DATE: July 11, 2003

MEMORANDUM TO: Board of Directors

FROM: Michael J. Zamorski, Director
Division of Supervision and Consumer Protection

SUBJECT: Advance Notice of Proposed Rulemaking Regarding *Risk-Based Capital Guidelines; Implementation of New Basel Capital Accord*

Proposal: That the Board of Directors of the Federal Deposit Insurance Corporation approve publication of the attached Advance Notice of Proposed Rulemaking regarding *Risk-Based Capital Guidelines; Implementation of New Basel Capital Accord* (ANPR) in the Federal Register for a 90 day comment period. The ANPR would be issued on an interagency basis by the FDIC, the Board of Governors of the Federal Reserve System, the Office of the Comptroller of the Currency and the Office of Thrift Supervision (together, the Agencies). The ANPR sets forth the Agencies' proposed implementation of a new framework for the calculation of minimum regulatory risk-based capital requirements that uses bank's internal estimates of risk. The ANPR seeks industry and public comment on all aspects of the proposal.

Recommendation: That the Board approve issuance of the ANPR.

Concur:

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William F. Kroener, III
General Counsel

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I. Introduction

The Board is being asked to approve for publication in the <u>Federal Register</u> the attached interagency ANPR seeking comment on pertinent aspects of the proposed New Capital Accord being developed by the Basel Committee on Banking Supervision (Basel Committee)[1]. The ANPR explains how the U.S. banking and thrift agencies (Agencies) would adopt the advanced internal ratings-based approaches to assessing credit risk capital charges and the advanced measurement approaches to assessing operational risk capital charges. These approaches would be used by a core group of large and internationally active U.S. banking institutions and selected other banks that, on an opt-in basis, are able to qualify for the framework.

FDIC staff believes that before a final determination can be reached about the desirability of adopting the proposals described in the ANPR, more analysis is needed of the potential competitive effects of the New Capital Accord, its impact on risk-based capital requirements and its effects on the supervisory process. Staff nevertheless believes the publication of the ANPR is desirable. Publication will elicit substantial comments that will assist the Agencies in formulating their final views on these proposals.

II. The New Capital Accord

The Basel Committee is proposing to update and improve the internationally recognized capital standards embodied in the 1988 Accord[2]. FDIC staff recognizes that the 1988 Accord, as applied to large and complex, internationally-active financial institutions, is in need of revision. The New Capital Accord brings a new approach to the regulatory capital framework and creates incentives for advancement in risk measurement and management processes at these institutions.

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[1] The Basel Committee is comprised of representatives of the central bank and supervisory authorities from the G-10 countries (Belgium, Canada, France, Germany, Italy, Japan, Netherlands, Sweden, Switzerland, the United Kingdom, and the United States) and Luxembourg and Spain.

[2] "International Convergence of Capital Measurement," issued in July 1988, describes the framework. The Agencies' risk-based capital standards implementing the 1988 Accord are set forth in 12 CFR part 3 (OCC), 12 CFR parts 208 and 225 (Board), 12 CFR part 325 (FDIC), and 12 CFR part 567 (OTS).

The Basel Committee identified the following goals for the New Capital Accord:

- Maintain the current overall level of capital in the banking system.
- Promote competitive equality and a level playing field for international banks.
- Take a comprehensive and more risk-sensitive approach to addressing risks in bank positions and activities.
- Focus on internationally active banks, although its underlying principles should be suitable for application to banks of varying levels of complexity and sophistication.

The Basel Committee issued its third consultative paper (CP-3) on April 30, 2003.[3] CP-3 embodies the proposed New Capital Accord. Comments on CP-3 are sought through July 31, 2003. Comments on CP-3, together with those received during the comment period on the ANPR, will be taken into account as the Agencies formulate their final views on the New Accord and determine whether to go forward with the development of a Notice of Proposed Rulemaking subsequent to the ANPR.

III.   Minimum Risk-Based Capital Requirements under the New Capital Accord

Under the New Capital Accord, capital requirements are calculated for credit risk and operational risk. As presented in CP-3, there are several methodologies to measure capital for these risks. For credit risk, there are the *Standardized* and *the Internal Ratings-Based* approaches. The *Standardized* approach resembles the traditional risk-bucketing scheme of the 1988 Accord. The *Internal Ratings-Based* approach calculates capital by entering certain key risk inputs into regulator-supplied formulas. CP-3 describes two alternatives in this regard: the Foundation methodology where supervisors provide some of the risk inputs and the *Advanced Internal Ratings Based* approach (A-IRB) where institutions provide all of the risk inputs. For operational risk, CP-3 offers

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[3]The first Basel Committee consultative document, *A New Capital Adequacy Framework*, was issued on June 3, 1999, and the second consultative document, *The New Basel Capital Accord*, was issued in January 16, 2001. The third consultative document, *The New Basel Capital Accord*, was issued April 29, 2003. All

three options: the *Basic Indicator* approach (BIA), the *Standardized* approach, and the *Advanced Measurement* approach (AMA). Under the first two methodologies, the operational risk capital requirement is set as a fixed percentage of specified gross income. Under the AMA, banks are to develop individualized measures of operational risk, subject to supervisory oversight.

Under the A-IRB approach being proposed for the U.S., an institution's internal assessments of key risk elements serve as primary inputs to the capital calculation. Generally, formulas, or risk weight functions, use the bank-estimated inputs to derive a specific capital requirement. These inputs include the probability of default (PD), the loss given default (LGD), the exposure at default (EAD) and, for certain portfolios, maturity (M). The formulas generally rely on a statistical or probability-based assessment of credit risk. Various assumptions regarding the correlation of the default behavior of assets in given categories, and maturity of assets, are included in the formulas. The total capital requirement for a bank subject to the advanced approaches includes the amount of capital driven by these A-IRB formulas, and also includes an associated amount determined for operational risk under the AMA (and, for banks subject to the market risk capital standards, a market risk capital charge).

The formulas derive an actual dollar amount for a capital requirement. Accordingly, in order to fit within the PCA framework and render capital ratios for regulatory purposes, the advanced approaches transform this direct capital requirement into a risk weighted assets equivalent. This is done by multiplying the dollar amount of the calculated capital charge by a 12.5 conversion factor – the reciprocal of the 8 percent minimum capital requirement.

Banking organizations using A-IRB must assign assets into one of three portfolios; wholesale (corporate, interbank and sovereign), retail, and equities. A

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of these documents are available through the website for the Bank for International Settlements at www.bis.org.

detailed overview of each A-IRB portfolio and examples of how to calculate capital under the advanced approaches are set forth in Exhibit A.

The explicit measurement of credit risk means that some degree of capital must be allocated for operational risk. The cushion incorporated into the 1988 Accord's broad-based 8 percent charge will no longer be available to absorb non-credit losses. Defined as the risk from inadequate or failed processes, people and systems or from external events, operational risk spans a wide range of significant risk exposures to banks. The FDIC's experience as insurer, and receiver of failed insured depository institutions, sheds light on the significance of these concerns. Many bank failures can be directly tied to fraud, and most include some failure of internal controls. Under the AMA, the regulatory capital requirement will equal the risk measure generated by the bank's internal operational risk measurement system, subject to supervisory approval.

The bank's total risk-based capital requirement is the sum of all the individual charges for credit risk and operational risk (and includes a charge for market risk should the bank be subject to the existing market risk capital rules).

IV. Supervision under the New Capital Accord

The second pillar of the New Capital Accord, supervisory review, outlines several principles highlighting the need for banks to assess their capital adequacy positions relative to risk, and the need for supervisors to review and take appropriate actions in response to those assessments such as requiring additional buffer capital given the risk profile of the institution.

Banks adopting the advanced approaches must possess the highest level and quality of internal risk measurement and management systems. Not only must A-IRB banks develop and maintain qualifying loss and default data for portfolios subject to the IRB framework, but those measurement systems must be subject to strict internal control

processes, stress testing and validation programs, independent review and oversight, and other qualitative standards.

Similar standards are required for the measurement and management of operational risk. Clearly, a capital standard is not the sole or complete solution to confront operational risks. As described in the ANPR, the advanced measurement approach for determining a capital charge for operational risk will rest heavily upon supervisory judgment. Active federal supervision, independent auditors, effective internal controls and strong bank management are obvious key components. The AMA is as much about promoting these objectives as it is about computing explicit capital charges.

The Agencies are creating, and issuing for public comment contemporaneously with this ANPR, detailed and exhaustive standards that banks must satisfy prior to implementing the advanced approaches for credit and operational risk. The first set of guidance to be issued will address wholesale exposures (corporate and industrial lending) and operational risk. These standards are specifically intended to define "stretch goals" for the U.S. banking industry and encourage them to enhance and improve risk management systems beyond the current state of the art.

V.   Disclosures under the New Capital Accord

Market discipline is a key component of the New Capital Accord. Under the third pillar, disclosure requirements are established to allow market participants to assess key information about an institution's risk profile and its associated level of capital, provide for comparability of risk elements, and at the same time allow bank management adequate flexibility. Increased disclosures, especially regarding a bank's use of the A-IRB approach for credit risk and the AMA for operational risk are intended to allow an institution's private sector stakeholders to more fully evaluate the institution's financial condition, including its capital adequacy. Greater transparency can improve shareholder and debt-holder monitoring, and harness the forces of the market to compel better risk

management procedures and controls. With enhanced transparency, private stakeholders can help to "discipline" the institution and influence its risk-taking behavior, ensuring an appropriate risk-reward balance. Failure to meet these minimum disclosure requirements, if not corrected, would render a bank ineligible to use the advanced approaches or to otherwise cause the bank to forgo any capital benefit arising from advanced approaches. The additional disclosure standards are summarized below in Exhibit B.

VI.   Domestic Implementation and Timeline

The Basel Committee has been leading an international effort to update and revise the minimum capital standards adopted in 1988. In June of 1999, the Basel Committee issued its First Consultative Paper on a New Capital Accord for internationally active banks. A Second Consultative Paper was issued in January 2001 and the Third Consultative Paper followed in April 2003. Final international adoption of a new Capital Accord has been contemplated to occur during the fourth quarter of 2003 and implementation of the new standards by banks worldwide has been proposed to commence by the end of 2006.

Domestically, the Agencies are proposing to adopt only those aspects of CP-3 that are most appropriate for use by large and internationally active U.S. banking institutions. Specifically, the ANPR proposes that the A-IRB and AMA approaches (advanced approaches) be implemented for a core group of U.S. banks. The ANPR identifies three types of U.S. banking organization: institutions subject to the A-IRB and AMA on a mandatory basis (core banks); institutions not subject to the advanced approaches on a mandatory basis, but that choose to voluntarily apply those approaches (opt-in banks); and institutions that are not subject to and do not apply the advanced approaches (general banks). Core banks would be those with total banking assets in excess of $250 billion or those with total foreign exposure in excess of $10 billion. Both core and opt-in banks would be required to comply with regulatory requirements for internal ratings systems for measuring both credit and operational risk exposure and would be subject to supervisory requirements for risk management before being able to use A-IRB and AMA for

regulatory capital calculation purposes. General banks would continue to apply the U.S. Agencies' existing risk-based capital rules. Because the current risk-based framework in the United States includes a buffer for risks not easily quantified (e.g., operational risk and concentration risk), general banks would not be subject to an additional direct charge for operational risk.

