweigh any benefits accruing from overcoming the governance problems mentioned earlier.

A more promising, if more modest, direct role for an international agency would be to assess the use of internal risk-rating systems of banks covered by the A-IRB approach to capital adequacy, or successor approaches in which bank credit risk models play an important role. The agency might evaluate all banks covered by an A-IRB or successor approach or, perhaps more realistically, selected banks from each Basel Committee country. The international entity would be composed of technically sophisticated bank examiners and experts in credit risk modeling. These examiners and experts would regularly monitor the banks to assure both technical competence and good faith in the implementation of those models. The international entity could be housed at the Bank for International Settlements in Basel and would formally report to the Basel Committee itself, as well as reporting its specific examination findings to the appropriate national supervisors. Rather than substitute for national regulation of capital adequacy, such an international body would constitute a governance device for the arrangement among committee nations by giving increased assurance to Basel Committee countries that the A-IRB (or successor) approach was being rigorously, competently, and consistently implemented.[38]

Thus, this variant on an international regulatory authority does not really present an alternative paradigm for capital adequacy regulation, even if we broaden that concept to include administrative and enforcement considerations as well as substantive principles of bank regulation. Still, like some versions of market discipline proposals, an international bank examination arrangement could be a useful element of a modified Basel II. There appear to be several potential benefits.

First, it would pool the best supervisory talent available for the daunting task of overseeing implementation of the A-IRB approach to capital regulation. As suggested in earlier chapters, at least in the near term there is considerable reason to doubt the capacity of some national supervisors to adequately evaluate banks' use of credit models for regulatory pur-

38. One obvious question is whether the international agency would also examine banks in countries other than the United States that adopt the foundational IRB approach. The answer would probably depend on some combination of the number of such banks and the technical expertise of the national supervisors that regulate them.

poses. An international agency to which top supervisors and credit model experts were detailed by national supervisory agencies could provide more thorough examination of A-IRB banks in countries that are relatively inexperienced in such assessments, while at the same time imparting experience and expertise to the examiners detailed to the international agency from those same countries. As examiners and experts return to their home agencies, they in turn would be able to pass on the state-of-the-art supervisory techniques that would develop within the international agency.

Second, an international agency would minimize the incidence of inconsistent interpretations of the requirements and standards of the revised framework. While such inconsistency can arise even within a single agency, divergences are likely to be less significant and shorter-lived than where a dozen or more national supervisors are operating largely independently of one another. Thus, this approach would contribute modestly to the goals of competitive equality.

A third, related benefit would be a more efficient process for adjusting the supervisory requirements and practices—both substantive and procedural—that are contained in the A-IRB approach. The complexity of the revised framework and the ongoing evolution of risk management techniques ensure that regular adjustments will need to be made. A single entity will be both better informed on the varieties of developments to which supervision must respond and better placed to implement such responses consistently. Although it is possible that the existence of an international examining agency would push all the Basel Committee countries toward prematurely or unwisely standardizing application of the A-IRB to different banks, and thus would foreclose the advantages of experimentation with different administrative techniques, this risk does not seem particularly troubling here. The examiners will obviously be able to particularize both their examinations and their interpretations where warranted. More importantly, the retention of supervisory authority by national agencies would ensure that good reasons for variations in interpretation and administration would be heard.

Fourth, an integrated international authority should substantially remove doubts as to whether national supervisors are exploiting the relative opaqueness of an A-IRB or successor approach to capital regulation in order to give competitive advantage to their own banks. The multinational character of the international examination teams will foreclose the opportunity for national regulators to be excessively lenient in evaluating a bank's credit model in operation. While national regulators could still forbear from acting after being informed of problems by the international examination team, this forbearance would be apparent to the international agency itself (and the examiners' countries). The monitoring function is thus inherent in the international agency's activities.

On the other hand, even an international agency of limited scope would have disadvantages, quite apart from any reflexive objections

based on formal notions of sovereignty. First, creating a separate—and distant—agency to conduct a critical part of the examination of large banks would likely entail some duplication of regulatory resources and inefficiency in the examination process. Because national regulators would continue to have supervisory responsibility for the large banks, they would almost surely feel obliged to examine the bank's credit risk model that forms the basis for computing its regulatory capital. Obviously, this function would be necessary if the international agency examines only selected banks in any given year. Furthermore, the line between review of a bank's overall risk management systems and its qualifications and use of the A-IRB approach will surely be a fuzzy one in practice. The international examination team and the primary domestic supervisory agency would likely both evaluate some of the same processes. Finally, the need for domestic supervisors to maintain the requisite expertise even as they detail some of their most sophisticated examiners to the international agency could lead to a net increase in the resources required to conduct satisfactory examinations of A-IRB banks and, at the same time, a dilution of those potentially scarce resources.

