November 3, 2003

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Attention Docket No. 03-14
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Attention: Docket No. R-1154
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Attention: No. 2003-27
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Re: Risk-Based Capital Guidelines; Implementation of New Basel Capital Accord
68 FR 45900 (August 4, 2003)

Dear Mesdames and Sirs:

America's Community Bankers (ACB)[1] is pleased to comment on the Advance Notice of Proposed Rulemaking (ANPR) addressing the implementation in the United States of the new Basel Capital Accord (New Accord) being developed by the Basel Committee on Banking Supervision (BCBS) at the Bank for International Settlements.[2] The New Accord would replace, for some financial institutions in the United States, the risk-based capital requirements adopted by the BCBS in 1988.

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[1] ACB represents the nation's community banks. ACB members, whose aggregate assets total more than $1 trillion, pursue progressive, entrepreneurial and service-oriented strategies in providing financial services to benefit their customers and communities.

[2] 68 Fed. Reg. 45900 (August 4, 2003).

ACB Position Summary

ACB agrees with the approach of the New Accord in trying to more closely link minimum capital requirements with an institution's risk profile. We believe that the New Accord may offer some institutions the potential for increased flexibility in determining capital levels, which could enable certain institutions to deploy capital more efficiently. However, the objectives of any capital requirement should be to promote stability by requiring that sufficient capital be available, ensure competitive equality, and enable interested parties such as banking supervisors, bank management, and investors to effectively monitor capital levels and intervene when necessary. ACB does not believe that the New Accord yet meets these goals and continues to have serious concerns about the cost and complexity of the New Accord and the ability of institutions to understand and implement Pillar I and of supervisors to adequately administer and enforce the minimum capital requirements.

Most importantly, ACB is concerned about the potential of the New Accord to create competitive inequities since only the largest financial institutions will have the ability to adopt a more risk-sensitive capital framework under the proposal. Although there have not been enough reliable studies conducted to determine the effects of the New Accord, the studies to date show that the New Accord could result in significant capital savings for some of the largest banks and savings associations in the United States and other countries. ACB does not believe that the New Accord should be implemented in the United States until more information is gathered about its competitive effects.

ACB believes that the complexity of the New Accord and the significant obstacles to opting in to benefit from more risk-sensitive capital requirements are not warranted. While most will agree that the current risk-based capital requirements are outmoded and need to be revised, this can be done with a simplified approach that provides the benefits and incentives of the New Accord to all financial institutions operating in the United States. While ACB is providing some ideas on how to develop a more streamlined approach, we believe that such a task needs to be a collaborative effort by banking supervisors and the banking industry.

ACB has the following recommendations on specific aspects of the proposal to implement the New Accord in the United States:

- Revise the treatment of residential mortgage loans and home equity loans, including the removal of the ten percent loss given default floor in Pillar 1.
- Capital requirements for acquisition, development and construction (ADC) loans should be more closely aligned with risk.
- We support the recent proposal by the BCBS that will change the treatment of expected losses. However, the proposed adjustments to capital to account for differences between expected losses and loan reserves should be reconsidered.
- The operational risk charge should be moved to Pillar II.
- We agree with the agencies that U.S. banking institutions should continue to be subject to a leverage ratio requirement.

- The required disclosures should be further refined to ensure that the information is of a type that investors will understand and find useful.

The underlying arguments for these recommendations are developed and summarized in this letter. Additional analysis in support of these recommendations, drawn from the framework of ongoing academic research on bank risk management, is presented in Appendix B, "Inter-bank Competitiveness, Safety, and Soundness Issues Raised by The New Basel Capital Accord," by Professor Theodore M. Barnhill, Professor of Finance and Chairman, Department of Finance, The George Washington University.

Background

The current risk-based capital framework imposed on U.S. banks and savings associations was agreed to by the BCBS and endorsed by the G-10 Governors in 1988. The framework strengthened capital levels at financial institutions and fostered international consistency and coordination. The current requirements, however, have not kept up with changes in the financial industry and the increasingly complex nature of the banking business.

The BCBS has been working on the development of the New Accord for many years and, in April 2003, issued for public comment the third Consultative Document on the New Accord. The comment period ended on July 31, 2003, and ACB provided comments on the New Accord to the BCBS and each of your agencies. Once the BCBS finalizes the New Accord, each country would need to adopt appropriate legislation or regulations to implement the New Accord to govern the country's banking industry.

The ANPR was issued to begin the process of implementing the New Accord in the United States. The ANPR proposes to apply the New Accord only to banks with total commercial bank assets of $250 billion or more or total on-balance sheet foreign exposure of $10 billion or more (core banks). Other institutions can opt in to the New Accord if they can meet all of the eligibility standards. Banks approaching these threshold levels would be expected to start a dialogue with their supervisors about preparations for implementation. Banks that meet the threshold requirement because of an acquisition or merger would become subject to the New Accord. Minimum leverage ratio and prompt corrective action regulations would continue to apply to core and opt-in banks.

As a result of the planned implementation in the United States, we would for the first time have a bifurcated regulatory capital framework. As reflected in the *Quantitative Impact Study 3-Overview of Global Results* issued by the BCBS, the New Accord could result in significant capital reductions for institutions that focus on mortgage and other retail lending. While that is the core business of ACB's members, the cost and complexity of opting in to the New Accord does not make this a viable option for most community banks.

The U.S. bank regulators have issued two additional documents related to the New Accord: draft supervisory guidance for the internal ratings-based systems for corporate credit and draft

supervisory guidance for operational risk advanced measurement approaches for regulatory capital.[3] The regulators plan on providing draft guidance for the internal ratings-based systems for retail, commercial real estate, securitizations, and other portfolios at a later date.

Overview of the New Accord

The Accord would have three mutually supporting pillars. Pillar 1 would cover the minimum regulatory capital charge for credit, market and operational risk; Pillar 2 would cover supervisory review of capital adequacy; and Pillar 3 would require public disclosure of risk profile and regulatory capital information.

Pillar 1: Minimum Capital Requirements.

Pillar 1 would establish minimum capital requirements for credit, market and operational risk.

Credit Risk. Banks would have to meet an extensive set of eligibility standards for use of the advanced internal-ratings based (IRB) system for assessing credit risk. The draft supervisory guidance for the IRB systems for corporate credit provides details on the eligibility standards for corporate credit.

An institution's internal assessment of key risk drivers for a particular exposure or pool of exposures would serve as the primary inputs in the calculation of minimum capital requirements. Formulas, or risk weight functions, specified by supervisors would use the institution's estimated inputs to derive a specific dollar amount capital requirement for each exposure or pool of exposures. Exposures would be assigned into one of three portfolios: wholesale (corporate, interbank, and sovereign), retail, and equities. There also is specific treatment for securitization exposures and purchased receivables.

Under the wholesale category, there would be four sub-categories of specialized lending: project finance, object finance, commodities finance, and commercial real estate (further subdivided into low asset correlation or high volatility). The key inputs for each wholesale exposure would be probability of default (PD), loss given default (the proportion of the exposure that will be lost if a default occurs) (LGD), exposure at default (the estimated amount owed to the institution at the time of default) (EAD), and maturity (the remaining economic maturity of the exposure). Institutions would be able to take into account credit risk mitigation techniques, such as collateral and guarantees, by adjusting their estimates for PD or LGD.

Retail exposures would be divided into residential mortgages, qualifying revolving exposures, and other retail exposures (which would include certain exposures to small businesses). The inputs of PD, LGD and EAD would be assigned to predetermined pools of exposures, rather than to each individual exposure. There would be no explicit input for maturity.

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[3] 68 Fed. Reg. 45949.

Institutions would use a market-based internal model for determining capital requirements for equity exposures in the banking book. The internal model would assess capital based on an estimate of loss under extreme market conditions. Institutions that are subject to market risk capital rules would continue to apply those rules to assess capital against equity positions held in the trading book.