Under the new framework, all U.S. institutions would continue to calculate the numerator of the regulatory risk-based capital ratios as they do now. In other words, the elements of Tier 1, Tier 2 and Tier 3 capital would be unchanged under the proposals. Importantly, all U.S. banking organizations would continue to comply with the existing leverage ratio requirements under existing Prompt Corrective Action (PCA) legislation and implementing regulations. Specifically, to be considered well-capitalized under PCA, a bank must have at least a 10 percent total risk-based capital ratio, a 6 percent tier 1 risk-based capital ratio, and a 5 percent leverage ratio. The leverage ratio is the ratio of Tier 1 capital to average total assets. These and other PCA categories will not change.

The Basel Committee is currently targeting an effective date for the New Capital Accord of year-end 2006. Based on the Agencies' current assessment of institutions' overall readiness for the advanced approaches, it is anticipated that some core banking organizations would not be fully able or prepared by that date to operate under the A-IRB or AMA capital methodologies. All institutions would need to submit an implementation plan for approval to their primary supervisors.

Under the ANPR, bank capital levels would continue to be actively monitored during the early implementation of the advanced approaches. The ANPR would require A-IRB banks to run parallel systems during the first years of IRB implementation, calculating capital requirements under the existing 1988 Accord framework and under the new standards. Also, during this transition period, capital levels at the affected banking institutions would not be allowed to fall below 90 percent of the current minimum risk-based capital requirement in the first year, nor below 80 percent of the current minimum

requirement in the following year. Thereafter, there would be no floors on minimum risk-based capital requirements.

An institution's primary federal regulator would have responsibility for determining its readiness for an advanced approach and is ultimately responsible, after consultation with other relevant supervisors, for determining whether the institution satisfies the qualifying criteria for the A-IRB and AMA. The Agencies recognize that interagency consistency in implementing the advanced approaches will be important to ultimate success of any final standards to be implemented and they are developing a uniform set of validation standards and procedures that would promote consistency.

Table 1 summarizes selected changes to regulatory capital standards that are being discussed in the ANPR and identifies how the new proposals compare to general capital rules. As reflected in the table, no changes are presently contemplated to the risk-based capital framework of general banks. The capital standards for general banks would be updated in normal course and as the supervisory need arises.

Table 1 Comparison of Proposed Changes
Core and Opt-In Banks vs. General Banks

Regulatory Requirements	Core and Opt-In Banks	General Banks
Credit Risk Capital Charge	Internal Ratings Based Approach	Existing Standards
Explicit Operational Risk Charge by Advanced Measurement Approach	Yes	Charge is Implicit in Overall Requirement
Requires Advanced Risk Measurement Systems subject to ongoing Supervisory Qualification and Assessment	Yes	No
New Risk Management Requirements	Yes	No
Significant Infrastructure Investment	Yes	No
New Requirements: -Unused Lines<1yr -Liquidity Facilities -Early Amortization	 Yes Yes Yes	 No No No
Securitization -Residual Interests	Capital Requirement Limited to Amount of Capital Required on Underlying Assets plus Capitalized Assets	Most Positions Fully Deducted from Capital
Leverage Requirements	Yes	Yes
Qualifying Future Margin Income, and Excess Reserves[4]	Dollar for Dollar Offset Against Capital Requirements	No Dollar for Dollar Offset Against Capital Requirements
Credit Risk Mitigation	Wide Recognition of Counterparties, Insurance, and Collateral	Recognition Restricted to Banks, Cash, and Government Securities
Enhanced Disclosures	Yes	No

VII. Policy Arguments Supporting a New Capital Accord

The 1988 Capital Accord reflects the international adoption of risk-based regulatory capital standards. Under the 1988 Accord as implemented in the United States, assets and off-balance sheet items are risk-weighted based on their perceived credit risk by assigning specific asset classes to four broad "risk buckets" of either 100 percent, 50 percent, 20 percent, or 0 percent. Institutions subject to the 1988 Accord are

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[4] Excess Reserves represent the portion of general reserves that exceeds 1.25 percent of gross risk weighted assets and is less than "expected loss" as defined in Exhibit A at p. 24.

required to maintain a minimum ratio of regulatory capital-to-total risk-weighted assets of at least 8 percent. In addition to the risk-based capital requirements, all U.S. institutions must comply with minimum leverage ratio requirements of Tier 1 capital-to-average total consolidated on balance sheet assets[5] and all U.S. institutions are subject to the congressionally mandated Prompt Corrective Action (PCA) regulations.[6]

Since the 1988 Capital Accord, the business of banking, risk management practices, supervisory approaches and financial markets have undergone significant transformation. During the 1990s, as financial innovations proliferated, large and sophisticated banking organizations were able to take advantage of the rigid "bucket" approach of the 1988 Accord and structure their balance sheets so as to minimize regulatory capital charges. The bucketing approach's lack of risk sensitivity and disconnection with large bank internal practices reduced the 1988 Accord's capacity to match the industry's ability to structure transactions to parse, transfer and mitigate credit risk. For these institutions, the Accord created incentives to move high-quality assets off-balance sheet, resulting in more risk for the same measure of capital.

A regulatory capital system that incorporates the internal ratings system used by banks to assess their own economic capital should be more resilient, flexible and long-lasting. Such a framework will be more risk-sensitive and therefore should minimize regulatory arbitrage. With high qualifying standards and strong reliance on the supervisory and market discipline pillars, this approach to regulatory capital can provide proper incentives to improved risk measurement and management.

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[5] In general terms, Tier 1 capital includes common stockholder's equity, qualifying noncumulative perpetual stock (for bank holding companies it also includes limited amounts of cumulative perpetual preferred stock), and minority interests in the equity accounts of consolidated subsidiaries.
[6] Under the PCA regulations mandated by Congress, institutions are classified into categories based on their regulatory capital ratios. The minimum leverage ratio for strong institutions is 3 percent, and is 4 percent for other banks. As directed by the Federal Deposit Insurance Corporation Improvement Act of 1991, enacted at the height of the U.S. banking crisis, institutions with the highest capital ratios (i.e., at least 10 percent total risk based, at least 6 percent Tier 1 risk based, and at least 5 percent leverage) are categorized as "well-capitalized," while institutions with lower capital ratios are assigned lower capital categories. Institutions that are less than well-capitalized have restrictions or conditions on certain activities and may also be subject to mandatory or discretionary supervisory actions. These PCA requirements are unique to U.S. banks and reflect Congressional intent to reduce the cost of bank failures and reduce opportunities for bank supervisors to practice forbearance towards thinly capitalized institutions

It is beyond challenge that the advanced approaches impose lengthy, detailed and complex requirements. The qualification standards for banks required to or applying to implement A-IRB standards will add a further layer of complexity and detail. For each level of complexity, an additional increment of burden is added to the regulatory framework. In order to implement the new framework, a greater degree of complexity and associated burden is unavoidable. But there are mitigants that should be fully explored.

First, only U.S. banking institution with international activities will be required or expected to implement the New Capital Accord and its IRB framework. This small universe of mandatory banks will be kept at a minimum. It is expected that these institutions are furthest along in the development of internal systems, most capable of absorbing the costs of additional risk measurement enhancements, and most in need of a revised capital framework better suited to ascertaining the risk associated with their global scale. For other institutions, adoption is voluntary, based upon the individual bank's assessment of cost-benefit.

Second, as discussed above, the federal banking agencies are committed to reducing regulatory burden where possible. The agencies are working towards the development of regulatory standards and guidance implementing the advanced approaches that are uniform in content and application. The burden associated with the new framework is mitigated by a conformed set of rules and standards implemented uniformly by the banking agencies and mandatory only for a group of large banking organizations.

VIII.   Key Issues and Concerns

Staff believes there are three issues that could have a bearing on the desirability of implementing the New Capital Accord: (1) the impact of adopting the advanced approaches on capital levels at individual U.S. institutions and the domestic banking

industry as a whole; (2) competitive implications of a bifurcated capital framework; and (3) the uniform application of conservative and prudent validation standards for bank's internal estimates of risk.

A.   Capital Adequacy

Implementing the models-based framework set forth in the ANPR would raise a number of significant practical and conceptual issues about the role of economic capital calculations relative to regulatory capital requirements. The capital formulas described in this document, as well as the economic capital models used by banks, assume the ability to precisely assign probabilities to future credit losses and operational losses that might occur. The term "economic capital" is often used to refer to the amount of capital that should be allocated to an activity according to the results of such an exercise. For example, a bank might compute the amount of income, reserves and capital that would be needed to cover the 99.9^{th} percentile of possible credit losses associated with a given type of lending. The desired degree of certainty of covering losses is related to the bank's target credit rating. The higher the loss percentile the bank wishes to provide protection against, the less likely that capital would fall short, and the higher the credit rating.

Reliance upon these economic capital calculations alone would not be an adequate basis for U.S. capital regulation. Despite the implied precision of the A-IRB formulas, neither the range of future credit - or operational - losses on any given activity, nor the associated loss probabilities, are known. Important risks facing banks, such as liquidity risk and interest rate risk in the banking book, are not covered under the minimum regulatory risk-based capital framework described here. For any given banking activity, a market perception that there is little risk of loss can induce pricing and underwriting behaviors that, over time, create the conditions for losses to depart sharply from historical norms.

For these reasons, the PCA capital regulations will remain an essential element of any proposed new U.S. risk-based capital framework. Congress recognized the need for

well-defined and enforceable capital standards when it established Prompt Corrective Action requirements as a statutory requirement in the Federal Deposit Insurance Corporation Improvement Act. Maintaining an adequate capital cushion and having the support of enforceable minimum regulatory capital standards as reflected in the current PCA legislation and implementing regulations would be a key aspect of the proposed new framework.

Staff recognizes that a leverage ratio alone cannot provide protection without the support of sound risk-based capital rules. It will be necessary to better understand the impact of the proposals on the capital required for specific activities. Maintaining capital adequacy under Basel II would be an ongoing task. Validating banks' internal risk estimates would be a challenge. Doing so consistently across agencies would be a greater challenge, for which an interagency process would be needed.

