

Implementing Basel II: Is the Game Worth the Candle?

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In this article the author provides an extensive analysis of the various aspects of the Basel II Accord. Notwithstanding the gains from adoption of Basel II, he argues that these gains are unlikely to outweigh the costs of implementation and compliance: Basel II will be very costly for banks, home and host country supervisors, and, to the extent that it exacerbates macroeconomic cycles, to the broader economy as well.

I. INTRODUCTION

The new Basel Accord on Capital Adequacy (Basel II)¹ aims not only to correct widely perceived defects in the original Basel Accord (Basel I) but also to align capital regulation with evolving best practices in risk management. Whatever one thinks about its success in meeting these two objectives, it has undoubtedly succeeded in increasing the complexity of capital regulation and associated compliance costs. But are the potential gains in financial stability worth the additional costs?

In devising Basel II, the Basel Committee on Banking Supervision (Basel Committee)² has sought to reconcile a number of seemingly irreconcilable objectives. Basel II seeks: (1) to increase the safety and soundness of the banking system *without changing* the overall level of capital in the banking system; (2) to provide capital reduction incentives for the adoption of more sophisticated techniques *while maintaining* a level playing field; (3) to recognize the

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¹ Although changes continue to be made, the most recent, complete statement of Basel II is Basel Committee (June 2004). The document totals 251 pages.

² After the collapse of Bankhaus Herstatt in 1974, the governors of the Group of Ten established the Standing Committee on Banking Regulations and Supervisory Practices comprised of representatives of the supervisory authorities and central banks of the Group of Ten countries plus Switzerland and Luxembourg. The official name of the committee was subsequently shortened to "The Basel Committee on Banking Supervision," but for brevity, it is usually referred to as the Basel Committee, the practice adopted in the text above. More recently Spain has joined the Basel Committee and currently, the Governor of the Bank of Spain, Jaime Caruana, is Chairman of the Basel Committee. See Herring and Litan (1995) for a more extensive discussion of the Basel Committee and the process that led to the Accord.

responsibilities of host country supervisors *without raising* compliance costs; and (4) to increase the risk-sensitivity of capital requirements *without exacerbating* the pro-cyclicality of lending. In what follows I will question whether the Basel Committee has succeeded in reconciling these objectives and argue that the gains from adoption of Basel II are unlikely to outweigh the costs of implementation and compliance.

The paper begins with a brief overview of the original Basel Accord on Capital Adequacy (Basel I). After a review of some of the key advances in risk management and the growing dissatisfaction with Basel I, the paper will summarize the Basel II approach to capital regulation with emphasis on the Pillar 1 weights for credit risk.³ It will then identify some of the major costs associated with implementation of Basel II.

II. BACKGROUND: THE ORIGINAL BASEL ACCORD

The 1987 Accord on Capital Adequacy (Basel I) established a framework for capital regulation of internationally active banks. The Basel Committee did not attempt to harmonize accounting conventions, nor require the use of market values in measuring capital. Instead, it took as given the accounting practices in the Group of Ten Countries and focused on: (1) defining regulatory capital; (2) measuring risk-weighted assets including off-balance sheet exposures; and (3) setting minimum acceptable ratios for regulatory capital to risk-weighted assets.

By far the most contentious issue, which took longest to resolve, concerned how to define regulatory capital. Although all of the Basel Committee members regulated capital, each employed a different definition. At one end of the spectrum, the German authorities regarded the inclusion of any financial instruments in addition to shareholders' equity as undermining the rigor of German capital regulation. At the other end of the spectrum, the French, having nationalized most of their major banks earlier in the 1980s, wished to minimize the role of shareholders' equity and favored long-term debt instruments. The resulting compromise was a remarkable feat of financial diplomacy, if not of analytical rigor.

The definition of regulatory capital contained something to reflect the special circumstances of each of the key members of the Basel Committee. The Committee defined two kinds of regulatory capital (Basel Committee, 1988). Tier 1 capital is mainly shareholders' equity (which satisfied the Germans). Tier 2 capital contains most of the compromises that facilitated agreement among the Group of Ten bank supervisors—most notably, generous use of long-term debt instruments (which pleased the French), limited acceptance of loan loss reserves

³ For brevity, the regulation of operational risk will be largely ignored. Nonetheless, the Basel II approach to operational risk is less defensible than the approach to credit risk. For a critique of the capital charge for operational risk see Herring (2002). Also, Pillar 3, Market Discipline, will be given short shrift although it is also inadequate. For a critique of Pillar 3 see Herring (2004).

(which pleased the Americans) and recognition of 45% of the unrealized capital gains on shareholdings (which satisfied the Japanese).⁴

Basel I focused on credit risk because, apart from fraud, credit risk has been the most frequent cause of bank failures. The architects of the Accord stressed two objectives: simplicity and the avoidance of micro-managing bank lending decisions. They established four risk buckets based largely on the identity of the borrower and without regard for portfolio diversification effects. At one extreme, safe assets such as government bonds were assigned to the zero percent risk-weight bucket,⁵ while at the other extreme, traditional loans were assigned to a 100% risk-weight bucket. Off-balance sheet instruments were incorporated into risk-weighted assets in a two-stage procedure. First, the instrument was assigned a conversion coefficient that reflected the Basel Committee's judgment about the degree to which the credit risk of the instrument was similar to an on-balance-sheet loan. Second, that portion of the instrument (the coefficient times the face value or notional principal) was placed into the appropriate risk bucket, based on the identity of the counterparty.