The proposal contains detailed rules for determining capital for retained interests held by institutions that securitize assets as well as for non-originating institutions that invest in a securitization exposure.

Purchased receivables would be subject to a two-part capital charge: one for the credit risk arising from the underlying receivable and the second for dilution risk (the possibility that contractual amounts may be reduced through future cash payments or other credits to the obligor).

Operational Risk. Institutions would have to hold capital for exposure to risk of loss arising from inadequate or failed internal processes, people, and systems, or external events. Each banking organization would be able to use its own methodology for assessing operational risk exposure provided the methodology is comprehensive and results in a charge that reflects the institution's operational risk experience. The supervisory guidance on operational risk advanced measurement approaches (AMA) establishes the standards that must be met to establish a sound operational risk framework.

Pillar 2: Supervisory Review.

Under Pillar 2, supervisors will assess whether an institution holds sufficient capital in light of its risk profile. Given the current level of supervisory review of capital adequacy in the United States, the agencies are not proposing to introduce specific requirements or guidelines to implement Pillar 2.

Pillar 3: Disclosure Requirements.

Extensive information about an institution's risk profile, IRB system for credit risk, and determination of capital requirements, as outlined in the Consultative Document issued by the BCBS in April, would have to be disclosed on a quarterly basis. The ANPR suggests that significant events would have to be disclosed on a current basis. It also suggests that internal control reports and officer certifications about the effectiveness of internal controls over financial reporting and disclosure controls and procedures would have to cover the required capital disclosures.

Supervisory Guidance on IRB Systems for Corporate Credit.

This guidance provides a description of the essential components and characteristics of an acceptable IRB framework for corporate credit. The guidance contains standards that are

principle-based whenever possible to give institutions flexibility when implementing the framework. Institutions must have credit risk management practices that are consistent with the substance and spirit of the standards.

Qualifying institutions will be expected to have an IRB system consisting of four interdependent components:

- A system that assigns ratings and validates their accuracy,
- A quantification process that translates risk ratings into IRB parameters,
- A data maintenance system that supports the IRB system, and
- Oversight and control mechanisms that ensure the system is functioning as intended and producing accurate ratings.

Each chapter of the guidance provides standards and a detailed discussion for each of these components. The agencies will evaluate compliance with the standards for each of the four components and will also evaluate how well the various components complement and reinforce one another.

Supervisory Guidance on Operational Risk Advanced Measurement Approaches for Regulatory Capital.

This guidance establishes the supervisory standards that institutions must meet and maintain to calculate the operational risk capital charge under the AMA. Institutions will be expected to use the standards to develop a framework that measures and quantifies operational risk for regulatory capital purposes. Operational risk governance processes must be established on a firm-wide basis to identify, measure, monitor, and control operational risk in a manner comparable with the treatment of credit, interest rate, and market risks.

Institutions will need a systematic process for collecting operational risk loss data, assessing the risks within the institution, and adopting an analytical framework that translates the data and risk assessments into an operational risk exposure. Because institutions will calculate minimum regulatory capital on the basis of internal processes, the requirements for data capture, risk assessment, and the analytical framework are detailed and specific. Chapters focus on corporate governance issues, operational risk management elements (operational risk policies and procedures, identification and measurement, monitoring and reporting, and internal control environment), elements of an AMA framework (internal operational risk loss event data, external data, business environment and internal control factor assessments, and scenario analysis), risk quantification (analytical framework and accounting for dependence), risk mitigation, data maintenance, and testing and verification.

As part of the ongoing supervisory process, the agencies will evaluate compliance with the standards as well as how well the various components complement and reinforce one another.

ACB's Concerns

Competitive Impact.

The results of the BCBS's latest quantitative impact study, although based on incomplete information, indicate that institutions that can use the IRB approach to determining capital and that have primarily a retail portfolio may see their minimum capital requirements reduced significantly.[4] Retail lending, particularly residential mortgage lending, is the fundamental business of ACB's community bank members. As a result, we are concerned that smaller institutions that do not possess the resources necessary to develop an IRB system for assessing capital, or do not have business models that would make the costs associated with such a system reasonable in relation to expected benefits, will be left at a competitive disadvantage. Many community banks will end up holding capital under the current capital requirements that is higher than that of more risky institutions.

The large majority of financial institutions in the United States will be at a competitive disadvantage to the extent that they cannot deploy capital as efficiently as larger, more sophisticated institutions. Capital is a fundamental financial metric that all companies actively measure and manage in order to improve earnings and competitive position. There are few, if any, transactions in which a bank does not consider the impact on capital. Smaller institutions could become takeover targets for institutions that can establish an IRB approach to capital, and the smaller banks that survive as stand-alone entities will find it more costly to compete for quality assets, leaving them with riskier assets, lower credit ratings and higher costs of funding. Or, they may be forced to operate with less capital in order to provide more competitive pricing.

Competitive implications also can result from the different ways in which the New Accord is implemented in different countries. Although the level of detail in the third Consultative Paper has been reduced from prior versions, more decisions about implementation have been left to bank supervisors. Bank supervision varies significantly from one country to another in approach, intrusiveness, and quality. The manner in which the New Accord is implemented and enforced against institutions in one country, and the manner in which cross-border issues are addressed, can provide a competitive advantage or disadvantage to organizations in another country that might face more lenient or stricter application of the New Accord's provisions. This is of particular concern to ACB's members who compete against the U.S. mortgage subsidiaries of foreign banks.

The competitive effects are exacerbated by the "all or nothing" approach to U.S. implementation of the New Accord. Institutions opting in to the New Accord not only must implement the complex and expensive IRB approach as opposed to simpler alternatives, but also must do so across all asset classes in order to realize even the most obvious benefits of the New Accord. Also, if an institution cannot meet the significant burden of adopting both the IRB approach to calculating credit risk and the AMA to measuring operational risk, there is no ability at all to align capital more closely with balance sheet risk and, therefore, compete more effectively with core

[4] Basel Committee on Banking Supervision, *Quantitative Impact Study 3 - Overview of Global Results* (May 5, 2003).

banks. This approach not only effectively precludes all but the largest institutions from the more risk-sensitive treatment, but also introduces a bifurcated approach to regulatory capital that has the potential to significantly impact the competitiveness of smaller institutions. Institutions that have the resources to develop an IRB system and collect the necessary data could benefit from lower capital requirements even though their loan portfolios may be no less risky than that of an institution that must remain on Basel I. This is not an equitable result. The mortgage loan area is a particularly good example of this point. Historical default data reflected in the white paper attached as Appendix B to this comment letter show that mortgage loans are less risky than the Basel I capital requirement would imply. Institutions subject to the New Accord could see their capital requirements for mortgage loans decrease significantly. Institutions that remain on Basel I will be subject to higher capital requirements for the same types of mortgage loans with similar levels of risk.

The agencies have requested information from commenters about the specific competitive effects of the New Accord. It is difficult for any one institution or trade association to have the information necessary to provide detailed comments about the effects due to lack of information about the portfolios of core banks and lack of understanding of how this complex proposal applies to any specific institution. ACB believes it is up to the agencies, who have the necessary information, expertise and resources, to review, analyze and understand the competitive implications of the proposal prior to implementation of the New Accord in the United States.

We note that the agencies are taking the position that a regulatory flexibility analysis is not required under the Regulatory Flexibility Act.[5] We strongly disagree and believe that the cases cited by the agencies in their analysis are inapplicable to this particular rulemaking. The agencies directly supervise all banks and savings associations in the United States and this proposal will surely impact in a direct fashion all of those institutions either by requiring that they comply with the New Accord, giving them the option of opting in, or requiring that they continue to comply with current capital requirements. Furthermore, the Small Business Administration has said that even in cases where the impact on small businesses would be indirect, it is good public policy for the agency to perform the regulatory flexibility analysis.[6]

We believe that any review of the competitive effects should consider alternative approaches to the proposed U.S. implementation of the New Accord. Different options are discussed later in this comment letter. They include simplifying the proposal so that the possibility of opting in is reasonably available to many more institutions and revising the current capital requirements to make them more risk-sensitive for institutions that remain under that scheme.

