

Commentary

Patrick Parkinson

I appreciate the opportunity to participate in this discussion of the pre-commitment approach to achieving regulatory objectives relating to bank capital.

The presenters might reasonably expect the discussant to take up each of their papers in turn, commenting on their strengths and weaknesses and offering an overall assessment of their quality. I am concerned, however, that while the usual approach might best do justice to the presenters, it could leave the audience at something of a loss as to what to make of all this. So I am going to take a different approach. I will begin by briefly reviewing the objective of capital regulation and identifying the factors that make achieving that objective so complex and difficult. In that context, I will then try to frame the debate between proponents of the more traditional approaches to capital regulation and proponents of incentive-based approaches, including the pre-commitment approach, in terms of three basic questions. First, how effective is the current internal models approach to capital for market risk? Second, is the pre-commitment approach a viable alternative? Third, can the two approaches be integrated in

ways that play to their respective strengths while avoiding their respective weaknesses? Most of the major arguments made by the presenters will surface in addressing these questions. I shall conclude by offering my own views on these key questions.

CAPITAL REGULATION: OBJECTIVES AND APPROACHES

In general terms, there seems to be agreement on the objective of capital regulation. Regulators seek to ensure that banks maintain sufficient capital so that banks' portfolio choices fully reflect risks as well as returns. Regulation is necessary because the government safety nets that support banks weaken the incentives for capital adequacy that would otherwise be provided by the market discipline of bank creditors, a phenomenon that is usually called "moral hazard." An important difficulty facing regulators as they attempt to achieve their objective is that the riskiness of banks' portfolios is not readily ascertainable. Traditional approaches to capital regulation have placed ex ante restrictions on bank portfolios that have been based on regulatory risk measurement schemes of lesser or greater sophistication and complexity. Inevitably, however, such regulatory measurement schemes are simpler and less accurate than banks' own risk measurement schemes.

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As a result, such schemes are not incentive-compatible, that is, they do not create incentives for banks to make decisions that produce outcomes consistent with regulatory objectives. To the contrary, they create the motive and the opportunity for banks to engage in regulatory arbitrage that frustrates the achievement of regulatory objectives. Specifically, they create incentives for banks to reduce holdings of assets whose risks are overestimated by regulators and to increase holdings of assets whose risks are underestimated by regulators. Regulators may seek to compensate for such reactions by raising the level of capital requirements, but such actions may intensify the incentives for regulatory arbitrage without meaningfully reducing the opportunities.

Incentive-compatible approaches to capital regulation are intended to solve this problem by inducing banks to take actions that reveal their superior information about the riskiness of their portfolios. In some of these approaches, including the pre-commitment approach, the inducement takes the form of ex post penalties that are imposed on banks in the event that portfolios produce sizable losses. For example, under the pre-commitment approach, a bank would be required to specify the amount of capital it chose to allocate to cover market risks. If cumulative trading portfolio losses over some subsequent interval exceeded the commitment, the bank would be penalized. In principle, the prospect of future penalties would induce banks to commit an amount of capital that reflected their private information on the riskiness of their portfolios.

None of this, it should be emphasized, is news to regulators. In particular, the recent evolution of capital requirements for market risks has reflected a growing recognition of the limitations of supervisory risk measurement schemes, the potential for regulatory arbitrage to undermine achievement of regulatory objectives, and the importance of incentive compatibility. Specifically, the January 1996 amendments to the Basle Accord included an internal models approach (IMA) to setting capital requirements for the market risks of assets and liabilities that are carried in banks' trading accounts. Under the IMA, the capital requirement for a bank that meets certain qualitative

and quantitative standards for its risk measurement and risk management procedures is set equal to a multiple of a widely used measure of market risk—so-called value at risk (VaR)—that is estimated using the bank's own internal model. The minimum multiplier was arbitrarily set equal to three. However, subject to this floor, the IMA provided economic incentives for accurate risk measurement by imposing a penalty—a “plus factor” that could increase a bank's VaR multiplier to a maximum of four if the bank fails a “back-test” of its VaR estimates, that is, if its daily trading losses exceeded its VaR estimates with sufficient frequency.

Thus far, however, supervisors have been unwilling to rely more heavily on incentive approaches to capital regulation. In particular, although the Federal Reserve System continues to study the pre-commitment approach, that approach is not currently under active consideration by the Basle Committee. Most regulators seem to believe that the IMA will prove quite effective, and some have openly questioned the viability of the pre-commitment approach.

EFFECTIVENESS OF THE INTERNAL MODELS APPROACH

On the efficacy of the internal models approach, Daripa and Varotto characterize it as “a ‘hard-link’ regime that sets a relation between exposure and capital requirement.” They do not mean to imply, however, that VaR is a perfect measure of risk. They acknowledge that VaR is subject to measurement problems and that the use of a fixed holding period in computing VaR ignores management information about the liquidity of markets that might imply that use of a shorter or longer holding period might be appropriate. Still, they seem to think that VaR, if anything, overestimates risk and, therefore, that the IMA is a prudent, if somewhat costly, means of ensuring that regulatory objectives relating to capital are met.