The Basel Committee defined minimum capital adequacy standards based on the ratio of regulatory capital to these risk-weighted assets. Internationally-active banks were expected to meet two ratios: (1) the ratio of Tier 1 capital to risk-adjusted assets should be at least 4% and (2) the ratio of Tier 1 plus Tier 2 capital to risk-adjusted assets should be at least 8%.⁶

III. THE ECONOMIC CAPITAL REVOLUTION IN RISK MANAGEMENT

Over the past 15 years, leading banks around the world have adopted a new paradigm for financial risk management focused on the concept of economic capital. "Economic capital" is the amount of capital a bank requires to achieve a given level of protection for its creditors against default. Operationally, the question is usually posed as "How much capital should the bank have to achieve a target rating for its long-term debt?" Since, in principle, reserves are accumulated to cover *expected* losses, economic capital is equity, retained earnings and the portion of reserves (if any) that is available to meet *unexpected* losses. The

⁴ Subordinated debt was relegated to Tier 2 status. Internationally active banks are not currently required to issue subordinated debt and, if they should chose to do so, the amount that they can count as Tier 2 capital can be no more than 50 per cent of their Tier 1 capital. Thus subordinated debt has a distinctly second-class status under the Accord. The Shadow Financial Regulatory Committees have long argued that a suitably designed capital focused on the mandatory issuance of subordinated debt provides a much simpler and more effective way to harness market discipline to strengthen the safety and soundness of internationally active banks.

⁵ As Liliana Rojas-Suarez has argued, this choice of safe asset is much more plausible in G-10 countries than in emerging markets such as Argentina, Russia, or Turkey.

⁶ Although Carey (2002) has recently provided an interesting empirical rationalization of these regulatory minimums, the Committee did not attempt to do so in the original Accord nor has it attempted to do so in Basel II.

most successful application of the concept has been to the measurement and management of market risk.

Banks first applied the economic capital concept to market risk because the appropriate data for making estimates of the distribution of losses are much more readily available for market risk than credit risk or operational risk.⁷ Applications of this approach include Risk Adjusted Return of Capital (RAROC) or Value at Risk (VaR).⁸

The success of the internal models approach to managing market risk encouraged leading banks to extend the methodology to credit risk. Moreover, the traditional line between trading and credit risk began to blur in the marketplace. Financial innovations began to erode traditional distinctions between the trading book and the banking book. Increasingly, traders dealt with less liquid, less creditworthy instruments. A market in credit risk—more precisely credit risk derivatives—continues to grow rapidly. And, bank loans are underwritten increasingly with a view toward future sales. Indeed, there is a thriving secondary market in bank loans. Thus it was only natural that leading banks would attempt to apply the same financial technology that had proven so successful in measuring and managing market risk to the challenge of dealing with credit risk.⁹

Merton's model of the pricing of risky corporate debt provided the framework: given the institution's net asset value and the target probability of default for its own debt, economic capital is the amount needed to achieve the target level of safety (or probability of default). The main obstacle was data. Although banks have had all too much experience with bad credit risk outcomes, most banks have, until recently, failed to document their credit risk experience in a way that could be used to estimate and verify internal models.¹⁰ Moreover, credit risk appears to vary over long cycles so that it is necessary to collect a much longer span of data than for market risk.

⁷ Moreover, relative to credit risk, adverse market risk events happen much more frequently. In addition, because most instruments employed for trading market risk are highly liquid, the relevant holding period for market risk is much shorter than for most credit risks. Thus the span of data required to estimate the distribution of outcomes for market risk is generally less than for credit risk.

⁸ See Herring and Schuermann (2005) for a discussion of the key challenges in modeling market risk.

⁹ See Herring (1999) for a discussion of some of the problems in modeling credit risk.

¹⁰ In some instances banks have simply failed to archive data in a form that is amenable to statistical analysis. In many cases this problem has been compounded by mergers which often create additional obstacles to research in the form of incompatible definitions of critical variables or data systems. modeling credit risk. Moreover, data from one country generally should not be used to calibrate models in other countries. Credit risk models should vary from country to country because bankruptcy and foreclosure laws and the enforcement of those laws vary. In particular, the probability of default and the loss given default should be expected to vary with these differences in the financial and legal infrastructure. Moreover, in countries that are rapidly transforming from a command and control system to a more market-based system, the relevance of historical data is highly doubtful.

The potential gains from full-scale implementation of economic capital to enterprise risk management are substantial. In principle, once economic capital can be allocated to all kinds of risk, it can also be used to risk-adjust returns across various lines of business to reveal which activities create or destroy shareholder value and provide a more rational basis for allocating capital resources, pricing products, and for compensating those who manage risk exposures.

IV. THE MARKET RISK AMENDMENT TO THE BASEL ACCORD

When the Basel Committee turned its attention to market risk in 1996,¹¹ it permitted an entirely different approach to setting capital requirements that relied on the way that leading banks were measuring and managing this risk. Rather than allocate positions to crude risk buckets or apply mechanical asset price haircuts to positions in an attempt to approximate risks, the Basel Committee provided the opportunity for qualifying banks to rely on the supervised use of their own internal models to determine their capital charges for exposure to market risk.

The internal models approach to regulation was expected to deliver several benefits. First, it would reduce or eliminate incentives for regulatory capital arbitrage—actions undertaken to increase risk without increasing risk weighted assets—because the capital charge would reflect the bank's own estimate of risk. Second, it would reward diversification to the extent that a bank's internal models capture correlations across risk positions. Third, it would deal more flexibly with financial innovations, incorporating them in the regulatory framework as soon as they were incorporated in the bank's own risk management models. Fourth, it would provide banks with an incentive to improve their risk management processes and procedures in order to qualify for the internal models approach. And fifth, compliance costs would be reduced to the extent that the business was regulated in the same way that it was managed. By and large, the internal models approach for market risk has proven to be highly successful, even when it was severely tested by the extreme market disruptions in 1997, 1998, and 2001. This success, in combination with the progress made in modeling credit risk, led to calls from industry to revise the original Basel Accord to incorporate an internal models approach to capital regulation of credit risk.