Implementation Issues.

Although the most recent version of the New Accord is less detailed than previous versions, it remains an extremely complex document and few industry representatives and supervisory

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[5] 68 Fed. Reg. 45946-45947.
[6] SBA Office of Advocacy, *A Guide for Government Agencies - How to Comply with the Regulatory Flexibility Act*, at 20 (May 2003).

personnel will have a good grasp of all of the provisions and intricate details. With that being the case, there is concern about how such a sophisticated and complex capital accord can be adequately implemented, supervised and enforced. Since adequate capital is so important to the global financial community, the inability to properly assess and measure compliance with capital requirements can lead to significant safety and soundness issues.

Implementation concerns initially lie at the financial institution level. Institutions will have to hire and retain the necessary expertise to implement the New Accord throughout the organization. These experts will have to explain to the institution's management in an understandable way the models used by the institution, how those models comply with the requirements of the New Accord, and the impact on the institution from changes in the model. The public markets recently have been harmed by companies that employed sophisticated and opaque financial instruments and accounting principles that could not be understood by a company's board, management or investors. Recent corporate governance initiatives have emphasized the importance of proper board supervision over a company's operations. It is hard to see how an average board member will be able to understand and monitor a financial institution's compliance with the New Accord. Many board members may be reluctant to acknowledge their lack of understanding and may not be in a position to raise relevant and necessary questions. This will leave the institution's compliance with the New Accord to the few people at an institution who completely understand all of its technical details and the models used by the institution. These people, however, will probably not fully understand the dynamics of each business unit and could easily miss important, subtle distinctions or developments that could have a dramatic impact on real-world risk at the bank.

The other major implementation issue is the cost of compliance. Experts have estimated that it could cost $100 million or more for large, internationally active banks to establish the necessary infrastructure to comply with the advanced IRB approach. Even if some of this cost would otherwise be incurred to improve risk management practices, this is still a huge sum and does not include ongoing maintenance requirements. While the costs at smaller institutions would be less, they would still be substantial and would eliminate the possibility for smaller institutions to opt in to the framework. With that goes the opportunity to provide incentives for smaller financial institutions to continue to improve their risk management systems.

The other major implementation concern is at the supervisory level. All agencies will have to expend substantial resources to ensure that they have the necessary expertise and systems to administer and enforce the New Accord, even if it will apply to only a handful of their supervised institutions. To the extent that funds are not available to do so, or the necessary expertise is not available, capital requirements will not be administered properly, creating significant safety and soundness concerns. Even if banking supervisors can administer the complex rules, the effort to do so adequately could divert resources from other areas of emerging risks that should receive more attention. This is specifically a concern with regard to foreign bank supervisors, many of whom supervise U.S. subsidiaries of foreign banks that compete with ACB members in the United States.

In light of these concerns, more examination needs to be made into the real-world consequences of adopting an extremely complicated capital regime, including the resources needed for implementation, the problems inherent in on-going maintenance, the improbability of effective regulation and market oversight, and the competitive pressures that could encourage banks to game the system. In reviewing implementation issues, ACB would like the agencies to also address the ability of smaller institutions to use third party vendors, consortiums or other joint approaches in meeting the conditions for opting in to the New Accord. After the New Accord is implemented, whether in its present form or a more simplified version, it is likely that products and services will be offered to assist institutions in obtaining the necessary data and establishing the necessary infrastructure to develop an IRB approach under the New Accord. Institutions may be able to pool data and share costs through joint project development, group negotiation with IT vendors, centralized scorecard building, centralized model building, generic process development and other joint efforts. The agencies should allow institutions that cannot absorb initial and maintenance costs on their own to utilize other methods for developing acceptable IRB systems.

Alternative approaches that do not represent such a radical departure from the existing regulatory capital framework should also be considered to deal with the implementation issues. Supervisors can get a substantial amount of the benefits expected from the New Accord's approach with a much lower level of complexity.

Alternative Proposal.

For all of the reasons discussed above, ACB believes that the agencies should consider alternative approaches to implementing the New Accord in its present form. While there may be problems with the current capital requirements, it seems that those problems could be resolved in a way that is easier and less costly to implement and exposes a greater number of institutions to more risk-sensitive capital requirements. As Federal Reserve Board Vice Chairman Ferguson has said in testimony before Congress, "The capital requirements should be a function of risk taken, and, under Basel II, if two banks had very similar loans, they both should have a very similar required capital charge."[7] Vice Chairman Ferguson went on to say, "[B]anks with lower risk profiles, *as a matter of sound public policy*, should have lower capital than banks with higher risk profiles."[8] (emphasis added) We agree with Vice Chairman Ferguson and believe the proposal for implementation of the New Accord in the United States is inconsistent with his statement. Although some smaller institutions may choose to have capital levels higher than required by regulation, that is a choice that is made and should not be used to justify leaving in place higher capital requirements on these institutions for the same types of lending engaged in by core and opt-in banks. Allowing more institutions to benefit from more risk-sensitive capital requirements will increase the safety and soundness of the banking system by providing incentives to a greater number of institutions to improve their risk management systems.

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[7] *A Review of the New Basel Capital Accord: Hearings Before the Senate Committee on Banking, Housing, and Urban Affairs*, June 18, 2003 (statement of Roger W. Ferguson, Jr., Vice Chairman, Board of Governors of the Federal Reserve System, at 12).

[8] Id. at 18.

Prior to adopting any approach, however, the agencies should agree on the desired purpose of revised capital requirements. If it is to link capital more closely to balance sheet risk, then the approach should be developed with that principle in mind and implemented without regard to whether the result is an increase or decrease in capital for any particular institution. If the purpose is to encourage institutions to improve their risk management systems and give them a reward for doing so, that opportunity should reasonably be available to all institutions. If however, the agencies believe that larger, more risky institutions do not have adequate risk management processes in place in light of their size and complexity, then that should be handled as a supervisory matter and addressed separately from the adoption of more risk-sensitive capital requirements. Using capital requirements as an incentive for banks to establish IRB systems may not make sense. If an IRB system showed that operations were more risky and, in fact, more capital was needed, the institution that expended substantial resources to develop the system may be tempted to tweak the system to get a different result. If the IRB system showed that substantially less capital is required, this may not be acceptable to some agencies, a position already reflected in the adoption of capital floors in the New Accord during the first two years of implementation.

One alternative approach to the New Accord would be to revise the current accord to make it more risk-sensitive for all institutions, and then add more complexity to capture any additional risk at internationally active banks. A revised accord could include more baskets and a breakdown of particular assets into multiple baskets when taking into consideration collateral values (which can be obtained by third party appraisal services or published listings), loan-to-value ratios and credit scores. Credit mitigation measures, such as mortgage insurance and guarantees, could be incorporated into the framework and other revisions could be made to further refine current capital requirements. One example of how assets could be treated under a more refined Basel I is set forth in Appendix A. This example is provided merely to open up the dialogue on different approaches as any effort to refine Basel I for all institutions should be a collaborative effort between banking supervisors and the banking industry.

Another option is to give more U.S. financial institutions the proper incentives to continue to improve risk management practices. This could be done by allowing U.S. banks and savings associations to adopt the standardized approach in the New Accord. Of course, some of the problems with the standardized approach, including the operational risk charge, would have to be resolved. Also, the conditions for opting in to an IRB approach could be made less burdensome and the IRB approach could be simplified to make it a more viable prospect for smaller institutions. Moving operational risk to Pillar II, as suggested later in this letter, also would help. Even many of our smaller members would like the opportunity to improve their risk management practices to such a degree that they can use their own internal assessment of risk to determine adequate capital levels.

Pillar I – Minimum Capital Requirements.