The New York Clearing House Association evidently is more skeptical of the effectiveness of the IMA, although its criticism of the approach is surprisingly oblique. The Clearing House's report does state clearly that the institutions participating in the pilot believe that the

minimum multiplier of three results in excessive regulatory capital requirements—the amounts that institutions pre-committed during the pilot generally were significantly less than those implied by applying the minimum multiplier to the firms' internal VaR estimates. Furthermore, they argue that the use of any fixed multiplier, even if it was smaller than three, is not an appropriate means of establishing a regulatory capital requirement. Use of a fixed multiplier constitutes a “one-size-fits-all” approach that they feel does not adequately account for differences in the nature of banks' trading businesses and trading portfolios. Finally, they note that market risk is but one source of risk in a trading business. The participating institutions fear that possible future efforts by regulators to develop capital charges for operational risks (or even legal risks or settlement risks) will be fraught with complications and inefficiencies that could be avoided through use of the pre-commitment approach.

VIABILITY OF THE PRE-COMMITMENT APPROACH

On the viability of the pre-commitment approach as an alternative to the IMA, the Clearing House's report asserts that the pilot demonstrates that the approach is a viable alternative to the IMA. In a narrow sense, this is true—the pilot demonstrated that the participating institutions have internal procedures for allocating capital for market risks and other risks in their trading businesses. However, what the pilot did not, and realistically could not, demonstrate is that these internal allocations are sufficiently large to meet regulatory objectives with respect to minimum bank capital. The fact that no participating institution reported a loss in excess of its commitment during the pilot is not compelling. None of the institutions incurred a cumulative loss over any of the four quarters. Hence, no violations would have occurred if no capital was committed. To be fair, without a more precise understanding of the desired loss coverage of regulatory minimum capital requirements, the report could not be expected to demonstrate that pre-commitment is a viable means of meeting that objective.

Both Kobayakawa, and Daripa and Varotto cast doubt on the viability of the pre-commitment approach,

at least in its present form. Kobayakawa concludes that a simple penalty—in the form of a fine proportional to the amount by which cumulative losses exceed the capital commitment—would not reliably induce banks to commit amounts of capital commensurate with their private information on their riskiness. In their presentation tomorrow, Paul Kupiec and Jim O'Brien, who developed the theoretical model that motivated the pre-commitment approach, reach the same conclusion. The fundamental problem is that a one-size-fits-all approach to setting penalties would not work. To achieve regulatory objectives reliably, the penalty would need to be bank-specific. Moreover, the appropriate penalty would depend on a bank's cost of capital and on its individual investment opportunities, factors that unfortunately are not ascertainable by regulators.

Daripa and Varotto argue that the effectiveness of the pre-commitment approach could be undermined by principal-agent problems between shareholders and bank managers and that the internal models approach is immune to such problems. The potential importance of agency problems in banking certainly is incontrovertible. When managers or staff have different objectives and incentives than shareholders, shareholders can suffer greatly, as the Barings, Daiwa, and numerous other episodes have made clear. In addition, it may be that agency problems could undermine the pre-commitment approach. What seems implausible, however, is the claim that the IMA avoids such problems. This claim seems to be a corollary of the view that the IMA creates a hard link between risk and capital. To be sure, it creates a hard link between VaR and capital, but VaR and risk are hardly the same thing. To see this, one need only ask—would a VaR-based capital requirement have saved Barings from its fatal agency problem? Clearly not. The fatal positions were hidden from senior management, shareholders, and regulators, and would not have entered into any calculation of VaR nor been covered by a VaR-based capital requirement. Both the IMA and the pre-commitment approach recognize that quantitative controls (VaR measures or penalties, respectively) must be supplemented by qualitative requirements for risk management, including requirements relating to

the internal controls that are the only realistic solution to potential agency problems.

CAN THE INTERNAL MODELS AND PRE-COMMITMENT APPROACHES BE INTEGRATED?

Although both Kobayakawa, and Daripa and Varotto are critical of the pre-commitment approach as proposed, they are, it should be emphasized, fully appreciative and supportive of incentive-compatible capital regulation. Kobayakawa suggests amending the pre-commitment approach to offer banks a schedule of combinations of ex ante capital requirements and ex post penalties that he claims would induce banks to reveal to regulators their private information about the riskiness of their portfolios. As he claims, his approach would more reliably achieve regulatory objectives than a pre-commitment approach that utilizes a uniform penalty for all banks. Nonetheless, Kobayakawa's alternative faces the same practical difficulties that Kupiec and O'Brien have acknowledged as limiting the effectiveness of the pre-commitment approach and any other incentive-compatible approaches. Specifically, banks will reveal their "riskiness" through their choices from Kobayakawa's menu only if he sets the "schedules" of the capital requirements and penalties quite adroitly. But doing so requires extensive knowledge of banks' portfolio opportunities and capital costs that regulators simply do not (and realistically cannot) possess.