V. BASEL II: THE PROPOSED REVISION TO THE ACCORD

Regulators were also becoming increasingly dissatisfied with the effectiveness of the original Basel Accord as it became apparent that banks could game both the numerator and the denominator of the Basel I ratio. Banks could inflate the numerator through gains trading—realizing capital gains, while deferring capital losses—and under-provisioning for loan loss reserves. These actions increased

¹¹ See the Amendment of Market Risk (Basel Committee, 1996).

reported levels of regulatory capital without increasing a bank's capacity to bear loss.

Banks could also reduce the denominator (risk-weighted assets) in the risk-adjusted capital asset ratio, by engaging in regulatory capital arbitrage. The divergence between the Basel Accord risk weights and the actual economic risks provided incentives for banks to unbundle and repackage risks in ways that reduced effective capital requirements. Indeed, some observers believe that financial innovations such as securitization techniques and credit derivatives were devised partly to enable banks to maintain or even increase exposures to economic risk with relative ease, while lowering regulatory measures of risk-adjusted assets.

The Basel II approach is structured around three pillars: (1) minimum regulatory capital requirements, (2) the supervisory review process and (3) market discipline. Although Basel II also proposes to extend the scope of capital requirements to include operational risk and interest rate risk in the banking book, most of the detail focuses on the determination of risk weights for credit risk.¹² The objectives of Basel II are to: (1) eliminate incentives for regulatory capital arbitrage by getting the risk weights right; (2) align regulation with best practices in credit risk management; and (3) provide banks with incentives to enhance risk measurement and management capabilities.

Basel II aims to eliminate incentives for regulatory capital arbitrage by adjusting regulatory risk weights so that they accurately reflect actual economic risks. More broadly, it attempts to align regulation with best practices in credit risk management and to provide banks with incentives to invest in more sophisticated risk measurement and management capabilities. These regulatory "carrots" for the adoption of more sophisticated risk management practices are the prospect of lower capital requirements as the bank qualifies for the use of increasingly complicated ways of measuring regulatory capital requirements: (1) the Standardized Approach; (2) the Foundation Internal Ratings-Based Approach (FIRB); or (3) the Advanced Internal Ratings-Based Approach (AIRB). Capital charges for credit risk are expected to decline for most banks that adopt AIRB. To avoid a reduction in the overall level of capital the Basel Committee has imposed a new capital charge for operational risk that is calibrated to offset the reduction in the capital charge for credit risk on average. This way of maintaining the average level of capital in the banking system rests uneasily with the commitment to greater precision in the risk weights.¹³

¹² Oddly, interest rate risk, something that can be measured with relative precision, is relegated to supervisory discretion while operational risk, which is intrinsically very difficult to define, much less measure, is subject to quantitative capital requirements. See Shadow Financial Regulatory Committee (2002), Herring (2002) and Calomiris and Herring (2002) for additional discussion about the weaknesses of the framework for applying capital requirements to operational risk.

¹³ The Basel Committee (2004, June) has also proposed multiplying the IRB capital requirement by a single scaling factor (in principle, either greater or less than one) to maintain the overall level of minimum capital requirements.

The first draft of the Basel II proposal (June 1999) contemplated the possibility of determining capital adequacy based on banks' own internal models of credit risk following the approach to the regulation of capital for market risk. But before relying on internal models, the supervisory authorities must be assured that the models are conceptually sound, empirically validated and produce comparable allocations of economic capital across banks. The idea was rejected because of concerns about the quality and quantity of appropriate data and the ability of the supervisory authorities to validate credit risk models. Having rejected the ideal, first-best alternative, the Basel Committee attempted to specify a second-best alternative that would produce a risk-weighted denominator that approximates economic capital.

Although the Standardized Approach is simply a more complex version of Basel I—with more risk buckets, attention to external ratings of credit risk and credit enhancements—the internal ratings-based approaches include detailed specifications about how banks should measure their credit risk. Basel II has emphatically abandoned the original objectives of simplicity and avoidance of micro-managing lending decisions in favor of increasingly prescriptive regulatory standards. The most sophisticated approach, the AIRB, would permit a bank to employ its own estimates of the probability of default, the expected loss given default, the exposure at default and maturity, as inputs in the regulatory model that determines the risk-weight.

Of course, risk at the portfolio level depends on the joint default distribution and this is an empirical challenge for many lines of business. Defaults are rare and joint defaults are even more unusual. In principle, the correlation could be inferred from structural models of default, but there is no consensus on the "true" model of default, much less the magnitude of its parameters. The supervisory authorities have made an assumption about correlation in the internal ratings based approaches and will not permit banks to rely on their own estimates.

The internal ratings based approaches are close to an internal models approach, but differ in four important respects. First, the model determining the risk weights is the regulatory model, not the banks' own models. The regulatory model reflects numerous political compromises and crystallizes a particular state of the art in an environment in which the state of the art is rapidly changing and so it is unlikely to produce the same risk weights as the banks' own models. Hence there will still be scope for regulatory capital arbitrage. Second, compliance costs will not be reduced as much as in an internal models approach, because well-managed banks will need to run their own models alongside the regulatory models. Third, the incentives for diversification are reduced to the extent that the cross-correlations in internal models are not reflected in the regulatory model. Fourth, there is a greater danger that banks will tend to move the same way at the same time in credit markets as in an internal models approach because their capital charges are being determined by the same regulatory model, notwithstanding the individual inputs.

This may well be an instance in which the theory of the second best applies (Lipsey and Lancaster, 1956). If it's not possible to rely on banks' own models of economic capital, a regulatory approximation to economic capital may not be the second best option. Moreover, as Taylor (2002) has noted, Basel II may have the unintended consequence of undermining bank governance risk management, traditionally a key responsibility of senior management and the board, by prescribing how risk should be managed.