Residential Mortgage Loans. The New Accord will contain a minimum LGD value of ten percent for residential mortgage exposures. The agencies believe that LGDs during periods of high default rates are unlikely to fall below this level if measured appropriately. LGD for

mortgage loans will differ based on lien status, prime versus subprime loans, delinquency status, borrower credit score, loan-to-value ratios at inception and at time of default, and the existence of private mortgage insurance. Many factors create LGD values much lower than ten percent for specific residential mortgage loan portfolios. Over the course of a mortgage loan, principal amortization has historically exceeded any depreciation in value, resulting in lower loan-to-values ratios as time goes on. Since loan-to-value ratios usually are set initially at 80 percent, only a significant decrease in value would generate any losses at the time of default. In cases where the loan-to-value is higher, usually private mortgage insurance is available to reduce any increased risk. Accordingly, ACB does not believe that the proposed ten percent LGD floor is warranted.

Asset correlation factors provide a measure of the extent to which changes in the economic value of separate exposures are presumed to move together as a result of economic events such as changes in interest rates, housing prices or recession. The asset correlation factor is central to calculating capital requirements and risk-weighted assets under the New Accord. The asset correlation factor for all residential mortgages, including home equity loans and lines of credit, has been fixed at 15 percent, regardless of the PD measure. This approach reflects the agencies' view that the performance of residential mortgages is influenced by broader trends in the housing market for borrowers of all credit qualities. The assumed asset correlation also reflects the higher average maturity associated with residential mortgages and is higher than would likely be the case if a specific maturity adjustment were also included in the framework. This 15 percent is above industry practice and is higher than what is applied to credit cards and other retail loans. Also, since the maturity for home equity loans and lines of credit is usually shorter than that for first lien mortgages, the asset correlation factor of 15 percent appears to be particularly high for those loans and lines of credit. In fact, the capital requirement for a high loan-to-value second mortgage could be greater than it is for an unsecured credit card loan to the same borrower. We suggest that the 15 percent asset correlation factor be reduced to 10 percent for residential first lien mortgages and that a separate risk weight curve be established for home equity loans and lines. As an alternative, home equity loans and lines could be moved to the "other retail" category.

ADC Exposures. ADC loans for single-family housing are included in the high volatility commercial real estate category, even though historical default rates on those loans are well-below commercial real estate averages and are more similar to the default rates associated with other residential mortgage loans. A June 2003 white paper issued by the Federal Reserve Board analyzed the loss characteristics of commercial real estate loan portfolios of U.S. financial institutions and noted that some key features of single-family construction loans could be positive factors resulting in lower capital requirements.[9] We recommend that ADC loans for one-to-four family residential construction be included in the low asset correlation category.

Expected Loss. The New Accord should not require that capital be held against expected losses. This approach is contrary to industry practice. Expected losses for assets are covered in the pricing of loan products and loan provisioning. The BCBS recently proposed a revision to the

[9] Board of Governors of the Federal Reserve System, *Loss Characteristics of CRE Loan Portfolios,* at 42 (June 2003).

New Accord that changes the treatment of expected losses.[10] Under the new proposal, which is subject to public comment, the IRB capital requirement would be based solely on unexpected losses. However, banks would have to compare the IRB measurement of expected losses with the total amount of loan provisioning, both general and specific. If expected losses exceeded the total provision, a shortfall would result and need to be deducted from capital, with 50 percent deducted from tier one capital and 50 percent deducted from tier two capital. If total provisions exceeded expected losses, the excess could be added to Tier two capital up to a maximum of 20 percent of tier two capital.

While the proposal marks an improvement over the previous approach, the treatment of shortages does not deal with the fact that expected losses on retail products are often covered in the pricing and the changes to the measurement of capital to reflect differences between expected losses and provisions appear to be arbitrary. In addition, the proposal will be problematic in the United States until the accounting issue related to loan loss reserves is resolved. We note that the industry and the banking regulators have opposed the proposal on loan loss reserves recently issued by the American Institute of Certified Public Accountants. That proposal would reduce the amount of allowable reserves.[11]

Operational Risk. ACB opposes a separate operational risk charge under Pillar I. Although the AMA has been refined to provide financial institutions more flexibility in determining the charge, it is inappropriate to impose a regulatory capital charge against a risk that cannot be measured or even defined in a manner acceptable to everyone. Also, it is uniformly agreed that there currently is not sufficient empirical data to measure past operational losses and the establishment of systems to capture and analyze such data is still in the formative stages. The requirement that core and opt-in banks meet the requirements of both the IRB and AMA approach at the same time creates significant obstacles for smaller institutions that would like to benefit from more risk-sensitive capital requirements. We also disagree with the limitations on the use of risk mitigating devices, including risk transfer through insurance.

ACB thinks that the better approach is to include operational risk in Pillar II and give supervisors the ability to determine the appropriate level of capital for each institution. Supervisory pressure can still act as a strong incentive for banks to continue to develop approaches to operational risk management and to ensure that banks are holding sufficient capital buffers for this risk.

Leverage Ratio. We agree with the agencies that U.S. banking institutions should continue to be subject to a leverage ratio requirement, whether that requirement stays the same or is reduced for institutions that are well or adequately capitalized under prompt correction action regulations. Because internal ratings-based systems are not always precise and there are no satisfactory methods in place to adequately measure operational risk, sole reliance should not be placed on the results of economic capital calculations for purposes of computing minimum

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[10] See *Basel II: Significant Progress on Major Issues*, issued by the BCBS on October 11, 2003 and available at www.bis.org/press/p031011.htm.

[11] See *Proposed Statement of Position: Allowance for Credit Losses*, issued by the AICPA on June 19, 2003, and available at www.aicpa.org/download/acctstd/2003_06_19_%20ED_SOP.pdf.

regulatory capital requirements. A leverage ratio requirement will help ensure that there is a base level of capital available in the event of a crisis.

Pillar III - Disclosure Requirements.

ACB appreciates that the disclosures requirements have been scaled back in the New Accord, particularly those relating to the IRB approach and securitization. We believe that further refinements should be made to the required disclosures to ensure that the requirements provide information useful and understandable to members of the public who will not know the technical details of the New Accord. Disclosure of large quantities of information is not the same thing as transparency. As Federal Reserve Board Chairman Alan Greenspan has pointed out, "Transparency challenges market participants not only to provide information, but also to place that information in a context that makes it meaningful."[12] We would suggest that a less prescriptive, more principles-based approach be used to establish disclosure requirements.

The agencies should work closely with securities and accounting professionals and groups to make sure required disclosures are consistent with accounting principles and securities rules and regulations and do not unduly burden public companies. For example, the Securities and Exchange Commission (SEC) recently passed a regulation governing the use of non-GAAP financial measures.[13] It would place a significant burden on SEC reporting companies if any of the required capital-related disclosures were considered non-GAAP numbers under this regulation. Also, there should be some mechanism in place for revising the disclosure requirements to accommodate future advances in and changes to accounting principles and securities rules and regulations.

The ANPR also indicates that banking organizations would be required to publish material information about significant events as soon as practicable rather than on a quarterly basis.[14] As you know, the SEC requires public companies to disclose certain information on a current basis and has specific rules detailing the types of information that must be disclosed and the timing of the disclosure.[15] With such a complex regulatory capital framework, it would not always be clear what is meant by "significant event," and the agencies give no indication of how this information should be disclosed or the timing of the disclosure. We think the agencies should leave it to the SEC to determine what information needs to be disclosed on a current basis. The SEC currently is in the process of revising its regulations in this area.[16]

If the agencies decide to go ahead and mandate current disclosure for the first time, the proposed rule that follows this ANPR should contain more information about the agencies' expectations in

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[12] Remarks by Federal Reserve Board Chairman Alan Greenspan on Corporate Governance at the 2003 Conference on Bank Structure and Competition at the Federal Reserve Bank of Chicago, May 8, 2003.
[13] Conditions for Use of Non-GAAP Financial Measures, 68 Fed. Reg. 4820 (Jan. 30, 2003).
[14] 68 Fed. Reg. 45944.
[15] 17 CFR 249.308 (Form 8-K).
[16] Additional Form 8-K Disclosure Requirements and Acceleration of Filing Date, 67 Fed. Reg. 42913 (June 25, 2002).

this area. Also, if there is to be a current disclosure requirement, that same requirement should apply to all institutions subject to the New Accord, whether they are in the United States or based in other countries. Otherwise, institutions not subject to the current disclosure requirement could have a competitive advantage and their information would not be as transparent to market participants.