Prior to the issuance of CP-3, the Basel Committee conducted the third in a series of quantitative impact studies of the proposed changes to the regulatory capital framework. This study, known as QIS-3, surveyed top international banks in order to judge the impact of the new framework. Evidence from QIS-3 suggested a 17 percent reduction in the credit risk-based capital requirements for the 20 large U.S. banks that were surveyed. This decrease in capital requirements was partially offset by an increase in overall capital from the new operational risk charge of 11 percent.[7]

More detail is provided in Table 2. The first column of Table 2 shows the average change in minimum capital requirements by type of exposure. The second column shows the fraction of total exposures represented by the particular exposure type. For example, minimum capital requirements for residential mortgages decreased by an

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[7]More information describing the QIS-3 results can be found on the FDIC's website at http://www.fdic.gov/deposit/deposits/international/qis3_website.pdf. The evidence from QIS-3 must be regarded with considerable caution as the risk inputs were provided on a preliminary, best estimates basis. The impact on minimum risk-based capital requirements for the various exposures would, of course, depend on the actual values of PD, LGD, EAD, and M that banks would actually use as inputs to the A-IRB formulas. The LGD and EAD assumptions will be important because of the direct proportional relationship between these inputs and the capital requirement. And, the impact on individual banks could be materially different than these overall composite results.

average of 53 percent compared to current capital rules. These mortgages on average represented 13 percent of total current risk-weighted assets.

Table 2 Overall U.S. Results – Percentage Changes to Risk-Weighted Assets

Exposure Type	Percentage of Current Risk-Weighted Assets	Percentage Change in Risk-Weighted Assets
Corporate	37%	-26%
Sovereign	2%	12%
Bank	3%	-28%
Retail: (of which)	29%	-27%
- Mortgage	13%	-53%
- Non-Mortgage (ex-SME)	8%	-25%
- Revolving	8%	16%
SME (total)	11%	-33%
Equity	2%	232%
Trading Book	7%	2%
Securitized Assets	7%	-10%
Other portfolios	3%	33%
Overall Credit Risk		-17%
Operational Risk		11%
Overall Change		-6%

The evidence from QIS-3 also suggests a wide range of changes to risk-weighted assets among the large U.S. banks. The dispersion of results is indicative not only of the different risk profiles of the surveyed institutions but also of the key role supervisory validation of risk inputs will play in determining the overall impact on capital of the proposed standards.

On balance, the proposals in the ANPR may represent a tightening compared to the basis on which the QIS-3 was conducted. Moreover, risk inputs would be subject to strict standards, disclosure requirements, and supervisory scrutiny unlike the best efforts

inputs used in QIS-3. Nevertheless, Table 2 illustrates two important points. The proposed framework gives substantial latitude to change risk-based capital requirements, as inspection of the risk-weight tables in Exhibit A and the ANPR make clear. And, the potential changes may impact significant portfolios of exposures.

In recognition of the limitations of the QIS-3 analysis, the Agencies are agreed that further quantitative impact studies are appropriate and required if the new framework is to be pursued. These additional studies would allow for further interagency evaluation of the overall impact on capital requirements of such changes.

FDIC staff believes that prior to reaching a final U.S. position on the desirability of the New Capital Accord as an international capital standard, the Agencies should gain a better understanding of the impact the proposed changes would have on the capital requirements for specific banks and for specific activities at large banks as a group.

B.   Competitive Effects

A second major concern is the competitive impact of the new framework on U.S. banking organizations of various sizes. With some U.S. banks adopting the advanced approaches and others applying the existing risk-based capital rules, the U.S. would have a bifurcated regulatory capital framework. That is, there would be two distinct methodologies for institutions to calculate risk-weighted assets, the denominator of the risk-based capital ratios.

FDIC staff recognizes that differences in the overall capitalization of large and small banks already exist and that loan pricing depends upon a host of factors. Nevertheless, staff is interested in views regarding the competitive implications of these proposals in a number of respects. Among the potential concerns are: i) banks subject to the advanced approaches are able to lower the amount of capital they hold, boosting their returns on equity and their profitability and enhancing their competitive posture relative to banks operating under general capital rules; ii) for a given dollar amount of capital,

banks operating under the new rules have lower risk weighted assets, boosting reported capital ratios and enhancing their currency with which to make acquisitions of banks operating under general capital rules; iii) banks operating under general rules that lack the size or scope needed to make qualification cost-effective will make attractive targets for acquisition by banks operating under the new framework seeking to lever newfound excess capital; iv) the public regulatory stamp of approval on risk management systems implicit in Basel II qualification will lead to a marketplace disadvantage for large banks operating under general capital rules; v) lower regulatory capital requirements for specific activities enable banks operating under the new rules to price their products more aggressively, reducing the risk-adjusted returns available to their competitors or their ability to compete for attractive business relationships.

Of all these concerns, the one that appears to be given the most credence by some bankers is the possibility that capital efficiencies could be realized in acquisitions of general banks by "Basel banks" which could lead to a "roll-up" of mid-size and small banks. The ANPR requests comment on the potential competitive impact of the proposal on community banks and mid-size regional banks.

International competitive equity concerns are not insignificant and are rooted primarily in the possible unequal application of Pillar I and Pillar II standards. Uniform and detailed rules and implementation standards being developed by the Accord Implementation Group seek to ensure that all jurisdictions will uniformly apply the same high qualitative and quantitative standards to internationally active banking institutions. To the extent that different supervisory regimes implement these standards differently, there may be competitive dislocations. Of greatest concern is that international supervisory regimes may provide less scrutiny to the implementation standards than is provided in the U.S. given the extensive on-site presence of bank examiners under the U.S. supervisory structure.

C. Validation of Risk Estimates

Finally, under the advanced approaches, the regulatory capital levels of the largest U.S. banking organizations will be driven in large part by banks' own internal estimates of risk validated by the supervisors. This shift in emphasis towards ongoing validation and away from pre-set capital ratios would change significantly the dynamics of how minimum capital requirements are determined.

Changes in capital regulation attract a great deal of attention and comment from constituencies whose economic interests are affected to some degree by the availability of credit for specific activities. Once the change in regulation is made, however, minimum capital requirements are for the most part determined automatically. Under the proposals described in the ANPR, however, supervisory judgments would affect minimum capital requirements virtually continuously.

Supervisory determinations about the types of borrowers that are higher-risk could attract criticisms from those borrowers. The regulators could be accused of inappropriately allocating the flow of credit or causing a credit crunch to particular sectors or groups of borrowers. If such pressures were strong and pervasive, they could tend to work against the underlying premise that low capital for low-risk activities would be balanced by high capital for high-risk activities.

A closely related issue is the need for consistency in validation of internal risk estimates across banks. The playing field will be level only if all competitors are playing by the same rules. The 1988 Accord was a significant step forward in developing international uniformity by prescribing capital requirements for defined "buckets" of assets. In the New Capital Accord, the quest for uniformity is being met by the development of lengthy, detailed and comprehensive standards and technical guidance. The New Capital Accord relies upon highly prescriptive standards to ensure consistent interpretation and uniformity in application.

Even with detailed rules and standards, independent supervisory judgment will be required on a case-by-case basis. The capital requirements generated in an IRB framework will be driven by the day-to-day rating of credits by lending officers (and independent risk management review processes). These processes, albeit subject to detailed explication in guidance and related interagency documents, must be assessed on an ongoing basis. Supervisory review and validation of an individual bank's internal rating and grading systems will be necessary and key aspects of the internal system not fully addressed or foreseen in the written standards will require the exercise of informed examiner judgment. This supervisory assessment of the internal processes and controls leading to the bank's internal ratings must be uniform and maintain the high level of internal risk measurement and management processes contemplated today.

Given the level of complexity and detail, it is likely that differences in application and supervision at the institution level would be unavoidable. The federal banking and thrift regulatory agencies would need to establish interagency processes to ensure a level playing field in the supervisory oversight of IRB capital allocation systems. The even-handed and uniform application of supervisory standards regarding banks' internal control systems must be upheld and subject to vigorous enforcement.

This need for interagency coordination is especially important in order to monitor and control the potential for procyclicality inherent in the New Capital Accord framework. Procyclicality refers to the possibility that the capital framework would require less regulatory capital in "good times" and more regulatory capital in "bad times" possibly exaggerating phases of the economic cycle. The New Capital Accord's reliance upon banks' internal ratings could result in progressively less capital being assessed during the upswing phase of the economic cycle and conversely, progressively more capital being assessed during an economic downturn. The effect could result in expansionary lending during an upswing leading to the exaggeration of an economic boom and, on the other end of the cycle, rising capital requirements could constrain the supply of credit and further an economic decline. The New Capital Accord could thereby embed a tendency to require the least amount of capital at the height of the economic

cycle, when a peak has been achieved and a strong economy is on the precipice of a downturn.

Under the New Capital Accord, supervisory control and oversight would be relied upon to moderate any negative side-effects of the procyclical capital framework. In other words, supervisors would need to ensure adequate buffer capital is maintained during expansions. It would be essential that the federal banking regulators closely coordinate their consideration of procyclicality under the New Capital Accord and develop uniform and transparent supervisory responses and guidance.

IX.   Conclusion

Publication of the ANPR would elicit substantial comment to assist the Agencies in evaluating the issues described in this memorandum. The staff will continue to work closely on an interagency basis to evaluate the costs and benefits of the proposals described in the ANPR.

CONCUR:

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John Brennan
Deputy to the Chairman

Date:

Exhibit A

**Capital Calculations for Credit Risk and
Operational Risk under the New Capital Accord and
Impact Analysis**

I. *Corporate, Sovereign, and Bank Exposures*

Scope

The Agencies propose that a single exposure category – wholesale exposures – would encompass all non-retail exposures in the internal-ratings based (IRB) framework. This would include the categories of corporate, sovereign and bank exposures as outlined in the Basel Committee's third consultative paper, as well as specialized lending and loans to small businesses other than those that are eligible for inclusion as retail exposures.

The Agencies propose that a capital requirement for all wholesale exposures would be computed using a C & I risk function described below, with two exceptions. Wholesale small- and medium-sized business exposures (SMEs) would be eligible to use an additional adjustment to the IRB capital formula based on borrower size. Second, the IRB capital formula for high-volatility commercial real estate exposures (HVCRE) would use a higher asset correlation assumption than for other wholesale exposures.

Components of the C&I Risk Function

The proposed IRB capital calculations for wholesale exposures would require four primary inputs to be provided by banks for each individual exposure: (1) probability of default (PD), (2) loss given default (LGD), (3) exposure at default (EAD), and (4) effective remaining maturity (M). In addition, to use the proposed adjustment for wholesale SMEs described below, an additional input to measure borrower size would also be required.

The first primary input to the wholesale IRB calculation is the measure of PD. Under the IRB approach, banks must assign an internal rating to each of their wholesale exposures. This internal rating must be based on a rating system that meets the IRB qualifying criteria for wholesale exposures, which are intended to ensure that the rating system results in a meaningful differentiation of risk. For each internal rating grade, the bank must associate a specific one-year PD value. For the majority of wholesale exposures, the minimum PD that may be assigned to an exposure is 3 basis points (0.03 percent).

The second primary input to the IRB capital formula for wholesale exposures is LGD. The Agencies propose that banks would in most cases estimate their own LGD estimates for each wholesale exposure. These LGD estimates should provide an assessment of potential recovery should an exposure default, expressed as a percentage of the total

defaulted exposure. These estimates should be grounded in historical recovery rates and are intended to allow banks to assess the differential impact of various factors, including the presence of collateral and differences in recovery rates for other relevant variables, including loan terms and covenants. Where appropriate for the type of exposure, "stressed" LGDs should be used.