VI. THE DEFINITION OF REGULATORY CAPITAL REMAINS UNCHANGED

Despite the complicated attempt to approximate economic capital in the denominator of the regulatory ratio,¹⁴ the Basel Committee left the definition of regulatory capital, the numerator, unchanged. This undercuts the logic of the approach and the link to best practices in risk management since the numerator does not accurately represent the bank's capacity to bear unexpected loss. Economic capital includes equity, retained earnings and the portion of loan loss reserves that exceeds expected loss. This is broader than the definition of Tier 1 capital because loan loss reserves, subject to a limit, are relegated to Tier 2 capital, but not Tier 1. On the other hand, it is decidedly narrower than the Basel total capital measure (Tier 1 plus Tier 2) because economic capital does not include subordinated debt, revaluation reserves and a number of other balance sheet entries that countries may choose to include in Tier 2 capital.

Even though gains trading and under-provisioning have arguably accounted for more serious manipulations of the Basel I regulatory capital ratio than regulatory capital arbitrage, Basel II ignores the problem of huge variations across countries in the enforcement of capital requirements. It continues to rely on accounting data—despite the fact that accounting practices differ markedly across countries—and not market (or fair) values, which are surely more relevant for assessing economic capital. It is ironic that the supervisory authorities are taking such pains to approximate economic capital in the denominator, but at the same time are resisting using fair values to determine the numerator. And, Basel II does not propose to reexamine the 8% minimum overall capital requirement even though the rationale for such a number has never been articulated clearly by the Basel Committee.

More fundamentally, even if properly implemented, this economic capital framework is not the most appropriate way to set capital adequacy standards. The approach implicitly assumes that what matters to regulators is the probability of default, not the loss in the event of default. But, if mechanisms for resolving bank failures work reasonably efficiently with little interruption of

¹⁴ In order to better approximate economic capital, the Basel Committee (January 2004) recently recalibrated the risk weights to exclude reserves for expected losses so that the risk weights will reflect only unexpected losses.

services to depositors or borrowers, the fact of failure may matter less than the loss that would occur in the event of failure. If the regulatory objective is to protect the deposit insurance fund and the taxpayers who stand behind it, the severity of loss matters even more than the probability of default. The magnitude of a loss in the event of a default most assuredly matters to the deposit insurance agency and taxpayers and so they should matter to bank regulators as well. This issue, of course, is related to the question of what should count as capital.

If default is the principal concern, then the primary role of capital is to act as a buffer to absorb losses. Only equity, retained earnings, and loan loss reserves can play this role. Indeed, from this perspective, debt instruments simply increase the probability of default because they add to the debt service burden that must be paid regardless of the condition of the bank. But if minimizing loss to the deposit insuring agency and taxpayers is the primary objective, then all instruments that are junior in repayment priority to the deposit insuring agency act as a buffer against loss and may be regarded as capital. This measure, of course, would be much broader than Tier 1 and Tier 2.

VII. ARE REGULATORY INCENTIVES NECESSARY FOR ADVANCES IN RISK MANAGEMENT?

Most of the innovations regarding economic capital began in the United States and were widely adopted soon after the implementation of the Prompt-Corrective Action, Least-Cost Resolution reforms introduced in the landmark Federal Depositary Insurance Corporation Improvement Act (FDICIA) in 1991. These reforms had the impact of increasing market discipline on the largest, internationally active banks in the United States (Jagtiani, Kaufman, and Lemieux, 2002) and provided banks with enhanced incentives for measuring, managing and communicating their risk exposures to the market.

The remarkable improvements in risk management were largely a response to market demands, not regulatory commands. Although Basel I did not contain incentives to adopt more sophisticated approaches to risk management, progress in risk management was indirectly facilitated by the fact that the costs of compliance with Basel I were relatively light so that a greater share of technology budgets could be allocated to improvements in risk management rather than regulatory compliance. By the same logic, the substantially higher compliance costs associated with Basel II may impede additional progress in risk management by reducing resources available for modeling economic capital. This may provide a rationale for the Basel Committee's presumption that banks must be rewarded with the prospect of lower regulatory capital charges for adopting more sophisticated risk management techniques. But this presumption has greatly complicated the Basel II regulations and exacerbated complaints about regulatory-induced deformations of the playing field.

VIII. LEVEL PLAYING FIELD ISSUES

The US has interpreted the Basel II framework as *standards that should apply to internationally active banks*, while the European Union (EU) has viewed Basel II as *internationally accepted standards that should apply to all banks*. In consequence, the US and the EU have taken divergent approaches to dealing with the level playing field issues raised by Basel II. The US has chosen a “bifurcated” approach. Ten large, internationally active US banks with more than \$250 billion in total assets or with foreign exposures greater than \$10 billion will be required to qualify for and implement the advanced approaches to calculating capital charges for credit risk and operational risk under Basel II.¹⁵ Another 10 or so large regional banks are expected to “opt-in.” Other banks will continue to apply the Basel I regulations, which will be amended.

In contrast, the EU has chosen to incorporate the Basel II framework in its Capital Requirements Directive that will apply to all depository institutions and most types of investment firms. This choice has probably contributed to the complexity of the Basel II framework in so far as the desire to be sensitive to the differences among the broadest range of financial institutions has led to the inclusion of numerous options in the rules and implementation of the rules. In essence, the earlier Basel I objective of simplicity was abandoned to achieve breadth of scope in the application of capital adequacy requirements. Moreover, the solution to almost every problem posed by industry groups has been still more complexity in the rules or options for applying the rules.