ACB is also concerned about the disparate treatment that might occur in the public markets between public companies that are core banks and public companies that remain subject to the current capital requirements. A number of smaller publicly traded institutions operate under the same rigorous market demands as their global counterparts. These institutions may well face negative market reaction to a perceived lack of transparency, despite the fact that they are well run, well managed and serve their shareholders' interests well. Also, investors and analysts may look unfavorably at the institutions that fail to establish the risk management systems required for core banks, regardless of whether the institution is any more risky or needs such sophisticated and costly systems. In fact, most of our members have relatively simple business plans compared to the internationally active banks. These institutions may end up with higher costs for capital or may very well have to incur the significant costs of opting in even though it may not be reasonable to do so.

Conclusion

Although ACB agrees with the approach of the New Accord in trying to more closely link minimum capital requirements with an institution's risk profile, we remain very concerned about the competitive impact and the cost and complexity of the New Accord. In light of these concerns, we believe that the agencies should consider alternative approaches that would simplify the proposal and allow a greater number of financial institutions to adopt more risk-sensitive capital requirements.

ACB stands ready to work with the regulators in developing a simplified proposal and additional options for more risk sensitive capital requirements for all U.S. financial institutions. If you would like to discuss our suggestions for an alternative approach or if you have any questions about our comments, please contact the undersigned at (202) 857-5088 or via e-mail at rdavis@acbankers.org, Charlotte Bahin at (202) 857-3121 or via e-mail at cbahin@acbankers.org, or Diane Koonjy at (202) 857-3144 or via e-mail at dkoonjy@acbankers.org.

Sincerely,

Robert R. Davis
Executive Vice President and
Managing Director, Government Relations

attachments

Appendix A - November 3, 2003, ACB letter on Risk-Based Capital Guidelines; Implementation of New Basel Capital Accord

RISK-BASED CAPITAL
PROPOSED FORMULA

0% Risk Weight Category

Cash on Hand
U.S. Treasuries
* **Interest-Earning Deposits (CD's) ≤ $100,000**

20% Risk Weight Category

Cash Items
Correspondent Banks
Fed Funds Sold
FHLB Stock
General Obligation Municipal Investments
Loans Secured By Deposits
Money Market Fund Investments
Municipal Loans
U.S. Agencies
U.S. Agency-Issued MBS's
* **Interest-Earning Deposits (CD's) > $100,000**
* **1-4 Family First Mortgages with LTV Ratio ≤ 60%**
* **HE Loans & HELOC's (including 1st Mtg) with LTV Ratio ≤ 60%**
* **Commercial Mortgages with LTV Ratio ≤ 20%**
* **Consumer Loans with LTV Ratio ≤ 25%**
* **Bank Land & Premises - 50% of Appraisal Value**

40% Risk Weight Category

* **1-4 Family First Mortgages with LTV Ratio > 60% and ≤ 75%**
* **HE Loans & HELOC's (including 1st Mtg) with LTV Ratio > 60% and ≤ 75%**
* **Commercial Mortgages with LTV Ratio ≤ 40%**

50% Risk Weight Category

Other Qualifying Junior Liens
Private-Issue MBS's
Qualifying Construction Loans
Revenue Bond Municipal Investments
* **1-4 Family First Mortgages with LTV Ratio > 75%**
* **HE Loans & HELOC's (including 1st Mtg) with LTV Ratio > 75%**
* **Commercial Mortgages with LTV Ratio ≤ 50%**
* **Consumer Loans with LTV Ratio > 25% and ≤ 60%**
* **Commercial Loans with LTV Ratio ≤ 40%**

60% Risk Weight Category

* **Commercial Mortgages with LTV Ratio ≤ 60%**

80% Risk Weight Category

* **Commercial Mortgages with LTV Ratio ≤ 80%**

100% Risk Weight Category

Allowance for Loan & Lease Losses
Corporate Bond Investments
Loans Past Due 90+ Days
All Other Assets
* **Commercial Mortgages with LTV Ratio > 80%**
* **Consumer Loans with LTV Ratio > 60%**
* **Commercial Loans with LTV Ratio > 40%**
* **Bank Land & Premises - 50% of Appraisal Value**
* **Unsecured Loans**

Off-Balance Sheet Items (20% Risk Weight)

Letters of Credit (Cash Collateral)
Letters of Credit (Other Collateral)

Total Adjusted Assets

Items notated with a * (and in bold type) "proposed".

Appendix B – November 3, 2003, ACB letter on Risk-Based Capital Guidelines; Implementation of New Basel Capital Accord

Inter-bank Competitiveness, Safety, and Soundness Issues Raised by
The New Basel Capital Accord

Theodore M. Barnhill[1]

November 3, 2003

Summary:

The New Basel Capital Accord (2003) proposes to link minimum bank capital requirements more directly to risk sensitivity, and enhance the supervisory review process and market discipline. While these are entirely reasonable objectives, the specific proposals put forward leave two important issues unresolved. The first is the absence of an articulated conceptual framework(s) for measuring overall bank asset and liability portfolio risk levels and thus estimating minimum bank capital levels[2]. This critical omission means that under the proposed IRB methodology, correlated market, credit risk, and operational risk levels are likely to be misestimated. Among other things the current proposal appears to give inadequate attention to correlations between interest rate, exchange rate, commodity price, and credit risk. Admittedly these are challenging analytical problems. However, if they are not addressed, some banks are likely to be required to hold inadequate capital and other banks required to hold an excess of capital[3]. These omissions also work against the stated objective of encouraging ongoing improvements in banks' risk assessment and mitigation capabilities, which should focus on total bank risk levels and thus deal with these important correlated risk factors. Similarly, the supervisory review process will not adequately consider these important risk measurement and management issues if they are not explicitly identified and if possible quantified. Likewise it is difficult to specify the types and amounts of data required for the market to access overall bank risk levels.

Second, it appears that the advanced internal ratings-based (IRB) approach for estimating minimum capital requirements is likely to offer banks opportunities to reduce their required capital levels relative to the banks that remain subject to Basel I. This circumstance means that the minimum capital requirements for banks that opt for, or for cost reasons are forced to remain on , Basel I are likely to be significantly higher. This

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[1] Professor of Finance and Chairman Department of Finance, The George Washington University.
[2] Perhaps the proposed requirement that banks adopting the IRB methodology perform a "meaningfully conservative stress test" (CB3 paragraphs 396-399) is a step in this direction.
[3] These discrepancies in capital requirements may be particularly significant in emerging economies where the financial and economic environment is particularly volatile.
[5] Banks adopting the IRB approach will likely already have in place the systems needed to calculate the Basel I capital requirements.

prospect is troublesome and raises the risk of significant unanticipated and perhaps damaging competitive impacts between various sizes and types of financial institutions.

The following proposals are put forward:

1. Definitive research needs to be undertaken and published regarding the estimated minimum bank capital requirements for similarly risky banks under the advanced internal ratings-based approach and Basel I prior to final implementation of the new accord. This research should include a competitive impact assessment and recommendations for minimizing unintended consequences.
2. Assuming that a bifurcated regulatory capital framework is adopted, consideration should also be given to requiring all banks adopting the advanced IRB approach to report publicly their estimated capital requirements for both the IRB and Basel I methodologies.[5] This type of information could be crucial to an ongoing informed discussion regarding the competitive impacts of the New Basel Capital Accord. It would also provide important information to allow incremental modifications over time to both the IRB and Basel I to deal appropriately with potential competitive impacts.
3. Because it is unlikely that all risks of banking activities will be quantifiable with sufficient degrees of certainty, a minimum leverage requirement should be maintained, regardless of results that might be otherwise derived under the proposed Basel II framework.[6]
4. Finally careful attention needs to be given to ways to encourage the participation of smaller institutions in IRB methodologies that have the potential to improve overall bank risk measurement and management. Due to the high cost for developing such systems a pooled effort by a number of institutions to collect appropriate data, and develop or purchase appropriate analytical systems and services may be desirable.