Daripa and Varotto suggest that the pre-commitment approach be amended to provide for use of the IMA as the penalty for violating a pre-commitment. Although they do not provide a formal theoretical justification for their suggestion, they reason that the future prospect of what they see as a hard-link internal models approach would diminish the agency problems that they argue are unique to the pre-commitment approach. As indicated earlier, agency problems are not unique to pre-commitment, nor can they be eradicated by use of a VaR-based capital requirement.

However, an alternative way of looking at their suggestion is as a modification of the IMA. In this regard, it does address some of the concerns that the Clearing House report expressed about the IMA. Daripa and

Varotto's suggested approach is not a one-size-fits-all approach, and it would eliminate the minimum and purportedly excessively conservative multiplier of three, at least for banks that had never violated their pre-commitment. Of course, this type of penalty scheme is opposed in the Clearing House report. They argue that the appropriate penalty for violation of a pre-commitment would be public disclosure that a violation had occurred and that regulatory penalties would be unnecessary.

MY OWN VIEWS ON THE ISSUES

My views on the issues raised by the presenters will perhaps please no one. In brief, I see ample room to question the effectiveness of the IMA. But I am sympathetic to regulators' concerns about reliance on a pure incentives-based approach. Thus, I believe consideration should be given to more modest alternatives to the IMA that would loosen but not eliminate ex ante restrictions while enhancing and reorienting the use of ex post penalties.

Regarding the IMA, its essential weakness is the tenuous link between VaR and regulatory capital objectives. VaR is defined as a 99 percent confidence limit for potential losses over a one-day period. But regulators are concerned about the potential for cumulative losses from more extreme price movements over longer time horizons. In such circumstances, application of a multiplier to a bank's VaR estimate is clearly necessary. However, as the Clearing House report argues, the appropriate multiplier needs to be portfolio-specific and probably bank-specific as well, to take account of banks' different abilities to curb losses through active portfolio management. The choice of three as a minimum multiplier no doubt is excessive for some portfolios and may, as the Clearing House report suggests, be too conservative for the portfolios currently held by most banks. In practice, this may provide incentives for banks to focus trading activities on illiquid instruments, such as emerging market currencies and debt instruments, for which even a multiplier of three may be insufficient. Furthermore, because of the tenuous link between VaR and regulatory objectives, back-testing of VaR estimates is of limited value. A bank that passed its back-test could suffer severe losses from future price movements more extreme

than those allowed for by the VaR estimates. Conversely, a bank with poor VaR estimates might not be vulnerable to large cumulative losses if its positions were held in very liquid markets and it had the capacity to close out those positions promptly.

Regarding pre-commitment and other incentive-based approaches, they have their own limitations, and those limitations should be recognized. The most recent work by Kupiec and O'Brien has acknowledged that the link between any simple system of ex post penalties and regulatory capital objectives is also tenuous. The penalty appropriate to achieving regulatory objectives relating to capital coverage for trading risks is bank-specific and depends on characteristics that cannot be measured precisely by regulators. Moreover, the efficacy of an approach that relies on ex post penalties to influence bank behavior implicitly assumes that the bank is forward-looking and takes the potential penalties into account when making its current capital allocation. This is a reasonable assumption for healthy banks that are managed as going concerns, but Kupiec and O'Brien have acknowledged that weak banks may not care about future penalties that, in the extreme, might not be enforceable owing to insolvency.

In the end, I find merit in Daripa and Varotto's suggested modification to the pre-commitment approach, although I think it more useful to view it as a modification to the IMA. Institutions would be free to choose a capital allocation for risks in their trading activities—not only market risks but also operational and legal risks—that is less than three times VaR. However, if losses exceeded the capital allocated, the existing IMA would be reimposed for some extended period, presumably with a large "plus factor,"

that is, a multiplier larger than three. To assuage regulators' legitimate concerns about the limitations of incentive-based approaches, a floor might be placed under the pre-commitment, perhaps expressed as a multiple of VaR. However, to enhance incentives for ongoing improvements in risk management and to diminish incentives for counter-productive and costly regulatory arbitrage, the minimum should be well below the existing minimum of three times VaR.

In effect, this would involve two important changes to the tests and penalties embodied in the existing IMA. First, the back-test would be based not on daily VaR measurement but on cumulative quarterly risk management performance as reflected in the quarterly profit and loss. Second, favorable back-test results, that is, successful efforts to avoid losses in excess of commitments, would be rewarded—in effect, a "minus" would be subtracted from the standard multiplier of three. Furthermore, the minus would not be some arbitrary amount, but instead would reflect banks' judgments about their ability to avoid losses in their trading businesses.

Clearly, these would not be radical changes. But they would be important ones, ones that would relate capital requirements more closely to regulatory objectives and provide stronger incentives for banks to sharpen their skills at risk management rather than their skills at regulatory arbitrage. They would, I believe, be consistent with the widely shared belief that regulatory capital requirements need to continue to evolve, consistent with their basic objectives.

Thank you.

ENDNOTE

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