The third primary input to the wholesale IRB capital formula is EAD. The Agencies propose that in most cases banks would provide their own estimates of EAD, defined as the expected gross exposure of the facility in the event that the borrower defaults. For on-balance sheet items, banks must estimate EAD as no less than the current drawn amount. For most off-balance sheet items, banks must assign an EAD value based on an estimate of the long-run default-weighted average EAD for similar facilities and borrowers.

The fourth primary input to the IRB capital formula is effective remaining maturity (M), measured in years. If the exposure is subject to a determined cash flow schedule, the bank should calculate M as the weighted average remaining maturity of the individual cash flows, using the amounts of the cash flows as the relevant weights. The bank may also use the maximum nominal maturity of the exposure if the weighted average maturity cannot be calculated.

Wholesale Exposures – Formulas

Given the relevant inputs, the calculation of the IRB capital requirement for a particular wholesale exposure is accomplished in three steps:

(1) Calculation of the relevant asset correlation assumption, which will be a function of PD (as well as firm-size for SMEs);
(2) Calculation of the capital requirement assuming a maturity of 1 year, which will be a function of PD, LGD, EAD, and the asset correlation calculated in the first step;
(3) Application of a maturity adjustment to adjust for differences between the true effective remaining maturity and the 1 year maturity assumption in the second step, where the adjustment will be a function of both PD and M.

Calculating Capital Under the C&I Risk Weight Function

The first step in the calculation of the wholesale IRB capital requirement is the calculation of the asset correlation, which is denoted by the letter "R" in the formulas below. Intuitively, higher asset correlations mean defaults are more likely to occur in clumps, so that higher capital requirements are appropriate. Under the wholesale IRB framework proposed by the Basel Committee and being considered by the Agencies, the asset correlation parameter is not a fixed amount, but itself varies as a function of PD. For all wholesale exposures except HVCRE exposures, the asset correlation approaches an upper bound value of 24 percent for very low PD values and approaches a lower bound value of 12 percent for very high PD values. This reflects the view that borrowers

with lower credit quality (i.e., higher PD values) are likely to be more idiosyncratic in the factors affecting their likelihood of default and therefore proportionately less influenced by factors common to all borrowers. An important practical impact of having asset correlation decline with increases in PD is to reduce the speed with which capital requirements rise as PD increases. The specific formula for determining the asset correlation for all wholesale exposures except HVCRE exposures is given as follows.

Asset Correlation (R) = 0.12 * (1 – EXP(-50 * PD)) + 0.24 * [1 - (1 - EXP(-50 * PD))]

where EXP denotes the natural exponential function (e^x on your calculator)

For example, under the formula illustrated above, the asset correlation on a relatively low risk commercial loan exposure with a PD of 0.5 percent is .21. The asset correlation for a risky commercial exposure with a PD of 5 percent is .13. These values of R would be used in the next step of the calculation.

The second step is the calculation of the capital requirement that would apply to the exposure assuming a one-year maturity. The specific formula to calculate this one-year-maturity capital requirement, denoted by "K_1", is as follows.

One-Year-Maturity Capital Requirement (K_1) =
EAD * LGD * N[(1 – R)^0.5 * G(PD) + (R / (1 – R))^-0.5 * G(0.999)]

N denotes the standard normal cumulative distribution function and
G(x) denotes the inverse of the standard normal cumulative distribution function. Please note that the N(x) and G(x) functions are widely used in statistics and are commonly available in computer spreadsheet programs. A description of these functions may be found in the Help function of most spreadsheet programs or in basic statistical textbooks.

The output of this formula is the dollar amount of capital needed to cover an extreme scenario – the 99.9[th] percentile of credit losses likely to occur in one year in a portfolio of identical exposures, given the correlation R and other specific assumptions.

There are several important aspects of this formula. First, it rises in a straight-line fashion with increases in EAD, meaning that a doubling of exposure will result in a doubling of the capital requirement.

The calculation also increases in a straight-line fashion with LGD, which similarly implies that an otherwise identical loan with an LGD estimate twice that of another will face twice the capital requirement. This also implies that as LGD estimates approach zero, the capital requirement would likewise approach zero.

The third stage in the calculation of the wholesale IRB capital requirement is the adjustment to reflect the exposure's effective remaining maturity (M). The IRB maturity adjustment multiplies the one-year-maturity capital requirement (K_1) by a factor that depends on both M and PD. This reflects the view that there is a greater proportional

need for maturity adjustments for high-quality exposures (those with low PD values) because there is a greater potential for such exposures to deteriorate in credit quality than for those exposures whose credit quality is lower in the first place.

The specific formula for applying the maturity adjustment is as follows.

$$\text{Capital Requirement (K)} = K_1 * [(M - 2.5) * (1 + b)] / [(-1.5 * (1 + b)], \text{ where}$$
$$b = (0.08451 - 0.05898 * LN(PD))^2$$

In this formula, the value "b" effectively determines the slope of the maturity adjustment and is itself a function of PD. Note that if M is set equal to one, the maturity adjustment also equals one and K will therefore equal K_1.

The output of this last formula is the total dollar minimum capital requirement for this individual exposure. The minimum capital requirement is, by definition, 8 percent of risk-weighted assets. Therefore, the risk-weighted assets value for this exposure can be obtained by multiplying by 12.5.

Risk-weighted assets = 12.5 * K

Finally, the risk-weight for this exposure is obtained by dividing its risk-weighted assets by the exposure amount.

Risk weight = (Risk-weighted assets) / EAD.

For example, if the total capital required for a $100 exposure were $8, risk-weighted assets would be 12.5 * $8 = $100, and the exposure would have a 100 percent risk-weight. If the total capital required for the exposure were $2, risk-weighted assets would be 12.5 * $2 = $25, and the exposure would have a 25 percent risk-weight.

The total capital requirement can be met using the same rules for Tier 1, Tier 2 and Tier 3 capital that now exist. A notable feature of this approach is that the total capital required for any exposure can be divided into two parts, the "expected loss" and the "unexpected loss."

The expected loss component of capital is EL = EAD * LGD * PD, the amount of loss expected to be incurred, on average, for this type of exposure in a one-year period. The issues raised by the EL component of capital are discussed in the Retail section of this Exhibit.

The following table presents the A-IRB capital requirement (K) for a range of values of both PD and M for wholesale exposures. In this table, EAD is assumed to equal $100 and LGD is assumed to equal 45 percent, consistent with typical LGD values for senior unsecured commercial loans. For comparison purposes, the general risk-based capital rules assign a capital requirement of 8 percent for most commercial loans.

Capital Requirements for Wholesale Exposures (in percentage points)

PD	Effective Remaining Maturity (M)			
	1 month	1 year	3 years	5 years
0.05 percent	0.50	0.92	1.83	2.74
0.10 percent	1.00	1.54	2.71	3.88
0.25 percent	2.17	2.89	4.44	5.99
0.50 percent	3.57	4.40	6.21	8.03
1.00 percent	5.41	6.31	8.29	10.27
2.00 percent	7.65	8.56	10.56	12.56
5.00 percent	11.91	12.80	14.75	16.69
10.00 percent	17.67	18.56	20.50	22.45
20.00 percent	26.01	26.84	28.65	30.47

II. Small and Medium Sized Enterprise Exposures

Scope

The Agencies are considering a feature that would effectively lower the wholesale IRB capital requirements on loans to companies whose annual sales (or assets) are less than $50 million.

Calculation

The borrower size adjustment would be made to the asset correlation input (R), based on the following formula. In this formula, S represents the measure of borrower size (expressed in millions of dollars) and R_{SME} represents the size-adjusted asset correlation value.

$$R_{SME} = R - 0.04 * [1 - (S - 5)/45]$$

The maximum reduction in the asset correlation value based on this formula is 4 percent, and is achieved when borrower size is $5 million. For all borrower sizes below $5 million, the value $5 million should be applied. The adjustment shrinks to zero as borrower size approaches $50 million.

For example, for a company with borrower size of $100 million, the correlation factor is .189. This credit would not qualify for the SME adjustment, and instead would use the C&I risk weight function. For a company with a borrower size of $20 million, the correlation factor declines to .163. For a company with a borrower size of $10 million, the correlation factor declines to .154.

All else being equal, the lower the correlation factor, the lower the capital requirement. Assuming each of these companies exhibits the same creditworthiness, and PD is 1.1 percent, LGD is 45 percent, Maturity is 2.5 percent, the risk weight for the company with a borrower size of $100 million is 101 percent, the risk weight for the company with a borrower size of $20 million is 87 percent, and the risk weight for the company with a borrower size of $10 million is 83 percent.

The broad rationale for this adjustment is the view that the credit condition of SMEs will be influenced relatively more by company-specific factors than is the case for larger firms and thus small firms will be less likely to deteriorate simultaneously with other exposures, implying a lower asset correlation.

III. *Specialized Lending*

Scope

The Specialized Lending (SL) asset class encompasses exposures for which the primary source of repayment is the income generated by the specific asset(s) being financed rather than the financial capacity of a broader commercial enterprise. The SL category encompasses four exposure types:

Project finance (PF) describes the financing of large, complex, expensive installations that produce goods or services for sale, such as power plants, chemical processing plants, mines, or transportation infrastructure, where the source of repayment is primarily the revenues generated by sale of the goods or services.

O*bject finance* (OF) describes financing for the acquisition of (typically moveable) physical assets such as ships or aircraft where the source of repayment is primarily the revenues generated by the specific assets being financed, often through rental or lease contracts with third parties.

Commodities finance (CF) refers to structured short-term financing of reserves, inventories, or receivables of exchange-traded commodities such as crude oil, metals, or agricultural commodities where the source of repayment is the proceeds of the sale of the commodity.

Commercial real estate (CRE) exposures finance the construction or acquisition of real estate (including land as well as structures) where the prospects for repayment and recovery depend primarily on the cash flows generated by the lease, rental, or sale of the real estate. The broad CRE category is further divided into two groups: low volatility CRE and high volatility CRE (HVCRE).

The assignment of CRE exposures into low asset correlation and high asset correlation treatments is at national discretion, as described below, and the assignment made by each country's national supervisors will apply to all CRE exposures secured by properties in that country by any banks, domestic or foreign, that are subject to the new Accord.

With the exception of HVCRE, capital for all specialized lending in the U.S. is proposed to be handled using the C & I risk function described in the preceding section.

The supervisory slotting criteria approach, a risk bucketing approach that was proposed in CP-3 for banks that cannot calculate PD or LGD for a given SL exposure is not being offered to US banks in the ANPR, although comments are sought on the issue.

Banks will be required to use the high volatility risk weight curve for a subset of their ADC exposures. Empirical evidence indicates the ADC loans exhibit a higher correlation – meaning they exhibit a greater tendency to default at the same time – than commercial and industrial loans. Therefore, capital for ADC loans without substantial borrower

equity would be calculated as follows. The proposal asks for comment on the best definition of substantial borrower equity.