The remainder of this note addresses topics related to modeling bank assets and liability risk levels. These topics include Portfolio Theory, Value-at-Risk Analysis, Bank Portfolio Risks, and Modeling Bank Risk Levels. The purpose of this discussion is to develop the rationale for why it is important for banks and bank regulators to develop and implement risk measurement and management methodologies that quantify overall bank risk levels.

Portfolio Theory:

Modern portfolio theory focuses on the expected return and risk of portfolios[7]. The expected return on the portfolio is simply the weighted average of the expected returns on the individual investments. The variance of the returns on a portfolio is an important measure of risk and can be expressed as follows:

$$\sigma_P^2 = \sum_{j=1}^{N} X_j^2 \sigma_j^2 + \sum_{j=1}^{N} \sum_{\substack{k=1 \\ k \neq j}}^{N} X_j X_k \rho_{ik} \sigma_j \sigma_k \qquad (1)$$

[6] These risk measurement problems stem from both modeling and data limitations.
[7] For example see Elton and Gruber (1995, part 2).

where:

σ_p = the standard deviation of the returns on the portfolio,
σ_i = the standard deviation of the returns on the i'th security,
σ_k = the standard deviation of the returns on the k'th security,
X_j = the fraction of the portfolio invested in security j,
ρ_{ik} = the correlation between the returns on the i'th and k'th security.

Thus, for specific portfolios the *correlations* between the returns on the various securities can be a very important factor in determining risk levels. The lower the correlation between the security returns the lower the portfolio risk level, other things the same. By selecting a large number of securities with correlations less than 1.0 it can be demonstrated that the risk of a portfolio can be reduced significantly. In the extreme, if all possible securities are included in the portfolio, then the variance of the returns is minimized[8]. This residual risk level, which cannot be diversified away, is often called systematic risk and is related to fluctuations in the overall economy.

Value-at-Risk Analysis:

Although periodic asset bubbles and bank failures have been around for a very long time, vulnerability to the ensuing crises in this interdependent world has increased significantly in recent years. Increased risk is manifest in highly volatile exchange rates, interest rates, inflation rates, output, commodity prices, and asset prices. Identification of these environmental risks and measurement of their volatility and correlation (mutually as well as with ordinary credit risk) is relatively novel.[9] In this regard, the *Value-at-Risk* concept represents a major innovation for improving risk measurement and management. By now, *VaR* is widely used in portfolio and financial institution risk assessment.

The *VaR* of a portfolio or a balance sheet summarizes "the worst possible loss over a target horizon with a given level of confidence."[10] Specifically, it is a numerical estimate of the potential loss over a finite period (e.g., one percent probability, or 99 percent confidence level, of losing ten million dollars in a given day). Various analytical and simulation modeling techniques are used to estimate the distribution of future portfolio values and to calculate the downside risk of the portfolio. In the most general form, the basis for calculating the *VaR* is the variance of the return on the portfolio

$$\sigma_p^2 = w' \sum w \qquad (2)$$

where w = vector of weights for the various securities in the portfolio
w' = transposed vector of weights in the portfolio

[8] For example Elton and Gruber (1995, p.62) estimate that approximately 73 percent of the risk of individual equity securities can be eliminated by holding a widely diversified portfolio of randomly selected stocks.
[9] See, for example, Smithson and Smith (1995) and Fridson, Garman, and Wu (1997).
[10] See the definition in Jorion (2001, p. 22).

Σ = variance-covariance matrix of R returns on securities in the portfolio.

Equation (2) is the essence of the *VaR* analysis; it constitutes the envelope for the volatility of, and correlation among, various risk variables. To implement *VaR* it is necessary to specify the determination of each risk variable, including the relationship among these variables over time. Depending on the specification of the risk variables, which impose varying data and calculation requirements, the *VaR* can be calculated according to either local-valuation or full-valuation methods.

The delta normal approach is the most commonly used *local-valuation method*. This consists of calculating the maximum potential loss in the portfolio over a relatively short predetermined time period, under the rather convenient assumption that all risk variables are normally distributed. Hence, from (2) we can readily calculate the entire portfolio value at risk

$$VaR_p = \alpha\sigma_p W \qquad (3)$$

where:

α = standard normal deviate (e.g., 1.65 for the 95 percent confidence level)
W = the initial portfolio value.

By its very nature, the delta normal approach is mainly appropriate for portfolios of financial institutions exposed to limited sources of risk and over a short time horizon.[11] Application of this method requires: valuation of a portfolio of assets and liabilities; decomposition of these assets and liabilities into a set of primitive securities (e.g., domestic and foreign zero-coupon bonds, equity securities, spot positions in foreign currency, commodities, etc.); and estimation of the variance and covariance of returns on these primitive securities constrained by the assumption of normal distribution.

By contrast, *full-valuation methods* are far more versatile and realistic, as they are open to a variety of specifications for risk variables. In the first place, these methods call for the simulation of potential future financial and economic environments, including all of the required stochastic variables used to value assets and liabilities, over as long a time-step as necessary.[12] Subsequently, the full portfolio is revalued in the simulated environment. After many repetitions of the simulation, a distribution of portfolio values is created and analyzed to determine the value at risk at a given confidence level. Such simulations can allow for non-normal distributions of risk variables, non-linear option-like payoffs, and time-decay effects.

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[11] For a discussion of alternative applications, see Jorion (2001), and Hull (2000). The mathematics associated with the delta normal method in assessing central bank vulnerability can be found in Blejer and Schumacher (1998).

[12] The simulation of the financial environment can be viewed as a random draw from an n-dimensional joint density function, where n is the number of jointly stochastic variables.

Therefore, by their very nature, full-valuation methods, whether in the form of historical or Monte Carlo simulations, are more accurate than local-valuation methods. Under the historical method, the variance and covariance of the risk variables are calculated on the basis of historical time series, while the Monte Carlo method incorporates analytical models that specify the manner in which variables change over time[13].

The concept of assessing portfolio risk where the returns and values of assets and liabilities are volatile and correlated with each other is central to arriving at an overall risk assessment for banks. In this regard it is important to identify the most important risks affecting bank asset and liability portfolios.

Bank Portfolio Risks:

Many financial institutions hold portfolios of commercial and industrial loans, residential mortgage loans, commercial mortgage loans, consumer loans, agricultural loans, sovereign loans, loans to other financial institutions, publicly traded bonds, equity securities, and derivative securities. They also hold portfolios of liabilities of various types. These assets and liabilities face a variety of *correlated* risks including:

- Credit,
- Interest rate
- Interest rate spread,
- Foreign exchange rate,
- Equity price,
- Real estate price,
- Commodity price, etc.

Credit risk is commonly thought to be the most important risk that many banks face. Table 1 gives average cumulative default rates for publicly traded bonds.

Table 1 – Average Cumulative Default Rates (%)[14]

Term – (yrs)	1	2	3	4	5	7	10	15
AAA	0.00	0.00	0.07	0.15	0.24	0.66	1.40	1.40
AA	0.00	0.02	0.12	0.25	0.43	0.89	1.29	1.48
A	0.06	0.16	0.27	0.44	0.67	1.12	2.17	3.00
BBB	0.18	0.44	0.72	1.27	1.78	2.99	4.34	4.70
BB	1.06	3.48	6.12	8.68	10.97	14.46	17.73	19.91
B	5.20	11.00	15.95	19.40	21.88	25.14	29.02	30.65
CCC	19.79	26.92	31.63	35.97	40.15	42.64	45.10	45.10

[13] See Barnhill and Kopits (2003) for an application of such a value at risk simulation risk analysis applied to government default risk.