Both the US and the EU are facing complaints from firms that fear they will be disadvantaged by Basel II. Since the advanced approaches, which will be required in the US, are calibrated to produce the lowest capital charge for most exposures, banks that believe they cannot qualify fear that they will be placed at a competitive disadvantage. The US regulatory authorities have addressed these concerns in two ways. First, they have produced several studies that tend to show that any competitive effects are likely to be minimal because banks that do not adopt Basel II will *not* be subject to a capital charge for operational risk (which will apply to those banks that do adopt Basel II) and because banks that do adopt Basel II will continue to be subject to a separate leverage capital requirement. Second, they have indicated a willingness to adjust Basel I to compensate for any remaining differences.¹⁶ It seems likely, for example, that the risk weight for residential mortgages will be reduced from 50% to 35% and the risk weight for retail lending may also be reduced.

The EU has addressed similar concerns by permitting institutions based in the EU to make choices among the several options provided in the Basel II framework and has, in addition, provided 143 implementation options. Unlike US institutions, EU institutions will be able to choose different approaches for different categories

¹⁵ US banks will not be permitted to adopt any of the less advanced alternatives for computing capital charges for credit risk and operational risk.

¹⁶ They have also at times argued that regulatory capital requirements do not affect business decisions. But this would appear to undermine the rationale for adopting such a complex approach to regulating capital.

of business. Thus EU supervisors must deal with the possibility that institutions will engage in “regulatory cherry-picking” in which institutions select the regulatory option that will give them the lowest capital charge for each line of business. Moreover, the prospect of securing a competitive advantage for domestic banks may create political pressures to qualify domestic institutions for the advanced approaches before they (and their supervisors) are fully ready to do so.

Supervisors must also deal with concerns that Basel II will alter the competitive structure of the financial system. One possibility is that lower capital charges may enable large, internationally-active banks to acquire smaller banks simply because they can fund them more cheaply. This could lead to consolidation of the financial sector motivated by regulatory advantage rather than value added to users of financial services.

More broadly, supervisors must address concerns that the costs of complying with Basel II could lead to a shift of products and services from regulated institutions to institutions not subject to Basel II. Here too the difference in the scope of application has led to differing concerns in the US and the EU. The EU has chosen to apply Basel II on a consolidated basis not only to all depository institutions, but also to most investment firms. Thus when an EU-based investment firm competes in the US it will be subject to substantially different regulation from its US competitors. In the US, this concern has been expressed mainly by banks that have specialized in asset management and processing businesses. For these banks the new regulatory capital charge for operational risk will not be fully offset by a decline in the capital charge for credit risk and so they are concerned that they may lose business to nonbanks, which are not subject to capital regulation.

IX. HOME/HOST ISSUES

Although Basel II regulations will be introduced by 2007 in the EU and by 2008 in the United States, many of the details of implementation are still not clear. But it is clear that differing approaches to the implementation of Basel II will prove costly to banks that are active in more than one market. Some of these problems are the consequence of the sharing of supervisory and regulatory responsibilities. While these tensions between the home and host country are present under the Basel I regime, they are likely to be greatly exacerbated by several features of Basel II.

First, multinational banks are likely to be subject to different implementation of the Basel II capital standards in different countries.¹⁷ Basel II affords several different choices for computing capital charges under Pillar 1. For example, a

¹⁷ The US has required that any foreign-owned bank that wishes to issue insured deposits form a US subsidiary and therefore be subject to the same regulation and supervision as a comparable domestically-owned bank. This option is not available to EU member states, however, because the EU has adopted the principle of a single EU passport. This means that a bank that obtains a charter in any member state may form branches in any other member state. Thus, the host country can not require that a foreign bank headquartered in another EU member state form a subsidiary instead of a branch.

bank may be required to use the Advanced Internal Ratings (AIRB) approach for computing capital charges on its corporate lending in one country, but the Internal Ratings (IRB) approach in another, and the Standardized approach in yet another. The same quality corporate credit could get a different capital charge in each of the three countries. Moreover, these choices may be different for different lines of business. Thus a large multinational bank active in scores of countries may be obliged to employ a complex array of approaches in computing its regulatory capital charges.

Second, even when countries choose to implement the same Basel II options, the rules may be implemented quite differently across countries. The EU, with 143 different options for implementing the rules, provides a striking example. Even within the EU single market for financial services, an internationally active bank may face considerable regulatory and supervisory complexity arising from differences in implementation alone.

Multinational banks tend to manage risks on a consolidated basis, without regard for the corporate structure (whether branch or subsidiary) of the offices through which business is conducted. For example, they might book a loan in one country, hedge the interest rate risk for that loan in another country and hedge the credit risk in yet another country. If the group is carved into legal entities for regulatory purposes, these hedges would be overlooked as would broader potential diversification benefits. Without consolidated oversight and regulation, the bank will be obliged to manage risks at the legal entity level.

Banks would, of course, prefer to have one set of rules. But this approach is unlikely to be feasible even within the EU. Nordea Banken is a case in point. Nordea Banken has announced its intention to restructure its Scandinavian network as an EU-charted corporation, headquartered in Sweden with branches in Denmark, Finland, Norway and Sweden. Since the existing subsidiaries are systemically important in each of these countries, host country supervisors are unwilling to simply defer to the Swedish supervisor. Although it is possible that cooperation among Scandinavian supervisors is sufficiently strong to improvise a workable solution, it's easy to imagine other instances in which cooperation would be unlikely.

Most internationally-active banks would prefer a lead supervisor model in which the home country supervisor establishes the rules under which a multinational bank operated and host country supervisors would play a junior role. The main obstacle to implementing the lead supervisor model is the question of what entity would pay in the event of loss. Unless the home country were willing to issue a guarantee for the external liabilities of the bank, host country supervisors are unlikely to delegate supervision of safety and soundness to the home country supervisor even if they have the statutory discretion to do so. In addition, the lead supervisor model could result in multinational banks from *different* home countries playing under *different* rules in the *same* host country, which is likely to be perceived as an unacceptable deformation of the playing

field. Indeed, the widely-accepted principle of national treatment is likely to require that a foreign-owned subsidiary be regulated according to whatever standard the host country supervisory authority has chosen, even if it is Basel I.