For ADC subject to the HVCRE risk weight function, the asset correlation factor is calculated in the following manner:

Asset Correlation (R) = 0.12 * (1 – EXP(-50 * PD)) + **0.30** * [1 - (1 - EXP(-50 * PD))]

The remainder of the capital calculation is the same as in Section I.

<u>Examples</u>

Under the Commercial and Industrial risk weight function, a $100 exposure with a PD of 1.10 percent, an LGD of 45 percent, and a Maturity of 2.5 years is assigned a risk weight of 101.16 percent and a capital requirement of 8.09 percent.

Under the High Volatility Commercial Real Estate risk weight function, an ADC exposure with exactly the same risk inputs (PD, LGD, EAD, M) is assigned a risk weight of 119.69 percent and a capital requirement of 9.58 percent.

V.   *Retail Exposures*

Scope

Core and opt-in banks will use one of three functions for their retail portfolios. The three categories are: 1) residential mortgage exposures, 2) qualifying revolving retail exposures and 3) other retail exposures.

The IRB retail risk functions described below would apply to: 1) open- and closed-end credit extended to individuals for household, family, and other personal expenditures; 2) 1- to 4-family residential mortgages, including first and junior liens and term loans and revolving home equity loans; and 3) small business exposures, including term and revolving loans, that qualify as retail exposures (essentially, exposures managed on a pool basis).

For example, home equity lines of credit would be placed in the residential property category, even though they might have a revolving feature inherent to them. Similarly, a qualifying revolving exposure (QRE) would include unsecured credit cards, where a credit limit has been established, and the outstanding balances are permitted to fluctuate based on a customer's decision to borrow and repay. Retail loans that do not meet the criteria for either the mortgage category or QRE category would be placed in the "other" category. For example, loans secured by collateral other than residential property, or other consumer installment loans would be placed in the third category.

For the QRE function described below, the Agencies have proposed and are asking for comment on whether to allow as much as 75 percent of the EL component of the capital charge (described at the end of this exhibit) to be offset by future margin income (FMI) on outstanding balances. The reason for this offset is that under the QRE, EL comprises a rather sizeable portion of the total capital requirement—sometimes up to 5 times higher than a comparable corporate portfolio. The FMI offset is meant to minimize the effects of the EL portion of the capital requirement, and thus, results in a lower overall capital requirement for QRE exposures. Without the FMI offset, a number of observers have argued, capital for credit cards would be too high under these formulas.

Retail Risk Function Inputs

The functions to determine the capital requirements for retail are similar to the corporate functions described above. They require as inputs PD, LGD, and EAD, as described previously. However, there are five important differences.

1)   The risk inputs for retail are on a pool basis, not an individual exposure basis.
2)   The retail risk-weight functions do not include a maturity adjustment.
3)   The retail functions use different asset correlation assumptions.
4)   Depending on the institution's system for measuring and managing credit risk, the PD and LGD inputs to the risk-weight function may be derived from an EL measure associated with a portfolio segment, rather than estimated directly; and

5)   The QRE risk-weight function may incorporate an offset that permits de facto capital recognition for FMI.

Residential mortgages

For mortgage portfolios, the agencies are proposing that a constant asset correlation parameter equal to 0.15 be used. Similar to the corporate risk-weight function, the "solvency standard" parameter would be set equal to 99.9 percent.

The retail IRB capital formula for residential mortgage and related exposures is given as follows.

Capital Requirement (K) = EAD * LGD * N[1.08465 * G(PD) + 0.4201 * G(0.999)]

Again, N denotes the standard normal cumulative distribution function and G(x) denotes the inverse of the standard normal cumulative distribution function. EXP denotes the natural exponential function (e^x on your calculator).

For example, given this equation, a residential mortgage with an EAD of $100, an LGD of 15 percent, and a PD of 1 percent would be subject to a 20.68 risk weight and a capital requirement of 1.65 percent.

The following table depicts a range of representative capital requirements (K) for residential mortgage and related exposures based on this formula. The EAD is assumed to be equal to $100. Three different illustrative LGD assumptions are shown: 15 percent, 35 percent, and 55 percent. For comparison purposes, the current capital requirement on most first mortgage loans is 4 percent and on most home equity loans is 8 percent.

Capital Requirements (in percentage points)

	LGD		
PD	15 percent	35 percent	55 percent
0.05 percent	0.17	0.41	0.64
0.10 percent	0.30	0.70	1.10
0.25 percent	0.61	1.41	2.22
0.50 percent	1.01	2.36	3.70
1.00 percent	1.65	3.86	6.06
2.00 percent	2.64	6.17	9.70
5.00 percent	4.70	10.97	17.24
10.00 percent	6.95	16.22	25.49
20.00 percent	9.75	22.75	35.75

Qualifying revolving exposures

The calculation of capital requirements for QREs requires three steps: (1) calculation of the relevant asset correlation, (2) calculation of the minimum capital requirement assuming no offset for eligible FMI, and (3) application of the offset for eligible FMI.

As for wholesale exposures, it is assumed that the asset correlation for QREs declines as PD rises. This reflects the view that pools of borrowers with lower credit quality are less likely to experience simultaneous defaults, because their defaults are more likely to result from borrower-specific factors. In the case of QREs, the asset correlation approaches an upper bound value of 11 percent for very low PD values and approaches a lower bound value of 2 percent for very high PD values. The specific formula for determining the asset correlation for QREs is given as follows.

Asset Correlation $(R) = (1 – EXP(-50 * PD)) * 0.02 + EXP(-50 * PD) * 0.11$

The second step in the IRB capital calculation for QREs is the calculation of the capital requirement assuming no FMI offset ($K_{No\ FMI}$). The formula to calculate this amount is as follows.

$$\text{Capital Requirement assuming no FMI offset } (K_{No\ FMI}) =$$
$$EAD * LGD * N[(1 – R)^{-0.5} * G(PD) + (R / (1 – R))^{0.5} * G(0.999)]$$

The result of this calculation effectively includes both an expected loss and an unexpected loss component. As already discussed, for QREs only, the Agencies are considering the possibility of offsetting a portion of the expected loss portion of the capital requirement using eligible FMI. Eligible FMI is intended to be a conservative estimate of the income (net of interest expense, credit losses and operating costs) expected to be generated by the existing pool of accounts over the next 12 months. Up to 75 percent of the expected loss portion of the capital requirement may be offset in this fashion. The calculation for determining the capital requirement (K) after application of the offset for eligible FMI is given as follows.

$K = K_{No\ FMI} – MIN(0.75 * EL, \text{eligible FMI})$, where $EL = EAD * PD * LGD$

The FMI offset parameter would have a significant bearing on the capital requirement for qualifying revolving exposures under Basel II. For example, a QRE portfolio of assets with a PD of 4 percent, an LGD of 84 percent, and an EAD of $100, the risk-weighted assets without any recognition of FMI would be 117.58, and the resulting capital requirement would be 9.41 percent. The EL/UL composition would be as high as 36/64 in this scenario, meaning that more than a third of the capital requirement would be generated from the EL portion of the formula. Under the Basel II proposals, the capital requirement declines significantly once the 75 percent FMI offset is applied; risk weighted assets decline to 86.08 percent for the same given set of PD, LGD, and EAD estimates, and capital requirement decline by 26.8 percent to 6.89 percent. For high PD credits, the results are even more pronounced. An 8 percent PD exposure generates a risk

weight of 176.73 percent with no FMI recognition, but declines by 35.6 percent to 113.73 percent with the 75 percent FMI offset.

The following table depicts a range of representative capital requirements (K) for QREs based on these formulas. In each case, it is assumed that the maximum offset for eligible FMI has been applied. The LGD is assumed to equal 90 percent, consistent with recovery rates for credit card portfolios. The table shows capital requirements with recognition of FMI and without recognition of FMI, and shows for each of these two categories a further breakdown of EL and UL by percentage of the related capital charge. This breakout shows that as PDs increase, the amount of EL captured in the capital charge rises at an increasing rate. Offsets from EL, as proposed in this ANPR, would therefore have a proportionally greater impact on reducing required capital charges as default probabilities increase.

Capital Requirement

PD		With FMI			Without FMI	
	Capital	EL %	UL %	Capital	EL %	UL %
.05	.68	2	98	.72	6	94
.1	1.17	2	98	1.23	7	93
.25	2.24	3	97	2.41	9	91
.5	3.44	3	97	3.78	12	88
1.0	4.87	5	95	5.55	16	84
2.0	6.21	7	93	7.56	24	76
5.0	7.89	14	86	11.27	40	60
10.0	11.12	20	80	17.87	50	50
20.0	17.23	26	74	30.73	59	41

Other retail exposures

This sub-category encompasses a wide variety of different exposures including auto loans, student loans, consumer installment loans, and some small-business loans. Two steps are required to calculate the IRB capital requirement for other retail exposures: (1) calculation of the relevant asset correlation, and (2) calculation of the capital requirement. Both of these steps should be done separately for each portfolio segment included within the other retail sub-category.

As for wholesale exposures and QREs, it is assumed that the asset correlation for other retail exposures declines as PD rises. In the case of other retail exposures, the asset correlation approaches an upper bound value of 17 percent for very low PD values and approaches a lower bound value of 2 percent for very high PD values. The specific formula for determining the asset correlation for other retail exposures is given as follows.

Asset Correlation (R) = (1 – EXP(-35 * PD)) * 0.02 + EXP(-35 * PD) * 0.17

The second step in the IRB capital calculation for other retail exposures is the calculation of the capital requirement (K). The formula to calculate this amount is as follows.

Capital Requirement (K) =

EAD * LGD * N[(1 – R)^-0.5 * G(PD) + (R / (1 – R))^0.5 * G(0.999)]

For example, for an "other retail" exposure with an EAD of $100, a PD of 3.7 percent, and an LGD of 58 percent, the risk weight would be 105.54 percent and the capital requirement would be 8.44 percent.

The following table depicts a range of representative capital requirements (K) for other retail exposures based on this formula. The EAD is assumed to be equal to $100. Three different LGD assumptions are shown: 25 percent, 50 percent, and 75 percent, in order to depict a range of potential outcomes depending on the characteristics of the underlying retail exposure. For comparison purposes, the current capital requirement on most of the exposures likely to be included in the other retail sub-category is 8 percent.

Capital Requirements (in percentage points)

PD	LGD		
	25 percent	50 percent	75 percent
0.05 percent	0.33	0.66	0.99
0.10 percent	0.56	1.11	1.67
0.25 percent	1.06	2.13	3.19
0.50 percent	1.64	3.28	4.92
1.00 percent	2.35	4.70	7.05
2.00 percent	3.08	6.15	9.23
5.00 percent	3.94	7.87	11.81
10.00 percent	5.24	10.48	15.73
20.00 percent	8.55	17.10	25.64

Capital Treatment of the ALLL

As under current rules, the allowance for loan and lease losses (ALLL) can be used as a tier 2 capital element to meet total capital requirements, in an amount up to 1.25 percent of gross risk-weighted assets (the "cutoff"). ALLL above the cutoff could in some cases be used to reduce the EL portion of capital. Specifically, if a bank's ALLL exceeds the cutoff, and its EL also exceeds the ALLL cutoff, the amount of the ALLL above the cutoff and up to EL can be used as a dollar-for-dollar offset to the EL component of the capital charge.