[14] Source: S&P Credit Week, April 15, 1996, and Hull (2000, p. 627)

It is widely believed that economic (GDP, Unemployment rates, etc.) and financial volatility drives both market and credit risk. This suggests that these risks vary over time, sector (e.g. agriculture, energy, etc.) and location (e.g., country or region) and are correlated with one another.

Table 2 gives a time-series of default rates on below investment grade bonds.

Table 2 – Historical Default Rates on High Yield Bonds[15,16]

year	Default Rate
1978	1.33%
1979	0.19%
1980	1.50%
1981	0.16%
1982	3.19%
1983	1.09%
1984	0.84%
1985	1.71%
1986	3.50%
1987	5.78%
1988	2.66%
1989	4.29%
1990	10.14%
1991	10.27%
1992	3.40%
1993	1.11%
1994	1.45%
1995	1.90%
1996	1.23%
1997	1.25%
1998	1.60%
1999	4.15%
2000	5.07%
2001	9.80%
Arithmetic Average 1978-2001	3.23%

Many factors affect default rates on higher credit risk securities. Clearly default rates go up sharply during periods of economic recession or slow growth (early 1990's and early 2000 periods). Sector and region specific factors are also important (e.g. fluctuating energy, and agriculture prices). Firm financial structure, firm specific risk levels, investor risk aversion levels, and the ability of firms to refinance are also important factors. *To manage these risks professional bond portfolio managers routinely require*

[15] High Yield bonds are defined to be those with ratings less than BBB.
[16] Source Altman and Arman (2002, Figure 9).

broad diversification in bond holding by sector and number of firms. Regulatory and statutory limits on loans-to-one-borrower provide a similar disciple for bank lending.

In the past a number of failures have occurred in banks with concentrated lending in particular sectors and regions (e.g. energy, agriculture, commercial real estate). Portfolio concentration risk is clearly also an important risk factor for banks (See FDIC (1997)).

Financial institutions have varying loan concentrations in residential mortgages (RML), commercial mortgages (CML), credit card loans (CCL), other consumer loans (OCL), leases (L), commercial and industrial loans (CIL), and agricultural loans (AL). The default rates and returns on such loans vary by initial credit quality, sector of the economy, geographic region, and other factors. Portfolio theory would indicate that the mean, standard deviation and correlations between the default rates on these various types of loans should be important factors in determining the volatility of returns on a bank's asset and liability portfolio. Table 3 below gives very aggregated information of this type for all FDIC insured institutions.

Table 3: Summary Statistics on Seasonally Adjusted Charge-Off Rates (percent per year) on Various Types of Loans Made by all FDIC Insured Financial Institutions for the Period 1985 to 2003[17]

	Mean	Standard Deviation	Correlations						
			RML	CML	CC	OCL	L	CIL	AL
RML	0.15	0.06	1.00						
CML	0.56	0.77	0.60	1.00					
CC	4.19	1.06	-0.01	-0.27	1.00				
OCL	0.95	0.27	0.10	-0.22	0.79	1.00			
L	0.52	0.29	0.45	0.25	0.20	0.55	1.00		
CIL	0.93	0.53	0.55	0.41	0.17	0.54	0.85	1.00	
AL	0.76	1.09	0.58	0.08	-0.41	-0.19	0.40	0.31	1.00

The mean annualized charge-off rates on bank loans vary widely from 4.19 percent for credit card loans, 0.93 percent for commercial and industrial loans, 0.56 percent for commercial mortgage loans and to 0.15 percent for residential mortgage loans. Likewise the volatilities of the charge-off rates vary substantially from 1.09 percent for agricultural loans, and 1.06 percent for credit card loans to 0.06 percent for residential mortgage loans. In addition, the correlations between the default rates also vary substantially. This information suggests that diversified portfolios of residential mortgage loans would likely have low credit risk levels relative to the other major types of loans considered.

Table 4 illustrates that overall loan portfolio charge-off rates for FDIC institutions also vary significantly by region year to year.

[17] The data source for this table is http://www.federalreserve.gov/releases/chargeoff/

Table 4 – Net Charge-Off Rates for All FDIC Insured Institutions by Geographic Region[18]

Year	New York	Atlanta	Chicago	Kansas City	Dallas	San Francisco
2003	1.45	0.71	0.77	1.19	0.43	0.81
2002	1.02	0.75	0.79	0.8	0.43	0.81
1999	0.67	0.45	0.34	0.7	0.4	0.63
1997	0.64	0.48	0.45	0.75	0.38	0.64

From a portfolio theory/value-at-risk perspective, the types of variables shown in Tables 1 through 4 - estimated in greater detail for loan types, various initial credit qualities, sectors, and regions - would be expected to be important for determining the minimum amount of capital a bank should hold to protect against failure. However, clearly the development of appropriate data sets to undertake this type of analysis is a significant and costly effort, which smaller institutions may find difficult to fund individually.

Modeling Bank Risk Levels:

The current practice is to undertake market and credit risk assessments separately.[19] Combining such separate risk measures into one overall portfolio risk measure is not easily accomplished. The absence of reliable overall portfolio risk measures creates significant problems for determining bank capital adequacy requirements.[20]

A few authors have focused on the topic of integrated market and credit risk. Jarrow and Turnbull (2002) address certain theoretical issues. Iscoe, Kreinin and Rosen (1999), and Bucay and Rosen (1999), and Walder (2002) address the issue of integrated market and

[18] The data source for this table is http://www2.fdic.gov/qbp/qbpSelect.asp?menuItem=QBP

[19] For example commonly used software packages such as CreditMetrics (JP Morgan (1997)), KMV (Kealhofer (1995)), CreditRisk+ (Credit Suisse Financial Products (1997)), and Credit Portfolio View (Wilson (1997a and 1997b)) focus on portfolio credit risk. A major shortfall of these software packages is that they assume constant interest rates and spreads.

[20] For example at a May 4, 2000 Conference on Bank Structure and Competition at the Federal Reserve Bank of Chicago Alan Greenspan noted that "…the present practice of modeling market risk separately from credit risk, a simplification made for expediency, is certainly questionable in times of extraordinary market stress. Under extreme conditions, discontinuous jumps in market valuations raise the specter of insolvency, and market risk becomes indistinct from credit risk."

credit risk in bond portfolios using various model formulations. Walder in particular models default risk using an intensity based approach suggested by Algorithmics.[21]

Barnhill and Maxwell (2000) develop a *Portfolio Simulation Approach* (PSA) methodology for assessing the value-at-risk (VaR) of a portfolio of fixed income securities with correlated interest rate, interest rate spread, exchange rate, and credit risk. In this approach credit risk is modeled in the contingent claim framework proposed by Merton (1974). Barnhill, Papapanagiotou, and Schumacher (2003) extend the portfolio simulation approach to undertake financial institution asset and liability risk assessments for South African banks, and Barnhill, Papapanagiotou, and Souto (2003) use the same methodology to estimate potential losses associated with banking default in the Japanese financial system. Barnhill and Gleason (2002), and Barnhill and Handorf (2002) apply the PSA and compare simulated capital requirements to those required under the proposed new Basel Capital accord. These studies have demonstrated that with appropriate calibration the PSA model produces:

1. a simulated economic and financial environment that matches closely the assumed parameters for the environmental variables;
2. simulated credit transition probabilities similar to reported historical transition probabilities in both the U.S. and Brazil[22];
3. simulated prices of bonds with credit risk close to observed market prices;
4. simulated value at risk measures for bond portfolios very similar to historical value at risk measures; and
5. estimates of required bank capital that are comparable to or lower than the Basel standardized methodology requirements for banks operating in less volatile economies, and comparable to higher than Basel requirements for banks operating in more volatile economies.