Second, banks and their national supervisors may be reluctant to enter an arrangement that would result in potentially sensitive and/or proprietary bank information being available to examiners whose permanent affiliation is with the supervisory agencies of other nations. There is reason to believe, though, that this problem may be less serious than it at first appears. For one thing, current plans for enforcement of the revised framework already contemplate a supervisory role for nations that host significant operations of multinational banks based elsewhere, even as the Accord Implementation Group will seek to minimize instances of duplicative or inconsistent capital regulation. Thus, the international examination agency under consideration here would be more of an incremental than quantum change in the kind and amount of information available to foreign regulators. Banks themselves may nonetheless fear that proprietary information about their models or cost structures might be leaked to banks based in countries from which members of an examination team have been detailed. The professionalism of bank regulators and existing levels of trust among at least the Basel Committee members are such as to make this relatively unlikely.[39]

A more plausible concern is that members of an international examination team who become aware of serious problems in a bank may report those problems to their home supervisory agencies. They need not communicate specifics, much less proprietary information such as the bank's

39. National regulators in areas such as antitrust and securities already provide one another with confidential and business proprietary information in connection with enforcement of these laws, usually under formal confidentiality agreements.

experience with particular borrowers, in order to alert their home agencies to the possibility of a disruption in that bank's activities. The home agencies, in turn, might quietly counsel their own banks to reduce exposures to the troubled bank. In the worst case, a bank that might otherwise have resolved its problems could be driven into a more serious position by these individually rational but collectively damaging responses. National banking regulators already have such concerns, a fact that probably limits the extent of their information sharing with their counterparts. It is difficult to say whether scrutiny of an A-IRB bank's credit risk modeling would reveal the kinds of immediate risks that would fuel these concerns. Moreover, of course, the number of such cases is likely to be extremely limited. Still, the potential scope of damage to a large bank and the financial system generally may make national regulators reluctant to participate in an integrated international examination process for reasons beyond parochialism and chauvinism.

Eliminating International Cooperation on Safety and Soundness

At the other end of the spectrum from proposals to create an international bank supervisory entity is the alternative of eliminating international cooperation on bank safety and soundness regulation. This option might appeal to those who believe that national regulators have resorted to international cooperative arrangements in order to preserve their own bureaucratic power and position, even though the public interest may be better served by more regulatory competition.[40] Those who find public choice analysis helpful but not usually dispositive might still consider this option.

The substantive regulatory paradigm fashioned in an international harmonizing effort will almost inevitably deviate from that which is optimal from a purely domestic standpoint. Differences in policy choices and in regulatory contexts mean that compromise is necessary. The more detailed the harmonized standards, the more likely it is they will include elements that are suboptimal as a matter of domestic regulation.

40. Macey (2003) cites Basel I as an example of "regulatory cartelization" by national banking supervisors seeking to avoid competing for "market share"—meaning, in this context, the share of banking activity regulated by a particular supervisor. The idea is that the bureaucratic and career interests of supervisors will influence their actions more than the public interest. While there is almost always something to these concerns, the actual history of Basel II provides little support for the regulatory cartelization hypothesis. Moreover, to the degree that the supervisors' institutional interests are aligned with the public interest of protecting the government deposit insurance system, avoiding financial crises, and containing moral hazard, then the rather negative connotation of "cartelization" is somewhat misleading. Even nationalistic competition, though potentially corrosive in some of its effects, reflects the shared belief that some form of banking regulation is necessary.

The institutional implications of an international arrangement may render the regulatory scheme less adaptable than a self-contained national approach would be. The question, then, is whether the resulting costs for the efficient and effective regulation of banks outweigh the incremental benefits of the international arrangement for international financial stability, competitive equality, and supervisory facilitation.