VI.   *Equity Exposures*

Scope

All equity exposures held in the banking book would be subject to the approaches described in this section. Equity investments in the trading book would be subject to the market risk rules. In general, equity exposures are defined on the basis of the economic substance of the holding. Equity exposures include both direct and indirect ownership interests, whether voting or non-voting, in the assets or income of a commercial enterprise or of a financial institution that is not consolidated or deducted.

An instrument is considered an equity exposure if it meets the following requirements:

- It is irredeemable in the sense that the return of invested funds can be achieved only by the sale of the investment or sale of the rights to the investment or by liquidation of the issuer;

- It does not embody an obligation on the part of the issuer; and

- It conveys a residual claim on the assets or income of the issuer.

Equity exposures in the banking book for large U.S. banks make up a relatively small part of total balance sheets. These exposures come about due to grandfathered powers allowing banks to hold equities, or limited other permissible activities.

Calculation

Under A-IRB, banking organizations are required to use an internal models market-based approach to calculate regulatory capital charges for equity exposures.   Minimum quantitative and qualitative requirements for using an internal model must be met on an ongoing basis.

Similar in respects to the methods applied by supervisors under the market risk rule, the primary focus of the internal models approach is to assess capital based on an estimate of the loss under extreme market conditions on an institution's portfolio of equity holdings or, in simpler forms, its individual equity investments.

While the internal models approach would use as a benchmark a value-at-risk (VaR) methodology, it is recognized that some institutions employ models for internal risk management and capital allocation purposes that, given the nature of their holdings, can be more risk-sensitive than some VaR models. For purposes of evaluating the capital charges produced by a banking organization's selected methodology, the internal models approach would use as a benchmark a VaR methodology using a 99.0 percent (one tail) confidence level of estimated maximum loss over a quarterly time horizon using a long-range sample period.

The loss estimate derived from the internal model would constitute the capital charge to be assessed. The capital charge would be incorporated into an institution's risk-based capital ratio through the calculation of risk-weighted equivalent assets. The risk weight used to convert holdings into risk-weighted equivalent assets would be computed by, as discussed earlier, multiplying the expected loss measure (or capital charge) by the factor 12.5. Therefore, if the loss estimate were $3 on an AIRB equity portfolio, the bank would be require to risk weight the exposure as $37.5 under this methodology.

Under special circumstances, a banking organization adopting the advanced IRB approach to equity exposures may ask its primary federal regulator for permission to use an alternative method referred to as the PD/LGD approach, for calculating the regulatory capital required to be held against specific holdings. The limited alternative approach entails the use of the higher of a 100 percent risk weight or the risk weight computed using the corporate risk weight function with a probability of default corresponding to the debt of the issuer and assuming an LGD of 100 percent.

Under the PD/LGD approach, if the debt of the issuer has a PD of 1.5 percent, a maturity of 5 years, an EAD of $100 and a the supervisory mandated LGD of 100 percent, the risk weight for this exposure would be 322 percent, and the resulting capital requirement would be 25.8 percent.

VII. *Purchased Receivables*

Scope

Retail and qualifying corporate receivables purchased by the AIRB banks are generally subject to the "top down" approach, which allows the bank to calculate the risk based capital requirement on a "pool" rather than "individual loan" basis.

Calculation

The total capital charge against purchased receivables is the sum of (a) a capital charge for credit risk, and (b) a separate capital charge for dilution risk, when dilution is a material factor. Dilution refers to the possibility that contractual amounts payable by the underlying obligors may be reduced through future cash or other credits to the accounts.

Credit Risk Capital Charge

If the purchasing bank can estimate the pool's exposure weighted-average LGD or average PD in a reliable manner, the risk weight for the purchased receivables will be determined using the bank's estimated weighted average PD and LGD as inputs to the corporate risk weight function. M will equal the pool's exposure weighted average effective maturity. This method is referred to as the top down approach. Banks that do not qualify for the top down approach must calculate the capital on purchased receivables on an obligor by obligor basis (bottom up). We will assume that the inputs are the same under the top down and bottom up approaches.

A pool of corporate receivables with an EAD of $100, a PD of 1.5 percent, and LGD of 45 percent, and M of 1 year will generate a risk weight of 95 percent and a capital requirement of 7.5 percent.

Dilution Risk

The capital charge for dilution risk is calculated using the corporate IRB capital formula with the following settings:

- EAD equal to the gross amount of receivable(s) balance(s);

- LGD equal to 100 percent;

- M equal to the (exposure weighted-average) effective maturity of the receivable(s); and

- PD equal to the expected dilution loss rate, defined as total expected dilution losses over the remaining term of the receivable(s) divided by EAD. Expected dilution losses should be computed on a stand-alone basis; that is,

under the assumption of no recourse or other support from the seller or third party guarantors.

Continuing with our previous example, the EAD on the pool of corporate loans remains $100, the LGD is now 100 percent for the purposes of the dilution risk calculation, and remains 1 year, and the PD is .25 percent. The dilution risk weight would be 80 percent, and the capital requirement would be 6.4 percent.

The total capital requirement for the $100 in purchased corporate receivables is 7.5 percent+6.4 percent=13.9 percent.

VIII.   *Securitization Framework*

Securitization is a complex financial mechanism generally used by institutions to transfer risk – and sometimes, just to shed regulatory capital. Securitization is the conversion of exposures--generally illiquid assets such as loans into cash or cash equivalent. Banks use securitization as a means of transferring credit risk exposures to other parties. This is generally done through traditional means--actual sale of assets off the balance sheet and through synthetic means--assets remain on the bank's balance sheet and the credit risk is transferred through credit derivatives. The credit exposure is generally stratified--that is carved up--into various positions or tranches. However, in order to facilitate the transactions, the issuer often retains most of the risk associated with the underlying assets.

Scope of Application

The Basel rules will apply to all types of securitization exposure--both on balance sheet (for example, subordinated tranches retained as well as tranches purchased) and off balance sheet (for example, liquidity facilities). The Basel rules will apply to traditional securitization as well as synthetic securitizations.

Purpose of the Basel II Securitization Proposals

The Securitization Framework is one of the prime examples of Basel II 's attempt to better align regulatory capital with risk. Basel II attempts to eliminate many of the arbitrage opportunities that exist in the current capital rules of various countries.

Securitization under the AIRB

Ranking of Securitization Exposures Is the First Step In Calculating Capital for AIRB Banks

Banks that use IRBA for their securitization exposures must have understanding of where their exposure "ranks" in the order of priority of the entire securitization structure as the position of the exposure will have a bearing on the capital requirement. The Securitization Framework is based on the concept of Kirb—the amount of capital a securitizing bank would have been required to hold against the underlying assets in the securitization transaction, had those assets remained on the bank's books. Where the securitization exposure ranks in relation to Kirb has a significant bearing on the capital requirement, as our examples will illustrate.

Supervisory Formula Approach For Positions Below Kirb

For practical purposes, this capital treatment mainly affects the issuers who are generally required to retain the first loss tranches. Our first step is to calculate the Kirb on a commercial loan. The commercial loan has a PD of .40 percent, and LGD of 45 percent,

and an effective maturity of 2.5 years, which generates a risk weight of 64.59 percent. Given these inputs, we can calculate Kirb in the following manner:

Apply the 64.59 percent risk weight to $100 commercial loan *8 percent minimum capital requirement/$100 commercial loan = 5.16/100, or 5.16 percent. Kirb in this example is 5.16 percent

What if the commercial loan was of lower credit quality? For example, assume its PD was 1.50 rather than .40 in our original example. Assuming the same LGD and Maturity, we generate a risk weight of 113.59 percent, and a capital requirement of $9.09. The Kirb on this commercial loan is $100*113.59*8 percent/100, or 9.09 percent.

What this demonstrates is that Kirb is a function of the credit quality of the underlying assets. That is a very important part of the securitization framework, because under the new framework, securitizing banks are generally required to hold a dollar in capital for every dollar in exposure they retain up to Kirb. What does this capital treatment mean in the context of the previous two examples?

Going forward, the seller will be required to hold a dollar in capital for every dollar in exposures retained up to Kirb. Therefore, the seller would be required to hold $5.16 in capital on the first loan, and $9.09 in capital on the second loan. Gone is the incentive for securitizing assets in order to reduce risk based capital requirements. Instead, Basel II replaces the old 1988 Accord with a more risk sensitive approach—the riskier the underlying asset, the higher the capital requirement on retained exposures.

This part of Basel II is similar in many aspects to the existing U.S. capital rules which require securitizing banks to hold a dollar in capital for every dollar in subordinated interests retained by the seller, with one major difference. Assume that in the second example, the bank retained a $12 "residual interest" on the assets sold. Under the existing U.S. capital rules, the bank would generally be required to hold $12 in capital against that exposure; however, under Basel II, the same bank would only be required to hold $9.09 –Kirb—against these assets. The capital requirement under Basel II is "capped" at Kirb.

An exception to the cap arises for so-called capitalized assets, such as Interest-Only strips created using gain-on-sale accounting. Capitalized assets are always deducted from capital (as they are now in the U.S.) regardless of the Kirb cap.

A Ratings Based Approach (RBA) Under IRB for Positions Above Kirb

This treatment will apply primarily to investors in asset-backed securities and issuers that retain mezzanine and senior positions in securitizations they originate. Basel II proposals are similar in many aspects to the existing U.S. capital rules governing investments in securitization exposures, and are a major improvement over the 1988 Accord. Under the existing U.S. rules, the risk-weight buckets are rather limited, ranging from 20 percent for AAA exposures to 200 percent for BB exposures. Under the 1988 Accord, securitization

exposures are generally risk weighted in the 100 percent bucket regardless of risk or external ratings.

Basel II employs a much more risk sensitive framework, taking into account the creditworthiness of the exposure as well as the diversity (granularity) of the pool, with risk buckets ranging from 7 percent for AAA to 650 percent for BB-. Under both the current rules and the Basel II proposals, tranches rated less than BB- are fully deducted from the institution's capital base. Unrated exposures are also deducted from capital, unless the investor can prove that its unrated investment is senior in all respects to a position rated BB- or better. Under this inferred ratings approach, the bank would risk weight the senior unrated tranche in the same bucket as the rated position that supports it. The RBA under the IRB is much more risk-sensitive than under the Standardized Approach and the current U.S. rules. In addition, holders of unrated positions can "infer" the risk weight of any rated subordinate tranche.