Within the EU, some would favor the establishment of an EU supervisor that would supersede national supervisory entities in the 25 member states. But this concept faces the same obstacle as the lead supervisor model. National supervisory authorities are unlikely to cede responsibility for safety and soundness to an EU supervisory authority in the absence of a corresponding EU budget to clean up problems that might result from cross-border banking crises.

As an alternative to a lead supervisor or a supra-national supervisor, it has been suggested that a “college of supervisors” could be established for each multinational bank in which supervisors from the home country and the various host countries would share information and harmonize their requirements for the particular multinational bank. This is like the model improvised to supervise BCCI. Although it might well be expected to work better for a bank that was not a criminal enterprise, the precedent is hardly reassuring. Moreover, it has several inherent problems. First is the question of which supervisory institutions should be invited to participate. In many countries, such as the United States, a number of supervisory agencies may have a legitimate interest in and statutory obligations with regard to a bank. Second, a large multinational bank will have operations in scores of countries. This could lead to a very large and heterogeneous supervisory college, qualities that tend to exacerbate the defects that plague most committees—slow and cumbersome decision-making—and are likely to prove unworkable in a crisis.

Finally, even if the sharing of supervisory responsibility is satisfactorily arranged, multinational banks must still deal with taxes, deposit insurance, consumer protection measures and lender of last resort arrangements that differ across countries.

X. ADDITIONAL BURDENS ON SUPERVISORS

Supervisors must bear several additional burdens under Basel II at a time when surveys have shown that many are still having difficulty complying with the Core Principles on Banking Supervision (Basel Committee, 1997). First, the home/host issues extend beyond Pillar 1 capital charges to the other two pillars. This involves not only sharing responsibility for overseeing a bank’s internal controls and assessing whether the capital generated by the internal ratings based approaches are commensurate with a bank’s risk profile, but also negotiating appropriate disclosure practices.

Second, bank supervisors must hire and retain staff who are competent to understand and evaluate the complex models that underlie the complicated computations necessary to implement the internal ratings based approaches and the advanced approaches to computing capital charges for operational risk. They will be competing in the market place with the institutions they oversee for such talent. Traditional, civil service levels of compensation are

unlikely to prove adequate. It is an open question whether some host countries can hope to acquire and retain the expertise to fulfill their responsibilities. This is an important problem because there is a very real risk that a black box model that is not well understood by the supervisors, or even a good model fit to bad data (or an insufficient span of data), may lead to riskier outcomes than the simpler Basel I approach.

Third, in regimes where banks are free to choose from a variety of options for each line of business, supervisors must take care that they have not created a new and more elaborate set of incentives for regulatory capital arbitrage in which banks choose to take risks that are not fully reflected in their regulatory capital charges. This is inherently complex because supervisors must understand not only the capital charges under all of the alternative options given a bank's current exposures but also how the choice of regulatory options has affected the bank's choice of exposures. Moreover, relatively small variations in estimates of probabilities of default or losses given default can lead to substantial variations in capital charges. In addition, the variety of options makes it much more difficult for the supervisory authorities to conduct peer group analysis, which has traditionally been a key tool of supervisory analysis.

Fourth, once a supervisor assumes responsibility for supplying a regulatory model of credit risk and certifying a bank's own model inputs, it may inadvertently weaken corporate governance of risk (Taylor, 2002). In addition, market participants may well assume that the supervisor is also implicitly taking greater responsibility for bad outcomes. This prescriptive approach to bank supervision may cause a relaxation of market discipline that can lead banks to take greater risks, which places still greater burdens on official oversight.

XI. ISSUES REGARDING EMERGING ECONOMIES

The Basel Committee was created by the Group of Ten and was not intended to represent the interests of emerging economies. Nonetheless, more than 100 countries have adopted Basel I, and nearly as many have indicated their intent to adopt Basel II. The Basel Committee has developed a simplified version of the Standardized Approach for emerging economies,¹⁸ but many of the largest emerging economies have announced that they intend to implement the advanced internal ratings based versions of Basel II. Partly this appears to reflect concern of these countries that their banks will be disadvantaged if they do not adopt the approaches that are designed (on average) to yield the lowest capital charge.¹⁹ It also seems to reflect a perception that countries which do not

¹⁸ See Annex 9 of Basel Committee, 2004.

¹⁹ This expectation may not be realized in many cases. Emerging markets generally experience considerably higher default rates than advanced industrial economies. Thus the internal ratings based approaches may well yield higher risk weights than the Standardized Approach. It is true, however, that emerging markets that are home to multinational banks with foreign offices in markets that require the advanced approaches may be disadvantaged if the home country supervisor uses only the simplified, Standardized Approach.

adopt the advanced approaches will be penalized by external ratings agencies and international financial institutions.²⁰

Without the appropriate data, infrastructure, institutions and supervisory independence, the attempt to adopt the advanced versions of Basel II is likely to be harmful. Not only does it divert scarce resources from more fundamental ways of improving the safety and soundness of the financial system, but also the approach ignores the most important risks in most emerging economies. The huge losses experienced by many emerging markets over the past decades have stemmed less from credit, market and operational risks, which are dealt with in Basel II, than from political risk, currency inconvertibility, liquidity and funding risks as well as basic business risks²¹, which are *omitted* from Basel II.