It is possible that the foregoing question would be answered in the negative for every plausible international arrangement. In that case, the option of no international cooperation would be a solid one. Realistically, the issue is whether the potential public gains from international cooperation are substantial. If they are, then it is very likely that *some* arrangement will yield nontrivial net benefits. The close interconnections among major banks and national financial systems create the possibility of major negative externalities from the failure of a large bank. Indeed, much of the history of the Basel Committee can fairly be written as a series of responses to the failures of such institutions as Franklin National Bank, Banco Ambrosiano, Herstatt Bank, Continental Bank, Barings, and the Bank of Commerce and Credit International. In each case, systemic dangers appeared sufficiently possible as to galvanize national supervisors into cooperative action. Though no major commercial bank has failed during the subprime crisis,[41] this development has likewise underscored the potential for contagion among banks across national borders—both in the traditional sense of counterparty weakness and, in a new wrinkle, in the additional sense of bank emulation of practices by foreign (in this case, US) banks that yielded great profits for a time but that actually masked large risks. The Basel Committee's 2008 proposals to modify the revised framework ensued. All these actions—historical and contemporary—look less like the classic public choice story of an effort to preserve bureaucratic prerogative or to resist a healthy flight from unnecessary regulation than an effort to fulfill the task given the supervisors by their national governments.

That said, there is still good reason to scrutinize closely any particular proposed form of cooperative arrangement. We have already seen how special interest accommodations, the felt need to "succeed" in creating an arrangement, and other factors may induce smart supervisors in good faith to adopt an arrangement that may fail the test set forth in chapter 1.

Conclusion

Suppose the Basel Committee had proceeded very differently after it concluded in 1999 that a modified Basel I approach was not an adequate

41. The failures of Northern Rock, a UK bank, in 2007 and of IndyMac, a US thrift, in 2008 were certainly significant, but neither institution was among the largest in their respective countries.

long-run approach to capital regulation for large banks. Instead of immediately adopting a more or less single-minded commitment to an internal ratings–based approach, the committee might have taken six to 12 months to put in place an interim arrangement that generalized the application of incremental advances in capital regulation, including those already implemented by the United States, United Kingdom, and others during the first decade of the capital accord. This "Basel I½" might, for example, have included provisions on securitization, credit enhancements, derivatives, and credit risk mitigation measures, along with some adjustments to the risk buckets themselves (e.g., eliminating membership in the Organization for Economic Cooperation and Development as the basis for determining the relative creditworthiness of a sovereign).

At the same time, the committee could have launched serious inquiries into the feasibility of the internal ratings, market discipline, and precommitment approaches. It might also have expressly solicited new ideas to address the already-apparent shortcomings of each of these approaches. It is at least possible that an investment of substantial official and private resources in analyzing the other paradigms might have revealed modifications to one or both of the latter two approaches that would have made them more viable alternatives than they actually are today. At the least, there would have been fairer competition among the competing paradigms than has actually been the case, with only one of the three having benefited from years of intense efforts to improve it.

In retrospect, a course of action closer to that suggested in the preceding paragraph may have produced better policy decisions. One wishes that, for example, Flannery's (2005) proposal for using reverse convertible debentures as a market discipline device had been more thoroughly explored when he first suggested it several years earlier. Still, while it should be clear from the history of Basel II that the process was considerably less well-planned and executed than would have been desirable, it is not clear how much blame *can* be fairly apportioned to the committee in its basic decision. It is possible that officials from committee countries—individually or collectively—assessed in good faith the prospects for developing viable approaches other than one based on internal ratings and concluded those prospects were minimal (though we have no evidence of such a determination having been made). In addition, supervisory officials may have believed that banks would take the prospect of reform seriously—and thus devote the resources necessary both to refine reform proposals and to get ready for implementation—only if the banks believed the supervisory officials to be committed to one approach. Perhaps it was necessary for the A-IRB approach to be fully developed in order to reveal just how problematic it would be.

In any case, the question of how much fault may fairly be assigned to the Basel Committee for its failure to develop other possible approaches is largely irrelevant to the question of how best to proceed now, given the

alternatives as they currently stand. A standardized approach does not seem adequate in the long run to manage the risks associated with large internationally active banks. Whatever their ultimate promise, neither a market discipline nor a precommitment approach is anywhere close to viability as a substitute for capital regulation. It may well be ill-advised as a policy matter to delay basic reforms for another five years while alterative paradigms are more fully developed into detailed, well-scrutinized proposals. At some point the costs of a regulatory limbo could exceed the costs of even a flawed reformed system of capital regulation. In any case, members of the Basel Committee are moving forward with implementation of Basel II, albeit with the addition of the agenda for change occasioned by the subprime crisis. To be taken seriously, policy recommendations must take account of current realities as well as future possibilities.