Bank A invests in a $100 AAA tranche backed by a well diversified pool of assets – for example, a mortgage backed security issued by Fannie Mae or Freddie Mac. The bank would risk weight the $100 exposure in the 7 percent risk bucket, and hold $0.56 in risk based capital against this exposure. Under the existing U.S. rules, the bank would risk weight the exposure in the 20 percent risk bucket and would hold $1.60 in risk based capital against this exposure. Under the 1988 Accord, the bank would risk weight the exposure in the 100 percent risk bucket, and would hold $8 in risk based capital against this exposure.

Bank B invests in an unrated tranche that is senior in all respects to a BB tranche. The bank would infer the BB rating and would risk weight this exposure in the 425 percent bucket, and hold $34 in capital against this exposure. Under the existing U.S. rules, the bank would infer the BB rating and would risk weight this exposure in the 200 percent bucket, and hold $16 in capital against this exposure. Under the 1988 Accord, the bank would risk weight the exposure in the 100 percent risk bucket, and would hold $8 in risk based capital against this exposure.

These examples provide an indication of the greater degree of risk sensitivity under Basel II, compared to the U.S. rules and the 1988 Accord.

A Supervisory Formula Approach For Unrated Exposures Beyond Kirb

In some instances, the originating bank will retain senior or mezzanine tranches rather than, or in addition to, the first loss and subordinate tranches. When those tranches are externally rated or are supported by tranches that are externally rated above BB-, the originating bank will use the ratings based approach as illustrated in the above example. For all unrated tranches that do not meet these criteria, the bank will use what is referred to as the Supervisory Formula.

The Supervisory Formula is a complex, statistically driven approach for deriving capital, which will apply to a relatively limited subset of securitization exposures. Banks will

generally limit the use of the SF to unrated retained mezzanine exposures (mostly retained in synthetic securitizations) and liquidity facilities provided to ABCP conduits.

The Supervisory Formula takes into account the loss given default on the underlying exposures, pool diversity, credit enhancement levels and the thickness of the tranche in determining the capital requirement. Changes in each of these variables will affect the capital requirement under the supervisory formula.

Returning to our commercial loan example, assume the originating bank structures the exposure into various securitization tranches: a $50 senior tranche rated AAA, a $30 mezzanine tranche rated A, both of which are sold into the market, a $14.84 unrated subordinate tranche retained by the selling bank, and a $5.16 first loss position sold to third party investors. Under the Basel proposals, the selling bank would be required to use the Supervisory Formula to calculate capital on the $14.84 retained tranche. Given the underlying assumptions, the selling bank would apply a 147 percent risk weight to that exposure. The risk based capital requirement would be $1.75 against the $14.84 exposure.

Positions in the waterfall and thickness of the tranche have a bearing on the risk weight under the SF. The risk weight on the $30 mezzanine tranche would be 88 percent under the SF if it were unrated, due to its position of seniority in the cash flow waterfall. Had the bank split the $14.84 tranche into a $10 tranche and a $4.84 tranche, the risk weight on the $10 tranche would be 124 percent, and on the $4.84 it would be 195 percent. The reason why the risk weight on the $4.84 is higher than on the original $14.84 exposure— even though both fall essentially in the same position in the waterfall—is due to the fact that $4.84 is a thin "tranche" that will experience higher loss severity in the case of a default.

If a bank does not have the capability of calculating the Supervisory Formula, it must deduct from that exposure from its capital base.

Capital Requirement for Early Amortization Provisions

<u>Scope of Application</u>

This is a new capital charge that would be applied to securitizations of exposures with revolving features, such as credit cards, HELOC, and commercial loans.

<u>Controlled Vs. Noncontrolled Early Amortization</u>

The mechanics of payment allocation between investors and the seller during an early amortization event has a bearing on the capital treatment for early amortization provisions. Controlled amortization structures are generally viewed as transferring more risk to the investors, because the investor is not paid out as rapidly us they would be under a non-controlled or "rapid" amortization. Given this distinction, banks that use

controlled amortization structures are assessed a lower capital requirement than those banks that use a noncontrolled rapid amortization structure.

<u>Committed Vs. Uncommitted Lines</u>

The ability of the issuer to "curtail" or "cut off" a borrower's credit has a bearing on the capital treatment for early amortization provisions. For committed lines, where the issuing bank has less authority to restrict a borrower's access to credit under the facility, a flat conversion factor is applied to the structure. For uncommitted lines (common in retail relationships), where the issuer has the ability to cancel the credit facility at any time, a less onerous capital treatment has been established since the issuing bank can better reduce its risk exposure.

An "Excess Spread" Approach for Uncommitted Retail Exposures

This approach will apply mainly to credit card securitizations where excess spread is a widely used indicator of the performance of the underlying receivables. Excess spread is a commonly used early amortization trigger in most credit card securitizations which enables investors to rapidly exit the transaction should excess spread levels fall below the minimums specified in deal documents (for example, excess spread is less than zero for three consecutive months.)

Rather than apply a flat conversion factor as we would to committed lines, Basel proposes a matrix approach that assigns one of five conversion factors given the excess spread level. One of the five conversion factors--referred to as "quadrants" on the spreadsheet-- will be applied to the off-balance sheet investors' interest for a given excess spread "range" that is dependent upon the specifics in a transaction--such as excess spread trapping points, and excess spread-based early amortization trigger points. The conversion factors for deals with noncontrolled amortization structures are higher than that for controlled amortization, reflecting the higher risks of noncontrolled structures.

Assume that the $100 commercial loan is sold into a pool of assets with revolving features. New draws made on this line will also be sold into the trust. However, in order to protect investors from the risk of new receivables that may be of lesser quality, the structure includes an early amortization feature that provides for the rapid payout of investors once the three month excess spread falls below 0 percent. As an additional investor protection, the bank agrees to reserve excess spread in a separate account for the benefit of the investors whenever the three-month excess spread ratio falls below 4 percent. Also, assume that Kirb remains 5.16 percent.

If the transaction is structured as noncontrolled amortization, and the commercial line is a committed facility, the seller receives no capital relief on the $100 in sold receivables. The bank is required to convert the $100 receivables at 100 percent and hold the full $5.16 in capital against the exposure, as though it remained on the books. This is the most punitive of all approaches, and is applied in cases where the bank retains virtually all of the risk due to the nature of this arrangement.

If the transaction is structured as controlled amortization, and the commercial line is a committed facility, the seller receives a minimal amount of capital relief on the $100 in sold receivables, in recognition of the fact that the bank is less exposed to losses in a controlled amortization structure. The bank would be required to convert the $100 receivables at 90 percent and hold $4.64 ($100*90 percent*5.165).

If the exposure was a retail facility, such as a credit card, the bank would use the excess spread approach to calculate its capital requirement for early amortization risk. If the three-month excess spread were 5 percent, the bank would not be required to hold any capital against the sold receivables, because the current excess spread exceeds the spread trapping trigger point of 4 percent. But, if excess spread were to fall to 3 percent, the bank would apply a 10 percent conversion to the $100 in sold receivables if the securitization was structured as noncontrolled amortization, which would result in a capital requirement of $0.52 ($100*10 percent*5.16), or a 2 percent conversion factor to the $100 in sold receivables if the securitization was structured as a controlled amortization, which would result in a capital requirement of $0.10.

With regard to the early amortization proposals, these capital requirements are in addition to the amount of capital held against other securitization exposures, so long as the aggregate amount does not exceed Kirb, which would be $5.16 in this example.

IX.   *Credit Risk Mitigation Techniques*

Scope

AIRB recognizes virtually all forms of credit risk mitigation (collateral and guarantees) generally through a reduction in either the PD or LGD estimates.

Calculation for Guarantees

Substitute PD or LGD of the borrower with that of the guarantor. The resulting capital charge cannot be any lower than it would on a direct exposure to the guarantor. The framework does not allow banks to get capital relief by pointing to the low probability of "double default," that is, the probability that the borrower and the guarantor default at the same time.

Example

The risk weight for a $100 commercial loan with a PD of 1.50 percent, an LGD of 50 percent, and a Maturity of 2.5 is 126.21 percent. If the bank decides to purchase insurance from the AAA rated monoline MBIA for the entire $100 loan, the bank could substitute the borrower's PD with that of MBIA, which is approximately 0.03 percent (the PD attributable to a AAA company reaches the PD floor). Risk weighted assets decline to 16.4 percent. The same approach would apply to credit derivatives.

Calculation for Collateral

For collateral, AIRB banks can reflect any and all factors that can influence LGD. Returning to our previous example, assuming the commercial loan borrower pledged a $100 AA rated corporate bond against its obligation. If the LGD on the AA rated corporate bond was 20 percent, risk weighted assets would decline to 50 percent and the resulting risk based capital requirement would be 4 percent.

X.   *Operational Risk*

Scope

Operational risk is the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. Operational risk includes fraud, legal risk, but excludes strategic and reputation risk.

The Basel Committee's third consultative paper provides three methods for calculating the operational risk capital charge. The Agencies propose adoption of only one of these approaches: the Advanced Measurement Approach (AMA).

Under the AMA, the regulatory capital requirement will equal the risk measure generated by the bank's internal operational risk measurement system. Use of AMA is subject to supervisory approval. Banks adopting the AMA will calculate their capital requirement using the AMA and the existing Accord for one year before implementing the New Accord.

General Criteria

The bank must satisfy the supervisor that:
- The board of directors and senior management are actively involved in oversight of the operational risk management framework;
- The risk management system is conceptually sound and implemented with integrity; and
- There are sufficient resources for the major business lines as well as the control and audit areas.

Qualitative Criteria

A bank must also satisfy the following qualitative standards before using the AMA:
- Independent operational risk management function;
- Close integration of the operational risk measurement system into the day-to-day risk management processes of the bank;
- Regular reporting of operational risk exposures and loss experience;
- The risk management system must be well documented;
- Internal and/or external auditors must perform regular reviews of the operational risk management process and measurement systems;
- Validation of the operational risk measurement system by external auditors and/or supervisors must include verifying the internal validation process, and ensuring that data flows and processes are transparent and accessible.

Quantitative Criteria

The Basel Committee does not specify the approach and distribution assumptions. The bank must demonstrate that its approach captures severe "tail" loss events and

demonstrate that that its measure meets a standard comparable to that of the internal ratings based approach for credit risk (i.e. comparable to a one year holding period and a 99.9 percent confidence interval).

Detailed quantitative standards
- The scope of the operational risk measurement system must be consistent with the definition.
- The bank must calculate regulatory capital as the sum of expected loss (EL) and unexpected loss (UL) unless it can demonstrate it adequately captures EL in its internal business practices.
- The measurement system must capture the major drivers of operational risk affecting the shape of the tail of the loss estimates.
- Risk measures for different operational risk estimates must be added for the calculation of the regulatory minimum capital requirement. The bank may use internally determined correlations, provided it can demonstrate that the systems for determining correlations are sound.
- The risk measurement system must have key features, including the use of internal data, relevant external data, scenario analysis, business environment factors and internal control systems.