Two other features of Basel II may have an indirect impact on emerging markets. First, greater sensitivity to credit risk means that bank lenders to the riskiest emerging markets will face higher capital charges than under Basel I.²² Although less risky countries will receive substantially more favorable treatment under Basel II, there are concerns that the variation in risk weights over the cycle might exacerbate the volatility of capital flows.²³

In addition, Basel II retains the favorable treatment for short-term interbank claims although the definition of “short-term” has been tightened from an original maturity of up to 1 year to an original maturity of up to 3 months. Many economists have argued that this leads to a bias toward short-term interbank lending. Reliance on short-term, interbank borrowing leaves countries vulnerable to a loss of confidence that could precipitate substantial capital outflows. Indeed, some perceived this bias in bank lending as having contributed to the severity of the Asian financial crisis in 1997.

XII. PROCYCLICAL LENDING

Even in the absence of capital regulation, bank lending tends to be procyclical. Loan losses generally lag the downturn in the macroeconomy by 6 to 12 months. When loan losses exceed loan loss reserves and cause a fall in capital, banks generally respond by raising the cost and reducing the availability of funds until their capital positions are restored. If the macroeconomic shock has led to a decapitalization of the banking system, credit may be severely rationed and

²⁰ Notwithstanding the fact that the IMF and World Bank have made clear that countries will not be penalized in the Financial Sector Adjustment Program for having failed to adopt the internal ratings based approaches.

²¹ Business risk is the residual, nonfinancial earnings volatility not attributable to internal or external earnings. It arises when a firm is unable to match reductions in revenue with reductions in costs. See Kuritzkes and Scott (2005).

²² Emerging markets that were not members of the OECD received a 100% risk weight, the same as a AAA-rated corporation (or, for that matter, a below investment grade corporation or retail customer). The Standardized version of Basel II assigns a risk weight of 150% to countries with a credit rating below investment grade.

²³ See the following section for a broader discussion of procyclicality.

economic recovery may be delayed until banks can be recapitalized or firms can generate sufficient retained earnings to finance investment.

Basel II exacerbates this tendency by varying the capital requirement in synch with the macroeconomic cycle. Both the probability of default and the loss given default tend to *rise* as the economy turns down and so capital charges *increase* during a recession. Conversely, as the economy recovers, both the probability of default and loss given default tend to *decline* and so capital charges *decrease* in an expansion. Thus under Basel II a bank may find that its capital requirement is increasing at the same time its capital is decreasing and, correspondingly, during a recovery, its capital requirement is decreasing just as its capital is increasing.²⁴ To the extent this influences lending behavior, banks may exacerbate macroeconomic fluctuations by constricting credit in a recession and expanding credit in a recovery.

The magnitude of this potential impact is unknown. It's possible that if bank lending decisions are being driven by economic capital and Basel II accurately reflects economic capital, there will be little or no exacerbation of procyclical lending. But, if the Basel II risk weights exceed those determined by internal models of economic capital during a recession, the new approach to capital regulation may worsen economic downturns. The fact that the most recent Basel II quantitative impact survey, taken during a modest expansion, showed substantially lower minimum required capital on average²⁵ suggests that the procyclical impact may be quite strong.

The Basel Committee has considered a number of remedies. It hopes that greater emphasis on the measurement and management of risk will lead banks to strengthen their balance sheets so that they will be less sensitive to macroeconomic fluctuations. In addition, the Basel Committee has flattened the capital charge function for small and medium sized enterprises so that capital charges will vary less over the cycle than the Committee's original statistical analysis would indicate.²⁶

In addition, there has been considerable discussion of countercyclical provisioning that would require larger provisions in an expansion and smaller provisions in a contraction. This remedy faces three problems, however.

First, cycles vary in duration and frequency. Ex ante, it is very difficult to disentangle cyclical growth from the trend. Second, calculations of economic capital depend on current estimates of default and loss given default, not some over-the-cycle average and so countercyclical provisioning would drive a wedge between regulatory risk weights and economic capital calculations and provide an incentive for regulatory capital arbitrage. Third, even though it may be true

²⁴ The bank's balance sheet will tend to strengthen during an expansion because the value of its collateral will rise.

²⁵ Williams (2005, p. 9), for example, reports that "Aggregating over the QIS-4 participants, the decrease in effective minimum required capital was 17%, while the median decrease among participants was 26%."

²⁶ Pressure from Chancellor Schmidt of Germany also appears to have played a role.

that the quality of loans deteriorates in an expansion, most tax authorities will recognize provisions for tax purposes only when losses have been realized.

XIII. CONCLUSION: DO THE BENEFITS OUTWEIGH THE COSTS?

The Acting Comptroller of the Currency (Williams, 2005, p. 13) has indicated recently that the anticipated benefits of implementing Basel II include: (1) “incorporation of advances in risk measurement and risk management practices into supervisory assessments of capital adequacy, (2) the lessening of distortions in credit markets created by the current capital standard, and (3) improvements in bank safety and soundness from a more risk-sensitive approach to establishing minimum capital requirements.” The first of these benefits is of instrumental value only. Aligning supervisory practices with modern risk management has social value only if it improves the safety and soundness of the financial system in a cost effective way.

The second of these benefits depends on a judgment regarding the harmful consequence of regulatory capital arbitrage and the assumption that regulatory capital arbitrage will be eliminated under Basel II. It is not clear that the regulatory capital arbitrage under Basel I has been costly to society. Moreover, since Basel II is a flawed approximation to internal models of economic capital, regulatory risk weights and internal measures of risk will continue to diverge and so incentives for regulatory capital arbitrage will continue. The resulting distortions of credit markets may differ, however, and the results may not be preferable.

If there is an important benefit from implementing Basel II, it is surely to be found in the improvement to bank safety and soundness. But even if such an improvement seems likely—which, given the implementation challenges, is by no means certain—could it be obtained at lower cost?