In the PSA approach both the future financial environment in which the assets will be valued and the credit rating of specific loans are simulated. The financial environment can be represented by any number of correlated random variables. The correlated evolution of the market value of a business firm's equity, its debt ratio, and credit rating are then simulated in the context of the simulated financial environment. For mortgage loans the correlated market value of a real estate property, the property's loan to value ratio, and potential default are also simulated. Portfolios of loans to individuals can also be modeled where the loss rates are a function of correlated variables such as regional unemployment rates. The structure of the methodology is to select a time step over which the stochastic variables are allowed to fluctuate in a correlated random process. For each simulation run, a new financial environment (correlated interest rate term structures, FX rate, market equity returns, and regional real estate index returns, unemployment rates, etc) as well as firm specific and property specific debt ratios, credit rating, and default recovery rates are created. This information allows the correlated values of financial assets (including direct equity and real estate investments) to be estimated, and after a large number of simulations, a distribution of bank capital ratios is

[21] See www.algorithmics.com.
[22] See Barnhill, Savickas, Souto, and Tabak (2003).

generated and analyzed. This type analysis allows a direct estimation of the amount of capital required to protect a bank against failure at a given confidence level (e.g. 99%) over a given time-step (e.g. one year).

The above studies by Barnhill, et.al. find that the credit quality of a bank's loan portfolio is the most important risk factor. They also show the risk reduction benefits of diversifying the loan portfolio across various types of loans in various sectors and regions of the economy. The importance of accounting for the volatility of the financial and economic environment in which the bank operates is also demonstrated. Banks with high credit risk and concentrated portfolios are shown to have a higher risk of failure during periods of financial stress. Alternatively, banks with lower credit risk and broadly diversified loan portfolios across loan types, sectors, and regions are unlikely to fail even during very volatile periods. Asset and liability maturity mismatches are also generally shown to increase bank risk levels.

These types of models have the advantage of producing an overall bank risk assessment which accounts for many of the variables which portfolio and value-at-risk theory indicate are likely to be very important. At a minimum they have the potential to provide meaningful bank failure stress tests that the IRB methods require. However, they also require substantial data and time to calibrate for particular types of institutions and markets. For example, institutions are required to develop substantial data on the credit qualities, sector and region concentrations, currency, and maturity structure of their loan portfolios. They also need to develop significant data on the financial condition of their borrowers such as debt to value ratios, equity return volatilities, and real estate price volatilities. These considerations suggest that joint efforts by groups of smaller institutions may be useful to develop the most appropriate data bases and reduce the cost of such modeling efforts to an acceptable level for each institution.

If such a pooling of resources and data can be accomplished, smaller institutions may find it possible to utilize the IRB methodologies for calculating minimum capital requirements and also benefit from better overall risk asset and liability portfolio risk measurement and management. Such an outcome could have the additional potential benefit of minimizing any unintended competitive impacts of the New Basel Capital Accord.

Regardless of the techniques and procedures that might be deployed, more advanced risk assessment and capital allotment models will remain subject to error because of data and modeling errors. Therefore, a regulatory minimum leverage requirement is likely to remain necessary, even as modeling improves. Equally important, the risks of damaging the competitive structure of the banking system in the United States by an inappropriately bifurcated capital requirement are both very significant and likely under the current implementation proposals. Every effort must be made to ensure that banks representing equivalent risks are required to hold equivalent capital.

Bibliography:

Altman, Edward I., and Pablo Arman, "Defaults and Returns on High Yield Bonds: analysis through 2001," working paper, New York University Solomon Center (January 2000).

Barnhill, T., Gleason K., 2002. "The New Basel Capital Accord: The Crucial Importance of a Conceptual Framework", Working Paper, The George Washington University, GMRWPS 02-11.

Barnhill, T. and G. Kopits, 2003. "Assessing Fiscal Sustainability under Uncertainty", IMF Working Paper 03-791.

Barnhill, Theodore M. Jr., Robert Savickas, Marcos Rietti Souto, Benjamin Tabak, 2003, "Banking Sector Systemic Risk Analysis: An Application to Brazil", The George Washington University.

Barnhill, Theodore M. Jr., Panagiotis Papapanagiotou, and Marcos Souto. "Preemptive Strategies for the Assessment and Management of Financial System Risk Levels: an Application to Japan with Implications for Emerging Economies". Presented at an Inter-American Development Bank conference in June 2001. Forthcoming in *Review of Pacific Basin Financial Markets and Policies* (December, 2003).

Barnhill, Theodore M. Jr. and Mircea Petrescu, 2003. "Valuation of Bonds and Options on Bonds Facing Correlated Interest Rate and Credit Risk*", Journal of Bond Trading &€ Management,* 1 (3) 223-238.

Barnhill, T., Handorf W., 2002. "Latin American Credit Ratings, the New Basel Capital Accord and Portfolio Risk", *Economia Aplicada* 6 (3), July-September, 445-462.

Barnhill, Theodore M. Jr., Panagiotis Papapanagiotou, and Liliana Schumacher "Measuring Integrated Market and Credit Risk In Bank Portfolios: An Application to a Set of Hypothetical Banks Operating in South Africa", *IMF Working Paper, December € 2000.* Received the 2001 Milken Institute Award for research excellence in the area of global studies. *Journal of Financial Markets, Institutions and Instruments*, Vol. 11, No. 5, December, (2002), 401-443.

Barnhill, Theodore M. Jr., and William F. Maxwell "Modeling Correlated Market and Credit Risk in Fixed Income Portfolios", *Journal of Banking and Finance*, 26 (2002)

Blejer, M., and L. Schumacher, 1999, "Central Bank Vulnerability and the Credibility of its Commitments: a VaR Approach," *Journal of Risk*, Vol. 2 (Fall), pp. 37-55.

Bucay, Nisso, Dan Rosen, 1999, "Credit Risk of an International Bond Portfolio: A case Study", Algo Research Quarterly 2, 9-29.

Credit Suisse Financial Products, 1997, "CreditRisk+: A credit Risk Management Framework", Credit Suisse Financial Product, London.

Elton, Edwin J. and Martin J. Gruber, 1995, *Modern Portfolio Theory and Investment Analysis*, Fifth Edition, John Wiley & Sons, Inc.

FDIC, History of the Eighties-Lessons for the Future. Volume I: An Examination of the Banking Crises of the 1980s and Early 1990s. December 1997.

Fridson, M., C. Garman, and S. Wu, 1997, "Real Interest Rates and Default Rates on High-Yield Bonds," *Journal of Fixed Income* (September), pp. 27-34.

Iscoe, Ian, Alex Rosen, Dan Rosen, 1999, "An integrated Market and Credit Risk Portfolio Model", Algo Research Quarterly 2, 21-38.

J.P. Morgan, 1997, "CreditMetrics", Technical document.

Jarrow, Robert, Stuart Turnbull, 2000, "The Intersection of Market and Credit Risk", *The Journal of Banking and Finance,* 24, 271-299.

Jorion, P., 2001, *Value at Risk: The New Benchmark for Managing Risk* (New York, McGraw-Hill)

Kealhofer, Stephen, 1995, "Managing Default Risk in Derivative Portfolios", in *Derivative Credit Risk: Advances in Measurement and Management*, Risk Books, London.

Merton, Robert, 1974, "On the Pricing of Corporate Debt: the Risk Structure of Interest Rates", *The Journal of Finance* 29, 449-469.

Smithson, C., and C. Smith, 1995, *Managing Financial Risk: A Guide to Derivative Products, Financial Engineering, and Value Maximization* (Burr Ridge, Irwin)

Walper, Roger, (2002), "Integrated Market and Credit Risk Management of Fixed Income Portfolios", Working Paper.

Wilson, Thomas, 1997a "Portfolio Credit Risk, Part I", *Risk*, September, 111-117.

Wilson, Thomas, 1997b "Portfolio Credit Risk, Part II", *Risk*, October, 56-61.