Internal data
- Internally generated data must be based on a minimum five-year observation period. When the bank first adopts the AMA, a three-year observation period is acceptable.
- The bank must have documented, objective criteria for allocating losses to specified business lines and event types.
- Internal loss data must be comprehensive, and the bank must use an appropriate de minimis loss threshold for data collection.
- The bank should collect information about the data of the event, recoveries, and descriptive information on the causes of the loss.
- The bank should have criteria for assigning loss data from an event in a centralized function or an activity that spans more than one business line.
- Operational risk losses related to credit risk would continue to be treated as credit risk and not be subject to the operational risk capital charge.

External data

If the bank is exposed to infrequent, yet potentially severe losses, the bank's measurement system must use relevant external data.

Scenario analysis

The bank must use scenario analysis of expert opinion in conjunction with external data to evaluate the exposure to high severity events.

Business environment and internal control factors

- The bank's approach must capture key business environment and internal control factors. The factors must meet the following standards:
- The choice of factors should be translatable into quantitative, verifiable measures;
- The sensitivity of the risk estimates to changes in factors should be well reasoned;
- The framework must be documented and subject to independent review;
- The process and outcomes should be validated over time.

Risk mitigation

A bank may recognize the effect of insurance, but this recognition is limited to 20 percent of the total operational risk capital charge. The bank must also follow these additional standards:
- The insurer has a minimum claims paying ability rating of A.
- The insurance policy must have an initial term of not less than one year.
- The insurance policy has a minimum notice period for cancellation and non-renewal.
- The insurance policy has not exclusions or limitations based on regulatory action or for the receiver or liquidator of a failed bank.
- The insurance coverage is explicitly mapped to the operational risk loss exposure of the bank.
- The insurance is provided by a third party. For insurance provided through affiliates, the exposure must be laid off to an independent third party.
- The bank must disclose the reduction of the operational risk capital charge due to insurance.
- The bank's method for recognizing insurance must include the residual term of a policy, the cancellation and non-renewal terms, and the uncertainty of payment as well as mismatches in coverage.

Calculation

The loss estimate obtained from the bank's model, following the specified quantitative and qualitative standards, is the capital charge to be assessed. To convert the operational risk capital charge to risk-weighted assets, multiply the charge for operational risk by 12.5.

The bank's total risk-based capital requirement is the sum of all the individual charges for credit risk and operational risk.

Exhibit B

Disclosure Requirements for Banks Adopting the Advanced Approaches

In general, while many of the required disclosures may be subject to regulatory and/or accounting disclosure standards already in place in the U.S., there are new disclosure elements being mandated. In particular, certain credit risk related disclosures are qualifying criteria for the use of the advanced internal ratings based methodologies. Where disclosure is a qualifying criterion to apply the A-IRB approaches, there would be a direct sanction (not being allowed to use the methodology or other supervisory response) for failing to comply with the required disclosure elements.

Banks should have a formal disclosure policy approved by the board of directors that addresses the bank's approach for determining what disclosures it will make and the internal controls over the disclosure process. In addition, banks should implement a process for assessing the appropriateness of their disclosures, including validation and frequency.

In CP-3, disclosures regarding several key banking risks are considered. Disclosure requirements are provided for credit risk, market risk, interest rate risk and equities in the banking book and operational risk. Also included are disclosures relating to credit risk mitigation and asset securitization. The ANPR describes those aspects of the disclosure standards being proposed in the third Consultative Paper that are required elements for implementation of the advanced approaches being adopted in the U.S. The required disclosures should be made on a quarterly basis.

The disclosure requirements apply to the bank holding company or the financial services holding company representing the top consolidated level of the banking group to which the new regulatory capital standards apply. Individual banks within the holding company or consolidated group would not generally be required to fulfill the disclosure requirements set out below. An exception to this arises in the disclosure of Total and Tier 1 Capital ratios and its components (i.e., Tier 1 capital, total capital, and total required capital), which is required of individual banks within the group. In addition, all banks are required to submit appropriate information to regulatory authorities (e.g., Report of Condition of Income).

Set forth below are the separate disclosures required for banks using the advanced approaches to the assessment of regulatory capital.

Credit Risk Disclosures for Portfolios Subject to the Advanced Approaches:

The A-IRB approach is used as the basis for a set of disclosures intended to provide market participants with information about asset quality. There are qualitative and quantitative disclosures. These disclosures are important to allow market participants to assess the resulting capital in light of the exposures.

Qualitative disclosures

Banks should provide disclosures discussing the status of the regulatory acceptance of adoption of the A-IRB approach and/or the existence of a supervisory approved transition. The disclosures should provide an explanation and review of the:

1. structure of internal rating systems and relation between internal and external ratings;
2. use of internal estimates other than for IRB capital purposes;
3. process for managing and recognizing credit risk mitigation; and,
4. control mechanisms for the rating system including discussion of independence, accountability, and rating systems review.

Additionally, qualitative disclosures should include a description of the internal ratings process, providing information separately for five distinct portfolios:

1. Corporate (including SMEs, specialized lending and purchased corporate receivables), interbank and sovereign;
2. Equities[8];
3. Mortgage retail;
4. Non-mortgage retail – qualifying revolving exposures[9];
5. Other non-mortgage retail.

The description should include, for each portfolio:

1. The types of exposure included in the portfolio;
2. The definitions, methods and data for estimation and validation of PD, and (for portfolios subject to the IRB advanced approach) LGD and/or EAD, including assumptions employed in the derivation of these variables[10];

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[8] Equities need only be disclosed here as a separate portfolio where the bank uses the PD/LGD approach for equities held in the banking book.

[9] In both these qualitative disclosures or the quantitative disclosures that follow, banks should distinguish between the separate non-mortgage retail portfolios used for the Pillar 1 capital calculation (i.e. qualifying revolving exposures, other non-mortgage retail exposures) unless these portfolios are insignificant in size (relative to overall credit exposures) and the risk profile of each portfolio is sufficiently similar such that separate disclosure would not help users' understanding of the risk profile of the banks' retail business.

[10] This disclosure does not require a detailed description of the model in full – it should provide the reader with a broad overview of the model approach, describing definitions of the variables, and methods for estimating and validating those variables set out in the quantitative risk disclosures below. This should be done for each of the five portfolios. Banks should draw out any significant differences in approach to estimating these variables within each portfolio.

3. Description of material deviations from the reference definition of default, including the broad segments of the portfolio(s) affected by such deviations[11].

Quantitative Disclosures

For banks implementing the advanced approaches, quantitative disclosures must include the percentage of total credit exposures (drawn plus EAD on the undrawn, or credit conversion factor for IRB foundation) to which PD/LGD approach disclosures relate.[12]

Also, for each portfolio (as defined above) except retail[13] the disclosures must provide:

1. Presentation of exposures (outstanding loans and EAD on undrawn commitments[14], outstanding equities) across a sufficient number of PD grades (including default) to allow for a meaningful differentiation of credit risk.[15]
2. Weighted-average LGD (percentage) for each PD grade (as defined above).
3. Amount of undrawn commitments and weighted average EAD (percentage).[16]
4. For retail portfolios (as defined above), either[17]:
    a) Disclosures outlined above (i.e. same as for non-retail portfolios); or
    b) Analysis of exposures (outstanding loans and EAD on commitments) against a sufficient number of EL grades to allow for a meaningful differentiation of credit risk.

In addition, quantitative disclosures must provide information pertaining to historical results. Specifically, the disclosures must include:

1. Actual losses (e.g. charge-offs and specific provisions) in the preceding period for each portfolio (as defined above) and how this differs from past experience. A discussion of the factors that impacted on the loss experience in the preceding period

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[11]This is to provide the reader with context for the quantitative disclosures that follow. Banks need only describe main areas where there has been material divergence from the reference definition of default such that it would affect the readers' ability to compare and understand the disclosure of exposures by PD grade.

[12] This information enables the user to understand the relative significance of the IRB quantitative disclosures as a measure of asset quality. Banks should show the percentage of total exposures (in aggregate) subject to the following: (1) IRB foundation; (2) IRB advanced (including retail) and (3) PD/LGD approach for equities (where applicable).

[13] The PD, LGD and EAD disclosures below should reflect the effects of netting, collateral and guarantees/credit derivatives, where recognized under Pillar 1.

[14] Outstanding loans and EAD on undrawn commitments can be presented on a combined basis for these disclosures.

[15] Where banks are aggregating PD grades for the purposes of disclosure, this should be a representative breakdown of the distribution of PD grades used in the IRB approach.

[16] Banks need only provide one estimate of EAD for each portfolio. However, where banks believe it is helpful, in order to give a more meaningful assessment of risk, they may also disclose EAD estimates across a number of EAD categories, against the undrawn exposures to which these relate.

[17] Banks would normally be expected to follow the disclosures provided for the non-retail portfolios. However, banks may choose to adopt EL grades as the basis of disclosure where they believe this can provide the reader with a meaningful differentiation of credit risk. Where banks are aggregating internal grades (either PD/LGD or EL) for the purposes of disclosure, this should be a representative breakdown of the distribution of those grades used in the IRB approach.

must be included – for example, has the bank experienced higher than average default rates, or higher than average LGD, EAD rates.

2. Banks' estimates against actual outcomes over a longer period.[18] At a minimum, this should include information on estimates of losses against actual losses in each portfolio (as defined above) over a period sufficient to allow for a meaningful assessment of the performance of the internal rating processes for each portfolio.[19] Where appropriate, banks should further decompose this to provide analysis of PD and, for banks on the IRB advanced approach, LGD and EAD outcomes against estimates provided in the quantitative risk assessment disclosures above.[20]

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[18] These disclosures are a way of further informing the reader about the reliability of the information provided in the "quantitative disclosures: risk assessment" over the long run. The disclosures are requirements from yearend-2008; In the meantime, early adoption would be encouraged. The phased implementation is to allow banks sufficient time to build up a longer run of data that will make these disclosures meaningful.

[19] The Committee will not be prescriptive about the period used for this assessment. Upon implementation, it might be expected that banks would provide these disclosures for as long run of data as possible – for example, if banks have 10 years of data, they might choose to disclose the average default rates for each PD grade over that 10-year period.

[20] Banks should provide this further decomposition where it will allow users greater insight into the reliability of the estimates provided in the 'quantitative disclosures: risk assessment'. In particular, banks should provide this information where there are material differences between the PD, LGD or EAD estimates given by banks compared to actual outcomes over the long run. Banks should also provide explanations for such differences.

<u>Operational Risk Disclosures</u>

Banks implementing the A-IRB framework must also adopt the AMA approach to assessing capital for operational risk. Associated disclosures include qualitative disclosures regarding the approach for operational risk capital assessment that the bank qualifies for and a description of the advanced measurement approach used by the bank, including a discussion of relevant internal and external factors considered in the bank's measurement approach.

In addition, quantitative disclosures pertaining to the advanced measurement approach must provide the operational risk charge before and after any reduction in capital resulting from the use of insurance.