This paper has argued that Basel II will be very costly for banks, home country and host country supervisors, and, to the extent that it exacerbates macroeconomic cycles, to the broader economy as well. Most of the cost derives from the elaborate and highly prescriptive approach to specifying the risk weights for capital charges. But complex, prescribed risk weights are not the only way to make capital requirements more risk-sensitive. Enhanced market discipline provides a simpler way to make capital regulation more risk sensitive and effective, at much lower cost. The Shadow Financial Regulatory Committees have proposed a mandatory subordinated debt proposal, linked to supervisory actions, that provides this kind of alternative to Basel II.²⁷

Although market discipline is the third pillar of Basel II, the approach is feeble, at best. It is focused solely on disclosure and, even with regard to disclosure, is remarkably weak. Although it would require the disclosure of a greater quantity of data than some banks currently provide, it omits

²⁷ See Herring (2004) for references to the Shadow statements and the broader literature.

considerable, risk-relevant data such as foreign/domestic currency breakdowns of assets and liabilities and exposures to sovereign borrowers, publicly controlled corporations, and commercial real estate, all of which have played a central role in banking crises in the recent past. In addition, the treatment of the possible dispersion of outcomes with regard to market risk falls short of the Basel Committee's earlier agreement with IOSCO. And comparability of data remains constrained by national differences in accounting, provisioning, and auditing standards as well as enforcement practices.

In one key respect, moreover, Basel II represents a retreat from a level of transparency achieved by the original Accord. One of the principal achievements of Basel I was a straightforward (if deeply flawed) way of comparing the capital adequacy of international banks. Many banks chose to report their Tier 1 capital ratios, even though they were not required to do so. Although these ratios are based on accounting conventions and supervisory standards that vary across countries, they did provide a crude measure of capital adequacy. Despite the expanded disclosures regarding capital instruments and ratios, it will be much more difficult to compare Tier 1 ratios across banks. Banks are provided with so many options with regard to rules and implementation choices under the Pillar 1 and are potentially subject to additional, but not necessarily disclosed, capital charges under Pillar 2, that it is no longer possible to compare capital adequacy across institutions in a straightforward manner.

Additional disclosure will have little impact unless at least some market participants have an incentive to collect, analyze and monitor the new data. For several banks, including some of the largest most internationally active banks, there is reason to doubt the strength of the motive for market participants to exercise discipline over debt instruments. For example, Fitch (July, 2003) rates over 400 internationally active banks as having an "extremely high" or "high probability of external support"—roughly equal to the number for which external support, "although possible, cannot be relied upon." This is a problem that can and should be fixed. Indeed, if Pillar 2 had been tightened to include a genuine prompt corrective action component, substantial progress would have been made.

If the Basel Committee were serious about market discipline, it should not only improve disclosure standards but also strengthen the motives for at least some claimants to exercise discipline over banks and amplify the impact of market discipline by linking it to supervisory actions. This enhanced market discipline would in turn strengthen prudential regulation and supervision.

What is needed, ultimately, are better resolution tools so that even a very large institution can be resolved with minimal systemic spillovers. It should be possible in the event of insolvency to eliminate the claims of shareholders, replace managers and impose losses on at least some uninsured creditors, without disrupting the essential operations of the bank.²⁸ Unfortunately, market

²⁸ The bridge bank model in the United States holds promise as a way of accomplishing these objectives while providing sufficient time for the supervisory authorities to make an optimal disposition of the bank either through piecemeal liquidation or merger.

discipline is likely to be less effective than it should be until creditors are persuaded that a credible resolution process is in place for every major, internationally active bank.

Enhanced market discipline is more likely to be effective in accomplishing the objectives of Basel II and at lower cost. First, it will deter regulatory arbitrage. Regulatory risk weights that diverge from actual risks may give banks an incentive to engage in transactions to reduce risk-weighted assets without reducing exposure to risk. But market participants will not be misled by regulatory risk weights. What matters to uninsured creditors is the bank's overall exposure to risk of insolvency. If they perceive that a transaction increases a bank's exposure to risk, the bank will be penalized by the market and, to the extent that regulators rely on market signals to monitor risk, by the regulators as well.²⁹

Second, institutions that employ best practices in risk management, which will surely evolve over time, will be able to deploy capital more efficiently and have better control over their risk of insolvency. Rather than impede advances in risk management as Basel II threatens to do by prescribing a specific approach to risk management, uninsured creditors are likely to reward institutions that can quantify and control their overall exposures to risk more effectively. Unlike the Basel II approach that prescribes a particular approach to risk measurement and management, the market will reward the adoption of whatever improvements in risk management prove to be effective. In addition, market participants who perceive themselves to be at risk of loss are likely to be an effective force for enhancing disclosure that will augment the Pillar 3 requirements.

Third, market discipline will help reduce the distortions introduced by the reliance of regulators on accounting measures of capital. Holders of risky claims are likely to increase pressures for the adoption of fair value accounting because market values, not accounting values are relevant for assessing the risk of insolvency. Moreover, holders of uninsured debt are unlikely to be deceived by gains trading and under-provisioning that can boost regulatory capital without enhancing an institution's capacity to bear loss. They will focus on a bank's economic capital.

Fourth, enhanced market discipline is also likely to improve the performance of the supervisory authorities. The secondary market price of uninsured debt provides a highly visible signal of the riskiness of a bank. Moreover, uninsured creditors have a strong motive to press for prompt corrective action to minimize losses at a failing institution because they will be the first creditors to experience loss.

Finally, enhanced market discipline would restore the Basel I virtue of simplicity and take the supervisory authorities out of the business of micromanaging risk measurement and management. With the right incentives in place, less is more. Less prescriptive banking supervision can produce more cost effective safety and soundness results.

²⁹ See, for example, Benston et al. (2003).

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XV. NOTES ON CONTRIBUTOR

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